



THE BULLETIN OF THE SRI LANKA COLLEGE OF MICROBIOLOGISTS

32nd ANNUAL SCIENTIFIC SESSIONS

UNLOCKING SECRETS OF THE HUMAN MICROBIOME TO COMBAT VIRULENCE AND ANTIMICROBIAL RESISTANCE

23rd - 25th August 2023

Hotel Galadari, Colombo, Sri Lanka

PRE-CONGRESS WORKSHOP

Wound and skin care - teamwork is the key to success

23rd August 2023

Sri Lanka Medical Association, Colombo, Sri Lanka

4 PLENARY LECTURES & 5 SYMPOSIA

with the participation of world's
leading experts

ORAL PRESENTATIONS
POSTER PRESENTATIONS
CASE PRESENTATIONS



The Bulletin of the **Sri Lanka College of Microbiologists**

Volume 21 Issue 1 August 2023 ISSN 1391-930X

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The Sri Lanka College of Microbiologists Council 2022 / 2023



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Absent: Dr. Roshan Jayasuriya, Dr. Dhananjan Namalie

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The Bulletin of the Sri Lanka College of Microbiologists is published annually with the Scientific Sessions of the College.

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Cover page - designed by: Dr. Roshan Jayasuriya

Printed by: Vidyalkankara Press, Kelaniya. Tel: 0716343183



32nd Annual Scientific Sessions

and

Dr. Siri Wickremesinghe Memorial Oration

of the

Sri Lanka College of Microbiologists

23rd to 25th August 2023

Grand Ballroom

Hotel Galadari

Colombo



32nd Annual Scientific Sessions

***“Unlocking secrets of the human microbiome to combat
virulence and antimicrobial resistance”***

Inauguration Ceremony

23rd August 2023 at 6.00 pm

Grand Ballroom

Hotel Galadari

Colombo

Pre-Congress Workshop

“Wound and skin care - teamwork is the key to success”

23rd August 2023

Lionel Memorial Auditorium

Sri Lanka Medical Association, Colombo 07

Scientific Programme

24th and 25th August 2023

Grand Ballroom

Hotel Galadari

Colombo

Message from the Chief Guest



Thank you, Madam President, and the Council of the Sri Lanka College of Microbiologists for inviting me to be the Chief Guest at the inauguration of the 32nd Annual Scientific Sessions of the Sri Lanka College of Microbiologists. As a member of the College, I feel humbled and yet extraordinarily proud and privileged, for your kind invitation.

The Conference theme this year is “Unlocking secrets of the human microbiome to combat virulence and antimicrobial resistance”. This is indeed a visionary theme – but within this theme, I notice that you have included a wide array of current and future concerns in the field of infectious diseases.

Microbes are ever present and ever changing and will continue to present challenges to humans. The study of the human microbiome includes their possibilities of contributing to human well-being through their characterization and positive contributions as well as their potential for playing a role in initiating pathology – well recognized as in several cancers or as yet unknown as in degenerative and other diseases. Raising the profile of the ‘human microbiome’ is very timely and the College must be congratulated on beginning the conversation with College members and others on the role of research and surveillance in increasing our understanding of microbiome interactions with humans.

The College continues to contribute in the management and prevention of infections, both in hospital and community settings, and this continuing contribution is demonstrated by the variety of topics covered in the next two days. I am certain that there will be extensive discussions on

ways and means to improve services in many areas, including expanding the repertoire of diagnostics, controlling inappropriate antimicrobial use, ensuring access to required vaccines, and ways to improve communication with a wide range of stakeholders who are providers or consumers of our services.

The Annual Scientific Sessions of the College brings together medical microbiologists within and outside Sri Lanka, making it a key forum to expand knowledge, share experiences and exchange ideas which could germinate and produce new initiatives to continue our role as stated in the first two objectives of the College which are to

“promote the advancement of Medical Microbiology and propagate information and disseminate knowledge among its members and other groups regarding this subject by means of lectures, demonstrations, discussions, and other such means

AND

“emphasize the importance of Medical Microbiology in Sri Lanka in relation to the control of infectious diseases and advise public and private sector on microbiological problems that may arise in the country and to initiate appropriate action for their resolution”.

As we move to towards a future of great expansion and leaps in advances in health care, we also face difficulties in access to resources, both in personnel and commitment to sufficient funding for progress. In such a milieu, the College has a significant role to play, and I trust that through this conference and all the other activities of the College, you will continue to remain key players in the field of infectious diseases in Sri Lanka. My very best wishes to all who participate in this conference – that you will both engage and be stimulated by what you hear, so that together, you will continue your contributions towards prevention and management of human infections in Sri Lanka and elsewhere.

Professor Vasanthi Thevanesam
Professor Emeritus
University of Peradeniya

Message from the President



As the current President of the College, it is my utmost pleasure and honor to write this message for the Bulletin of the Sri Lanka College of Microbiologists, for our 32nd Annual Scientific Sessions.

Firstly, it is my duty to remember all the senior medical microbiologists that laid a very strong foundation to this profession, since its inception in 1969. Each year we have grown steadily as a College, working primarily to promote the advancement of Microbiology, by providing a platform for research and dissemination of knowledge and skills to both our members, other professions and the public.

I am proud to announce that the current profoundly energetic Council, alongside others, work selflessly to preserve and uplift the profession in keeping with our predecessors' footprints.

The chosen theme for this year's scientific sessions will be ***"Unlocking secrets of the human microbiome to combat virulence and antimicrobial resistance"***. The Council members, senior and junior members of our College have readily offered their time, knowledge, energy and soul to organize these sessions. In keeping with the multidisciplinary nature of the profession, we also have contributions from a multitude of other professional Colleges.

Clinical microbiology has matured into a diverse profession, no longer restricted to just processing specimens and providing results, but also to guiding the clinical collection of specimens, interpretation of results, management of patients, hospital acquired infections, infection control and appropriate selection of antimicrobial agents, all while striving to prevent antimicrobial resistance. The scientific sessions will look to showcase the latest evidence in

clinical microbiology together with our cumulative teams of bacteriology, mycology, virology, parasitology and immunology.

We, the Council, would like to sincerely thank Professor Vasanthi Thevanesam, the Emeritus Professor in Microbiology, Department of Microbiology, Faculty of Medicine, University of Peradeniya for accepting our invitation to be the chief guest at the inauguration ceremony. We are also happy to announce that Professor Enoka Corea will serve as the orator for the Dr. Siri Wickremesinghe oration which will be a combined event with the inauguration ceremony this year.

We extend our thanks to all our guest speakers, both local and overseas, for accepting our invitations to share their knowledge and expertise with us in spite of busy schedules.

Our special thanks to the general membership who gave their valuable support in various national activities we carried out during this tenure with special mention of antibiotic guideline reviewers.

I must also thank the Council and its extremely supportive members who have worked tirelessly to ensure the success of this event, particular mention of the two secretaries, Dr. Chathuri Gunasekera and Dr. Naamal Jayawardena, the editors Dr. Roshan Jayasuriya and Prof. Lakmini Wijesooriya and the two administrative assistants Ms. Priyanga Opatha and Ms. Amanda Jayasooriya. Organizing an event of this magnitude amidst the country's current financial constraints, would not have been possible without the generous contribution of our sponsors. On behalf of the Council of the Sri Lanka College of Microbiologists, I would also like to thank all of them for their valuable contributions.

I hope you enjoy our scientific sessions and find it an opportunity to present, learn, network and grow.

Dr. Rohini Wadanamby

President

Sri Lanka College of Microbiologists

Message from Honorary Joint Secretaries

It gives us great pleasure in welcoming you to the 32nd Annual Scientific Sessions of the Sri Lanka College of Microbiologists. The Annual Scientific Sessions is the centerpiece of academic activities in the College calendar year, and we are excited for you to participate at this year's activities.

The theme for this year is *"Unlocking secrets of the human microbiome to combat virulence and antimicrobial resistance"*. As the world grapples with the threat of multidrug resistant superbugs, more and more prominence is given to alternative methods of tackling these organisms. This year's sessions have attempted to explore that possibility, by giving precedence to the human microbiome.

We have many prestigious local and international speakers who are leaders in the field of microbiology, both locally and internationally, who will grace us with their presence, both in-person and through virtual mode. Additionally, we have many eminent speakers from other specialties, who have kindly accepted our invitation to speak to our membership on their areas of expertise.

Furthermore, this year, we have combined the Dr. Siri Wickremesinghe Memorial Oration with the inauguration ceremony of the 32nd Annual Scientific Sessions. Putting together two and a half days of academic activities is no easy task. We would like to thank everyone who contributed to this mammoth task, in their own special way.

Finally, we hope you will have an enjoyable experience and also utilize this opportunity to widen and update your knowledge in the field of microbiology.



Dr. Chathuri Gunasekera
Honorary Joint Secretary



Dr. Naamal Jayawardena
Honorary Joint Secretary

Inauguration Programme

6.00 pm	Invitees take their seats
6.15 pm	Arrival of the Chief Guest Introduction of members of the Council
6.30 pm	Ceremonial Procession
6.35 pm	National Anthem
6.40 pm	Lighting of the traditional oil lamp
6.50 pm	Welcome Address Dr. Chathuri Gunasekera Honorary Joint Secretary
7.00 pm	Presidential Address by Dr. Rohini Wadanamby
7.20 pm	Introduction of the Chief Guest by the President Dr. Rohini Wadanamby
7.25 pm	Address by the Chief Guest Professor Vasanthi Thevanesam Professor Emeritus University of Peradeniya
7.45 pm	Introduction of the orator and award of Dr. Siri Wickremesinghe Memorial Oration Medal to Professor Enoka Corea
7.55 pm	Dr. Siri Wickremesinghe Memorial Oration 2023 <i>"Melioidosis, Unearthing a Subterranean Infection"</i> Professor Enoka Corea Chair & Professor, Department of Medical Microbiology & Immunology, Faculty of Medicine, University of Colombo
8.35 pm	Awarding of Dr. Siri Wickremesinghe Memorial Scholarship 2023
8.40 pm	Vote of Thanks Dr. Naamal Jayawardena Honorary Joint Secretary
8.50 pm	Musical interlude
9.05 pm	Ceremonial Procession leaves
9.10 pm	Reception

Programme at a glance

Time	24 th August 2023	Time	25 th August 2023
8.00 a.m. – 8.30 a.m.	Registration	8.00 a.m. – 8.30 a.m.	Registration
8.30 a.m. – 9.15 a.m.	Plenary 1 Clinical dilemmas in managing the critically ill septic patient	8.30 a.m. – 9.30 a.m.	Symposium 4 The gut microbiome – current knowledge and future challenges
9.15 a.m. – 09.45 a.m.	Tea	9.30 a.m. – 10.00 a.m.	Tea
09.45 a.m. – 10.45 a.m.	Symposium 1 Clinical decision making for the septic patient – New tools to combat an old foe	10.00 a.m. – 11.00 a.m.	Plenary 3 Future vaccine strategies: Thinking outside the box
10.45 a.m. – 11.45 a.m.	Free paper session – 1		
11.45 a.m. – 12.30 p.m.	Plenary 2 Addressing health issues at human, animal environment interface through One Health Approach		
12.30 p.m. – 1.00 p.m.	Clinical appetizer	11.00 a.m. – 12.45 p.m.	Interactive session on complex case scenarios
1.00 p.m. – 2.00 p.m.	Lunch	12.45 p.m. – 1.45 p.m.	Lunch
2.00 p.m. – 2.45 p.m.	Free paper session – 2	1.45 p.m. – 2.30 p.m.	Plenary 4 Preventing hospital acquired infections: gaps in practice and strategies to overcome
2.45 p.m. – 3.30 p.m.	Symposium 2 Overview on viral meningoencephalitis	2.30 p.m. – 3.30 p.m.	Symposium 5 Combatting invasive fungal infections
3.30 p.m. – 4.15 p.m.	Symposium 3 Responsible and prudent use of antimicrobials	3.30 p.m. – 4.00 p.m.	Award ceremony and close of sessions
4.15 p.m.	End of day one of sessions followed by tea	4.00 p.m.	Tea



32nd Annual Scientific Sessions of the Sri Lanka College of Microbiologists

“Unlocking secrets of the human microbiome to combat virulence and antimicrobial resistance”

**Pre-congress workshop and scientific programme
23rd to 25th August 2023**

Pre-congress workshop: “Wound and skin care - teamwork is the key to success”
23rd August 2023 at the Lionel Memorial Auditorium, Sri Lanka Medical Association, Colombo 7.

Chairpersons – Prof. Jananie Kottahachchi and Dr. Dilini Nakkawita

8.00 a.m. – 8.25 a.m.	Registration
8.25 a.m. – 8.30 a.m.	Welcome address Dr. Rohini Wadanamby President, SLCM
8.30 a.m. – 9.00 a.m.	<i>Antibiotics or Antiseptics: What is best for chronic wound healing?</i> Dr. Mahen Kothalawala Consultant Clinical Microbiologist, National Hospital of Sri Lanka, Colombo, Sri Lanka
9.00 a.m. – 9.30 a.m.	<i>The microbiologist’s role in post-surgical wound management</i> Dr. Dhananjan Namalie Kalubowila Consultant Clinical Microbiologist, Colombo North Teaching Hospital, Ragama, Sri Lanka
9.30 a.m. – 10.00 a.m.	<i>Wound bed preparation for effective wound healing</i> Dr. Thushan Gooneratne Consultant Vascular Surgeon, Department of Surgery, Faculty of Medicine, University of Colombo, Sri Lanka
10.00 a.m. – 10.15 a.m.	Discussion
10.15 a.m. – 10.45 a.m.	Tea break
10.45 a.m. – 11.15 a.m.	<i>The role of the plastic surgeon in wound care</i> Dr. Thushan Beneragama Consultant Plastic Surgeon, Sri Lanka
11.15 a.m. – 11.45 a.m.	<i>Are all ulcers infectious?</i> Dr. Nayani Madarasinghe Consultant Dermatologist, Colombo East Base Hospital, Mulleriyawa, Sri Lanka
11.45 a.m. – 12 noon	Discussion
12 noon	End of the session and lunch

Day 1 - Scientific programme: 24th August 2023

8.00 a.m. – 8.30 a.m.	Registration
8.30 a.m. – 09.15 a.m.	Plenary 1 <i>Chairperson – Dr. Dhammika Vidanagama</i> Clinical dilemmas in managing the critically ill septic patient Dr. Joseph Bednash Assistant Professor of Internal Medicine, Division of Pulmonary, Critical Care and Sleep Medicine, The Ohio State University, Wexner Medical Center, United States of America
9.15 a.m. – 09.45 a.m.	Tea break
09.45 a.m. – 10.45 a.m.	Symposium 1 - Clinical decision making for the septic patient – New tools to combat an old foe <i>Moderators – Dr. Kushlani Jayatilleke and Dr. Samanmalee Gunesekare</i> <i>Assessing the septic patient – An algorithm-based approach</i> Dr. Dilshan Priyankara, Consultant Intensivist, National Hospital of Sri Lanka, Colombo, Sri Lanka <i>Imaging as an adjunct to diagnosing infection</i> Dr. Kishani Abeywardana Consultant Radiologist, National Institute of Infectious Diseases, Sri Lanka <i>Challenges in microbiological diagnosis of sepsis in developing countries</i> Dr. G. I. D. Dushyanthie A. D. Athukorala Consultant in Medical Microbiology, Department of Microbiology University Hospitals of Coventry and Warwickshire NHS Trust, United Kingdom
10.45 a.m. –11.45 a.m.	Free paper session – 1 <i>Chairpersons - Dr. Anusha Sanjeevani and Dr. Vaithehi Rajeevan Francis</i> OP 1 Prevalence and causative pathogens of catheter associated urinary tract infections and compliance of healthcare workers on its preventive strategies in selected intensive care units at a tertiary referral center <i>Kumara JALU¹, Patabendige CGUA¹</i> ¹National Hospital of Sri Lanka, Colombo

OP 2	Bio-burden assessment of indoor air in selected areas of three hospitals in the Central province <i>Paththamperuma PASR¹, Kothalawala M²</i> ¹ Postgraduate Institute of Medicine, University of Colombo, ² National Hospital of Sri Lanka, Colombo
OP 3	Dengue virus inhibitory activity of aqueous extract of <i>Glycyrrhiza glabra</i> roots <i>Jayasekara KG¹, Suresh TS², Goonasekara CL³, Soysa SSSBDP⁴, Jayewardena A⁵, Gunasekera KM⁵</i> ¹ Department of Medical Laboratory Science, Faculty of Allied Health Sciences, University of Ruhuna, ² Department of Biochemistry, Faculty of Medical Sciences, University of Sri Jayewardenepura, ³ Department of Pre-Clinical Sciences, Faculty of Medicine, General Sir John Kotelawala Defence University, ⁴ Department of Biochemistry and Molecular Biology, Faculty of Medicine, University of Colombo, ⁵ Department of Microbiology, Faculty of Medical Sciences, University of Sri Jayewardenepura
OP 4	Fungal rhinosinusitis: a five-year retrospective analysis of data from the Mycology Reference Laboratory <i>Welagedara PGRIS¹, Anand AP¹, Ruzaika RFF¹, Ramanayake RADM¹, Jayasekara PI¹</i> ¹ Department of Mycology, Medical Research Institute, Colombo
11.45 a.m. –12.30 p.m.	Plenary 2 <i>Chairperson - Prof. Hasini Banneheke</i> Addressing health issues at human, animal, environment interface through One Health Approach Dr. Tikiri Wijayathilaka Technical Officer – Antimicrobial Resistance, Sub-Regional Representation for South-East Asia, World Organisation for Animal Health, Bangkok, Thailand
12.30 p. m. – 1.00 p.m.	Clinical appetizer
1.00 p.m. – 2.00 p.m.	Lunch
2.00 p.m. – 2.45 p.m.	Free paper session – 2 <i>Chairpersons – Prof. Nilanthi Dissanayake and Dr. Kishani Dinapala</i> OP 5 Study on bacterial colonization of ureteral stents and bacteriuria in patients at the Urology units, National Hospital of Sri Lanka <i>Bandara KMT¹, Patabendige CGUA¹</i> ¹ National Hospital of Sri Lanka, Colombo

	Highly Specialist Pharmacist in Anti-Infective and Infection Management, St George's University Hospitals NHS Foundation Trust, United Kingdom <i>The role of the multidisciplinary team in antimicrobial stewardship</i> Dr. Samita Majumdar Consultant Microbiologist, University Hospitals of Coventry and Warwickshire NHS Trust, Coventry, United Kingdom
4.15 p.m.	End of day one of sessions followed by tea

Day 2 - Scientific programme: 25th August 2023

8.00 a.m. – 8.30 a.m.	Registration
8.30 a.m. – 9.30 a.m.	Symposium 4 – The gut microbiome – current knowledge and future challenges <i>Moderators – Dr. Sujatha Pathirage and Dr. Dhanushka Dasanayake</i> <i>The gut microbiome in health and disease: an overview</i> Dr. Nilesh Fernandopulle Senior Lecturer, Department of Surgery, Faculty of Medicine, University of Colombo, Sri Lanka <i>Gastroenterologist's perspective on probiotics and prebiotics</i> Prof. Indran B. Indrakrishnan Adjunct Professor of Medicine, Division of Digestive Diseases, Department of Medicine, Emory University School of Medicine Atlanta, Georgia, United States of America <i>Nutrition and gut microbiota: you are what you eat</i> Prof. Ranil Jayawardena Professor in Nutrition, Department of Physiology, Faculty of Medicine, University of Colombo, Sri Lanka
9.30 a.m. – 10.00 a.m.	Tea break
10.00 a.m. – 11.00 a.m.	Plenary 3 <i>Chairperson – Dr. Kanthi Nanayakkara</i> <i>Future vaccine strategies: Thinking outside the box</i> Dr. Namal Liyanage Assistant Professor, Department of Microbial Infection and Immunity, The Ohio State University, College of Medicine, Columbus, United States of America

11.00 a.m. – 12.45 p.m.	Interactive session on complex case scenarios Multidisciplinary teams from National Hospital Kandy, National Cancer Institute and National Institute of Nephrology Dialysis and Transplantation, Sri Lanka
12.45 p.m. – 1.45 p.m.	Lunch
1.45 p.m. – 2.30 p.m.	Plenary 4 <i>Chairperson – Dr. Jayanthi Elwitigala</i> <i>Preventing hospital acquired infections: gaps in practice and strategies to overcome</i> Dr. Geethika Patabendige Consultant Clinical Microbiologist, National Hospital of Sri Lanka, Colombo, Sri Lanka
2.30 p.m. – 3.30 p.m.	Symposium 5 – Combatting invasive fungal infections <i>Moderators – Dr. Primali Jayasekera and Dr. Harshani Thabrew</i> <i>Chronic pulmonary Aspergillosis: current management and future perspectives</i> Prof. David Denning Division of Infection, Immunity & Respiratory Medicine, School of Biological Sciences, Faculty of Biology, Medicine and Health, University of Manchester, United Kingdom <i>Invasive fungal infections in ICU: dilemmas and novel strategies</i> Dr. Tihana Bicanic Consultant in Infectious Diseases, Institute of Infection and Immunity, St George's University of London, United Kingdom
3.30 p.m. – 4.00 p.m.	Award ceremony and close of sessions
4.00 p.m.	Tea

List of e-Posters

Date : 24.08.2023

PP No.	Time: 12.30 p.m. to 12.45 p.m.
PP 1	Degree of adherence of healthcare workers on post-operative infection control practices and its effect on extra ventricular drain associated ventriculitis and meningitis at the Neurosurgery unit at the National Hospital of Sri Lanka <i>Purnima SMD¹, Patabendige CGUA¹</i> ¹National Hospital of Sri Lanka, Colombo 07
PP 2	Prevalence of Asymptomatic Bacteriuria among Pregnant Women Presenting to Antenatal Clinics of a Tertiary Care Setting in the Northwestern Province of Sri Lanka. <i>Bandara PKBKM¹, Jayaweera HPS¹, Perera RWRD¹, Ranasingha HPRK¹, Wijeweera KS¹, Dayarathne SSLJB¹, Rathnayaka RAAK³, Dinapala SK², Perera AJ¹</i> ¹Department of Microbiology, Faculty of Medicine, Wayamba University of Sri Lanka, ²Teaching Hospital, Kuliapitiya, ³Faculty of Science, University of Peradeniya
PP 3	Utility of <i>Burkholderia pseudomallei</i> antibodies in a hospitalized acute febrile illness cohort <i>Rockwood N¹, Kariyawasam K¹, Liyanage LDAC¹, Senavirathne SMP¹, Polgampola PRSD¹, Senanayake DDH¹, Peiris BAD¹, Jagoda RW¹, Perera DDPC¹, Sutharson R², Wijesundara D³, Somarathne D³, Liyanage IA³, Bandara P², Kudagammana W⁴, Corea EM¹</i> ¹Department of Medical Microbiology and Immunology, Faculty of Medicine, University of Colombo, ²District General Hospital Kalutara, ³District General Hospital Nawalapitiya, ⁴Department of Microbiology, Faculty of Medicine, University of Peradeniya
PP 4	Pilot study to detect the prevalence of congenital cytomegalovirus infection among neonates born at a specialized maternity hospital in Colombo <i>Herath HMML¹, Janage NS¹</i> ¹Medical Research Institute, Colombo
PP 5	A retrospective review of hepatitis E (HE) cases in South Hampshire, UK during 2016-2021 <i>Samaraweera B¹, Mahanama AIK¹, Silveira S¹, Browning D¹, Labdon C¹, Pelosi E¹</i> ¹Southampton Specialist Virology Centre, University Hospital Southampton, Southampton, United Kingdom
	Time: 12.45 p.m. to 1.00 p.m.
PP 6	Bacterial agents causing urinary tract infections in children undergoing clean intermittent catheterization and the antibiotic susceptibility pattern at a tertiary care hospital <i>Mendis DM¹, Gunasekara WDVN², Senavirathne SMP¹, Senanayake NP¹</i> ¹Department of Medical Microbiology and Immunology, Faculty of Medicine,

	University of Colombo, Sri Lanka, ² Lady Ridgeway Hospital for Children, Borella, Sri Lanka
PP 7	Revisiting the clinical features of primary Cytomegalovirus (CMV) infection in immunocompetent individuals. <i>Mahanama AIK¹, Samaraweera B², Browning D³, Pelosi E³</i> ¹ Department of Virology, Teaching Hospital, Anuradhapura, ²Department of Virology, Teaching Hospital, Karapitiya, ³ Southampton Specialist Virology Centre, University Hospital Southampton, NHS Foundation Trust
PP 8	A Preliminary study to detect West Nile Virus (WNV), Hepatitis E Virus (HEV) and Human Herpes 6 Virus (HHV-6) viraemia among blood donors at the National Blood Centre, Sri Lanka <i>Mahanama AIK¹, Fernando MAY², Samaraweera B³, Venughoban K⁴, Jayasekara S⁴, Abeynayake JI²</i> ¹Department of Virology, Teaching Hospital, Anuradhapura, ²Department of Virology, Medical Research Institute, Colombo, ³Department of Virology, Teaching Hospital, Karapitiya, ⁴National Blood Centre, Narahenpita
PP 9	Clinical presentation, underlying comorbidities, resistance patterns and outcome of Group A Streptococcus bacteraemia in a tertiary care centre, Sri Lanka <i>Piyasiri DLB¹, Dias KMGHH¹, Silva SCUM¹, Galhenage MN¹, IKA Jayanath¹, Thewarapperuma CN¹, Nanayakkara IRS¹</i> ¹Teaching Hospital, Karapitiya
	Time: 1.00 p.m. to 1.15 p.m.
PP 10	Antibiotic consumption in surgical wards: a single-centered study in a District General Hospital, Southern Province <i>Wijeweera KDDS¹, Priyanthi AAD², Anuruddha HAP², Hewapathirana VN², Heshani NKC²</i> <i>Karunaratne NP², Niroshana HRP²</i> ¹ Faculty of Medicine, University of Ruhuna, ² District General Hospital, Matara
PP 11	Surgical antibiotic prophylaxis in a District General Hospital: A Point Prevalence Survey <i>Wijeweera KDDS¹, Priyanthi AAD², HAP Anuruddha², Hewapathirana VN², Heshani NKC², Karunaratne NP², HRP Niroshana²</i> ¹ Faculty of Medicine, University of Ruhuna, ²District General Hospital, Matara
PP 12	Investigation of an outbreak of blood stream infection in a neonatal intensive-care unit of a teaching hospital in Sri Lanka <i>Ranasinghe RATK¹, Lenora RTD¹, Jayasundara GMAK¹, Kularathna PRK¹, Karunanayake L²</i> ¹De Soysa Maternity Hospital, Colombo ² Medical Research Institute, Colombo
PP 13	An audit on the use of pre-operative antibiotic prophylaxis in a base hospital <i>Ranasinghe RATK¹, Rajapaksha SS¹, Mambula MDLT¹</i> ¹ Base Hospital, Homagama

List of guest speakers

Dr. Mahen Kothalawala

Consultant Clinical Microbiologist
The National Hospital of Sri Lanka
Colombo 10
Sri Lanka



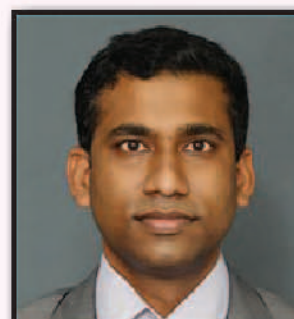
Dr. Dhananja Namalie Kalubowila

Consultant Clinical Microbiologist
Colombo North Teaching Hospital
Ragama
Sri Lanka



Dr. Thushan Gooneratne

Consultant Vascular Surgeon
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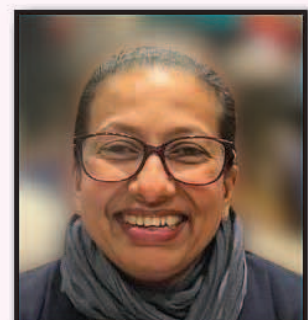
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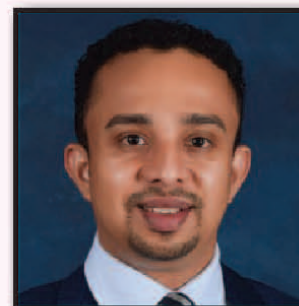
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Abstracts of the pre-congress, plenary lectures and symposia

Pre-congress Presentations

Antibiotics or Antiseptics: What is best for chronic wound healing?

Dr. Mahen Kothalawala

Chronic wounds pose a substantial challenge in the wound healing process, primarily due to the interplay of intrinsic and extrinsic factors. These factors encompass a range of issues, such as comorbidities, the presence of foreign bodies, necrotic tissue, and a diverse group of microbes. The role of microorganisms in hindering wound healing is of particular concern, and they are classified along the wound infection continuum as contaminants, colonizers, or local/systemic pathogens. Additionally, these microbes can exist in planktonic or biofilm form, each displaying varying susceptibilities to antibiotics and antiseptics.

The detrimental impact of these microorganisms on wound bed oxygen tension is widely recognized, further impeding the healing process. Although attempts have been made to combat bacteria using antibiotics or antiseptics to alter the bacterial flora in chronic wounds, the intricate nature of microbial interactions has limited the success of such interventions.

As a result, wound care practitioners adopt a current multimodal strategy that aims to address all contributing factors comprehensively, while also prudently employing antibiotics and antiseptics when necessary. However, it is crucial to acknowledge that the effectiveness of antibiotics and antiseptics alone may be constrained if other factors influencing lower oxygen tension in the wound bed are not

adequately controlled.

In conclusion, the management of chronic wound healing remains a complex and multifaceted challenge, predominantly due to the presence of diverse microbes and their intricate interactions with the wound environment. While antibiotics and antiseptics certainly have a role in wound care, achieving successful wound healing necessitates a comprehensive approach that addresses all contributing factors in a coordinated manner.

The microbiologist's role in post-surgical wound management

Dr. Dhananja Namalie Kalubowila

Surgical site infection (SSI) is the most common Health Care Associated Infection (HAI) in low- and middle-income countries and second most common HAI in developed countries. A patient with a SSI is two times more likely to spend time in intensive care unit and two times more likely to die after surgery which is 12 times more when infected with a Methicillin Resistant *Staphylococcus aureus* (MRSA). Therefore, microbiologist have an important role in preventing SSI by making sure the all-team members are adhering to standard infection control and prevention protocols during pre-operative period, intra-operative period as well as post-operatively.

The risk of a surgical site infection varies depending on the type of wound which can be clean, clean contaminated, contaminated or dirty and ASA status. Early identification of surgical wound infection is important which is characterized by erythema, tenderness, swelling, warmth, pain and purulent

discharge as well as rare cases of necrotizing fasciitis which can lead to sepsis with high mortality. Guidance from microbiologist should be available for collecting appropriate specimens and deciding when the patient needs antibiotics to prevent unnecessary antibiotic usage.

Having a robust surveillance programme in place should be an essential component of hospital IPC programme. This will enable sharing data with the surgical teams, early identification of outbreaks and monitoring the adequacy and effectiveness of infection control and prevention measures in health care facilities.

Are all ulcers infectious?

Dr. Nayani Madarasinghe

Ulcer is a break in skin or mucous membrane with loss of surface tissue, disintegration and necrosis of epithelial tissue. The causes of ulcers are multifactorial. It could be genetic, inflammatory, infective, neoplastic, or autoimmune. However, in many instances ulcers are inadvertently treated with antibiotics with only an infective cause in mind.

This lecture focuses to describe the many non-infective causes of ulceration, both the common and the rare.

Plenary Presentation 1

Clinical dilemmas in managing the critically ill septic patient

Dr. Joseph Bednash

Sepsis and the acute respiratory distress syndrome (ARDS) are common and deadly critical illness syndromes. Worldwide, there

are more than 48 million cases of sepsis and a 40% mortality rate in patients with septic shock. ARDS accounts for ~10% of ICU admissions and leads to death in 30 – 50% of cases. Among survivors, more than 50% are left with long-term disabilities, primarily cognitive impairment, psychological derangements, and physical debility. Critical illness syndromes are notoriously heterogeneous, and clinicians do not agree on definitions, diagnosis, or appropriate treatment. The various clinical presentations of sepsis and ARDS are complicated by differing pathogens, host response, resistance, clinical manifestations, end-organ damage, and outcomes. Here we will discuss clinical dilemmas in management of critically ill patients, including focus on etiologic pathogens, variable host response, and efforts towards individualized diagnosis and treatment.

Plenary Presentation 2

Addressing health issues at human, animal, environment interface through One Health Approach

Dr. Tikiri Wijayathilaka

One Health is defined as an integrated, unifying approach that aims to sustainably balance and optimize the health of humans, animals, plants and ecosystems. It recognizes the health of humans, animals, ecosystems are closely linked and interdependent. Infectious diseases are among the most significant health threats that world faces today. In low-income countries, infectious diseases account for more than 60% of the disease burden in both human and animal. More than 60% of emerging human diseases are zoonotic and about 70% of them originated in wildlife. The complexity and

interconnectedness of health threats of human, animal and ecosystem requires integrated and holistic solutions. Although warnings of emerging pandemics have been there for many years, the COVID-19 crisis has reinforced the urgent requirement for an integrated, One Health approach to pandemic prevention. The OH Joint Plan of Action encompasses this global vision to further strengthen a comprehensive One Health approach required for successful implementation OH concept at all levels. The OH JPA is structured around six action tracks for addressing main health threats at the human–animal and ecosystem interface that require a One Health approach. One Health High Level Expert Panel (OHHLEP) was established in 2021 by the Quadripartite to provide technical advice and guidance on the complex and multisectoral issues arising at the interface of human, animal, and ecosystem health. In addition, Tripartite Zoonotic Guide (TZG) provides necessary tools for the countries to implement the process.

Plenary Presentation 3

Future vaccine strategies: thinking outside the box

Dr. Namal Liyanage

In the realm of vaccine development, significant progress has been achieved, leading to the prevention of numerous diseases and the preservation of countless lives. Nevertheless, the present-day challenges compel us to adopt innovative perspectives and inventive resolutions. The need for novel approaches becomes evident as we strive to push the frontiers of scientific innovation and delve into unexplored

domains to construct vaccine strategies that are simultaneously effective and sustainable. Conventional vaccines conventionally rely on the use of weakened or inactivated pathogens to initiate an immune response. Although efficacious, this method is burdened by time-intensive manufacturing procedures and potential safety apprehensions. To overcome these limitations, there is a growing embrace of state-of-the-art technologies such as recombinant DNA, mRNA, viral vector-based vaccines, and virus-like particles. These emerging technologies offer the prospect of creating vaccines that exhibit enhanced safety profiles, heightened efficiency, and the ability to induce robust immune reactions. By leveraging these cutting-edge methodologies, we can envision a future wherein a broader array of diseases can be effectively averted. This transition towards innovative approaches accelerates the vaccine development process and augments our ability to combat existing and future health challenges more adeptly. While the strides in vaccine development are commendable, our present circumstances demand a departure from conventionality. By exploring uncharted scientific territories and capitalizing on breakthrough technologies, we stand poised to revolutionize the field of vaccines. Through this transformation, we can aspire to offer enhanced protection against an expanded spectrum of diseases while simultaneously streamlining the production and administration of these critical interventions.

Plenary Presentation 4

Preventing hospital acquired infections: gaps in practice and strategies to overcome

Dr. Geethika Patabendige

Healthcare - associated infections (HAIs) are a major source of morbidity and mortality and are the second most prevalent cause of death globally. Multidrug resistant pathogens causing difficult to treat infections are on the rise further complicating the issue. A considerable proportion of HAIs are preventable through well designed policy, proper planning and implementing effective infection prevention and control measures.

However, prevention and control of HAIs is complicated, and a multidimensional approach and strategies are required to address this significant health concern.

World Health Organization (WHO) has launched its first ever global report on Infection prevention and control (IPC) in May 2022. It has revealed that good IPC programmes can prevent 70% of HAIs. WHO has requested all countries to increase their investment in IPC programmes to ensure quality of care and patient and healthcare worker (HCW) safety.

Minimum requirements for IPC programmes have been published by the WHO and are defined as IPC standards that should be in place at the national and facility level to provide minimum protection and safety to patients, HCWs and visitors, based on the WHO core components for IPC programmes.

When considering the above, many challenges and gaps are encountered in many healthcare facilities globally and locally such

as establishing well organized programmes, effective implementation of guidelines, regular well-organized education and training, effective surveillance programmes with timely feedback, successful implementation of multimodal strategies, monitoring of IPC programmes, handling workload effectively and having adequate staffing levels. Overcoming the gaps can be expected through improvement in governance structure, allocation of adequate funds, prioritizing the IPC needs, organized procurement, introducing technologies following careful assessment, providing regular training opportunities to relevant staff, building hygienic environment and water, sanitation, and hygiene (WASH) infrastructure, adequate staffing and bed occupancy through optimized discharge policy and other strategies.

Symposium 1

Assessing the septic patient – An algorithm-based approach

Dr. Dilshan Priyankara

Severe sepsis and septic shock are still the leading causes of death in intensive care units. Timely diagnosis is crucial for treatment outcomes. Despite current initiatives aimed to improve sepsis awareness and early treatment, patient outcomes still depend upon the performance of accurate interventions which in turn rely on practical aspects surrounding the time of presentation of patients. Furthermore, catastrophic consequences still exist because of lack of sepsis awareness and systemic errors even within experienced health care institutions where presiding training programs promoting early sepsis diagnosis and management protocols are being encouraged at the same

time. Noteworthy, training programs directed to improve awareness of sepsis are not sufficient to obtain palpable results. In recent years, high-quality evidence has demonstrated protocolized care for early resuscitation in sepsis to be the recommended approach not only aimed to reduce deaths, but also to prevent systemic errors and their overall individual, social and health care system consequences.

Imaging as an adjunct to diagnosing infection

Dr. Kishani Abeywardana

There is an increasing public health concern regarding rising morbidity and mortality from infectious diseases. This is fast becoming a pressing problem due to the rise of multidrug resistance and the emergence of health care associated infections. Therefore, despite the identification of new antimicrobial agents, there is increasing necessity for early diagnosis of disease for successful treatment.

Early diagnosis however, can be challenging at times. Apart from clinical history, physical examination and laboratory investigations, radiological imaging plays a pivotal role in assisting early diagnosis. Imaging studies are frequently used to support the diagnosis of infection in acutely ill patients and can be used from Emergency department to ICU.

Structural imaging techniques such as plain X-ray, Ultrasound, CT and MRI can often be used to assist in visualization of infectious pathophysiology. These can be effective tools for identifying the source of an infection as early as in the emergency department. These methods can establish the presence of abnormal tissue or fluid collections that often accompany bacterial infections and also

assists in image guided interventions.

Nuclear medicine techniques such as SPECT and PET are types of molecular imaging where biochemical and physiologic abnormalities can be investigated. These add complementary information and can be used as an adjunct especially for equivocal cases or for those in which tissue sampling is difficult. The diagnostic accuracy of SPECT and PET is further enhanced when nuclear imaging is combined with structural modalities to help diagnose sites of infectious pathology with higher resolution.

Challenges in microbiological diagnosis of sepsis in developing countries

Dr. G. I. D. Dushyanthie A. D. Athukorala

Sepsis is a life-threatening organ dysfunction due to dysregulated host response to infection. Prompt diagnosis and early treatment is paramount in saving affected. Though health-care professionals are meant to always 'think sepsis', in resource-constrained settings, reliability of it is not 100%. Microbiological diagnosis of sepsis is crucial for targeted treatment. Early microbiological confirmation helps escalation and de-escalation of antibiotics.

In developing countries, access to continued resources for early diagnosis of sepsis is a major challenge: even the most commonly used blood cultures for identification of pathogens associated in sepsis are rationed among the wards in healthcare facilities. Furthermore, facilities for automated system of blood cultures are not widely available delaying the notification of preliminary positive blood culture results. The lack of availability of equipment and infrastructure

used for rapid microbiological confirmation of pathogenic organisms due to unbearable financial burden delays the targeted treatment to patients, risking their lives.

Poor infrastructure in different areas of the country leave the healthcare providers isolated and not having access to the most updated guidelines and resources. Inequal distribution of resources including space, human forces and equipment give a disproportionate provision of services for different parts of the country.

Lack of insight of the impact of surveillance on development of antimicrobial guidelines is another commonly encountered challenge which partly relies on the unavailability of resources. Finally, the efflux of intelligence due to socio-economic crisis in countries make those countries vulnerable due to lack of qualified healthcare workers who has ability to help in diagnosis and confirmation of sepsis.

Symposium 2

Central Nervous System infections of viral origin and diagnostic challenges in Sri Lanka

Dr. Janaki Abeynayake

Viral infections of the central nervous system (CNS) include meningitis, encephalitis, and myelitis. Viral meningitis dominates these infections while encephalitis and myelitis being much less common.

Aetiology shows geographic differences due to variations in the vector/reservoir distribution. Emerging and re-emerging viruses with novel neuropathogenicity alter the distribution of CNS diseases globally.

Enteroviruses are most involved in viral meningitis in Western/South Asian countries. Herpes simplex 1/2 and varicella zoster virus are important for viral meningitis and encephalitis worldwide. Immunization for polio, measles, mumps, and rubella has diminished these viruses as encephalitic agents. Viruses such as West Nile virus (WNV), Japanese B encephalitis virus, and other arthropod-borne viruses from the toga- and bunya-virus families, along with rabies, emphasize the importance of knowing the patient's travel history and the viral epidemiology indifferent geographies. Acute stage laboratory investigations include detection of viral antigens, virus isolation in cell culture which is time consuming and laborious and detection of viral nucleic acids using rapid, highly sensitive/specific, accurate PCR assays, though more costly with specialised equipment/reagents, and expertise. Detection of viral antibodies using immunoassays are highly dependent on the disease progression, where antibodies may be undetectable during early window period.

A wide range of viral agents elicit various neurological manifestations through different pathogenic mechanisms. Combined analysis of PCR and immunoassays showed a greater comprehensiveness considering the different stages of the disease.

Viral infections of the Central Nervous System (CNS), the experience of a large teaching hospital in the Southeast of England

Dr. Emanuela Pelosi

Viral pathogens are frequent causes of CNS infections, with variations in the incidence of individual diseases depending on the host immune status and local epidemiological

characteristics. The availability of relevant diagnostic panels, together with the timely performance of diagnostic investigations, are key requirements for the effective clinical management of affected patients.

The Southampton Specialist Virology Centre is part of University Hospital Southampton, a large teaching hospital that provides specialist services, including neurosciences and infectious diseases, to more than 3.5 million people living in central southern England. Our diagnostic service analyses daily between 10 and 15 cerebrospinal fluid (CSF) samples, collected from adults and paediatric patients admitted with the clinical suspicion of a CNS disease and generates results within 24 hours.

Our standard viral diagnostic panel includes herpes simplex virus (HSV) type-1 and 2, varicella-zoster virus, enteroviruses and parechoviruses. Additional targets, such as John Cunningham virus (JCV), human herpes virus 6 (HHV-6), measles virus and cytomegalovirus, are analysed for the cohort of immunocompromised hosts, that includes allogeneic haematopoietic stem cell transplant recipients and patients on treatment with biologics.

While the most common viral CNS infections in our region are caused by HSV and enteroviruses, recently we have witnessed an increased incidence of diseases caused by pathogens that typically affect immunocompromised patients, including JCV, measles virus, cytomegalovirus and HHV-6. We discuss the clinical features, the diagnostic challenges and the management options of some of these clinical cases, aiming to share relevant information that might be helpful in other centres.

Symposium 3

The role of the multidisciplinary team in antimicrobial stewardship

Dr. Samita Majumdar

Development of antibiotic since the 1940s has been critical in management of infectious diseases. However, in the 21st century, we are facing the problem of escalating antimicrobial resistance (AMR) due to inappropriate use of antibiotics in both human and animal health, increasingly difficult to treat infections and slowed development of new antibiotics.

AMR has been recognised in WHO's Global action plan in 2015 as a global threat to public health causing 70.000 global deaths /year, estimated to rise to 10 million by 2050. Different antimicrobial stewardship programme (ASP) have been adopted to combat AMR; various studies have shown the positive impact of ASP multidisciplinary team (MDT) approach escalating interventions causing improvements.

OP 1

Prevalence and causative pathogens of catheter associated urinary tract infections and compliance of healthcare workers on its preventive strategies in selected intensive care units at a tertiary referral center

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Introduction

Catheter associated urinary tract infection (CAUTI) is a common cause of health care associated infections worldwide. Surveillance on rate of CAUTI with the prevention strategies would be important for the improvement of patient care quality.

Objectives

Assess the prevalence and causative pathogens of CAUTI and compliance of healthcare workers on its preventive strategies in selected intensive care units (ICU) at a tertiary referral center.

Design, setting and methods

A descriptive cross-sectional study was conducted in the selected ICUs (Medical ICU and Neurology ICU) at National Hospital of Sri Lanka from December 2021 to March 2022 with 146 patients admitted to the ICUs and stayed >48 hours. Urine (catheter samples/mid-stream urine) cultures were collected according to the Centers for Disease Control and Prevention (CDC/NHSN) criteria. Urine specimens were processed according to the standard methods and identification of the pathogens and antibiotic sensitivity were performed by the automated identification

system (BD Phoenix™). Compliance of the CAUTI prevention strategies of healthcare workers (doctors, nurses and supportive staff) were observed using a checklist adapted from National Services Scotland (NHS) bundle care checklist.

Results

Average CAUTI rate for the study period in selected ICUs was 7.34 per 1000 urethral catheter (UC) days and UC utilization rate was 0.95. Since the strategies were not introduced in our study, calculated only the CAUTI rate for each month during the study and noticed, a reduction from 7.9 to 1.8 per 1000 UC days (from December 2021 to March 2022). There was a statistically significant association with the compliance for CAUTI prevention strategies ("all or none method") with the reported CAUTI rate with *p* value of 0.03. The main reason for the non-adherence for the prevention strategies was reported as heavy workload. Common pathogens isolated in the patients with CAUTI were *Escherichia coli* (25%) and *Enterococcus faecium* (25%). Among Gram-negative pathogens, 75% were multi-drug resistant.

Conclusion

Improving the compliance rate for UC associated infection prevention strategies would have a positive impact in reducing the CAUTI rate. Proper infection prevention control strategies are paramount for improving patient care quality in hospitals.

OP 2

Bio-burden assessment of indoor air in selected areas of three hospitals in the Central Province

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Introduction

Healthcare associated infections (HCIs) impose a great threat to global health. The hospital environment plays a major role in HCIs. It is estimated that 10-30% of HCIs are transmitted via microorganisms suspended in the hospital air.

Objective

This study aimed to assess the bioburden of indoor air in selected areas of three hospitals in the Central province.

Design, setting and methods

A descriptive cross-sectional study was carried out in selected six intensive care units (ICU) and six operation theatres (OT) of three hospitals in the Central province from 25th of May 2021 to 24th of September 2021.

Air samples were collected using microbial impact air sampler (Spin Air) on to blood and MRSA chrome agar plates. Air samples were collected during the visiting hour (12.00 – 1.00 p.m.) and evening hour (2.00 – 3.00 p.m.) in the ICUs and during off hours and working hours in the OTs. After 48 hours of incubation at 35-37°C in air, manual colony count per each plate was taken and identification of bacterial isolates was performed using conventional biochemical methods and the automated identification system VITEK® 2. Antibiotic susceptibility was

performed on *Staphylococcus aureus* isolates using disc diffusion method in CLSI 31st edition of performance standards for antimicrobial susceptibility testing (M 100).

Results

Mean total airborne bacterial and or fungal colony count at theatres during off hours was 113.33 ± 63.22 CFU/m³ and during use was 167.06 ± 73.16 CFU/m³. The mean total airborne bacterial and or fungal colony counts in ICUs from 12-1 p.m. was 133.06 ± 51.50 CFU/m³ and from 2-3 p.m. was 127.41 ± 31 CFU/m³.

Gram positive cocci (GPC) accounted for 85% of the microorganism of the indoor air in the theatres with 10% of Gram-negative organisms. GPCs (84%) were the predominant microorganism of indoor air in the ICUs and Gram-negative bacteria accounted for 5% of the microorganisms.

Prevalence of airborne *S. aureus* was 11.8% and all were sensitive to ceftazidime, rifampicin and linezolid.

Conclusion

Results of this study showed significant microbial air contamination in the ICUs and OTs. Thus, regular microbiological surveillance and management of suspended bioburden is important in prevention of HCIs which could originate from airborne route.

OP 3

Dengue virus inhibitory activity of aqueous extract of *Glycyrrhiza glabra* roots

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Introduction

There is no specific antiviral agent for dengue. Aqueous extract of *Glycyrrhiza glabra* root (GGaq) was tested for anti-dengue activity. At the initiation of the present study there were no publications on anti-dengue viral effects of GGaq on four dengue serotypes (DV1-4). However, Glycyrrhizin, a phytochemical found in GG has been studied previously for DV1, DV2 and DV4 and was active at high concentrations.

Objective

Study aimed to determine inhibitory activity of GGaq against four dengue serotypes in

mammalian cells, using Vero cells. Dengue non-structural protein-1 (NS1) inhibition, in DV1 infected peripheral blood mononuclear cells (PBMC) was investigated.

Design, setting and methods

Traditional decoction of GGaq was prepared by reducing eight volumes to one volume. Cytotoxicity was investigated using 4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide assay and 50% cytotoxic concentration (CC₅₀) was calculated.

Plaque reduction antiviral assay was used to test the inhibitory activity of GGaq/fractions on dengue infection. Half maximal inhibitory concentration (IC₅₀) was determined and the selectivity index (SI) calculated as the ratio of CC₅₀/IC₅₀. Chloroquine diphosphate (CQ) was the control drug.

GGaq was fractionated using preparatory thin layer chromatography to extract fractions E and F. Supernatants collected from GGaq treated (1 and 10 µg/ml)/untreated PBMCs infected with DV1 were tested for NS1 levels using a commercial kit and compared via Student t-test. GraphPad Prism software was used for statistical analysis.

Results

Maximum non-toxic dose (MNTD) and CC₅₀ of GGaq was 166.64 µg/ml and 651.9 µg/ml respectively in Vero cells. DV1-4 was significantly inhibited by GGaq at MNTD, giving 98-100% inhibition of plaques.

Plant/drug	IC ₅₀ (µg/ml) ± SEM				SI (CC ₅₀ /IC ₅₀)			
	DV1	DV2	DV3	DV4	DV1	DV2	DV3	DV4
GG	49.66±7.55	40.57±6.08	42.27±2.19	20.12±1.56	13.12	16.06	52.44	32.40
CQ	2.48±0.12	7.98±1.06	2.41±0.13	NI	6.86	2.13	7.06	NI

NI: No inhibition

Fraction E and F SI were >10 for only DV4. A significant reduction ($p<0.05$) in the NS1 ratio was seen when treated with GGaq 1 µg/ml compared to untreated PBMCs. Fraction E and F not tested for effects on NS1 levels as those were less efficient than GGaq.

Conclusions

SI >10 for DV1-4 indicates GGaq has potential as an anti-dengue agent. $CC_{50} >500$ µg/ml denotes low cytotoxicity. Significant inhibition of NS1 levels supports anti-dengue activity of GGaq.

Acknowledgement

"Financial assistance by University of Sri Jayewardenepura for research grants ASP/01/RE/MED/2015/42, 001/2018 and General Sir John Kotelawala Defence University for research grant KDU/ RG/ 2020/ FOM/ 005 are acknowledged"

OP 4

Fungal rhinosinusitis: a five-year retrospective analysis of data from the Mycology Reference Laboratory

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Introduction

Fungal rhinosinusitis is caused by the inhalation of airborne fungal spores into the paranasal sinuses. Sinus tissue specimens collected via nasal endoscopy are sent to the Mycology Reference Laboratory for the diagnosis of suspected cases. Direct microscopy and culture are performed with these tissues and all the positive results are reported to the clinicians as soon as possible.

The diagnosis was confirmed considering the clinical features, risk factors, radiological evidence, and histopathological evidence.

Objectives

The objectives were to analyze the demographic characteristics of patients with fungal sinusitis, to find out the predominant fungi causing sinusitis in Sri Lanka and identify the role of direct microscopy and culture in diagnosing fungal sinusitis.

Design, setting and methods

The details of sinus tissue specimens received at the Mycology Reference Laboratory from 2018 to 2022 were explored, and patients with laboratory-confirmed fungal sinusitis were selected. The diagnosis was established by either positive direct microscopy or positive culture, or both. Patients' demographic data (age and gender) and laboratory results were extracted from the request forms and entered into SPSS version 22, and data were analyzed.

Results

Out of 2943 sinus tissue specimens received by the laboratory, 1532 (52%) became positive for fungi. Among them, 50% of specimens became positive only in direct microscopy, whereas culture was diagnostic in 13%. Both direct microscopy and culture were positive in 37% of the specimens. The number of patients diagnosed was 1230 since multiple specimens had been received from the same patients. Mean age of the patients confirmed with fungal sinusitis was 55 years. Females comprised the majority (59%). Mucormycosis was diagnosed in 384 patients (31%), and 488 (40%) of the patients had Aspergillosis. Other filamentous fungi, such as *Fusarium* sp. and *Scedosporium* sp., accounted for 25% of the patients. *Candida* sp. were grown in 4% of specimens. Since it

represents colonizing flora and were not analyzed as fungal sinusitis.

Conclusions

The two most common fungi causing rhinosinusitis in Sri Lanka are Mucorales and *Aspergillus* species. Direct microscopy plays a major role in the laboratory diagnosis of fungal sinusitis in Sri Lanka.

OP 5

Study on bacterial colonization of ureteral stents and bacteriuria in patients at the urology units, National Hospital of Sri Lanka

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Introduction

Indwelling ureteral stents, like any other bio-prosthetic material, are prone to get colonized by microorganisms causing infectious complications. Management of those complications will be facilitated with knowledge on stent colonization and bacteriuria in a particular institute.

Objectives

Determine the prevalence of ureteral stent colonization and bacteriuria, along with the common colonizing bacteria and their antibiotic susceptibility patterns, and to assess the predictive value of urine culture to determine stent colonization.

Design, setting and methods

A descriptive study was carried out in the Urology units, National Hospital of Sri Lanka, over a period of 4 months. One hundred patients without any evidence of infection, who were admitted for routine ureteral stent

removal procedure were recruited. A urine sample was collected before the procedure and proximal 2-3cm size segment of ureteral stent was collected aseptically once it was removed. Both samples were processed according to standard operating procedures.

Results

Out of 100 patients, 65% had colonized ureteral stents while bacteriuria was detected in only 17% patients. Sensitivity of urine culture to detect stent colonization was only 26.2%. Positive and negative predictive values were 1 and 0.42 respectively. Majority of the stent colonizers were Gram negative organisms, *Escherichia coli* (27.69%) and *Pseudomonas aeruginosa* (24.61%) being the commonest. Similarly, *E. coli* (41.2%) and *P. aeruginosa* (29.4%) were the commonest organisms causing bacteriuria. Gram-negative stent colonizers have shown a high susceptibility rate for aminoglycosides, carbapenems and piperacillin-tazobactam. Additionally, *P. aeruginosa* isolates have shown a high susceptibility rate for ceftazidime and fluoroquinolones. All the Gram-positive cocci isolated from stent cultures were 100% sensitive to vancomycin, teicoplanin and linezolid.

Conclusions

Patients with indwelling ureteral stents are at high risk of stent colonization. The predictive value of urine culture to identify stent colonization is low. Hence, culturing the stent if it is removed for therapeutic purposes might be a beneficial option for patients with urosepsis. Based on outcomes of this study, it would be reasonable to use an antibiotic with anti-pseudomonal cover for such individuals, as empirical antibiotic therapy.

Comparison of post vaccination loss of antibodies against SARS-CoV-2 Receptor Binding Domain (RBD) and anti-Spike non-neutralising antibodies in immunocompromised patients and immunocompetent individuals.

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Introduction

SARS-CoV-2 neutralising antibodies (nAbs), primarily (90%) elicited by RBD epitopes, confer protection from infection and severe disease. We compared post-vaccination IgG dynamics in immunocompetent and immunocompromised individuals by using two different antibody assays, one targeting the entire spike protein (DiaSorin LIAISON-XL® SARS-CoV-2 Trimeric S-IgG) and the other one the RBD only (Menarini eCL8000 SARS-COV-2 RBD-IgG).

Objectives

To compare the loss of post-vaccination SARS-CoV-2 anti-RBD IgG and Trimeric-S-IgG in immunocompromised and immunocompetent individuals and to determine which antibody specific assay is better suited to assess the post-vaccination IgG response among these two categories of individuals.

Design, setting and methods

220 serum samples, collected from different individuals between 1 and 8 months after the 2nd dose of Pfizer-BioNTech SARS-CoV-2 vaccine, were tested in parallel by SARS-CoV-2 Trimeric S-IgG and RBD-IgG assays over a period of 8 months in 2021. Study included 63 haemopoietic stem cell transplant recipients (HSCT), 56 patients with haematological malignancies and 101 immunocompetent health care workers. None had a prior history of SARS-CoV-2 natural infection. Both assays are quantitative and were calibrated against the WHO standards.

Results

The positive agreement between SARS-CoV-2 Trimeric S-IgG and RBD-IgG assays was 97% for immunocompetent individuals, 71.5% for HSCT recipients and 21.5% for haematological malignancies.

Overtime, SARS-CoV-2 IgG became undetectable by anti-RBD sooner than by Trimeric assay in immunocompromised, but not in immunocompetent individuals (P value 0.014 for HSCT recipients and 0.0003 for haematological malignancies).

Conclusion

Determining the presence of SARS-CoV-2 nAbs is of significant clinical importance since their presence is highly predictive of immune protection from severe infection. Our results shows that an anti-RBD antibody assay is more suitable for immunocompromised patients, in assessing their response to vaccination, the retention of immune protection over time and their eligibility to treatment with monoclonal antibodies in case of reinfection.

Detection of *Strongyloides stercoralis* infection in immunocompromised patients in selected tertiary care hospitals in Sri Lanka using coprological and molecular methods.

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Introduction

Strongyloides stercoralis is a soil transmitted helminth that can infect humans via skin penetration. The auto infective ability of the parasite maintains chronic infection and can lead to hyper-infection and disseminated disease in the presence of immunosuppression and is an infection scarcely studied in Sri Lanka.

Objectives

To estimate the proportion of strongyloidiasis among immunocompromised patients by direct microscopy, faecal culture and conventional polymerase chain reaction (PCR) and to investigate the associated risk factors.

Design, setting and methods

This descriptive cross-sectional study was carried out from July 2021 to October 2022 among adult immunocompromised patients admitted to selected wards in Colombo South Teaching Hospital, Apeksha Hospital,

Maharagama and Sri Jayewardenepura General Hospital. Direct wet-mount examination and culture (agar-plate, charcoal, Harada-Mori) were carried out on all faecal samples. An optimised and validated PCR, using *S. stercoralis* specific primers were carried out only on 108 samples due to financial constraints.

Results

Out of 260 patients recruited to the study (majority being patients with malignancies on chemotherapy or having end-stage renal disease), 160 provided a faecal sample. None of the patients had features of severe strongyloidiasis. Only one patient was found to be positive for strongyloidiasis by agar plate culture (0.625%). All direct wet mounts and other cultures were negative. Out of the 108 PCRs, 14 [including the culture-positive patient] became positive (12.96%). There was no significant relationship between demographic risk factors (age, gender, education), exposure risk factors (occupational/recreational soil exposure, regular usage of footwear, availability of water sealed latrines), clinical features (diarrhoea), eosinophilia and disease positivity.

Conclusions

The proportion of infection of *S. stercoralis* is <1% by culture methods, whereas it is nearly 13% by molecular methods among the samples tested. Therefore, PCR is a promising and sensitive test to diagnose strongyloidiasis in asymptomatic patients with chronic infection. Sequencing of the PCR products would be useful in confirming the specificity.

Acknowledgement

University of Sri Jayewardenepura Research grant ASP/01/RE/MED/2021/54 and World Health Organization Research Grant 2022/1205902-0 P/O- 202805354 for financial assistance.

PP 1

Degree of adherence of healthcare workers on post-operative infection control practices and its effect on extra ventricular drain associated ventriculitis and meningitis at the Neurosurgery unit at the National Hospital of Sri Lanka

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Introduction

External ventricular drain (EVD) associated infection (EVDI) is one of the common complications of EVD which causes prolonged hospital stay, increased cost and increased morbidity and mortality.

Objectives

Asses the degree of adherence of health care workers on post- operative infection control practices and its effect on EVD associated ventriculitis and meningitis at Neurosurgery unit at National Hospital of Sri Lanka (NHSL).

Design, setting and methods

A hospital based descriptive study was carried out for four-month duration. Hundred and sixteen patients with 119 EVDs were included in the study. Cerebrospinal fluid (CSF) analysis, Gram stain, CSF culture and EVD tip culture were performed. Definitions of infection, colonization and contamination were made using both CDC/NHSN and IDSA guidelines for healthcare associated ventriculitis and meningitis. Pathogens isolated were identified using automated identification

system (BD PhoenixTM). A check list was developed to assess the adherence of health care workers to post-operative EVD care and compliance was given as a percentage. Association between EVDI and adherence to post-operative care was calculated using Fisher's exact test.

Results

EVD associated infection rate was 8.4% and most common pathogen isolated was coagulase negative staphylococcus. Satisfactory compliance rates were observed in EVD draining (91.93%), dryness of the dressing (96.85%), infection control practices followed in CSF collection and bag change; hand hygiene (83.4%, 86.77%), using sterile gloves (93.72%, 91.73%). 90.22% compliance rate was observed in cleaning of the collection port. Low rates were observed in barrier precautions used in both CSF collection (60.08%) and collection bag change (64.2%) and in frequency of bag change (78.26%). None of the patients were given intrathecal drugs. Statistically significant association observed between EVD drainage (P value= 0.034) and frequency of CSF bag change (P value= 0.001) with EVDI.

Conclusions

Most of the EVDI were caused by coagulase negative staphylococci. A statistically significant association was observed between blocked EVD and increased frequency of CSF collection bag change with infection.

Prevalence of Asymptomatic Bacteriuria among Pregnant Women Presenting to Antenatal Clinics of a Tertiary Care Setting in the Northwestern Province of Sri Lanka.

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Introduction

Asymptomatic bacteriuria (ASB) has a wide array of adverse outcomes, both maternal and perinatal. Screening is reportedly cost-effective if the ASB prevalence rate is $\geq 2\%$. The prevalence rates reported from Sri Lanka vary between 3.6-5%.

Objectives

To determine the epidemiology, bacterial species, and their antimicrobial susceptibility patterns in pregnant women presenting with ASB to antenatal clinics at Kuliyaipitiya Teaching Hospital.

Design, setting and methods

A descriptive cross-sectional study was conducted from June to December 2022 recruiting pregnant mothers visiting the clinic for the very first time, without symptoms of urinary tract infection and irrespective of their age or parity. Quantitative culture of midstream urine samples on agar plates with CLED was carried out. A colony count of $\geq 10^5$ /ml of urine was taken as significant bacteriuria. Antibiotic susceptibility testing

was carried out by disc diffusion method according to Clinical and Laboratory Standards Institute guidelines.

Results

The POA of 50%(n=112) of the subjects were <12 weeks, while 26.3%(n=59) and 17.8%(n=40) were between 12-24 weeks, and >24 weeks respectively. Thirteen of the 224 women screened had significant colony counts with a prevalence rate of 7.1%. Coliforms (61.5%, n=8) were the most prevalent. Twenty-three percent (n=3) were *Pseudomonas* spp. and 15.2% (n=2) were *Staphylococcus* spp. Though a significant association ($p < 0.05$) was found between ASB and a history of past urinary tract infections, there were no association for parity, maternal age, body mass index, education level, socioeconomic status, gestational age, gestational diabetes, or coital frequency as previously published in global literature. All isolates were sensitive to first-line antibiotics except for one isolate each of *E. coli* and *Pseudomonas* spp.

Conclusions

The prevalence rate of 7.1% for ASB in this study confirms the need for screening for ASB in pregnant mothers, in order to take necessary mitigating actions. It is recommended to conduct nationwide studies which will impact the policy on screening for ASB in pregnant women.

Utility of *Burkholderia pseudomallei* antibodies in a hospitalized acute febrile illness cohort

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Introduction

Melioidosis is a neglected cause of community-acquired sepsis in Sri Lanka. Culture is the gold standard for diagnosis while antibodies are markers of exposure to *Burkholderia pseudomallei* (Bp).

Objective

We retrospectively assessed the utility of anti-Bp antibodies within seven days of fever for diagnosis of melioidosis in patients with acute undifferentiated febrile illness (AUFI).

Design, setting and methods

Data on clinical features, investigations and treatment was collected from hospitalized AUFI patients within seven days of fever onset. Blood culture, polymerase chain reaction (PCR) and NS1 antigen for dengue and PCR for leptospirosis on acute blood and *Leptospira* IgM on convalescent serum were performed. Indirect haemagglutination assay (IHA) for anti-Bp antibodies was performed,

retrospectively, on stored acute sera. Titres $\geq 1:80$ were considered as positive. Seropositive patients were categorized as probable (sepsis responding to appropriate anti-Bp antibiotic cover), possible (titres $\geq 1:320$ and/or responding to partial anti-Bp cover and unlikely (other diagnosis) melioidosis.

Results

300 AUFI patients in 2022 were included. Bacterial cultures were negative. Seropositivity for anti-Bp antibodies was 16/200(8%) in Western and 1/100 (1%) in Central Province.

Titres were 1:320 in 5/17(29.5%) of cases. 2/5 were sepsis but only one was managed as probable melioidosis. The other was classified as possible melioidosis as he was treated with ceftriaxone. 3/5 were unlikely melioidosis.

Titres were 1:160 in 5/17(29.5%) cases, all of whom had bacterial sepsis. 3/5 were treated as leptospirosis (PCR-ve/IgM-ve), but only 2 were included as possible melioidosis (partial anti-Bp cover with doxycycline). The other only received penicillin and was classified as unlikely melioidosis, along with the remaining 2 (pulmonary tuberculosis and cellulitis responding to first line antibiotics).

Titres were 1:80 in 7/17(41%) cases. 6 were unlikely melioidosis (four dengue, one leptospirosis, one upper respiratory tract infection). One was as an AUFI managed with doxycycline and was classified as possible melioidosis.

Conclusions

Of 17 patients with positive melioidosis antibodies in acute sera, only one was probable and 4 were possible melioidosis (29%). Careful clinical evaluation is necessary

when utilizing IHA in AUI patients to distinguish active Bp infection from anti-Bp antibodies secondary to previous infection or environmental exposure.

PP 4

Pilot study to detect the prevalence of congenital cytomegalovirus infection among neonates born at a specialized maternity hospital in Colombo

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Introduction

Congenital cytomegalovirus is the commonest cause of congenital infection worldwide. The prevalence varies from 0.2 – 2.2 %. Diagnosis is made by detecting CMV DNA in a neonatal urine sample collected within first three weeks of age. Antiviral therapy is recommended to start within first month of life in neonates when indicated for diagnosed congenital CMV infection. Universal screening for congenital infection is still under discussion. In Sri Lanka, most cases present after three weeks and the diagnosis of congenital infection is difficult due to common occurrence of post-natal CMV infection. There are few studies on CMV serology prevalence among pregnant mothers in Sri Lanka.

Objectives

Main aim of this study was to detect the prevalence of congenital cytomegalovirus infection and to detect the associated level of viruria and other sociodemographic factors.

Design, setting and methods

It was a descriptive, cross-sectional study,

done enrolling neonates born at Castle Street Hospital for Women, Colombo, during a given period of time. Sample size was 151, which was calculated using an online calculator, OpenEpi. Urine samples were collected from these 151 neonates who were selected by systematic sampling, before discharge (within three weeks after birth) and PCR was performed to detect CMV DNA.

Results

None of the babies became positive for congenital CMV infection, therefore the prevalence of congenital CMV in this cohort was zero. Viruria levels and other sociodemographic factors could not be assessed due to zero positivity.

Conclusion

The prevalence of congenital CMV was zero in this cohort, so that other associations could not be assessed in the current study. Therefore, it would be useful to conduct future larger studies to detect the prevalence of congenital CMV in Sri Lanka.

PP 5

A retrospective review of hepatitis E cases in South Hampshire, UK during 2016-2021

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Introduction

First identified in Southampton 20-years ago, autochthonous hepatitis E (HE) remains the commonest acute viral hepatitis in UK. Clinical manifestations range from mild to severe acute hepatitis, with extrahepatic

manifestations developing in a subset of patients. In immunocompromised individuals, acute HE can advance into chronic infection.

Objectives

To describe the clinical and laboratory parameters of HE in a Specialist Virology Centre (SVC).

Design, setting and methods

This retrospective study was performed at Southampton-SVC, UK. HE IgM, IgG and RNA results obtained from patients with transaminitis during 2016-2021, were included in the study. IgM positives were additionally tested for HE RNA by Polymerase Chain Reaction (PCR). However, in immunocompromised patients, PCR was performed irrespective of the antibody profile and in positives, follow up PCR was performed at three and six-months. Patients' clinical data were retrieved from the hospital electronic records and analysed using descriptive statistics.

Results

Sixty-five cases of current-acute HE (IgM and RNA positive), of which 59 acquired in the UK, were identified by testing 2770 patients. No chronic HE cases were detected.

Of the 59 autochthonous cases, 44(75%) were males and 15(25%) were females with age-range of 25-86 years (mean-61, median-60, IQR-16.5years). Thirty-one (52%) patients were symptomatic, 16 of whom (52%) required hospital admission; jaundice and malaise were the commonest clinical findings. They all recovered uneventfully, except one who developed liver failure. No deaths were recorded. Majority of symptomatic and asymptomatic patients had at least one underlying comorbid factor which are 87% and 88% respectively.

Extrahepatic manifestations were diagnosed in seven of the thirty-one immunocompetent, symptomatic patients (22.5%), consisting of neurological, haematological, renal and thyroid complications. Range of alanine aminotransferase (ALT) was 154-7040 U/L (median 1315U/L) with higher levels seen in symptomatic patients.

Conclusion

Positivity rate for current-acute HE was 2.3% for the study period. Over 50% of acute HE cases required hospital admission, with extrahepatic manifestations identified in one-fifth of them. The exact number of asymptomatic infections is likely higher than the one identified in this study since asymptomatic patients with transaminitis were detected accidentally during routine checkup for comorbidities. Testing for HE is clinically relevant in both symptomatic and asymptomatic patients with elevated ALT to assess the impact, particularly in patients with comorbidities.

PP 6

Bacterial agents causing urinary tract infections in children undergoing clean intermittent catheterization and the antibiotic susceptibility pattern at a tertiary care hospital

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Introduction

Clean intermittent catheterization (CIC) is the

preferred method for bladder emptying in neurogenic bladder and urinary tract infections (UTI) is a common problem of this population.

Objectives

To determine the bacterial agents causing UTI, their antibiotic susceptibility pattern, and associated factors for acquiring UTI in children undergoing CIC

Design, setting and methods

This descriptive cross-sectional study was conducted in a tertiary care hospital, Sri Lanka from November 2021 to March 2022. Clinical data of 73 children (53% boys) with neurogenic bladder on CIC and having no symptoms of UTI at recruitment was collected via interviewer administered questionnaire. A catheterized urine sample was obtained for culture and antibiotic sensitivity testing (ABST) on recruitment. Isolated organisms were identified up to species level by API identification system. During the 3 months follow up period participants were questioned about symptoms of UTI through weekly telephone calls. Patients with symptoms of UTI were reassessed by urine culture and ABST. Univariate regression analysis was done to determine the associated factors for acquiring UTI among this group of children.

Results

Median age of children was nine years (range- 0.75-19 years); and 63, 84 % had congenital neural tube defects. CIC was performed using either nasogastric tubes (45, 62%) or CIC catheters (28, 48%) which were reused for a period of one and four weeks respectively. Fifty-five percent had asymptomatic bacteriuria at recruitment however only nine, 12% developed symptomatic UTI during the three-month period (infection rate was 1.02 per 1000

patient days). *Escherichia coli* was the commonest bacterial agent causing UTI. High rates of microbial resistance were noted for antibiotics namely, ampicillin (9, 100%), cephalexin (7, 78%), co-amoxiclav (6, 67%) and nitrofurantoin (4, 44%). Provision of CIC by a caregiver ($P=0.042$) and use of prophylactic antibiotics ($P=0.001$) were significantly associated with UTI.

Conclusions

E. coli was the most common bacterial agent causing UTI and microbial resistance to first line antibiotics was very high. The incidence of UTI in children with neurogenic bladder performing CIC was low even with the reuse of catheters. Prophylactic antibiotic usage and provision of intermittent catheterization by a care giver were significantly associated with symptomatic UTI.

PP 7

Revisiting the clinical features of primary Cytomegalovirus infection in immunocompetent individuals.

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Introduction

Cytomegalovirus (CMV) is a ubiquitous beta-herpesvirus causing morbidity and mortality primarily in immunocompromised and in the developing foetus. In immunocompetent, symptomatic infection is uncommon and typically associated with primary infection.

Since, primary CMV is often described as glandular fever-like (GF-like) in literature, we reviewed clinical and laboratory characteristics of local cases to guide clinicians when CMV testing should be requested.

Objective

To determine clinical and laboratory characteristics of primary CMV infection in patients tested at Southampton Specialist Virology Centre (SSVC), UK during the study period.

Design, setting and methods

A retrospective review of primary CMV cases, identified in symptomatic, immunocompetent non-pregnant adult patients from January-2016 to December-2021, was conducted at the SSVC. Diagnosis of primary CMV was based on virological parameters (detection of CMV-IgM; with CMV-IgG seroconversion, with CMV DNA detection when CMV-IgG is negative, CMV-IgG detection with low avidity). Patients' data were extracted from the hospital electronic clinical records.

Results

Eighty-six cases of primary CMV infection were diagnosed by testing 6,166 serum samples. Patients' ages ranged from 18-80 years (mean-36.8, median-35, IQR-27-44.25); 47 (55%) were males and 39 (45%) females. Commonest symptom was tiredness/malaise/feeling unwell (83%) while the commonest sign was fever (71%). Myalgia (33%), night sweats (22%), headache (14%), splenomegaly (19%) were the other common symptoms and signs. GF-like presentation was seen only in 5%. Laboratory parameters most frequently identified were raised alanine-aminotransferases (ALT), CRP and lymphocytosis, seen in 86 (100%), 65 (87%) and 60 (71%) of patients respectively.

Complicated presentations were present in few patients (CMV induced ITP-01, acute CMV headache-01, CMV oesophagitis-01, pulmonary embolism-02, and acute necrotizing pancreatitis-02). CMV was considered in the initial differential diagnosis in only 15% of diagnosed cases.

Conclusion

Main characteristics of primary CMV identified by this study were fever, tiredness/malaise/feeling unwell, myalgia, elevated ALT, CRP and lymphocytosis. GF-like presentation was seen only in a limited number of patients, thus contradicting the common use of GF-like phrase to describe primary CMV in literature. Clinical suspicion for testing for primary CMV was low. Clinicians need to consider primary CMV early in patients presenting with undifferentiated illness and elevated ALT to reduce prolonged and extensive investigations incurred on patients.

PP 8

A Preliminary study to detect West Nile Virus, Hepatitis E Virus and Human Herpes 6 Virus viraemia among blood donors at the National Blood Centre, Sri Lanka

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Introduction

Screening for transfusion-transmissible infections (TTIs) is critical to ensure the safety of blood and blood products. While HIV, Hepatitis B virus, Hepatitis C virus and *Treponema pallidum* are the main TTI agents universally screened, West Nile Virus (WNV), Hepatitis E Virus (HEV) and Human Herpes 6 Virus (HHV-6) also act as important TTI agents which can lead to high morbidity and mortality especially in the immunocompromised. While these agents are reported in other countries, data on the magnitude of these infections among Sri Lankan blood donors are lacking. Hence, current study was designed to identify the presence of WNV, HEV and HHV-6 viraemia among Sri Lankan blood donors and to guide blood donor screening protocols.

Objective

To detect the presence of WNV, HEV and HHV-6 viraemia among blood donors at the National Blood Center (NBC), Narahenpita.

Design, setting and methods

A descriptive cross-sectional study was conducted using 200 donor blood samples collected at NBC. Samples were tested for WNV, HHV-6 and HEV viraemia at National Virology Reference Laboratory, Medical Research Institute using commercially validated qualitative real-time PCR assays. Socio-demographic, clinical and travel details were collected using an interviewer administered data collection sheet and results were analysed using Microsoft Excel advanced statistical analysis software.

Results

Among the 200 blood donors, age ranged from 18-62 years with mean age being 35.7 years (SD 10.6 years). Majority were within 35-39 years age group. Males accounted for 75.5% of samples. Donor representation

from each of the nine provinces was uneven with 72.5% representing Western, 14.5% Southern and none from Northern province. Only two donors had recent foreign travel history while 26 had travelled locally. Seventeen percent of the donors were suffering from at least one of the inquired virus specific symptoms. Out of them, 61.8% complained of cough, 35.3% sore throat and 20.6% fever. None of the samples had detectable WNV, HHV-6 nor HEV viraemia.

Conclusion

WNV, HEV and HHV-6 viraemia was not present in any of the tested donors at the time of donation. However, small sample size, and skewed geographical distribution may have exerted a negative impact on the result warranting for much larger serology and molecular surveys to identify the prevalence of these infections in Sri-Lanka.

PP 9

Clinical presentation, underlying comorbidities, resistance patterns and outcome of Group A *Streptococcus* bacteraemia in a tertiary care centre, Sri Lanka

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Introduction

Invasive Group A *Streptococcus* (GAS) causes mostly the skin and soft tissue infections (SSTI) including necrotizing fasciitis, and a range of infections. GAS outbreak in 2022 in United Kingdom killed 285 of all ages spreading to the Europe and USA; therefore, invasive GAS infection in our setting was

reviewed.

Objectives

To describe the clinical presentation, underlying comorbidities, antibiotic resistance and outcome of GAS bacteraemia.

Design, setting and methods

A retrospective descriptive study on all GAS blood cultures was conducted at a tertiary care center, Sri Lanka, for past eight years up to December 2022 and 122 cases were included.

Results

Males were predominant (67, 55%), with 18 neonates (14.7%), seven aged one month to five years (5.7%), 13 of 5-40 years age group (10.7%), 19 of 40-60 years age group (15.6%) and 65 aged >60 years (53%). Majority (56%) presented with SSTI, 9% with neonatal sepsis, 7% with septic arthritis, 1.6% each from line sepsis, urinary tract infection, pneumonia, meningitis, and intra-abdominal sepsis. Diagnosis was made clinically with supportive investigations. No focus was identified in 20%. Comorbidities such as cirrhosis (11%), diabetes (11%), chronic kidney disease, malignancy, elephantiasis, etc. were noted in 54% of patients. In 74%, white cell count was >11.0/ μ L and 4% had <4.0/ μ L. CRP was >100 mg/L in majority (51%) and normal in 6%. Erythromycin resistance among GAS was 31%. Vancomycin was added to 7 patients due to poor clinical response. Fourteen (11.5%) had died within first 48 hours. Presence of risk factors was significantly associated with ICU admission ($p=0.0013$) but not with mortality ($p=0.55$) or with erythromycin resistance ($p=1.0$). Blood cultures were done by the automated system and the positivity within first 24 hours of incubation was 98%.

Conclusions

Invasive GAS is more prevalent among >60 years but is a cause for neonatal sepsis too. Majority of presents with SSTI. Presence of underlying comorbidities is significantly associated with ICU admission. Erythromycin may not be a choice for empirical treatment. GAS is still a significant killer despite advances in medicine.

PP 10

Antibiotic consumption in surgical wards: A single-centered study in a District General Hospital, Southern Province

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Introduction

Increased and unwarranted antibiotic use is linked with the development of antibiotic resistance. A preliminary study in the same healthcare facility revealed the highest antibiotic consumption in surgical wards.

Objective

To determine the antibiotic consumption pattern in all surgical units of District General Hospital Matara.

Design, setting and methods

A point prevalence survey was carried out on a single day in all the surgical units by utilizing the Bed Head Tickets (BHTs) and antibiotic prescription charts of inward patients. The number of patients hospitalized at or before 8.00 a.m. on the day of the study was

considered as the total in each ward and only those were considered for the study. A questionnaire developed from the WHO PPS methodology (2017) was used to extract data.

Results

Only 34.5% (108/313) of surveyed patients were on systemic antibiotics. Among those, the usage of oral and combined oral and intravenous antibiotics was 25% (27/108) each, while 50% (54/108) was on intravenous antibiotics only. Most were on two antibiotics 49.1% (53/108) followed by monotherapy 44.4% (48/108). The majority of the patients (80.6%, 87/108) were on antibiotics for ≤ 5 days at the time of the survey. The indication for the antibiotic/s was not mentioned in 66.6% (72/108) of the BHTs or antibiotic prescription charts while the antibiotic use had not been reviewed/stop date planned in 88.9% (96/108). Antibiotics were prescribed mostly for surgical prophylaxis 40.7% (44/108), followed by community-acquired infections 34.3% (37/108), with cellulitis being the most common. Among the study population, 45 patients ideally required cultures when the patients with uncomplicated cellulitis and patients on surgical prophylaxis were excluded. However, only 5.6% (5/45) of them had appropriate specimens taken. Co-amoxiclav was the most commonly utilized antibiotic (81/108, 75%). Co-amoxiclav and flucloxacillin were the most commonly prescribed antibiotic combinations (23/53, 43.4%), mostly for skin and soft tissue infections.

Conclusion

The systemic antibiotic consumption was 34.5%. Cellulitis was the commonest infection requiring antibiotics, while Co-amoxiclav was the most commonly used antibiotic. However, obtaining relevant

cultures and the documentation of a review/stop date was poor and required attention.

PP 11

Surgical antibiotic prophylaxis in a District General Hospital: A Point Prevalence Survey

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Introduction

Preoperative administration of antibiotics helps to reduce the risk of postoperative surgical site infections. However, misuse of antibiotics for surgical prophylaxis is observed.

Objective

To describe the antibiotic selection, duration, and adherence to national antibiotic guidelines in surgical antibiotic prophylaxis (SAP).

Design, setting and methods

This study was carried out on a single day in all the surgical units of District General Hospital Matara utilizing the BHTs of all the inward patients on antibiotics. Only the patients who were on SAP at 8:00 a.m. on the day of the study were included in the study. National guideline on the empirical and prophylactic use of antimicrobials (2016) was considered as the reference to assess adherence to the standard protocol.

Results

Out of the surgical patients on antibiotics, 40.7% (44/108) were on surgical prophylaxis. Most of the cases were skin, soft tissue, and bone surgery (40.9%,18/44), followed by gastrointestinal (20.5%,9/44) and obstetric and gynecological surgery (18.2%, 8/44).

The majority (70.5%,31/44) were on multiple doses of SAP for more than one day. Out of the patients, 15.9% (7/44) and 13.6% (6/44) were on a single dose and multiple doses of SAP, respectively, on post-operative day one. The prescriptions did not mention the antibiotic stop/review date in 89.6% (39/44). Post-operative pyrexia led to the further continuation of the antibiotic/s in 6.8% (3/44) of the patients. No statistically significant association was found between the duration of SAP and being a resident of a particular unit. The most commonly used drug was co-amoxiclav (38.6%,17/44), followed by the combinations of co-amoxiclav and metronidazole (34.1%,15/44) and co-amoxiclav and flucloxacillin (15.9%,7/44). Only 31.8% (14/44) of the antibiotic/s selections complied with the national guideline.

Conclusion

Continuation of SAP for multiple days without a stop/review date was observed in the majority of the patients. Those together with the choice of SAP require prompt attention. Further studies are recommended to determine the factors contributing to non-adherence to the national SAP guideline, and the relationship between the number of doses of SAP and the outcome.

PP 12

Investigation of an outbreak of blood stream infection in a neonatal intensive-care unit of a teaching hospital in Sri Lanka

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Introduction

Babies in neonatal intensive-care units are susceptible to be infected or colonized by organisms. Multi-drug resistant *Acinetobacter baumannii* is a common pathogen to cause opportunistic infections in intensive care units. *Pantoea agglomerans* is a ubiquitous Enterobacteriaceae known to create hospital acquired infections and a rare cause of blood stream infection among neonates.

Objective

To investigate the neonatal intensive care unit blood stream infection outbreak in order to take necessary steps to interrupt transmission.

Design, Setting and Methods

This is a retrospective analysis of the data collected during an infection outbreak. In mid-year, 2020 we observed a higher number of positive blood cultures from the neonatal unit of a teaching hospital. Blood cultures were taken from all neonates admitted to the unit and the culture isolates were identified using BD Phoenix Automated Identification System. The environmental screening samples and intra-venous fluids, drugs and antibiotics were cultured to see the possible sources of infection.

Results

Out of the 107 blood cultures done in June, eight were positive for *P. agglomerans* which was sensitive to all the antibiotics. There were seven positives for *A. baumannii*, a carbapenem resistant isolate. Further *A. baumannii* was also isolated from two of the respiratory samples of neonates. Out of the environmental samples CPAP humidifier's water, CPAP tube, incubator humidifier, swabs from Neopuff were positive for *Acinetobacter* species. Two more incubator humidifiers were positive for *Pseudomonas* species. None of the screening samples including intra-venous fluid, drugs, total parenteral nutrition and antibiotics revealed bacterial contamination. A common source for *P. agglomerans* outbreak was not identified.

Further we reviewed the cleaning, sterilization and disinfection procedures. Regular cleaning and changing of the humidifier water of the containers was emphasized and follow-up cultures became negative. The hand hygiene compliance was less than 70% over the year and measures were taken for improvement.

Conclusion

A. baumannii was the main cause while *P. agglomerans* was a possible cause of the neonatal infection outbreak. The outbreak was controlled by introducing appropriate measures and follow-up.

PP 13

An audit on the use of pre-operative antibiotic prophylaxis in a base hospital

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Introduction

Antibiotic prophylaxis is used pre-operatively to decrease the risk of post-operative infections. The correct use of antibiotic prophylaxis is important to reduce the economic burden and to prevent emergence of antimicrobial resistance.

Objective

Auditing the correct use of pre-operative antibiotics with regards to the decision to use, choice of antibiotics, dose, route and duration.

Design, Setting and Methods

The data was collected prospectively using bed-head-tickets of patients who had undergone general, obstetrics and gynaecological surgeries in the month of August 2022.

Results

There were total of 88 surgeries performed with and 31 surgeries performed without antibiotic prophylaxis. The appropriate decision to use or not to use antibiotic was 91.6% (109/119) complying with national guideline. Out of the 23 hernia repairs four were done without using a mesh but antibiotic prophylaxis was given. There were six surgical management of miscarriage done without prophylaxis antibiotics. The commonest antibiotic used pre-operatively was co-amoxiclav (49/88: 55.7%) followed by Cefuroxime (37/88: 42%). In 95.6% (43/45) of

the gynaecological and obstetric surgeries, the pre-operative prophylaxis was co-amoxiclav. Out of the general surgical prophylaxis, cefuroxime monotherapy was used in 53.5% (23/43) while cefuroxime, metronidazole combination was used in 32.6% (14/43). Regarding the correct antibiotic selection, the compliance was 79.5% (70/88). Out of hernia repair with mesh, majority was given only cefuroxime. Combination with metronidazole was used in only two occasions.

The correct antibiotic dose showed 88.6% and route of administration showed 100% compliance.

The recommendation of national antibiotic guidelines was to confine prophylaxis to a single dose while each prophylaxis was

continued for at least three intravenous doses. In all obstetric and gynaecological surgeries, continuation of antibiotics in oral forms for at least three days was observed.

The knife to skin time was documented in none of the surgeries to assess the proper timing of antibiotic prophylaxis.

Conclusions

The appropriate decision to use antibiotic prophylaxis, the correct choice of antibiotic, proper dose and route showed satisfactory results. However, continuation of antibiotics which were started as prophylaxis over a prolonged period was observed during the audit.

Case Presentations

CP 1

Severe post-viral pneumonia complicated with methicillin sensitive *Staphylococcus aureus* parapneumonic effusion - A case report

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Introduction

Staphylococcus aureus (SA) can cause severe secondary pneumonia following viral respiratory tract infections especially influenza. Post-viral pneumonia requires prompt diagnosis and a correct choice of antibiotics on time, as sequelae lead to complications such as parapneumonic effusion which is life threatening.

Parapneumonic effusions are categorized into several classes according to the severity. A complicated parapneumonic effusion is a pleural effusion secondary to viral or bacterial pneumonia, often with positive pleural fluid cultures and requires thoracotomy and drainage.

Case report

A previously well boy aged 17 years, presented with cough, cold and sore throat for couple of days and then gradual worsening of symptoms with shortness of breath (SOB) and on and off fever (101-102⁰ F) for two weeks. He had a positive contact history of similar initial symptoms from his own household probably due to a viral

etiology. On examination, he was dyspnoeic, had crepitation and reduced air entry in right side of the chest. His white cell count was 9260/ μ l with 90% neutrophils and 187x10³/ μ l platelets, and CRP was 324 mg/L. X-ray chest revealed right lower zone consolidation with small pleural effusion with ultrasound confirmation of effusion with numerous septations. Sputum culture resulted a pure, heavy growth of methicillin sensitive SA (MSSA). He was already on IV meropenem and IV flucloxacillin was added with a two-hour gap for the time being.

Despite antibiotics, high fever spikes continued with worsening SOB, chest pain, low saturation and worsening of effusion occupying more than half of hemithorax. A mini thoracotomy was performed and intercostal tube inserted for drainage. Pleural fluid culture isolated the same MSSA and antibiotics were de-escalated to flucloxacillin and clindamycin upon confirmation of the aetiology. Patient improved clinically with reducing inflammatory markers and radiological response.

Discussion

This highlighted the importance of early recognition and application of surgical procedures for a potentially fatal septated parapneumonic effusion complicating pneumonia. Excluding immunodeficiency such as chronic granulomatous disease is justified as this is a complicated MSSA infection in a young patient.

CP 2

Emerging threat of colistin-resistance among carbapenem-resistant *Klebsiella pneumoniae* in Sri Lanka

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Introduction

Healthcare-associated infections due to carbapenem-resistant *Klebsiella pneumoniae* contribute significantly to morbidity and mortality among hospitalised patients in Sri Lanka. Colistin is used as the first choice for patients with carbapenem-resistant Enterobacterales in Sri Lanka despite the recommendations for its use as a last resort. Colistin resistance in enterobacterales was not yet reported among human or animal samples in Sri Lanka.

Case series

Among the patients admitted to a tertiary care hospital in Western Province of Sri Lanka from May to October 2022, six were infections due to carbapenem-resistant *K. pneumoniae* with high minimum inhibitory concentration (MIC) for colistin with broth microdilution. They all were healthcare-associated infections. These were isolated from three blood cultures, an endotracheal tube aspirate, an aspirate from an iliac fossae collection, and peritoneal fluid at a re-do laparotomy. The colistin MICs ranged from 8 µg/mL to >64 µg/mL.

Five were males between 37 to 60 years. Four were diagnosed with diabetes mellitus and chronic kidney disease. The only female was 81 years old and was previously healthy. All were treated with carbapenems prior to the

detection of these isolates. Further, three were treated with colistin for 10 days, 14 days, and eight days respectively for catheter-associated urinary tract infection, ventilator-associated pneumonia, and catheter-related bloodstream infection. For one patient (collection in the iliac fossae following renal transplant), the specimen was collected three days after colistin therapy. Two (prostatic abscess and enterocolitis) were not treated with colistin prior to sample collection.

Imipenem, tigecycline, amikacin, and co-trimoxazole were used for treatment depending on the sensitivity. Five succumbed to their infections and only one survived through the sepsis but did not regain consciousness during the hospital stay and was lost to follow-up since he was transferred to the local hospital.

Discussion

With limited resources available in Sri Lanka, infections with carbapenem-resistant enterobacterales, are treated with colistin. However, common pathogens such as *K. pneumoniae* are becoming resistant to colistin. In such a scenario, we are left with no effective antibiotic to treat severe infections. Hence their outcome is poor.

CP 3

A case of sacroiliac septic arthritis caused by methicillin resistant *Staphylococcus aureus*

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Introduction

Septic arthritis of sacroiliac joint is a relatively

rare disorder affecting 1-2% of all septic arthritis patients. Localized pain around lumbar- buttock region, pubalgia, abdominal pain, and coxofemoral pain are the common symptoms.

Case report

A 27-year-old previously healthy female admitted with right-side buttock pain with a history of fever for six days. She had an uncomplicated normal vaginal delivery two weeks back. On examination, difficulty in moving the right-side hip joint and tenderness over the lower one third portion of right-side (R/S) sacroiliac joint were present. Her initial investigations showed elevated white blood cell count (15000/L) with 86% neutrophils, C-reactive protein level of 304 mg/dL, ESR of 38 mm/hour and serum procalcitonin level of 1.27 ng/ml. Based on these results, intravenous flucloxacillin was given after taking blood culture. After 14 hours of incubation, blood culture yielded Gram-positive cocci, which were later identified as methicillin-resistant *S. aureus* (MRSA). Repeat blood also grew the same organism. As two consecutive blood cultures grew MRSA, intravenous vancomycin was started. As patient had anaphylaxis for vancomycin, it was changed to intravenous linezolid. Intravenous clindamycin was also added. USS hip and buttock showed no deep-seated abscesses and possibility of inflammation in the sacroiliac joint was present. Rheumatoid factor was negative. USS abdomen and pelvis showed no evidence of cystitis/pyelonephritis. Two-dimensional Echocardiogram showed no vegetations. The diagnosis of probable septic arthritis of right-side sacroiliac joint was made and later it was confirmed by MRI (Magnetic Resonance Imaging). With the treatment, the pain gradually reduced and the patient got clinically improved with reduction of white

blood cell count and CRP. She was discharged with oral linezolid after completion of day 14 of intravenous linezolid. Oral therapy was continued for four weeks duration with weekly review in the clinic.

Discussion

S. aureus is the most common pathogen causing septic arthritis including sacroiliac joint. Positive blood cultures aid to detect haematogenous spread and reasons for haematogenous spread in postpartum period could be due to epidural catheter insertion, skin, genitourinary tract trauma and the episiotomy wound. Radiological investigations play an important role in diagnosis. Early clinical diagnosis and administration of antibiotics are necessary to reduce morbidity and mortality.

CP 4

***Candida auris* blood stream infection – 1st case report from Sri Lanka**

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Introduction

Candida auris is an emerging multidrug resistant yeast which can cause invasive infections with significant mortality.

Case report

A sixty-eight-year-old male, known diabetic patient was admitted to a Teaching Hospital following drowsiness of 3 hours duration and infected AKA (above knee amputation) wound. He had undergone an AKA a week before due to a badly infected wound and was treated with broad spectrum antibiotics for one week (meropenem, teicoplanin and metronidazole). He has had several hospital admissions previously, but no details available.

On this admission, he was febrile with low GCS and high blood sugar levels. AKA stump was unhealthy and he underwent repeated wound debridement.

Urine full report revealed moderately field full pus cells while both blood and urine cultures became positive for *Candida* species. Therefore, IV fluconazole was started. Though antibiotics were upgraded patient deteriorated and expired on day ten.

The *Candida* species isolated from blood culture was sent to Department of Mycology at Medical Research Institute. Accurate identification was not possible with conventional phenotypic and biochemical methods due to overlapping features of closely related *Candida* species. Therefore, sequencing of Internal Transcribed Spacer (ITS-1 and ITS-4) regions were performed and finally it was identified as *C. auris* (Family-Metschnikowiaceae, Genus-Clavispora). Anti-fungal sensitivity testing was performed using MIC method. The isolate was resistant to both fluconazole and amphotericin B.

Discussion

C. auris was first identified in Japan in 2009 and now it has spread worldwide. It has resulted in a global health threat mainly due to drug resistance, misidentification and high

transmissibility causing outbreaks in health care settings.

DNA sequencing or mass spectrometry are needed for the accurate diagnosis of this organism and echinocandin is considered as the drug of choice. Amphotericin B with flucytosine may be useful for *C. auris* urinary tract infections due to low efficacy of echinocandins. But most of these diagnostic and treatment modalities are not freely available in Sri Lanka resulting in an unfavorable outcome in affected patients similar to this case.

CP 5

A rare presentation of *Basidiobolus ranarum* – A neglected tropical mycosis

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Introduction

Basidiobolus ranarum belongs to the Order Entomophthorales which causes basidiobolomycosis a rare chronic subcutaneous infection mainly involving trunk and limbs in immunocompetent hosts. These infections are mostly reported in children and young adults in tropical countries. Rarity and lack of awareness of this disease may cause delay in diagnosis and treatment. This case elaborates on a middle-aged woman who had a recurrence of

basidiobolomycosis with rapid progression after excision biopsy.

Case report

A 41-year-old female who was previously healthy presented with left sided groin lump of one year duration. She denied prior trauma or insect bite. Excision biopsy done and histology revealed necrotizing granuloma with fungal filaments. But she has defaulted follow up.

Within few months the lesion recurred with rapid enlargement. Imaging revealed 6 x 6cm ill-defined inflammatory mass involving subcutaneous fat and underlying gracilis muscle with regionally enlarged lymph nodes. Though the lesion was painless she found difficulty in walking with this rapid progression. Previous histology slides were reviewed again and conidiobolomycosis was suspected due to presence of broad aseptate fungal hyphae. Urgent biopsy was performed and a pus collection was also drained during surgery. Samples were sent for fungal studies to Department of Mycology at Medical Research Institute and fungal culture isolated *B. ranarum*. Histology revealed granulomatous reaction favoring fungal infection and pyogenic cultures remained sterile. She achieved complete clinical resolution with oral itraconazole for three months.

Discussion

B. ranarum is an environmental saprophyte and is presumed to infect humans following trauma or insect bites. It is a treatable condition with excellent outcome if the diagnosis is made early and accurately. Treatment with appropriate antifungal drugs for adequate duration is important to prevent relapses because surgical excision alone may not be satisfactory as shown by this case. Itraconazole is the most commonly

used azole with promising results followed by voriconazole and posaconazole. In contrast 50% of isolates have shown resistant to amphotericin B with poor response to treatment.

Therefore, awareness of this rare mycosis is important among clinicians to achieve a favorable outcome in patients.

CP 6

Fatal post-influenza pulmonary mucormycosis; a case report

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Introduction

Immune dysfunction and lung damage occurring after a severe viral pneumonia can lead to invasive fungal infections like mucormycosis especially in patients with comorbidities. Though there are several COVID-19 associated mucormycosis (CAM) reports published, literature with influenza associated mucormycosis (IAM) is scarce.

Case report

A 56-years-old obese male with diagnosed hypothyroidism and complete heart block, on permanent pacemaker presented with on and off fever, cold, worsening productive cough with shortness of breath for one week. There was a positive contact history of a viral flu recently.

He was afebrile, but there was respiratory distress with oxygen saturation 70% on air. His white blood cell count was $2.7 \times 10^3/\mu\text{l}$ and

CRP was 140mg/L. Influenza rapid test was positive for Influenza-A. Chest X-ray revealed bilateral consolidation. Oral oseltamivir, intravenous meropenem and intravenous levofloxacin were started empirically on the basis of viral pneumonia with possible secondary bacterial infection. He clinically deteriorated despite non-invasive ventilation and was intubated and ventilated within next 24 hours in intensive care unit (ICU).

Both endotracheal tube (ET) secretions and blood cultures were positive for multi-drug resistant *Acinetobacter* species at the end of second week and antibiotics were adjusted accordingly. Subsequent chest X-rays revealed bilateral consolidation with a cavity formation in left mid zone peripherally. Regular fungal studies were done from ET secretions. By day 17 in ICU, two consecutive fungal cultures revealed *Mucor* like growths within first 48 hours which were later confirmed as *Rhizopus* spp while direct smears were negative. Both oral posaconazole and liposomal Amphotericin B were added due to clinical deterioration with multiple-organ failure. Despite all the effort, patient succumbed to the illness by day 20 in ICU.

Discussion

This highlights the importance of early recognition and aggressive treatment of IAM which can be fatal even in a non-diabetic with no steroid history. Literature suggests the average time between the diagnosis of viral pneumonia and mucormycosis in all cases was 16.3 days with time for IAM was 21.6 days and 10.1 days for CAM. While pulmonary mucormycosis was predominant in IAM, rhino-orbito-cerebral mucormycosis may be commoner in CAM.

CP 7

Colour which cost him his life; a case report of *Exophiala* meningitis

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Introduction

Exophiala belongs to the group phaeohyphomycosis. A brown-pigmented fungi found worldwide, which causes a range of infections from cutaneous to disseminated infection depending on the route of entry and host immunity; seen in both immunocompetent and immunocompromised individuals. *Exophiala* meningitis is a rare but fatal disease.

Case report

A 23-year-old previously healthy male was admitted with on and off headache and fever for 2-3 months. He was afebrile, Glasgow Coma Scale 15/15, had neck stiffness with bilateral lateral rectus palsy, papilloedema and lower and upper limb weakness with no autonomic or sensory impairment. Lumbar puncture (LP) revealed: -15 polymorphs, glucose 27 mg/dL (random sugar 147 mg/dL), protein 58 mg/dL, sterile culture, negative TB PCR and viral studies. White cell count was 8.96/ μ L; neutrophils 62%, hemoglobin 12.9g/L, platelets 360x10³/ μ L, C-reactive protein <5 mg/dL, ESR 35mm/1st hour, renal and liver functions normal, and western blot for HIV was negative. Nitroblue tetrazolium test was not feasible due to logistic issues. Preliminary diagnosis of partially treated bacterial meningitis was made, IV meropenem and IV ampicillin were started.

Magnetic resonance imaging revealed hyperintensities in left temporal lobe anteriorly involving gray and white matter suggestive of herpes encephalitis, and IV acyclovir was added. Patient deteriorated neurologically and IV liposomal amphotericin B (LAmB) was started considering possible fungal etiology. Repeat LP cerebrospinal fluid India ink showed few yeast-like cells and culture on Sabouraud agar incubated at 25-30°C grew a dematiaceous fungus in 1-2 weeks that was confirmed to be *Exophiala* spp by microscopic morphology. Despite dual treatment with IV LAmB 150mg daily and IV voriconazole 200mg 12 hourly patient deteriorated and succumbed to the illness before higher doses of antifungals could be attempted.

Discussion

Current literature shows that *Exophiala* meningitis is common among immunocompetent Asian males with no identified risk factors. Neurotropism and virulent factors contribute to its pathogenesis. Nonspecific clinical features can raise a dilemma in the diagnosis leading to poor prognosis and high mortality. It requires vigilant thinking and suspicion for the diagnosis. Aggressive treatment with most preferably LAmB in combination with an azole drug is recommended.

CP 8

Uncommon presentation of cryptococcosis in a solid organ transplant recipient

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Introduction

Invasive fungal infection is a significant complication in solid organ transplant (SOT) recipients. Among them, Cryptococcosis remains a significant opportunistic infection and it is the third most commonly occurring invasive fungal infection in SOT recipients.

Case report

A 50-year-old female presented with mild shortness of breath and cough for five days duration. She has undergone kidney transplantation 15 years ago and was on immunosuppressive therapy. On admission, she was afebrile, dyspnoic, hemodynamically stable with no neurological symptoms. She was managed with face mask oxygen. As the chest X-ray was suggestive of left lower lobe consolidation with pleural effusion, she was started with intravenous (IV) antibiotics. Her C-reactive protein was 291 mg/L and WBC 4.3/mm³. Blood culture collected on admission yielded yeast cells. She was started on IV fluconazole. She developed fever after four days of admission. Since her WBC count was persistently low and developing high fever spikes, immunosuppressive drug doses were reduced. IV liposomal amphotericin B was added once the blood culture isolate was confirmed as *Cryptococcus neoformans*. Lumbar puncture was not performed as she was clinically unstable. Follow up blood cultures were done weekly. First repeat blood culture was positive and others were negative. As she developed transplant rejection, continuous ambulatory peritoneal dialysis was started on day four. She was treated with IV liposomal amphotericin B and IV fluconazole for three weeks (two weeks from the last positive blood culture) and then continued with IV fluconazole along with

other antibiotics. While on treatment, she deteriorated clinically and was transferred to ICU. Her bronchoalveolar lavage sample revealed, multidrug resistant coliform species and she was mechanically ventilated due to poor respiratory parameters. In the ICU she expired after about one and half months of hospital stay.

Discussion

Patients receiving an immunosuppressant such as tacrolimus was less likely to have

disseminated disease and more likely to have cryptococcosis limited to the lungs.

This patient presented with mild shortness of breath and cough with no other signs and symptoms suggestive of disseminated cryptococcal infection. Therefore, post-transplant patients who are on immunosuppressive drugs, must be assessed clinically and screening blood cultures are indicated even they present with mild symptoms.



Professor Nilanthi de Silva

MBBS (C'bo), MSc (Lon), MD (C'bo), FNASSL

It is a pleasure to introduce Prof. Nilanthi Renuka de Silva, an eminent Medical Parasitologist nationally and internationally and a pioneer medical educationist in the country.

Prof. Nilanthi de Silva had her primary and secondary education at CMS Ladies College, Colombo. She graduated MBBS from the University of Colombo in 1986 and went on to obtain a Masters in Medical Parasitology from the London School of Hygiene and Tropical Medicine, UK in 1989. She obtained her MD and Board Certification in Medical Parasitology, from the Postgraduate Institute of Medicine of the University of Colombo in 1995. She was a Commonwealth Fellow at the Centre for the Epidemiology of Infectious Diseases in the University of Oxford, UK in 1995/96 and a FAIMER Fellow at the George Washington University School of Medicine in Washington DC, USA in 2004/05.

After a brief stint as a lecturer in Parasitology

at the Faculty of Medicine, University of Peradeniya in 1991-93, Prof. de Silva moved to the newly established Faculty of Medicine of the University of Kelaniya in Ragama in 1993. She became the founder Professor of Parasitology there in 2003 and was promoted to the post of Senior Professor of Parasitology in 2011. The main focus of her research has been on soil-transmitted helminth infections and other neglected tropical diseases. She has published extensively in this field, in peer-reviewed **high-impact** scientific journals including the *Lancet*, *Transactions of the Royal Society of Tropical Medicine & Hygiene*, *Annals of Tropical Medicine & Parasitology*, *Tropical Medicine & International Health*, *PLoS Neglected Tropical Diseases* and the *Ceylon Medical Journal*. She has over 9,000 citations of her work on Google Scholar and an **impressive** h-index of 33.

In addition to her work as a medical parasitologist, Prof. de Silva has also pursued

a long-standing interest in the education of medical and other health professionals, and quality assurance in Higher Education. She has supported the PGIM of the University of Colombo as a member of the Board of Study in Microbiology, the Specialty Board in Medical Education, the Academic Affairs, Accreditation and Examinations Committee, and the Board of Management. She was a member of the Sri Lanka Medical Council from 2012 to 2019 and served as its Vice-President from 2016 to 2019. She was a member of the UGC's Standing Committee on Medical & Dental Sciences from 2009 to 2018 and is currently a member of the Standing Committee on Quality Assurance. She served as the Dean of the Faculty of Medicine, University of Kelaniya for six years from 2012 to 2018 and was appointed the Vice-Chancellor of the University of Kelaniya in August 2020.

Prof. de Silva is an expert advisor on Neglected Tropical Diseases to the World Health Organization, serving both WHO Headquarters and the South-East Asia Regional Office in many different capacities since 2000. She has served in a similar advisory capacity to other international entities, including the Partnership for Child Development at Imperial College London; Drugs for Neglected Diseases initiative in Geneva, Switzerland; and the International Task Force for Disease Eradication at the Carter Centre in Atlanta, USA. She has served as an Associate Editor for *PLOS Neglected Tropical Diseases* since it was first launched as an Open Access journal in 2007, until 2020.

Prof. de Silva has been a member of the Sri Lanka College of Microbiologists for over 20 years. She has served the College in many different capacities, including being a reviewer and a judge at the annual academic

sessions on several occasions, a member of the Council during the period 2013 to 2017 and serving as the President of the College in 2014/2015. It was during her tenure as President that the College was able to move into its current office premises. The tradition of awarding Fellowships was also initiated during that period. In 2019, she delivered the Siri Wickremasinghe Oration on the topic of *Worms and Disease: demonstrating the impact of soil-transmitted helminths on health and well-being*.

Madam President and members of the Council, it is my honour and privilege to present to you Prof. Nilanthi de Silva, for award of the honorary fellowship of the Sri Lanka College of Microbiologists.

Citation read by Professor Nilmini Chandrasena

Professor of Parasitology, Department of Parasitology, Faculty of Medicine, University of Kelaniya, Ragama



Professor Kamini Nirmala Mendis
MBBS, MSc, MD, PhD, DSc.

Madam President it is my privilege to introduce Prof. Kamini Mendis a Scientist, researcher, teacher and administrator in the field of Parasitology as an Honorary Fellow of the College of Microbiology

Emeritus Professor Kamini Mendis is a scientist, public health specialist and malariologist who began a career in medical research working on immunology and vaccine development in malaria, but soon extended her interests to work on malaria in an endemic context in Sri Lanka. Since then, her interests widened much further into malaria control and now her expertise in malaria covers a wide range of fields in areas of malaria control, elimination, and prevention of re-establishment, immunology, epidemiology, clinical disease and pathogenesis.

She is a medical graduate of the University of Colombo, Sri Lanka, and holds a MSc in medical parasitology and a PhD in

malariology from the University of London. She also has a doctorate in microbiology and a DSC from the University of Colombo.

From 1980 to 1997 she worked in Sri Lanka in the Department Parasitology at the Faculty of Medicine, University of Colombo, functioning also as Professor and Head of Department, where she founded and led the Malaria Research Unit. During those 17 years in research, she made many original scientific contributions to malaria and has provided PhD and postgraduate research training to over 20 young scientists and medical graduates in Sri Lanka. Currently many of these graduates are placed around the world in academia, research and as technical experts. Her many scientific publications in international peer reviewed journals have had significant impact on advancing knowledge in the field as reflected in her being ranked among the highest 2% of scientists worldwide as compiled by the

Stanford University and Elsevier BV based on standardised citation criteria for the period 1998 – 2019.

Prof. Mendis has been the recipient of several prestigious national and international awards for her contribution to research in tropical medicine, including the National Presidential Award Vidya Nidhi in 1983, the prestigious Chalmers Medal of the Royal Society of Tropical Medicine, UK in 1991 and the Ashford Bailey Medal of the American Society of Tropical Medicine and Hygiene in 1993. She has, on invitation delivered many prestigious orations and keynote addresses internationally, including the Gorgas Memorial oration in the USA.

For many years she has served and continues to serve as Chair or Member of international scientific and review boards and committees on malaria and on international health and research. She also serves on editorial boards of scientific journals. She is currently the co-chair of the Asia Pacific Leaders Malaria Alliance which has influence on the malaria elimination efforts in Asia as a whole.

She helped establish the Global Forum for Health Research in Geneva in 1997 and served as one of four members of the Transition Secretariat of Dr. Gro Harlem Brundtland, the then Director-General-elect of the World Health Organization, when she was instrumental in the planning, launching and implementation of the Global Roll Back Malaria Initiative in 1998. Thereafter she continued as a senior professional in the World Health Organisation in Geneva and headed the component on treatment and elimination of malaria at the Global Malaria Programme in the World Health Organization, Geneva where she led the worldwide efforts to reduce the burden of malaria. Having been a leading actor in

WHO's Roll Back Malaria Initiative, she has worked extensively on malaria control in Africa, Asia and Latin America, dealing with policies and strategies and, in particular, on the elimination of malaria from countries.

Her support and technical guidance were important to the success of the malaria elimination effort in Sri Lanka both during her work in the World Health Organization as well as after her retirement from the World Health Organization and return to the country in 2010, and she now continues to provide expertise to the Ministry of Health in Sri Lanka in preventing the re-establishment of the disease. In the past few years, she has led and conducted national reviews of malaria control programmes in several countries. She serves as a malaria adviser to international funding agencies, and as a member of several international expert committees on malaria. Her current interests and pursuits involve supporting regional and international efforts to strengthen the evidence-to-policy pathway for malaria by bridging the research and control gaps in the field. She continues to play a major role in the global efforts to eliminate malaria from endemic countries.

Madam President, I present to you Kamini Nirmala Mendis, an exemplary scientist, erudite researcher, academic, leader and administrator for the conferment of Honorary Fellow of the Sri Lanka College of Microbiologists.

Thank you

Citation read by Professor Renu Wickremasinghe

Professor of Parasitology, Department of Parasitology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Nugegoda

Prize winners at the 31st Annual Scientific Sessions of the Sri Lanka College of Microbiologists

The following oral presentations were awarded first, second and third places at the 31st Annual Scientific Sessions of the Sri Lanka College of Microbiologists held on 25th and 26th August 2022.

1st place - OP 9

Longitudinal evaluation of anti-SARS-CoV-2 neutralizing antibody levels in 3-dose vaccinated haemodialysis patients shows a good 3rd dose antibody response

Karunathilake KRP¹, Kumara A¹, Karunathika A¹, Wazil AWM², Nanayakkara N², Bandara K², Abeysekera R³, Noordeen F¹, Gawarammana IB³, Ratnatunga CN¹

¹Department of Microbiology, Faculty of Medicine, University of Peradeniya, Sri Lanka,

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2nd place - OP 3

Chigger mites (Acari: Trombiculidae and Walchiidae) associated with rodents in selected scrub typhus-prone areas in Southern and Western provinces of Sri Lanka

Ashani MLS¹, Chandrasena TGAN², Gunathilaka PADHN², Silva RB^{3,4}, Jacinavicius FC³, Premaratna BAH¹

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⁴Departamento de Patologia, Reprodução e Saúde Única, Faculdade de Ciências Agrárias e Veterinárias-UNESP, Jaboticabal, SP, Brazil.

3rd place - OP 4

Molecular detection of selected genetic determinants of carbapenem resistance among invasive isolates of *Acinetobacter baumannii* recovered from selected tertiary care units in Colombo District, Sri Lanka

Alles MFJ, Corea EM, Gamage S, Jayalatharachchi HR

Department of Medical Microbiology and Immunology, Faculty of Medicine, University of Colombo, Colombo 08

The following poster presentations were awarded first, second and third places at the 32nd Annual Scientific Sessions of the Sri Lanka College of Microbiologists held on 25th August 2022. Poster presentations from PP 1 to PP 7 were held as a fully virtual event on 22nd August 2022.

1st place - PP 3

Consumption of carbapenems in a District General Hospital

Wijeweera KDDS, Priyanthi AAD, Liyanage N, Dharmasiri HHKT, Anuruddha HAP

District General Hospital, Matara

2nd place - PP 4

Association of haematological and biochemical parameters with different clinical entities in culture positive melioidosis

Piyasiri DLB¹, Jayasundera MCT¹, Mohotti M¹, Sapukotana PM¹, Samarawickrama K¹, Galhena M¹, Priyantha D¹, Thewarapperuma C¹, Corea EM²

¹Teaching Hospital, Karapitiya, ²Faculty of Medicine, University of Colombo

3rd place - PP 6

Prevalence of neutralizing antibodies among healthcare workers vaccinated against SARS CoV-2 at 6 weeks and 6 months following primary course of vaccination in two teaching hospitals

Badanasinghe CN¹, Weerakoon DN¹, Fonseka I¹, Abeykoon M²

¹Department of Medical Microbiology, Faculty of Medicine, University of Kelaniya, ²Teaching Hospital, Kegalle

Dr. C. Palasuntheram prize was awarded to:

OP 9

Longitudinal evaluation of anti-SARS-CoV-2 neutralizing antibody levels in 3-dose vaccinated haemodialysis patients shows a good 3rd dose antibody response

Karunathilake KRP¹, Kumara A¹, Karunathika A¹, Wazil AWM², Nanayakkara N², Bandara K², Abeysekera R³, Noordeen F¹, Gawarammana IB³, Ratnatunga CN¹

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Dr. Siri Wickremesinghe Memorial Oration 2023

on

“Melioidosis, Unearthing a Subterranean Infection”

by

Professor Enoka Corea

***Consultant Microbiologist, Chair & Professor
Department of Medical Microbiology and Immunology
Faculty of Medicine
University of Colombo***

Vaginal microbiome and cancers of the reproductive system; recent findings in a nutshell

K. Gunasekera

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The concept of microbiome was first put forward by Lederberg and McCray to designate a group of commensal, symbiotic or pathogenic microorganisms that shared the same space and developed a complex interaction with certain human tissues.¹ The Human Microbiome Project was started in 2008 to address the diversity of organisms present in different human organs.² The most abundant and most studied microbiome is that of the gastrointestinal tract.³ Interestingly, studies of the vaginal microbiome have revealed some connections between the vaginal microbiome and gynaecological cancers.

The vagina contains species that breakdown glycogen to lactic acid which creates an acidic environment less than pH 4.5.⁴ This helps inactivate pathogens and prevents the ascent of bacteria into the upper genital tract. The healthy vaginal microbiome is dominated by one or few *Lactobacillus* species that secrete antimicrobial substances and prevents adhesion of pathogens.⁵ In vaginal dysbiosis the *Lactobacillus* species are low in number with an increased risk of bacterial vaginosis. Vaginas that contain mainly *Lactobacillus iners* frequently transition to become anaerobe dominant, whereas vaginas with predominantly *Lactobacillus crispatus* fail to do so.³

Proliferation of pathogenic bacteria leads to a greater diversity of the microbiome. This abnormally diverse microbiome affects the immune response of the female genital tract producing an environment of chronic inflammation, which is favorable for developing neoplasia.³ Some products of bacterial metabolism have carcinogenic properties and cause genetic alterations of cells of the genital tract.³

Endometrial cancer

A high vaginal pH is correlated with endometrial cancer, due to an imbalance of the vaginal flora. Studies have shown that *Atopobium vaginae* and *Porphyromonas* which raise the vaginal pH are more prevalent in the vaginal flora of women with endometrial hyperplasia or endometrial cancer.⁷ It is assumed that this promotes chronic endometrial inflammation that switches on the carcinogenesis process.

In endometrial cancer, IL-1 α and IL-1 β are overexpressed and promote cell proliferation, adhesion, invasion, and angiogenesis. *Atopobium vaginae* and *Porphyromonas somerae* induce the production of proinflammatory cytokines IL-1 α , IL-1 β , IL-17 α and TNF α . The production of IL-17 α induces the production of IL-8 and TNF α , which are factors that promote

endometrial cell proliferation and angiogenesis.⁸

Cervical cancer

It is the fourth most common cancer worldwide in females,⁵ and a common malignancy in women of developing countries. Over 99% of cervical cancer biopsies tested by PCR, contained human papilloma virus (HPV) DNA. HPV-16 and HPV-18 are the highest risk genotypes associated with cervical cancers. However, 85-90% of HPV infections with high-risk genotypes resolve spontaneously. The infections that persist, lead to cervical intraepithelial neoplasia (CIN) and with progress of time to invasive cervical cancer.³

The link between vaginal dysbiosis, HPV persistence and neoplastic transformation has not been established yet. Nevertheless, a high vaginal bacterial diversity and a depletion of *Lactobacillus* species, as in bacterial vaginosis, has been associated with low clearance of HPV. HPV positive women have been found to have *L. iners* and *L. crispatus* at different proportions compared to HPV negative women. There is a higher risk of cervical transformation with *L. iners* than with *L. crispatus*.³

The highest biodiversity of vagina is found in invasive cervical cancer; e.g. *Fusobacterium necrophorum*, *Gardnerella vaginalis*, *Sneathia*.³ Studies have shown that *Sneathia* and *Atopobium* species are associated with HPV persistence.³ *Candida albicans*, *Chlamydia trachomatis* and *Ureaplasma urealyticum* have been shown to influence the transformation of HPV lesions.³ *Mycoplasma genitalium* increases the incidence of cervical lesions and *Chlamydia trachomatis* promotes infection

with HPV.³ *Fusobacterium* leads to the production of interleukin-4, interleukin-10 and TGF- β 1 which are cytokines that are found to be increased in cervical cancer and CIN.³

Ovarian cancer

It is the second most common malignancy in the developed countries carrying one of the worst prognosis and mortality.⁹ Genital dysbiosis has been associated with ovarian cancer but more research is needed to establish a causal relationship. *Lactobacilli* are protective against ovarian cancers.⁹ In the tumour tissue *Proteobacterial/Firmicutes* ratio is increased and *Fusobacteria*, *Bacteroides* counts are higher than in normal tissue.⁹ *Chlamydia* species and *Mycoplasma* species which cause chronic reproductive tract inflammation have been associated with ovarian cancer.³

Implications for prevention and treatment

Approaches for modulating vaginal microbiomes are under investigation. *Bifidobacterium* and *Bacteroides* species have been associated with immune modulation and oestrogen metabolism and are being investigated for preventing oestrogen-derived cancers such as breast, endometrial, and ovarian cancer. These methods aim to modify vaginal microbiota to a *Lactobacillus* dominant one in order to prevent carcinogenesis. Novel antimicrobials and probiotics such as intravaginal lactobacilli formulations, biofilm disruptors and vaginal microbiota transplantation are being considered. Since persistent HPV infections increase the risk of cervical cancer, *Lactobacillus* probiotics might be considered in HPV positive patients, as it may increase the clearance of HPV.³ However, more research is needed.

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Did intubation prevent asphyxia due to migrant adult *Ascaris lumbricoides* worms?

A case report of an unforeseen management challenge

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Introduction

Ascaris lumbricoides is the commonest soil-transmitted helminth (STH) distributed in the tropics and subtropics. Rarely wandering ascarids reach unusual locations causing complications. Death by asphyxiation caused by wandering ascarids has been previously reported (1). We report a case where this phenomenon constituted a management challenge in an intubated patient.

Case report

A five-year-old girl from the plantation sector in Dolosbage (Kandy district) diagnosed with bronchopneumonia was intubated and transferred from the Base Hospital Nawalapitiya to the Paediatric Intensive Care Unit of the Teaching Hospital, Karapitiya in a state of hypovolaemic shock. She was stabilized with three inotropes, intravenous antibiotics and ventilatory support which was maintained with intravenous ketamine and fentanyl. After 24 hours on the ventilator, a large live whitish worm was recovered from the oral cavity. She was immediately treated with 400 mg of albendazole via a nasogastric tube. Over the next 24 hours, two more worms exited the mouth. A juvenile worm was aspirated from the mouth into the sucker. During worm migration, she remained febrile. The albendazole dose was

repeated the next day and no further migration occurred. The patient further received two doses of pyrantel pamoate (250mg) before being weaned off the ventilator. She had signs of central nervous system depression following the improvement of which she was transferred to a ward for further management. She lives in a line room with her two sisters aged 3 and 6 years, father and grandmother and doesn't attend preschool. Her mother works abroad. A water-sealed latrine is available but is situated far away from the house. Therefore, these children including neighborhood children defecate in the yard. The youngest child has passed large worms in her stool on several occasions. The children often engage in soil play in the same environment. The water source (tap) is situated far from the house. Neither the toilet nor the house has a water supply. Wastewater from all line rooms flows in a close by polluted and flies are abundant.

Discussion

The last national survey for STH in Sri Lanka identified the plantation sector as a high risk for STH with an 8.04% prevalence of ascariasis (2). According to general circular No. 01-58/2018, guidelines were issued to continue the deworming programme for two

years (2019 -2020) in districts identified as intermediate risk (Kandy) with provisions for Medical Officers of Health to execute appropriate measures for identified high-risk groups. We highlight several learning points from this case. Firstly, high-risk foci without access to proper sanitation and water exist and require attention. Secondly, worm migration in this patient posed a risk of airway obstruction. Adult worms tend to migrate when the environment in their usual

habitat is disturbed by factors such as fever, sepsis, anaesthetic agents, or certain anthelmintic drugs (3,4). Fever, ketamine/fentanyl and sepsis likely precipitated wandering ascarids in this patient, facilitated by the relaxed sphincters and impaired swallowing reflex. Rare cases have documented worms migrating into the trachea in intubated patients or iatrogenic advancement of worms into the trachea with intubation (1,3) causing airway obstruction.

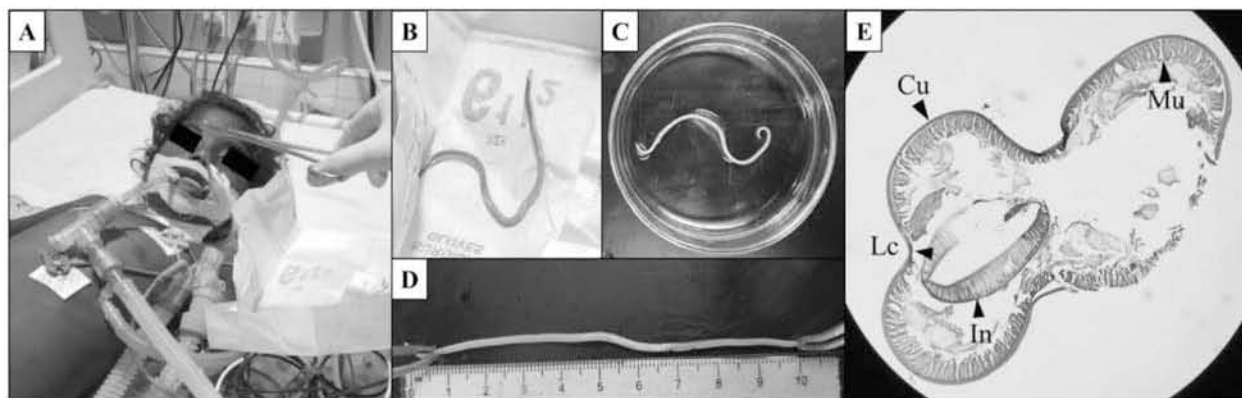


Figure: A: Recovery of a live worm from the oral cavity; B: An *Ascaris lumbricoides* adult worm recovered from the oral cavity; C&D: The 10cm long juvenile worm aspirated into the sucker from the oral cavity; E: cross section of the juvenile worm (10x) showing the thick cuticle (Cu), tall slender coelomyarian musculature (Mu), intestine (In) and lateral cords (Lc). Other internal structures were not clearly visualized.

Thirdly, the worm migration delayed extubation. Although she was stable, it was apparent her brain suffered hypoxia due to prolonged hypotension and hypovolaemia resulting in depression of the central nervous system and cough reflex. This put her at high risk of aspirating migrating worms into the airway. Hence, withdrawing mechanical ventilation had to be delayed until worm migration stopped. Fourthly, a paralytic agent like pyrantel pamoate would stop the migration but carry a risk of intestinal obstruction in heavy infestations (4). While highly effective for ascariasis, albendazole itself can cause erratic migration (5). Continued migration may have been a result

of this or worms who already migrated beyond the stomach before albendazole was administered. Irregular bowel habits and urgency of deworming prevented obtaining a sample of stool before deworming to assess for co-infections. She was dewormed 6 months back but migrating worms in different growth stages indicate repeated infection from the environment. Improving hygiene in the living environment, access to water, latrines and regular deworming of high-risk populations require attention. This case highlights the importance of considering ascariasis as a potential agent of airway obstruction. A high index of suspicion is needed in patients from high-risk

populations. Screening of stool for helminth ova and deworming should be considered at the earliest opportunity. Vigilance during intubation is also important to prevent the iatrogenic advancement of worms in the oropharynx into the airways.

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**Two cases of community acquired *Elizabethkingia meningoseptica* meningitis
diagnosed by positive blood and CSF cultures:
From fish and frogs to lizards!**

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Introduction

Elizabethkingia meningoseptica is a Gram-negative bacillus ubiquitously found in the environment (soil and water, fish, frogs and reptiles) but increasingly reported as a nosocomial pathogen^{1,2,3}. Meningitis is the commonest presentation in neonates whereas respiratory tract infection in adults^{1,4}. The organism has been implicated in a spectrum of infections in severely immunocompromised patients.

Case report 1

A 65-years-old male with late onset epilepsy presented with altered level of consciousness and convulsions. At the local hospital he was treated with IV ceftriaxone with no response and was transferred to the Teaching Hospital Karapitiya, Galle. On admission, patient was empirically treated with IV meropenem and IV vancomycin and later electively intubated. His white blood cell count was 30×10^9 /L and the CRP was 173 mg/L. CT brain revealed left parietal infarction with mild hydrocephalus. Both his blood and cerebrospinal fluid (CSF) cultures became positive with an oxidase positive, non-fermentative, pale yellow, vancomycin sensitive, meropenem and polymyxin B resistant Gram-negative bacillus which was later identified as *E. meningoseptica* by automated ID system (VITEK® 2). His CSF full report showed a bacterial picture. Following identification of

the causative pathogen, IV ciprofloxacin and oral cotrimoxazole high doses were added, while continuing vancomycin. This combination of drugs resulted in an immediate satisfactory response with the reduction of fever and improvement of conscious level and this treatment was continued for 28 days. Patient recovered with residual weakness.

Case report 2

A 63-years-old male with a history of traumatic CSF leak from his right sphenoidal sinus which had undergone an endoscopic repair of CSF leak in 2009 and had subsequently been treated twice as bacterial meningitis in 2013 and 2014 respectively. This time he presented with fever, headache, photophobia and vomiting of three days duration. On examination he had neck stiffness and a positive Kernig's sign.

His white cell count on admission was 16.26×10^9 /L with neutrophilic predominance and CRP was 148 mg/L. An urgent lumbar puncture was performed and it showed evidence of a bacterial CNS infection with a neutrophil count of 71/cumm and lymphocyte count of 53/cumm. On admission the patient was empirically treated with a high dose of IV ceftriaxone but the clinical response was very poor and fever continued. His CSF culture became positive for an

oxidase positive, non-fermentative, vancomycin sensitive gram-negative bacillus which was identified as *E. meningoseptica* by both conventional and automated ID systems. The patient was then started on IV vancomycin and IV ciprofloxacin and continued for 14 days. This combination resulted in a satisfactory response and patient recovered fully. His white cell count on discharge was $6.7 \times 10^9/L$ and CRP was 7.3mg/L.

Discussion

E. meningoseptica (formally known as *Flavobacterium*) is a rare cause of meningitis often in adults with immunosuppressed status, such as in malignancy, neutropenia, diabetes, steroid use, malnutrition, chronic kidney disease leading to dialysis, or with nosocomial origin^{3,4}. Outbreaks have been reported in United States with 30% mortality rate. However, our two patients did not have any evidence of such risk factors except a history of epilepsy in the 1st case and CSF leak with recurrent meningitis in the second patient.

Though the exact source was not identified, the retrospective revelation of regular fishing in a lake by his house might be having some significance in the pathogenesis of the first patient¹. In the second case, the patient clearly stated that, about a week prior to the illness, he got exposed to a very dusty environment containing lizard excreta while cleaning a storage room which had been a habitat of numerous lizards ("thalagoya"-*Varanus bengalensis*).

These 2 reports could be included among the rare cases where *E. meningoseptica* meningitis was diagnosed by both CSF and blood culture positivity for the organism. This bacterium produces beta lactamases and is naturally resistant to most beta lactams including carbapenems^{2,4}. It is inherently resistant to aminoglycosides and colistin/polymyxin B too. Fluoroquinolones are usually active in vitro while doxycycline and cotrimoxazole susceptibility is variable. Vancomycin alone or in combination with other agents including rifampicin have been used successfully in the treatment of these infections, similar to the response observed in our two cases^{2,4}.

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Analysis of diabetic foot ulcer associated pathogens at tertiary care setting Sri Lanka

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Abstract

Appropriate empiric and targeted Diabetic Foot Ulcer (DFU) treatment may minimize delayed healing, sepsis, and amputations of affected parts. Our objectives were to identify and analyze the bacteria associated with DFUs in a tertiary care setting. Total consecutive 100 diabetic wound samples received at the Microbiology Laboratory; Teaching Hospital Peradeniya were analysed. Additional species-level identification, sensitivity, and resistant mechanisms were tested at the Faculty of Medicine, University of Peradeniya. Out of 100 samples, 75 samples grew total 78 isolates. Those were identified as 22 % (n=17) *Staphylococcus aureus* (12% MRSA and 10% MSSA), one each (1.33%) as Beta-Hemolytic Group A, B, G *Streptococci*, 37% (n=29) Enterobacterales and 37 % (n=29) as non-fermenters (20 *Pseudomonas aeruginosa*, 05 *Pseudomonas* spp, and 4 *Acinetobacter* spp). Of all Enterobacterales, 7% each confirmed for ESBL and for serine carbapenemase production and 31% showed a possibility of AmpC type beta-lactamase production. Of *P. aeruginosa* (30%) confirmed for Metallo Beta-lactamase and a higher probability of Amp-C production among *Pseudomonas* spp. *S. aureus* was the commonest primary pathogen with low rates of MRSA from DFU samples. *Pseudomonas* spp and Enterobacterales showed multiple resistance

mechanisms including AmpC and Metallo Beta-lactamase production.

Introduction

Diabetic Foot Ulcer (DFU) is a condition that is commonly associated with patients whose glycemic levels are not being controlled at optimum levels over time. Negligence or suboptimal DFU treatment may lead to delayed healing, sepsis, and amputations of affected parts.

In 2011, Jinadasa and Jeewantha found a non-healing ulcer incident of 82.7% and amputations indicated in 38.2% among 110 study participants with DFU ⁽¹⁾. In 2011 found that 66% of *Pseudomonas* spp was the most prevalent pathogen associated with DFU in Sri Lanka⁽²⁾. Organism isolation from DFU differs from region to region. Earlier in 2005 a study undertaken in the USA found that *S. aureus* as the most common pathogen causing Diabetic Foot Infections (DFIs)⁽³⁾. Another study conducted in Australia in 2019 also showed, *S. aureus* as the most common (20.2%) among 342 patients with DFI⁽⁴⁾. In contrast, in 2018, a study conducted in India reported 58.5% of predominant Gram-negative pathogens associated with DFI among their study population⁽⁵⁾. Improved knowledge on local epidemiology of DFU-related organisms will support selection of the best empiric antibiotic option and

minimize sepsis and related complications.

Materials and methods

Our objectives were to identify and analyze the bacteria associated with DFU patients in selected tertiary care setting in Sri Lanka. Ethical clearance was obtained from the Ethics Review Committees of the Faculty of Medicine (FOM), University of Peradeniya (UOP). Permission was granted by the Director of Teaching Hospital Peradeniya (THP) to collect data. This observational and descriptive study was carried out at THP over four months as a pilot study from July 2022. A minimum of 94 sample size was calculated using a 93.5% positive bacterial growth rate according to the latest available data ⁽⁵⁾ from Iraq with a 95% confidence level with a 5% margin of error.

A total of 100 routine diabetic wound samples (tissue, pus aspirates, and swabs) were subjected to analysis at the Microbiology laboratory, THP during the study period of four months. Species-level detection using routine conventional biochemical tests, screening and confirmation of Extended Spectrum Beta Lactamases (ESBL), carbapenemase, and AmpC production of the isolated organisms were done at the Microbiology laboratory at the FOM, UOP. All sample processing, disc diffusion sensitivity testing, and resistance mechanism detections were performed according to the updated Standard Operating Procedures (SOP) and quality-assured culture media and antibiotic discs according to the latest CLSI (M02 & M100) during the study period. ESBL production was confirmed according to the combined disc diffusion method, which is included in the CLSI m100 (32nd edition). Carbapenemase production in Enterobacterales and *P. aeruginosa* were

tested according to the mCIM and eCIM methods in the CLSI m100 (32nd edition). Isolates were tested for mCIM to detect the production of any type of carbapenemases and mCIM-positive isolates were subjected to an eCIM test. Isolates that are positive for eCIM were considered Metallo Beta-lactamase (MBL) producers. Isolates that are negative for eCIM with positive mCIM were considered serine carbapenemase producers. AmpC production was detected according to the protocol details included in the National Center of Biotechnology using a cefoxitin (30 µg) disc. A positive AmpC Screening result is defined as a Cefoxitin diameter <18mm. Due to the unavailability of boric acid, AmpC confirmation was not evaluated.

Results

Out of the total 100 routine wound samples, 77% (n = 77) were swabs, 15% (n = 15) were aspirations, and 8% (n = 8) were tissue pieces from the wound. The wound management of this cohort revealed, systemic antibiotic usage (oral or intravenous antibiotics) of 90% (n=90) at the time of collecting wound samples, and 96% (n=96) of the study subjects were subjected to extensive wound debridement at least once by the time of sampling and the rest, were managed with routine wound cleaning and dressing.

Out of 100 wound samples of studied, 75% (n=75) were grown at least one organism, and the rest remained negative after 48 hours of aerobic incubation on routine culture media. In this study total of 78 organisms were isolated from 75 wound samples. Out of 78 isolates, 22 % (n=17) identified as *S. aureus*, one each 1.33% of Beta Hemolytic *Streptococci* Group A, B, G, and 37% each (n=29) of Enterobacterales

(*Coliform* spp.) and non-fermenters (37% n=29) (20 of *P. aeruginosa*, five (05) of *Pseudomonas* spp. and four (04) of *Acinetobacter* spp.).

Direct smear results were also analyzed and evaluated in this study. Out of all 25 samples that were negative after 48 hours of aerobic incubation on routine culture media, 72% (n=18) of smears showed pus cells <10 per low power field (LPF) and 28% (n=7) smears were with pus cells >10/LPF. Out of 20 samples which grew *P. aeruginosa* as a predominant

non-primary pathogen, 50 % (n=10) of smears were with pus cells >10/LPF, and 50 % (n=10) were observed with pus cells <10/LPF.

Antibiotic sensitivity (ABST) was tested for all isolated organisms. Out of a total of 17 *S. aureus*, 47% (n=8) were sensitive to cefoxitin. One each Beta Hemolytic *Streptococcus* Group A, B, G, 100% (n=3) were sensitive to Penicillin & Erythromycin. The following table1 summarizes the antibiotic sensitivity patterns related to *P. aeruginosa* and *Pseudomonas* spp.

Antibiotic discs	Interpretation		
	Sensitive % (n)	Intermediate % (n)	Resistance % (n)
Co-trimoxazole	-	-	100% (n=25)
Amikacin	64% (n=16)	12% (n=3)	24% (n=6)
Gentamicin	60% (n=15)		40% (n=10)
Piperacillin-Tazobactam	64% (n=16)	8% (n=2)	28% (n=7)
Imipenem	64% (n=16)	4% (n=1)	32% (n=8)

Table 1: Antibiotic sensitivity patterns related to *Pseudomonas aeruginosa* and *Pseudomonas* spp.

The following table 2 summarizes the antibiotic sensitivity patterns of Enterobacterales.

	AMP	AMC	CXM	CN	AK	FEP	TZP	MEM
Sensitive	10% (n=3)	24% (n=7)	17% (n=5)	52% (n=15)	76% (n=22)	59 % (n=17)	69% (n=20)	34% (n=10)
Intermediate		10% (n=3)			17% (n=5)	7% (n=2)	7% (n=2)	
Resistance	90% (n=26)	66% (n=19)	83% (n=24)	48% (n=14)	7% (n=2)	34% (n=10)	24% (n=7)	66% (n=19)

AMP- Ampicillin, AMC- Amoxicillin – clavulanate, CXM- Cefuroxime, CN- Gentamicin, AK- Amikacin, FEP- Cefepime, TZP- Piperacillin-tazobactam, MEM- Meropenem

Table 2: Antibiotic sensitivity patterns related to Enterobacterales.

Antibiotic resistance mechanisms of this study isolates were tested. Out of a total of

17 isolated *S. aureus*, 47% (n=8) were found Methicillin-Sensitive *S. aureus* (MSSA) and

53% (n=9) were Methicillin-Resistant *S. aureus* (MRSA) and one demonstrated inducible Clindamycin resistance with all were positive for beta-lactamase production. Inducible Clindamycin resistance was not observed in any of Beta Hemolytic *Streptococci* Group A, B, and G isolates. Out of a total 29 of Enterobacterales only 4 were positive for ESBL screening and 2 (7%) were confirmed as ESBL producers. Of all Enterobacterales only 7% (n=2) of were confirmed with a serine Carbapenemase production. Out of a total of 20 *P. aeruginosa* 30% confirmed for MBL production. Of all *Pseudomonas* isolates (n=25), 55% showed positive screening test for AmpC type Beta-lactamase production.

Out of organism negative 25 samples, 72% (n=18) of samples showed direct pus cells <10/LPF in Gram smears, which gave indirect evidence of no active signs of infections. Pus cell count of 10>LPF in the Gram-stained smears were used to interpret the significance when non-primary pathogens were isolated as pure or predominant out of mixed growths from wound samples. Out of total 20 samples with *P. aeruginosa* as predominant non-primary organism, 10 (50%) had >10/LPF in the Gram-stained direct smear.

Discussion

A wound tissue sample is the best sample for pathogenic organism identification although we received only 23 such (deep aspirations and biopsy) during the study period with majority of swabs (77%), the least recommended sample type for microbiological analysis of wounds.

Analysis of wound management pattern for this study population revealed, the majority

of patients received oral or intravenous (systemic) antibiotics with extensive wound debridement to manage their wounds as inward patients. Clindamycin was the most frequent antibiotic used.

In 2020, a study conducted in Iraq obtained a 93.5% bacterial isolation rate from swab samples collected from patients with diabetic foot infections⁽⁶⁾. In 2011, a study conducted in Sri Lanka obtained a 100% organism isolation rate from 53 swab cultures obtained from the deeper layers of the wound before administering systemic antibiotics ⁽²⁾. Our study showed a comparatively lower organism isolation rate (75%). This may be due to the administration of systemic (IV/oral) antibiotics during the sampling or adequate wound cleaning before obtaining wound swabs which represent samples devoid of colonizing flora.

Samples which showed *P. aeruginosa* as predominant non-primary organism, 10 (50%) out of 20 showed pus cells <10/LPF in the direct smear indicates possibilities of picking up colonizing flora with biofilm formation on DFU.

In USA in 2005, *S. aureus* was the most common pathogenic species in DFIs in a study undertaken in 2005⁽³⁾. Another study conducted in Australia in 2019 also showed *S. aureus* as the most common (20.2%) among 342 patients with DFI ⁽⁴⁾. Our study revealed a similar pattern to these studies showing a majority of *S. aureus* as the pathogen. Even though our study revealed *Pseudomonas* spp. as the commonest organism isolated, similar to previous Sri Lankan study in 2011⁽²⁾ we considered 50% of those reflecting colonizing flora with biofilm formation on DFU.

A previous Sri Lankan study revealed 86% MRSA isolation from DFU in 2009 ⁽⁷⁾. Our study indicated that Methicillin resistance at a rate of 9% out of the total samples (100) which is much lower compared to the previous Sri Lankan study may be related to less antibiotic pressure. Further, all *S. aureus* total 17 isolates, all were positive for Beta-lactamase production indicating 100% resistance to natural penicillin and of them 53% (9/17) were MRSA.

ABST patterns of Enterobacterales were included as 53.3% sensitive to Gentamicin and 81% sensitive to Amikacin in a study undertaken in 2011 in Sri Lanka⁽²⁾. Compared to this study results, our study found resistance to Gentamicin and Amikacin.

In a study carried out in Sri Lanka in 2011, ABST patterns of *Pseudomonas* spp were included as 85% were sensitive to Amikacin and 74.2% were sensitive to Gentamicin⁽²⁾. In comparison to that our study revealed higher rates of resistance to Amikacin and Gentamicin. More *Pseudomonas* compared to Enterobacterales carries NDM and Serine type E.

Conclusions

Our study revealed that *S. aureus* as the commonest primary pathogen with low rates of MRSA isolation from DFU samples. Isolated *Pseudomonas* spp and Enterobacterales showed multiple resistance mechanisms including production of ESBLs, AmpC beta-lactamases, Serine type carbapenemases and Metallo- β -lactamases.

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***Burkholderia gladioli*; a rare cause of meningitis**

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Introduction

Burkholderia gladioli is a rare pathogen causing infections in immunocompetent individuals.

Case History

Three-year-old previously well baby boy presented to Teaching Hospital Kurunegala with five days history of fever and one day history of vomiting and headache. There was no contact history. Child was ill even during fever free period. Growth and development were age appropriate and vaccination was up to date according to Expanded Programme on Immunization (EPI) schedule.

On examination he was found to have neck stiffness, tachycardia (120bpm). Blood pressure was normal. There were no skin rashes.

In full blood count total white blood cell was 2.8×10^9 /L and platelets were 194×10^9 /L. C reactive protein was 2mg/dL.

With a working diagnosis of meningitis, he was started on IV meropenem 40mg/kg every 8 hourly intravenous infusion after sending blood and urine for culture and antibiotic susceptibility testing (ABST).

Lumber puncture was done on same day and cerebrospinal fluid (CSF) analysis showed $171/\text{mm}^3$ polymorphs, $158/\text{mm}^3$ lymphocytes and $240/\text{mm}^3$ red blood cells. CSF protein was high 81.23mg/dL and there was a sugar difference. CSF culture did not isolate any pathogens.

Blood culture taken on admission signaled positive for Gram negative bacilli after 7.1 hours. There was a scanty growth of grey colonies on blood agar plate. On MacConkey agar it showed non lactose fermenting colonies. Growth was catalase positive and oxidase negative. Organism was motile in hang drop method. Kligler Iron Agar (KIA) and Urease were not available.

Direct ABST from blood culture bottle showed sensitivity to piperacillin tazobactam, aminoglycosides, ciprofloxacin and meropenem resistance to cefuroxime, ceftriaxone and polymyxin B. As the ABST pattern was an unusual pattern for meningitis causing organisms in children we sent the isolate to National Hospital, Kandy for further identification.

Organism was identified as *B. gladioli* by VITEK 2 automated identification system with 99% probability. ABST was performed according to CLSI guideline 2022. Zone diameters interpreted using *Burkholderia cepacia* complex and was sensitive to ceftazidime, meropenem, trimethoprim and sulfamethoxazole.

Diagnosis of meningitis was made. Meropenem was continued for 14 days considering the clinical presentation.

Patient's fever responded over next 5 days. Activity and appetite improved. On discharge, patient was active and well. There were no residual neurological deficits.

Discussion

B. gladioli, earlier known as *Pseudomonas marginata* is a known pathogen of plants and a rare cause of human infections. It's a Gram-negative bacillus commonly found in soil, water, plants and in animals. It is a common cause of pulmonary infections in patients with cystic fibrosis. Cases of extra pulmonary infections are commonly seen in immunocompromised. There were some cases of nosocomial infections of *B. gladioli* in immunocompetent patients indicating that the pathogen can cause infections in immunocompetent as well¹. When compared with *B. cepacia* complex *B. gladioli* causes less resistant transient infections and person to person transmission is rare².

B. gladioli are Gram negative bacilli which are catalase positive, oxidase negative and motile. It cannot be identified with the routine tests done for species identification in a clinical laboratory. The API 20NE cannot identify *B. gladioli* from *B. cepacia*. Although species specific PCR based assays are best for identification of *B. gladioli* when considered the cost effectiveness automated identification systems like VITEK 2 is advantageous and reliable³. For ABST testing we used CLSI method as previous studies have also used⁴.

This case report provides evidence that though rare *B. gladioli* can cause infections even in immunocompetent patients and it is better to have a proper identification of the aetiological agent when the routine tests in the clinical laboratory direct towards an unusual pathogen.

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Antifungal stewardship: A view through the London “Eye”

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Antimicrobial stewardship refers to a set of commitments and activities designed to optimize the treatment of infections while reducing the adverse events associated with antimicrobial use (1). Its secondary objectives are aimed at reducing healthcare costs without adversely impacting the quality of care provided to the patient (1).

Antifungal stewardship, although not talked about as much, is nevertheless an important part of stewardship initiatives. As much as 30%–50% of antifungal prescriptions could be optimized or are even deemed inappropriate (2). Overprescribing antifungals can lead to drug toxicities, drug interactions, and selection of resistant fungi.

Unlike antibiotics, antifungals are mainly prescribed by fewer specialties, such as in haemato-oncology, organ transplant units, critical care medicine and gastrointestinal surgical units. The most commonly prescribed antifungals by far were the triazoles (46%) which include fluconazole, itraconazole, voriconazole and posaconazole (3). It has been calculated that in three-quarters of patients for whom antifungals were started empirically, there was ultimately no evidence of invasive fungal infection (4).

Antifungal stewardship initiatives consist of four main strategies (5):

1. The availability of an evidence-based guidelines. This should include a risk assessment table for antifungal prophylaxis, to be made available in hospitals with frequent antifungal use.
2. Antifungal reviews by a stewardship team. All antifungals started empirically or as targeted therapy should be reviewed 48–72 hours after initiation, and weekly thereafter by a specialist stewardship team.
3. Regular audits of antifungal prescribing should be done using a standardized format with measurement of key metrics.
4. Analysis of diagnostic gaps for the diagnosis of serious fungal diseases, as recommended by the *British Society for Medical Mycology Best Practices*.

A study done in 2017 (6) found that only five out of 47 of surveyed English Trusts reported having a dedicated antifungal stewardship programme, as opposed to 98% reporting the presence of an antibiotic stewardship programme. One centre reported a 26% reduction in their institutional antifungal expenditure, without compromising on the clinical or microbiological outcomes. This was despite the national antifungal expenditure more than doubling during the same period (7).

Practically speaking, an antifungal stewardship programme should have a smooth workflow. The antifungal agents to be stewarded should be pre-defined. All patients who are on these antifungals should be flagged and reviewed weekly by the infectious disease consultant/microbiologist/mycologist and antimicrobial pharmacist. Results of fungal diagnostic tests should be traced and on-hand for reviews (8).

Several aspects should be looked into for a successful stewardship programme. Updated evidence-based guidelines should be available at the point-of-care. A specialist in mycology should be available on-site preferably. It's important that the stewarding team and the clinicians are in agreement regarding the management plan.

Stewarding should be done regarding the indication, correct antifungal agent, correct dosage to achieve therapeutic drug levels (guided by therapeutic drug monitoring if indicated), for the correct duration with timely de-escalation of therapy, while ordering correct fungal investigations prior to starting antifungals and then tailoring the antifungals depending on the lab results.

The availability of non-culture based fungal assays has been shown to reduce inappropriate fungal treatment where negative results have been used to withhold empiric treatment due to a low possibility of invasive fungal disease. However, they should not be used in a low-pretest probability setting, as they could yield false positives or results of unknown clinical significance (7).

A proposed list of metrics would help to

measure the impact of antifungal stewardship initiatives in a given institute (12). These may include data on antifungal consumption such as *Defined Daily Doses per 1000 patient days*, metrics for measuring the quality of antifungal prescribing (appropriate choice of antifungals, therapeutic drug monitoring, appropriate duration of therapy, de-escalation of empiric therapy etc.), diagnostics (appropriate diagnostic tests used, turn-around-time to results), mycological data (causative organism and sensitivity pattern), clinical data (incidence of invasive fungal infections, mortality attributable to invasive fungal infections, hospital length of stay) and costing.

Several gaps hinder an effective antifungal stewardship programme in Sri Lanka. These include the non-availability of specialist mycology services in most hospitals, the prohibitive costs and poor availability of fungal diagnostics and difficulties in introducing newer antifungals especially during the current economic crisis. However, formulating antifungal guidelines and policies, improved education on antifungal prescribing, clinical audits on antifungal prescribing and introducing antifungal stewardship teams will be of huge benefit even during the economic crisis. Hence, Sri Lanka must redouble its efforts to establish hospital-based antifungal stewardship initiatives, spearheaded by the Sri Lanka College of Microbiologists.

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Microbiology of organ preservation-fluid in solid organ transplantation

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Clinical Scenario 1

Following a liver transplant perfusion fluid and donor vessels were positive for *Staphylococcus capitis* from enrichment cultures. On day two of the transplant, the recipient was on piperacillin-tazobactam for chest infection and clinically improving. The theatre was informed to discard vessels if not used. Additional antibiotics were not added.

Clinical Scenario 2

In a simultaneous pancreas-kidney transplant, donor vessels, artery and vein had *Staphylococcus epidermidis* and *Staphylococcus hominis* from enrichment cultures. Transplant surgeon confirmed donor vessels were used in theatre.

The recommendation was to discard any remaining donor vessels from fridge in theatres and complete required paperwork. Antimicrobial therapy was commenced. Doxycycline to which both were sensitive, was given for 6 weeks.

Clinical Scenario 3

Kidney perfusion fluid grew *Klebsiella pneumoniae* sensitive to ciprofloxacin. The recipient developed fever, high inflammatory markers without known focus of infection. He was treated with intra-venous followed by oral ciprofloxacin for two weeks

Clinical Scenario 4

Kidney perfusion fluid grew *Morganella morganii* resistant to meropenem and sensitive to ertapenem. The recipient had

received ertapenem as prophylaxis and had no features of infection. Microbiologist decided to discontinue ertapenem as it was an unusual result. Carbapenem resistant organism has never been isolated from transplant perfusion fluid in this centre.

Discussion

Infection is a main reason of morbidity and mortality after organ transplantation. Transplant recipients have increased susceptibility to early post-transplant infections due to surgical complications and immunosuppressive therapy. Early infections following transplant could be donor derived, including organ preservation fluid associated infections (1,2).

Organ preservation solutions will improve the graft survival by reducing hypoxic damage throughout cold storage. The biochemical characteristics of the organ preservation fluid keep microorganisms alive and also facilitate their growth (2).

Contamination of preservation-fluid in solid organ transplantation has variable prevalence in different studies, ranging from 10% to 90% (2,3). *Staphylococcus* species are around 50% of the isolates and 4% of them was *Staphylococcus aureus*. This is followed by *E. coli*, *Pseudomonas* and *Candida* species (2,4).

The testing of the transport fluid surrounding abdominal organs is now a routine practice in the majority of abdominal transplant centres (2,5).

Since August 2016, the recommendation of the NHS Blood and Transplant (NHSBT), United Kingdom was to perform routine microbiological testing of preservation-fluid/transport perfusion-fluid for every transplanted abdominal organ. This was following a number of incidences relating to possible donor transmission of *Candida*. The positive results were supposed to be reported back to the NHSBT Hub Operations using a specific electronic format.

In 2018 the policy was changed to report any of the *Candida*, *Shigella* and *Pseudomonas* species, *Staphylococcus aureus*, Enterobacteriaceae or multi drug resistant organisms (5).

The current protocol of the Newcastle upon Tyne Hospitals NHS Trust describes the processing of donor blood vessels recovered for the purpose of anastomosis, vessel preservation-fluid and transport perfusion-fluid.

All donor vessels are stored in a tissue bank for maximum 14 days and screened for sterility prior to storage and/or implantation into recipient. Vessels that have not been used within this time frame are discarded.

The specimen collection should take place at the beginning of the procedure. The organ normally arrives triple-bagged. The outer-most bag is opened by a non-sterile assistant and the inner two bags plus organ are removed to the sterile perfusion tray. On opening the inner-most bag, the sterile operator collects a preservation fluid sample into a sterile universal container, which is closed and passed to the non-sterile assistant. This sample should be labelled and sent for culture with the special form.

If there is an intended breach of the gut during retrieval, National Organ Retrieval Services team should document in a special form and communicate to accepting transplant centre (5).

The consequences of preservation-fluid contamination and the role of culture-positive preservation-fluid in the management of transplant recipients has not been fully evaluated (1,2).

Contaminating pathogens in the fluid may be transmitted to the recipient and cause true infection. Studies show the incidence of preservation fluid related infection was relatively low 4% (3). Despite the low incidence of such infections, mortality rate is reported to be high as 35% among infected recipients. Preservation-fluid contamination could be associated with graft function impairment, though there is no evidence of preservation-fluid related infection (2).

Prescription of pre-emptive antibiotics according to preservation-fluid cultures could be associated with increased faecal carriage of extended spectrum beta lactamase producing organisms and potential for increasing colonization by multidrug-resistant organisms (1).

Therefore, it is important to analyze the clinical background considering advantages and disadvantages in each case before starting antibiotics based on the preservation fluid culture results.

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The Bulletin of the Sri Lanka College of Microbiologists

The Bulletin of the Sri Lanka College of Microbiologists is the annual publication of the Sri Lanka College of Microbiologists issued along with the Annual Scientific Sessions of the College. The Bulletin includes the summaries of the speeches/lectures/symposia and abstracts of oral/ poster presentations to be made during the Annual Scientific Sessions in addition to reviews, research articles and case reports relevant to microbiology and infectious diseases sent by the membership. The aims of the bulletin are to encourage the membership to conduct and publish good quality research to support and improve the practice of microbiology in Sri Lanka and to share experiences to enrich and upgrade the professional standards.

All manuscripts will be subjected to review before acceptance and will be accepted with the understanding that the work is not being submitted simultaneously to another journal and has not been already published /accepted for publication elsewhere.

TYPES OF CONTRIBUTIONS

Review articles

Editorial board selects one or more from the articles submitted as review articles. This should contain less than 2000 words and address a microbiologically significant topic of current interest. This article should be supported by no more than 20 key references.

Research (original) articles

These should be in the format of

introduction/background including the purpose of the study, materials and methods, results, discussion and conclusions. Each manuscript must have a structured abstract of 200 words giving the background, materials and methods, results and conclusions. The text should be limited to less than 2000 words and 15 references. Discussion should be clear and limited to matters arising directly from the results.

Articles

These articles should be limited to 1500 words and 12 references. Journal will give priority to articles dealing with topics of interest and importance in microbiology and infectious diseases in Sri Lanka.

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These should not exceed 750 words and 5 references and should be structured as Introduction, Case report and Discussion. Abstract is not required. Editorial board will be paying attention to the significance of the case report to the practice of microbiology in Sri Lanka.

Abstracts of presentations to be made at Annual Scientific Sessions

These should be limited to 350 words.

Photo quiz

This should be accompanied by a clear photograph and text. Limit your references to three for the answer. (Those submitted without references may be accepted if editors decide as suitable for publication).

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- Manuscripts should be submitted with a **cover letter** stating:
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 - the originality of the article.
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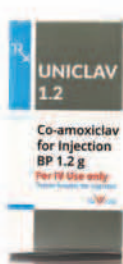
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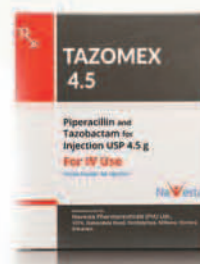
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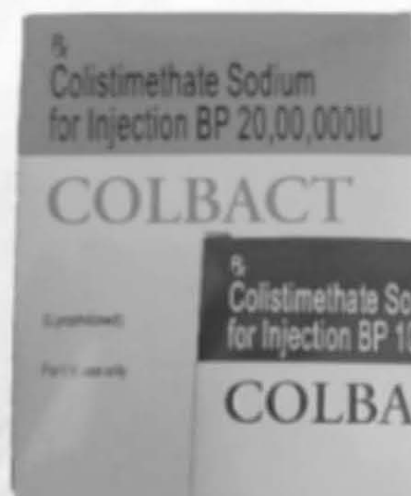
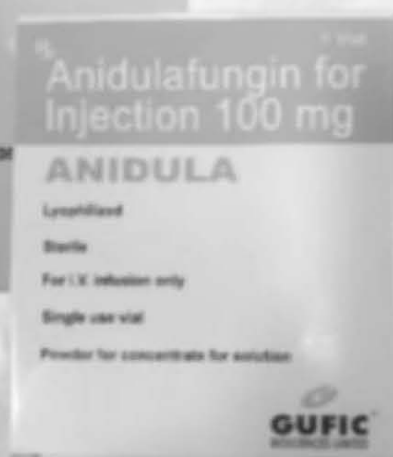
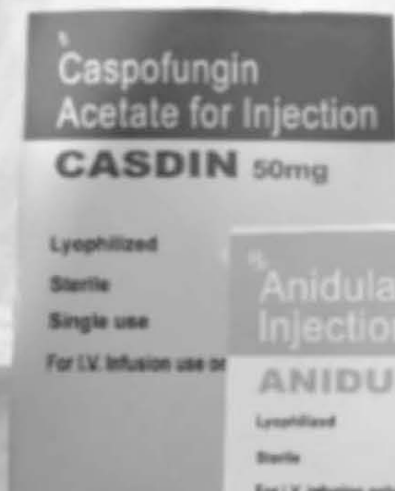
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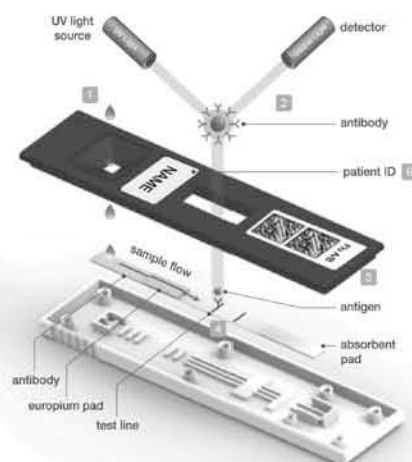
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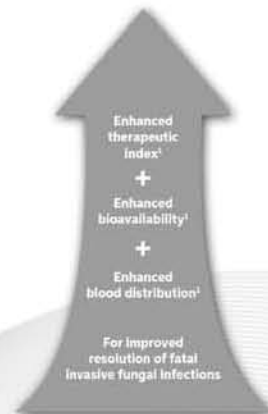
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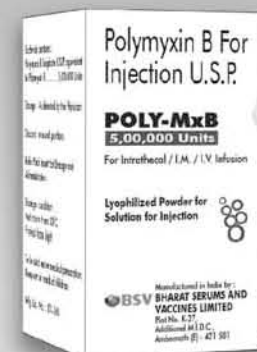


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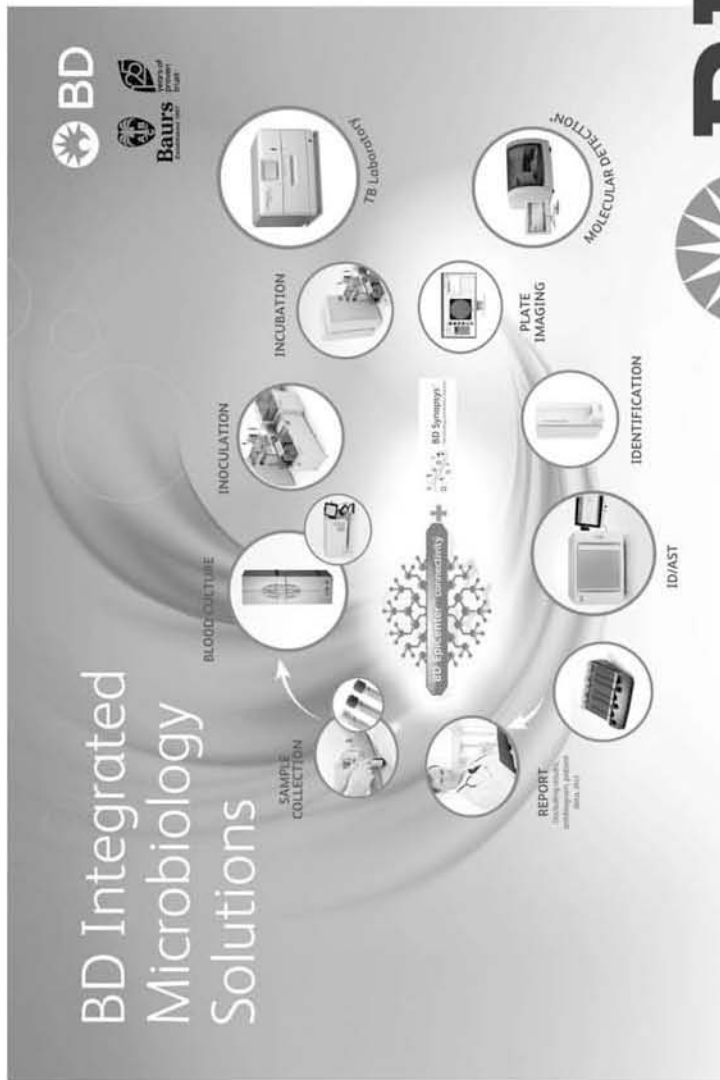
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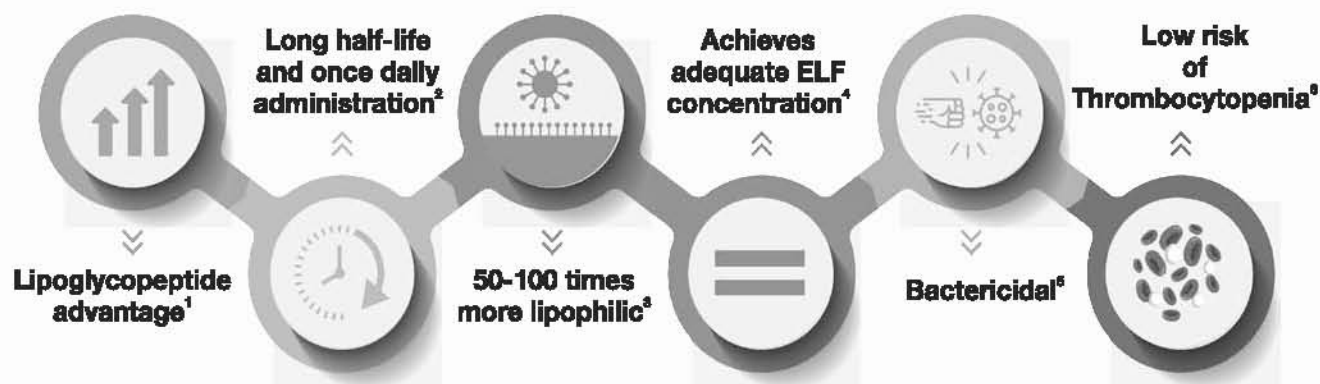
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