



ORGANIZED BY
**MALYSIAN CARDIOTHORACIC ANAESTHESIOLOGY
AND PERFUSION SOCIETY**



12th *MM* C/PB

BIENNIAL CONFERENCE ON
CARDIOPULMONARY BYPASS

2024



THE MARRIOTT PENANG

3rd - 5th October 2024

*"The Art of Precision For Better and Safe
Patient Care"*

ENDORSED BY
MALYSIAN SOCIETY OF ANAESTHESIOLOGISTS
COLLEGE OF ANAESTHESIOLOGISTS, AMM



SUPPORTED BY



WELCOME SPEECH

DATO' DR JAHIZAH HASSAN
ADVISOR

12th BIENNIAL CONFERENCE ON CARDIOPULMONARY BYPASS



Assalamualaikum WBT and welcome to our 12th Biennial Conference on Cardiopulmonary Bypass 2024 which is held in Penang this year. "The Art of Precision For Better and Safe Patient Care" is this year's theme. It is a privilege again to gather such a distinguished group of professionals, all dedicated to advancing the field of cardiovascular medicine.

The work we do in cardiopulmonary bypass is nothing short of lifesaving. From the early days of heart-lung machines to the cutting-edge technologies and techniques we employ today, our field has continually evolved, driven by innovation and a relentless pursuit of excellence. Today, we stand on the shoulders of giants, and it is our duty to push the boundaries even further.

Throughout this conference, we will explore the latest research, share groundbreaking techniques, and discuss the challenges and opportunities that lie ahead. Our agenda is packed with insightful presentations, expert panels, and interactive sessions designed to foster collaboration and spark new ideas.

I encourage you to take full advantage of this opportunity to connect with your peers, ask questions, and share your own experiences. The exchange of knowledge and expertise is what will drive our field forward and ultimately improve patient outcomes.

Don't forget to explore the wonders of Penang, savour the delightful array of food from its multiracial, multi-ethnicity people. Bask in the beautiful beaches and exciting famous tourist hotspots.

Thank you for being here and for your commitment to advancing cardiopulmonary bypass. Let's make this conference a milestone in our collective journey toward excellence in cardiovascular care.

Together, let's embark on a journey of learning, innovation, and collaboration. Welcome once again, and I look forward to the productive days ahead.

Thank you.



DR MOHAMAD HANAFI MOHD
LOCAL ORGANIZING CHAIRPERSON
12th BIENNIAL CONFERENCE ON CARDIOPULMONARY BYPASS

On behalf of the Organizing Committee, I would like to wish a warm welcome to everyone to the 12th Biennial Conference on Cardiopulmonary Bypass and Penang, Pearl of the Orient. The Conference theme “The Art of Precision for Better and Safe Patient Care” encapsulates our meticulous and thoughtful approach to ensure optimal patient outcomes which involves diagnosis and treatment, procedures, medication management, monitoring, communication and ensuring life-long education.

The scientific programme, led by Dr Hasmizy Muhammad, as Scientific Committee Chairman, through numerous discussions and collaborative effort, promises a diverse and impressive line-up of topics given by distinguished speakers locally and internationally. I am honoured to witness the collaboration and dedication of experts who convened here with a shared commitment to advancing healthcare excellence.

My deepest gratitude to all the committee members for their hard work and commitment. My sincere appreciation to our invited speakers from near and far whom despite their hectic schedules, able to make time to share their extensive expertise and knowledge with us. To the medical industrial sponsors, thank you for your support and for sharing your latest advances in medical technologies and pharmacotherapeutics.

Greetings again from Penang, I hope you'll have a productive scientific sessions, and at the same time be able to enjoy Penang especially Georgetown, Unesco's heritage city's many attractions !

DR HASMIZY MUHAMMAD
SCIENTIFIC CHAIRPERSON
12th BIENNIAL CONFERENCE ON CARDIOPULMONARY BYPASS



I am pleased to welcome you to the 12th Biennial Conference on Cardiopulmonary Bypass, which will be held at the Marriot Hotel, Penang, from 3rd to 5th of October 2024. The conference is organized by the Malaysian Cardiothoracic Anaesthesiology and Perfusion Society (MASCAP) and endorsed by the Malaysian Society of Anaesthesiologists and the College of Anaesthesiologists, Academy of Medicine of Malaysia. The conference's theme is "The Art of Precision for Better and Safer Patient Care."

The Scientific Committee has invited distinguished local and overseas speakers to present and discuss scientific issues, questions, achievements, and challenges related to Cardiothoracic Anaesthesiology and Perfusion. The overseas speakers are from the United Kingdom, Australia, Singapore, Indonesia, South Korea, and Japan.

The scientific programme starts with three pre-congress workshops, namely the Perioperative Cardiac Ultrasound Workshop, the Bronchoscopy Workshop and Simulation in Perfusion Technology. There are 6 plenaries, 13 symposiums, and 2 lunch symposiums. I believe this conference will offer exciting plenaries, symposia, free paper presentations, and workshops.

I would like to thank the members of the Scientific Committee for the excellent academic programme developed to meet the needs of the participants, the Organising Committee, led by the Organising Chairman Dr Mohamad Hanafi Mohd, the speakers, the symposium's chairpersons and the judges of free paper presentations for contributing their valuable time to this remarkable event.

*Finally, I also want to thank all of you for attending this conference as our participants. I wish everyone a fruitful and enjoyable scientific congress.
Thank you.*

FACULTY

INTERNATIONAL FACULTY



LOCAL FACULTY

Adli Azam Mohammad Razi
Ahmad Khadri Awang
Ahmad Sallehuddin
Ariffin Marzuki Mokhtar
Azmiza Maharani
Barakath Badusha Abdul Kareem
Chua Chen Chen
Hanafi Sidik
Hasmizy Muhammad
Isqandar Adnan
Jahizah Hassan
Juita Hassan
Khaw Soon Keong

Lee Kok Tong
Lim Shin Nee
Martin Wong
Maseeda Mohd Yusof
Mazlilah Abdul Malek
Muhammad Fikri Abdul Halim
Nadia Hanom Ishak
Nor Asiah Abdul Mutalib
Nor Hayati Mohd Said
Saravanan Krishinan
Shereen Toh May Yi
Suneta Sulaiman
Yong Chow Yen

ORGANIZING COMMITTEE

LOCAL ORGANIZING COMMITTEE

ADVISORS	DATO' DR JAHIZAH HASSAN DATO' DR NORLY ISMAIL
CHAIRPERSON	DR MOHAMAD HANAFI MOHD
SECRETARY	DR MASEEDA MOHAMED YUSOF FATIN NUR QAMARINA AZHARI
TREASURER	DR JUSMIDAR ABDUL JAMIL HJ ABDUL HALIM ABDUL HAMID
SECRETARIATE / REGISTRATION	LOGISTIC
NOR ASIAH ABDUL MUTALIB	MOHD NOOR ISWADI AZMI
HAMIDAH WAHID	MOHAMMAD AMEROL AHMAD
NURULHUDA ALI	MUHAMMED ZAHIR MOHD SIDEK
ZAINUREEN MARUSIN	MOHD ROSSIDI FAZIL
FARAH FARHANA YAHAYA	FAJAR MOHD ZAINI
NUR AMALINA SAIDAN	NETTYANA ANAK GUS
SOCIAL	AUDIO-VISUAL / PUBLICITY
DR AMAR GHASSANI	DR HASLAN GHAZALI
WAN MOHD SYAIFUDDIN WAN IBRAHIM	DR LEE KOK TONG
ROZITA MOHD NOOR	AHMAD FAIS ABU SEMAN
SYAFIQ SOFIAN	ABRAR IWAN AZHARI
	ANNAS HIKMI ROSLI
	MOHD HELMI LOKMAN
	HERMI SAFIAN
FACULTY	SPONSORSHIP / EXHIBITION
DR NAEEMAH ABDUL AZIZ	HAIRULNIZAM CHE ME
DR LOO KAR YEE	FARADH ANAS MASDOKHI
AZLI AHMAD	AHMAD DHIYAUDDIN ZAINUL ABIDIN
MOHD IRWAN IBRAHIM	

SCIENTIFIC COMMITTEE

CHAIRPERSON	DR HASMIZY MUHAMMAD
DEPUTY CHAIRPERSON	DR MOHAMED HANAFI MOHD
COMMITTEE MEMBERS	DATO' DR JAHIZAH HASSAN DATO' DR NORLY ISMAIL DATO' DR YONG CHOW YEN DR ZUHRAH ZAKARIA DR AZMIZA MAHARANI DR CHUA CHEN CHEN DR JUSMIDAR ABDUL JAMIL DR NOORDINI MOHAMED DANI DR NAZRI MOHAMED DR HANAFI SIDIK DR MAZLILAH ABDUL MALEK DR MOHD KHAIRUL ANWAR A. RAHIM DR MASEEDA MOHAMED YUSOF

PROGRAMME



3rd OCTOBER 2024 (THURSDAY)

1. PERIOPERATIVE CARDIAC ULTRASOUND WORKSHOP

DATE	: 3rd October 2024
VENUE	: The Marriott Hotel Penang
TIME	: 8.00am - 5.30pm
NUMBER OF PARTICIPANTS	: 30 pax

OVERVIEW

This one day course will provide a comprehensive review of Perioperative Cardiac Ultrasound (Transthoracic and Transesophageal Echocardiography). The course is designed for doctors with interest in Perioperative Cardiac Ultrasound and wish to gain additional practical experience in these specific areas

COURSE LEARNING OBJECTIVES

1. Understand the principles of ultrasound.
2. Describe the standard views of TTE and TEE.
3. Describe the utility of 2D echocardiography and Doppler method in assessment of cardiac function and haemodynamic.
4. Describe how to document the ultrasound findings.
5. Describe the Lung ultrasound.
6. Identify the limitations of ultrasound.

COURSE LEARNING STRATEGIES

1. Expert led presentations and demonstrations.
2. Hands-on practical scanning on real patient models and simulators

FACULTY

Prof Tae-Yop Kim
Dr Hasmizy Muhammad
Dr Haslan Ghazali
Dr Mohamad Hanafi Mohd
Dr Mazlilah Abdul Malek
Dr Lee Kok Tong
Dr Juita Hassan

COURSE STRUCTURE

Time	Agenda
0800 - 0830	Registration
0830 - 0900	Principles of Ultrasound Hasmizy Muhammad
0900 - 0930	Image Optimisation Juita Hassan
0930 - 1000	Standard Views of Transthoracic Echocardiography Haslan Ghazali
1030 - 1100	Morning break
1100 - 1300	Practical Session
1300 - 1400	Lunch break
1400 - 1430	Valvular Assessment Lee Kok Tong
1430 - 1500	Lung Ultrasound Juita Hassan
1500 - 1530	Standard Views of Transesophageal Echocardiography Tae-Yop Kim
1530 - 1730	Practical Session

2. BRONCHOSCOPY WORKSHOP

DATE : 3rd October 2024
TIME : 9am – 5pm
VENUE : Marriot Hotel, Penang
MAXIMUM CAPACITY : 30 participants

OVERVIEW

Flexible bronchoscopy is a clinical procedure that requires good technical skills to perform. These skills can be acquired through hands-on training on phantoms, simulators, or patients (supervised). However, theoretical knowledge on anatomy and technique of flexible bronchoscopy is a prerequisite for mastering the procedure.

This workshop will use a combination of informative lectures, hands-on teaching using simulators and supervised practice. Participants will gain knowledge on airway anatomy, learn step by step approach to bronchoscopy and understand how to prepare and perform intubation and bronchial wash/BAL. At the end of the course the participants should be able to master the skills of maneuvering the bronchoscope in a gentle and effective way while identifying all bronchial segments.

The target audience is doctors in the fields of anaesthesiology and intensive or critical care who are interested in learning or extending their bronchoscopic skills. A structured feedback to participants on their competency level based on a validated assessment tool and certification of competency will be awarded. All participants will receive the booklet: "Practical guide to Bronchoscopy in the ICU" for continued practice and training of junior colleagues in their home institution.

FACULTY

Prof Izumi Kawagoe
Dato Dr Yong Chow Yen
Dr Ng Siew Peng
Dr Jusmidar binti Abdul Jamil
Dr Eric Tang Boon Kiat
Dr Zulhilmi bin Sharizal

PROGRAM

0900 – 0910	Welcome and introduction
0910 – 0940	Why learn bronchoscopy?
0940 – 1025	Bronchial anatomy and scope handling
1025 – 1045	Coffee break
1045 – 1145	Hands-on-session 1
1145 – 1215	Single-use vs. traditional bronchoscopes
1215 – 1245	Pharmacological preparation for awake fibreoptic bronchoscopy
1245 – 1400	Lunch
1400 – 1500	Hands-on session 2
1500 – 1515	Coffee break
1515 – 1600	Performing test procedures
1600 – 1630	Feedback on tests + advanced training
1630 – 1700	Questions, feedback and evaluation

Acknowledgement of Equipment Support:



3. SIMULATION IN PERFUSION TECHNOLOGY

DATE	: 3rd October 2024
VENUE	: The Marriott Hotel, Penang
TIME	: 8.00 am - 4.30 pm
PARTICIPANTS	: 30 pax

OBJECTIVES

This one day course will provide participants with the how to anticipate and knowledge of what to do when things go wrong during cardiopulmonary bypass. Using simulators to simulate common and uncommon perfusion incidents, this course will help junior and less senior perfusionists to learn as many situation as possible to help them to prepare and gain confidence to face the real situation whenever it occur.

COURSE OBJECTIVES

1. To expose participants with perfusion crisis
2. What constitute perfusion crisis
3. How to manage perfusion crisis
4. To prepare participants when perfusion crisis occurs real life
5. Platform for other perfusionists to share their ideas, experiences and practices

COURSE LEARNING STRATEGIES

1. Expert led presentations and demonstration
2. Hands-on practical sessions with simulators, mannequin and monitors

FASILITATORS

1. Mr Lester Wong – Medtronic, Singapore
2. Tn Hj Abdul Halim Abdul Hamid
3. Tn Hj. Azli Hj Ahmad
4. Mohd Irwan Ibrahim
5. Hairulnizam Che Me
6. Hermi Safiyan
7. Muhammad Helmi Lokman
8. Syafiq Sofiyan

Time	Agenda
0800 - 0830	Registration
0830 - 0930	Responsibilities as a Perfusionist when Handling HLM & Workshop Briefings Tn Hj. Abdul Halim Abd Hamid
0930 - 1000	Common Perfusion Troubleshooting during Open Heart Surgery and How to Manage Mr. Lester Wong
1000 - 1030	Tea Break
1030 - 1230	Crisis Scenario (Part 1)
1230 - 1400	Lunch Break
1400 - 1600	Crisis Scenario (Part 2)
1600 1630	Case Discussions
1630	Tea Break and Adjourn

4th OCTOBER 2024 (FRIDAY)

0800 - 0830	REGISTRATION	
0830 - 0900	PLENARY 1 Chairperson: Hasmizy Muhammad Band-Specific Management In Processed-EEG Monitoring - Tae-Yop Kim	Salon 1 & 2
0900 - 1015	OPENING CEREMONY	
1015 - 1045	TEA & TRADE EXHIBITION	
1045 - 1200	1045 - 1200	1045 - 1200
SYMPOSIUM 1 Salon 1 & 2	SYMPOSIUM 2 Salon 3	SYMPOSIUM 3 Studio 1 & 2
PATIENT BLOOD MANAGEMENT Chairpersons : Mohamed Hanafi Mohd / Khaw Soon Keong	PERFUSION Chairpersons : Nor Hayati Mohd Said / Abdul Halim Abdul Hamid	CARDIAC NURSING Chairpersons : Noordini Mohamed Dani / Naeemah Abdul Aziz
Patient Blood Management during CPB Tae-Yop Kim Implementing Anaemia Management Programs Isqandar Adnan Massive Transfusion in Cardiac Surgery: Where is the Rationale? Maseeda Mohd Yusof	Custodial Cardioplegia: Unique Mechanism Brings Unique Clinical Benefit Adli Azam Mohammad Razi Perfusion Strategies for Congenital Cardiac Surgery Muhammad Fikri Abdul Halim The Use of ECMO for Airway Procedural Support Paul Forrest	Septic Patient in Cardiac ICU Suneta Sulaiman Postoperative CPB Outcomes Focusing on AKI and Hyperlactatemia Sam Immanuel Selvaraj How to Be an Effective Cardiac Intensive Care Nurse Nor Asiah Abdul Mutalib
Questions and Answers Session		
1200 - 1230	LUNCH SYMPOSIUM (LIVANOVA) Chairperson: Jahizah Hassan Essenz - Sam Immanuel Selvaraj	Salon 1 & 2
1230 - 1300	BUFFET LUNCH	
1300 - 1445	FRIDAY PRAYERS / TRADE EXHIBITION	
1445 - 1515	PLENARY 2 Chairperson: Maseeda Mohamed Yusof Updates on Perioperative Analgesia for Thoracic Surgery - Izumi Kawagoe	Salon 1 & 2
1515 - 1630	1515 - 1630	1515 - 1630
SYMPOSIUM 4 Salon 1 & 2	SYMPOSIUM 5 Salon 3	SYMPOSIUM 6 Studio 1 & 2
ADULT CARDIAC ANAESTHESIA Chairpersons : Yunseok Jeon / Loo Kar Yee	UPDATES IN CARDIAC SURGERY AND CARDIOLOGY Chairpersons : Hanafi Sidik / Zulhilmi Sharizal	CONGENITAL HEART DISEASE Chairpersons : Anas Alatas / Mazlilah Malek
Volatile Versus Total Intravenous Anaesthesia for CABG Nadia Hanom Ishak Pulmonary Artery Hypertension and Anaesthesia Hasmizy Muhammad Postoperative Delirium After Cardiac Surgery Ti Lian Kah	PCI vs. CABG in Multivessel Disease: Cardiologist Perspective Barakath Badusha Abdul Kareem PCI vs. CABG in Multivessel Disease: Surgeon Perspective Ahmad Khadri Awang Mechanical Support for the RV Failure Suneta Sulaiman	An Overview of Grown-Up Congenital Heart Disease Martin Wong Minimally Invasive Cardiac Surgery in Congenital Heart Diseases Ahmad Sallehuddin Eisenmenger Syndrome and It's Outcome Shereen Toh May Yi
Questions and Answers Session		
1630 - 1700	TEA & TRADE EXHIBITION	

5th OCTOBER 2024 (SATURDAY)

0800 - 0830	REGISTRATION	
0830 - 0900	PLENARY 3 Chairperson: Yong Chow Yen Goal-directed Cardiopulmonary Bypass: Which, Why and How? - Paul Forrest	Salon 1 & 2
0900 - 0930	PLENARY 4 Chairperson: Norly Ismail Macro and Microcirculation During Cardiac Surgery - Yunseok Jeon	Salon 1 & 2

0930 - 1045	0930 - 1045	0930 - 1045
SYMPOSIUM 7 Salon 1 & 2	SYMPOSIUM 8 Salon 3	SYMPOSIUM 9 Studio 1 & 2
PAEDIATRIC CARDIAC ANAESTHESIA Chairpersons : Ariffin Marzuki Mokhtar / Izumi Kawagoe	CARDIAC INTENSIVE CARE Chairpersons : Chua Chen Chen / Juita Hassan	MONITORING Chairpersons : Isqandar Adnan / Nor Hayati Mohd Said
Modified Ultrafiltration For Congenital Heart Surgery Anas Alatas Management For Fontan Circulation James Montgomerie Anaesthetic Management For Tracheal Resection In A Patient With Critical Tracheal Stenosis Izumi Kawagoe	Inotropes, Vasopressors and Hemodynamics Khaw Soon Keong Cardiothoracic Intensive Care Unit: Where We Are In 2025 Hasmizy Muhammad The Past, Present and Future of Cardiac Arrhythmia Ablation Saravanan Krishinan	The Pulmonary Artery Catheter and other CO Monitors Mazlilah Abdul Malek Cerebral Oximetry and Neuromonitoring Hanafi Sidik Why We Need Extra Artery Pressure Monitoring During Cardiac Surgery? Azmiza Maharani
Questions and Answers Session		

1045 - 1115	TEA & TRADE EXHIBITION	
0930 - 1045	0930 - 1045	0930 - 1045
SYMPOSIUM 10 Salon 1 & 2	SYMPOSIUM 11 Salon 3	Studio 1 & 2 SELECTED BEST POSTER & CASE REPORT/SERIES PRESENTATIONS 1
THORACIC ANAESTHESIA Chairpersons : Nazri Mohamed / Mohd Khairul Anwar A. Rahim	PERIOPERATIVE MEDICINE Chairpersons : Lee Kok Tong / Amar Ghassani	
Medical Optimization for Thoracic Surgical Patients Chua Chen Chen Lung Isolation in the Difficult Airway Anas Alatas Total Anomalous Pulmonary Venous Return - Anesthesia Considerations Lee Kok Tong	Perioperative Nutritional Status in Cardiothoracic Surgical Patient Lim Shin Nee Preoperative Evaluation for Cardiac Surgery- What Tests Do We Really Need? Nor Hayati Mohd Said Perioperative Management of Arrhythmias Ariffin Marzuki Mokhtar	
Questions and Answers Session		

1230 - 1300	LUNCH SYMPOSIUM (ETERNITY HEALTHCARE) Chairperson: Mohamed Hanafi Mohd Rotaflo II - Proven Strength. Reinvented. - Vivianne Tay Hui Mei	Salon 1 & 2
1300 - 1400	BUFFET LUNCH	
1400 - 1430	PLENARY 5 Chairperson: Haslan Ghazali Recent Advances in Cardiac Surgery Associated Acute Kidney Injury - Ti Lian Kah	Salon 1 & 2
1430 - 1500	PLENARY 6 Chairperson: Azmiza Maharani Frailty In Paediatric Cardiac Patients, Fast Track : Future Or Folly - James Montgomerie	Salon 1 & 2

1500 - 1615	1500 - 1615	1500 - 1615
SYMPOSIUM 12 Salon 1 & 2	SYMPOSIUM 13 Salon 3	<i>Studio 1 & 2</i> SELECTED BEST POSTER & CASE REPORT/SERIES PRESENTATIONS 2
ECHOCARDIOGRAPHY Chairpersons : Hasmizy Muhammad / Nadia Hanom Ishak	LEADERSHIP, SAFETY & QUALITY Chairpersons : Ti Lian Kah / Norly Ismail	
Neonatal Critical Congenital Heart Lesions: Echocardiography Made Easy <i>Martin Wong</i> TEE During Mitral Valve Surgery <i>Yunseok Jeon</i> Ultrasound for Evaluation of Hypoxia/ Dyspnea <i>Juita Hassan</i>	Leadership in Cardiac Anaesthesia <i>Jahizah Hassan</i> Communication in the Cardiac OR <i>Yong Chow Yen</i> Human Error in the Operating Theater <i>Ariffin Marzuki Mokhtar</i>	
<i>Questions and Answers Session</i>		
1615 - 1645	PRIZE GIVING AND CLOSING CEREMONY	Salon 1 & 2
1645 - 1700	TEA BREAK AND ADJOURN	



ABSTRACTS

SPEAKERS LEARNING OBJECTIVES

Adli Azam Mohammad Razi

Custodial Cardioplegia: Unique Mechanism Brings Unique Clinical Benefit

Learning Objectives:

An introduction to Custodiol as cardioplegia solution. Understand the mechanism and clinical benefit in providing the effective cardioprotection. Evidence based practice as been reported in literatures

Ahmad Sallehuddin

Minimally Invasive Cardiac Surgery in Congenital Heart Diseases

Learning Objectives:

To explore the growing acceptance of minimally invasive congenital cardiac surgery (MICCS), highlighting its benefits such as reduced surgical trauma, faster recovery, and improved cosmetic outcomes. We will discuss various approaches, including mini-sternotomy and mini-thoracotomy, and address challenges like the steep learning curve and limitations in paediatric instrumentation. Emphasis will be placed on the importance of collaboration among the entire surgical team, including surgeons, anaesthetists, and perfusionists, to achieve optimal outcomes and advance MICCS as a standard of care in CHD repair.

Ariffin Marzuki Mokhtar

Perioperative Management of Arrhythmias

Learning Objectives:

After attending the session the participants will be able to:

1. define perioperative arrhythmias
2. explain the concepts related to the management of perioperative arrhythmias
3. apply the concepts to perioperative management of arrhythmias in their daily practice.

Human Error in the Operating Theatre

Learning Objectives:

After attending the session the participants will be able to:

1. define Human Error
2. explain the relationship between human error to patient safety
3. apply the concept of risk management in prevention of Human Error in the Operating Theatre (OT)

Barakath Badusha Abdul Kareem

PCI vs. CABG in Multivessel Disease: Cardiologist Perspective

Learning Objectives:

1. Outline treatment of coronary artery disease
2. Difference in treatment of stable CAD and ACS
3. Types of treatment
4. Differences between PCI/ CABG
5. How to choose revascularization strategy
6. Outcome data
7. Evidence based approach

Hasmizy Muhammad

Pulmonary Artery Hypertension and Anaesthesia

Learning Objectives:

After attending the session, the participants will be able to:

1. Define the pulmonary artery hypertension and its aetiology
2. Understand the pathophysiology of pulmonary hypertension
3. Apply the concepts of anaesthetic consideration in patients with pulmonary hypertension
4. Appreciate the post-operative care in patients with pulmonary hypertension

Cardiothoracic Intensive Care Unit: Where We Are In 2025

Learning Objectives:

After attending the session, the participants will be able to:

1. Understand the goals of the CICU
2. Appreciate the current CICU Setup
3. Have an idea on "Ideal" CICU
4. Answer, what is the "Smart" CICU
5. Explain the clinical governance in CICU

Isqandar Adnan

Implementing Anaemia Management Programs

Learning Objectives:

Perioperative anaemia is one of the most neglected cause of morbidity and mortality perioperatively. Although a percentage presented with anaemia most of clinicians chose to ignore and simply transfusing when it is unnecessary. Iron deficiency anaemia (IDA) are easily screen and corrected prior to surgery. Patient may presented as iron deficiency (ID) with or without anaemia. Preoperative screening and implementation of Patient Blood Management (PBM) Clinic will be able to detect and treat accordingly. Apart from preoperative antiplatelet agent, cardiac surgery is associated with massive blood loss due to invasiveness of the surgery, implementation of bypass circulation and institution of heparin further aggravating hemoglobin loss intra and postoperatively. Perioperative understanding of PBM including tolerance of anaemia will further improve safety of blood transfusion in cardiac surgery.

Hanafi Sidik

Cerebral Oximetry and Neuromonitoring

Learning Objectives:

Learn the usefulness of Cerebral Oximeter in cardiac surgery and a glance of other tools for neuromonitoring.

Izumi Kawagoe

Updates on Perioperative Analgesia for Thoracic Surgery

Learning Objectives:

Anaesthetic Management For Tracheal Resection In A Patient With Critical Tracheal Stenosis

Learning Objectives:

Thoracic anesthesiologists always deal with more complicated procedures than other subspecialties. In particular, airway management and postoperative pain management is complicated but attractive and it is what we should learn properly.

Tracheal surgical procedures is rare and crucial. In such a case, it is important to manipulate the bronchoscope appropriately.

I will introduce tips and tricks for thoracic anesthesia, which will be helpful and useful for the audience.

James Montgomerie

Management For Fontan Circulation

Learning Objectives:

Frailty In Paediatric Cardiac Patients, Fast Track : Future Or Folly

Learning Objectives:

Lee Kok Tong

Total Anomalous Pulmonary Venous Return - Anaesthesia Considerations

Learning Objectives:

Total Anomalous Pulmonary Venous Drainage is a cyanotic congenital heart defect in which the pulmonary veins fail to make their normal connection to the left atrium, resulting in the drainage of pulmonary venous return into the systemic venous circulation. Obstructed TAPVD patient is an emergency. We discussed the perioperative management and anesthetic considerations in TAPVD patient.

Lian Kah Ti

Postoperative Delirium After Cardiac Surgery

Learning objectives:

1. Perioperative risk factors for delirium after cardiac surgery
2. The tools used to assist in diagnosing delirium
3. The current pharmacological and non-pharmacological therapy options

Recent Advances in Cardiac Surgery Associated Acute Kidney Injury

Learning objectives:

1. To provide an overview of acute kidney injury after cardiac surgery
2. To inform on current recommendations
3. To discuss the PROTECTION trial (NEJM 2024)

Martin Wong

An Overview of Grown-Up Congenital Heart Disease

Learning Objectives:

Neonatal Critical Congenital Heart Lesions: Echocardiography Made Easy

Learning Objectives:

Mazlilah Abdul Malek

The Pulmonary Artery Catheter and other CO Monitors

Learning Objectives:

Cardiac output is the product of stroke volume and heart rate. Hence, it can be manipulated by altering heart rate, preload, contractility, and afterload. Cardiac output provides insights into overall blood flow and oxygen delivery, often serving as a surrogate for organ perfusion. Estimating and monitoring cardiac output play a crucial role in patient management during both anaesthesia and critical care. Cardiac output can be measured using various methods, ranging from simple clinical assessment, non-invasive to invasive hemodynamic monitoring. While the pulmonary artery catheter (Swan-Ganz catheter) has become less popular, it remains the gold standard for monitoring cardiac output. Other advanced monitoring techniques can also be used but despite extensive research on the accuracy of these monitors, there is currently limited information regarding their superiority and effectiveness in improving clinical outcomes.

Muhammad Fikri Abdul Halim

Perfusion Strategies for Congenital Cardiac Surgery

Learning Objectives:

Cardiopulmonary bypass is a critical component of pediatric cardiac surgery, allowing for the temporary support of a child's circulatory and respiratory systems during complex heart procedures. As advancements in this technology continue, it is essential that healthcare professionals involved in pediatric cardiac care remain informed and up-to-date on the latest developments and best practices. This conference presentation will focus on outlining the key learning objectives for healthcare providers regarding the use of cardiopulmonary bypass in the context of pediatric cardiac surgery.

Nadia Hanom Ishak

Volatile Versus Total Intravenous Anaesthesia for CABG

Learning Objectives:

Adult cardiac surgery is still burdened by high mortality and major postoperative complications, such as myocardial dysfunction, pulmonary complications, acute kidney injury and neurological injury. Besides improvements in surgical techniques, there is growing evidence that optimising perioperative care may result in a better postoperative outcome. The role of anaesthesiologist in formulating the best anaesthetic plan or strategy during a single cardiac surgery case may contribute to a significant effect on survival and other clinically relevant outcomes. This talk will focus on highlighting research findings related to the primary anaesthetics (volatile anaesthetics vs total intravenous anaesthesia) used during general anaesthesia in cardiac surgery.

Paul Forrest

The Use of ECMO for Airway Procedural Support

Learning Objectives:

1. Recognise high- risk patients undergoing airway procedures
2. Understand the indications for ECMO support in these cases
3. Understand the optimal ECMO configurations and flow for airway support procedures
4. Understand the relative merits of standby, elective and rescue ECMO

Goal-directed Cardiopulmonary Bypass: Which, Why and How?

Learning Objectives:

Despite having been in clinical use for more than 70 years, there is surprisingly little data on what constitutes "ideal" pressure and flow during cardiopulmonary bypass. In recent years, there has been increasing evidence to support the use of targeted (or goal-directed) CPB flow management. This talk will address the theory and practice behind this emerging trend in CPB management.

Sam Immanuel Selvaraj

Postoperative CPB Outcomes Focusing on AKI and Hyperlactatemia

Learning Objectives:

My key objective is on evidence-based perfusion tailored to GDP (AKI, GME, Blood conservation technique) & DATA focusing on AI and how its influence in cardiac surgery.

Shereen May Yi Toh

Eisenmenger Syndrome and It's Outcome

Learning Objectives:

Shin Nee Lim

Perioperative Nutritional Status in Cardiothoracic Surgical Patient

Learning Objectives:

By the end of the talk, the audience will be able to understand nutritional assessment, nutritional support concept of perioperative care and lastly the importance of good nutritional status on postoperative recovery and outcomes.

Tae-Yop Kim

Band-Specific Management In Processed-EEG Monitoring

Learning Objectives:

1. To understand the aim of using the processed EEG monitors (p-EEG) and the band-specific changes of p-EEG wave pattern during general anesthesia.
2. To understand the paradoxical changes in p-EEG waves at not-well-attenuated noxious stimuli
3. To understand the clinical importance of alpha-band in analgesia and perioperative brain health.
4. To understand the need for the Density spectral analysis of p-EEG waves (DSA) to enhance optimal titration of anesthetic agents and reduce postoperative cognitive disorders.

Yunseok Jeon

Macro and Microcirculation During Cardiac Surgery

Learning Objectives:

By the end of this lecture on "Macro and Microcirculation during Cardiac Surgery," participants will have a comprehensive understanding of the physiological mechanisms involved in both macro and microcirculation during cardiac procedures. Learners will be able to identify the key differences between macro and microcirculatory systems, understand the impact of cardiac surgery on blood flow dynamics, and analyze common complications associated with circulatory disruptions. Additionally, students will explore techniques to maintain adequate perfusion during surgery, assess the role of monitoring tools, and apply strategies for optimizing patient outcomes by managing both levels of circulation effectively.

TEE During Mitral Valve Surgery

Learning Objectives:

By the end of this lecture on "Transesophageal Echocardiography (TEE) during Mitral Valve Surgery," cardiac anesthesiologists will have an in-depth understanding of the role of TEE in the perioperative management of mitral valve procedures. Participants will be able to effectively utilize TEE to assess mitral valve anatomy, diagnose valve pathologies, and guide surgical interventions in real-time. Learners will also gain proficiency in interpreting pre- and post-repair images to evaluate the success of valve repairs and replacements, as well as identify complications early to optimize patient outcomes during mitral valve surgery.

FREE PAPER PRESENTATION

A Case Series of ECMO Application In Pusat Jantung Sarawak

Mohd Tarmimi M¹, Hasmizy M¹

¹ *Pusat Jantung Sarawak, Sarawak, Malaysia*

Background:

Both cardiac and thoracic surgeries are considered high risk surgery with a known significant risk of complications may arise occur during intraoperative and postoperative period. The availability of extracorporeal membrane oxygenation (ECMO) has become an invaluable asset used to stabilize patients undergoing cardiac and thoracic procedures with complications.

Method:

Since the application of ECMO in Malaysia is rare, we are reporting the usage of ECMO in our center this year. Case one was a 36 year old gentleman diagnosed with left atrial myxoma with functional mitral stenosis and thrombocytopenia, planned for excision of left atrial mass. However intraoperatively patient developed severe hypotension requiring high inotropic support and coagulopathy, unable to separate from cardiopulmonary bypass (CPB). Venoarterial extracorporeal membrane oxygenation (VA-ECMO) was initiated to assist separation from CPB and later he was sent to cardiothoracic intensive care unit (CICU) for further stabilization and management. Case two was a 32 year old gentleman diagnosed with right lower lobe adenocarcinoma, planned for right thoracotomy, middle lobe lobectomy and lymph node resection. Intraoperatively was uneventful and patient able to be extubated. However, patient developed acute respiratory distress syndrome (ARDS) on day 1 postop requiring mechanical ventilation. Venovenous extracorporeal membrane oxygenation (VV-ECMO) was initiated on day 4 postop in view severe respiratory failure unresponsive to conventional ARDS management.

Summary:

Although ECMO has been described by many literatures as a potential rescue tool, improper patient selection and steep learning curve hinders its benefits to improve patient mortality.

A Patient At Risk of Complete Airway Obstruction and Pre-emptive Veno-venous Extracorporeal Membrane Oxygenation: A Case Report

Z Sharizal, KT Lee, Z Zakaria, N Ismail

Cardiothoracic Anaesthesia & Perfusion Unit, Hospital Sultan Idris Shah Serdang, Malaysia

Abstract

Airway obstruction is a serious life threatening condition that can be catastrophic if improperly managed. Meticulous airway management planning and algorithm is essential to ensure patient's safety. Veno-venous extracorporeal membrane oxygenation (VV-ECMO) may be a life saving procedure in perioperative setting as a bridging option to maintain adequate gas exchange in an attempts to secure potential total airway obstruction in a patient where standard difficult airway management technique may fail. In this case report, we report the succesful use of VV-ECMO as a bridging technique before securing patient airway from a potential catastrophic central airway blockade in a 47 years old man with large anterior mediastinal mass.

Keywords: Extracorporeal membrane oxygenator, central airway blockade, anterior mediastinal mass

Double Fistula: A Comprehensive yet Conservative Approach

TK Wong¹, CC Chua¹

Department of Cardiothoracic Anaesthesiology and Perfusion, Hospital Queen Elizabeth II, Kota Kinabalu, Sabah, Malaysia

Introduction:

Double fistula, or the presence of both bronchopleural fistula (BPF) and pleurocutaneous fistula, produces persistent air leak (PAL). It is a challenging clinical entity, as it has physiologic implications for pleural mechanics and gaseous exchange, which identified high mortality rate of 67%. To date, antiquated guidelines fail to address PAL management in the context of critical illness

Case Presentation

A 52-year-old cachexic woman, with history of wide resection of right upper lobe for bronchiectasis secondary to pulmonary tuberculosis in 2019, which further complicated with double fistulas, was intubated for septic shock secondary to bronchopneumonia. Initial resuscitation was carried out. One lung ventilation (OLV) was attempted once hemodynamic improved and discontinued as soon as gases improved. Pleurocutaneous fistula was left open later with intention of allowing permissive air leakage. Pulmonary rehabilitation remained the main core in pathing the recovery. Patient was discharged home on day 57 on foot with tracheostomy.

Discussion:

OLV is not the mandatory measure in addressing PAL. Ventilation strategies for PAL state is challenging. Severe hypoxemia and hypercarbia secondary to PAL might compromise pulmonary gas exchange. During resuscitative phase, lung-protective ventilation strategies was emphasized. The conventional strategy of pre-setting low tidal volume with optimal peep is inappropriate. Shortening the inspiratory time, promoted spontaneous breathing while applying lowest possible driving positive pressure was practised. Permissive hypercapnia and lower PaO₂ were tolerated. To aid in the weaning phase, we emphasized on pulmonary rehabilitation, gradually delivering the lowest driving positive pressure while providing optimal nutritional support. Judicious clinical judgment and frequent blood gas analysis are crucial in the weaning process as tidal volume monitoring is unreliable in PAL. Tracheostomy was performed later to facilitate pulmonary rehabilitation by reducing the work of breathing.

Conclusion:

A comprehensive approach explains the success of conservative treatment. This could benefit the subset of patients who couldn't withstand the stress of corrective surgery.

Faith, ROTEM, and Complex Cardiac Surgery: Successful Blood Management in Jehovah's Witness

Jia Hui Ng¹, Ili Syazana Jamal Azmi¹, Boey Warn Tan¹, Farah Nadia Razali¹, Huey Nee Ng¹, Nur Liyana Othman¹, Siti Nur Akmar Ali Absar¹, Mohd Fitry Zainal Abidin¹

¹*Universiti Malaya, Kuala Lumpur, Malaysia*

Introduction

Jehovah's Witnesses refuse allogenic blood transfusion due to religious beliefs, posing significant challenges to anaesthetists during surgeries with anticipated major blood loss.

Case report

A 69-year-old Jehovah's Witness man, weighing 72 kg, with severe mitral and tricuspid regurgitation, ventricular septal defect (VSD) and pulmonary hypertension was scheduled for mitral valve replacement, tricuspid annuloplasty, and VSD repair. He declined allogenic blood transfusions but consented to the use of cell saver, fibrinogen concentrate (FC) and prothrombin complex concentrate (PCC). Preoperative tests showed haemoglobin (Hb) 13.7g/dL, haematocrit (Hct) 0.41L/L, platelet $171 \times 10^9/L$, INR 1.20, and aPTT 33.4 seconds. Rotational thromboelastometry (ROTEM) was used intraoperatively to guide transfusion needs. The surgery lasted for 7.5 hours, during which 2000 units of PCC, 1000mls crystalloids, 400mls human albumin 5%, 700mls blood from cell saver and 1g of intravenous tranexamic acid were administered. Postoperatively, patient was kept intubated and transferred to the cardiothoracic intensive care unit (CICU), with continuous cell saver use. Several hours later, the mediastinal drain output was excessively high. Subsequent blood tests revealed Hb 10.1g/dL, Hct 0.3L/L, platelet $49 \times 10^9/L$, INR 1.8, and aPTT 76.1 seconds. ROTEM revealed the need for additional 4g of FC. No further bleeding occurred and he remained haemodynamically stable. He was successfully extubated on postoperative day (POD) 3, requiring non-invasive ventilation until POD 7 and high flow nasal cannula until POD 11. He was discharged to the ward on POD 14 and home on POD 26 with pre-discharge blood tests showing Hb 10.5g/dL, Hct 0.33L/L, platelet $249 \times 10^9/L$, INR 1.03, aPTT 30.6 seconds.

Conclusion

Real-time ROTEM monitoring can effectively overcome the challenges of blood transfusion restrictions in Jehovah's Witness patients. Despite significant blood loss, the patient achieved a favourable outcome and recovery through meticulous bloodless surgery management.

Heparin-like Syndrome in a Bleeding Patient from Cardiac Intensive Care Unit (CICU): A Rare Cause of Bleeding

Nur Liyana Othman¹, Farah Nadia Razali¹, Ili Syazana Jamal Azmi¹, Boey Warn Tan¹, Siti Nur Akmar Ali Absar¹, Huey Nee Ng¹, Jia Hui Ng¹, Mohd Fitry Zainal Abidin¹

¹ *Universiti Malaya, Kuala Lumpur, Malaysia*

Heparin-like syndrome (HLS) is a rare and under investigated cause of bleeding previously reported in postpartum haemorrhage, liver transplantation and polytrauma with haemorrhagic shock. The proposed mechanism involves endothelial disruption and glycocalyx degradation, leading to release of heparin-like substances that induce coagulopathy.

We present a case of 47-year-old male with no prior history of coagulation disorders. He was pushed for emergency sternotomy and thoracotomy following cardiac arrest secondary to haemorrhagic shock. Three days prior, he underwent an uneventful minimally invasive coronary artery bypass grafting (CABG).

The first Rotational Thromboelastometry (ROTEM) revealed a prolonged CTin:CThep ratio of 4 suggestive of abnormally high heparin activity in the plasma, despite the last heparin administered was during CABG three days ago. Thus, we deduced that endogenous heparin-like syndrome was the reason for his coagulopathy.

Other possible but unlikely causes are inadvertent heparin injection, residual heparin effect due to inadequate heparin reversal, heparin rebound from the interstitial space (particularly after long cardiopulmonary bypass time) or contamination from heparin-locked catheter.

Patient was then given IV Protamine 50 mg, 10 unit of cryoprecipitate and 5-pint packed cell as his initial Hb was 3.7g/dL.

Second ROTEM was repeated after bleeding was secured. Despite the improvement, the result still showed a slightly prolonged CTin:CThep ratio of 2.15, corresponding to heparin concentration of approximately 0.4 anti-Xa units. This result is typically observed in ECMO patients on anticoagulation and it is not associated with bleeding in the absence of other complicating factors. As bleeding was secured and patient hemodynamic improved, we decided not to give anymore protamine and blood products and patient was transferred back to CICU.

This case highlights the use of ROTEM in diagnosing HLS in bleeding patients thus preventing unnecessary transfusion. Despite mixed recommendations, protamine administration has been reported to reverse the effect of HLS.

Echoing Solutions: Intraoperative Transoesophageal Ultrasound-Guided Lung Recruitment for Refractory Hypoxia

Siti Nur Akmar Ali Absar¹, Mohd Fitry Zainal Abidin¹, Boey Warn Tan¹, Farah Nadia Razali¹, Ili Syazana Jamal Azmi¹, Jia Hui Ng¹, Huey Nee Ng¹, Nur Liyana Othman¹, Mohd Shahnaz Bin Hasan¹

¹ *Universiti Malaya, Kuala Lumpur, Malaysia*

Intraoperative hypoxia is a significant challenge during general anesthesia, often leading to adverse patient outcomes if not promptly and effectively managed. While transoesophageal echocardiography (TOE) is a well-established tool for hemodynamic monitoring in cardiac surgery, its application in pulmonary assessment is gaining recognition.

This case report describes the use of transoesophageal lung ultrasound (TELUS) in the management of refractory hypoxia during an emergency aortic repair surgery. A 39-year-old male with Stanford A aortic dissection developed severe hypoxia post-anesthesia induction, unresponsive to conventional lung recruitment maneuvers and high inspired oxygen fractions.

Using TELUS, we identified significant dorsal lung consolidation and pleural effusion, prompting the safe application of a TELUS-guided lung recruitment strategy with optimized positive end-expiratory pressure (PEEP). This approach resulted in the real-time re-expansion of the collapsed lung, improved oxygenation, and successful stabilization of the patient's respiratory status throughout the surgery.

The report highlights TELUS as a valuable intraoperative tool, offering rapid and clear visualization of lung pathology, particularly when traditional transthoracic ultrasound is impractical. The case supports the integration of TELUS into perioperative management protocols for unexplained hypoxia, especially in complex cases where other modalities may be insufficient.

Perioperative Perigraft Complications: A Combo Approach

TK Wong¹, CC Chua¹

Department of Cardiothoracic Anaesthesiology and Perfusion, Hospital Queen Elizabeth II, Kota Kinabalu, Sabah, Malaysia

Introduction:

Surgical repair of aortic dissection has been associated to increased risk of postoperative complications. A major repercussion of this corrective surgery is perigraft leakage. A thorough evaluation of such sequela requires clinical vigilance along with imaging technologies. Computed tomography angiography (CTA) has been recognised as the gold standard for diagnosing such complication. In our case, transoesophageal echocardiography (TOE) detected and managed intraoperative perigraft leakage, which wasn't identified preoperatively.

Case Presentation:

A 44-year-old gentleman with Stanford A Aortic Dissection has undergone corrective repair surgery. He was discharged home on post-operation day 40. Two weeks later, patient was readmitted for surgical site infection. CTA revealed perigraft collection along aortic root till aortic arch. Multiple wound debridement with vacuum dressing were done. Repeated scan revealed larger collection with hematoma but no endoleak was detected. This was in line with transthoracic echocardiography (TTE) finding. Patient was scheduled for redo-sternotomy for wound debridement. TOE was performed intraoperatively and revealed connection between left ventricular outflow tract and perigraft region, with continuous flow within concealed hematoma. These finding was never reported in post-arch repairs CTA and TTE. The whole team was alarmed on the possibility of failing graft. Intraoperatively, aortomitral discontinuity with perigraft leaking was noted. Redo arch replacement was performed. In retrospect, the justification for our suspicion could be explained by the declining haemoglobin levels and hemoserous discharge from vacuum dressing.

Discussion:

The diagnosis of perigraft leakage shouldn't rely on single modality. Whereas, combination of imaging tools is applied. The success of this surgery could serve as reference for managing perigraft disease with the aid of intraoperative TOE. With 93.64% sensitivity and 95.50% specificity, TOE is a favourable imaging tool for detecting post-arch repair complications.

Conclusion:

CTA remains the gold standard in detecting post-arch repair complications. However, combination of intraoperative TOE and critical clinical assessments can supplement CTA in managing perioperative perigraft complications.

Resection of Tracheal Tumour under Cardiopulmonary Bypass: A Case Report

Huey Nee Ng¹, Farah Nadia Razali¹, Ili Syazana Jamal Azmi¹, Boey Warn Tan¹, Jia Hui Ng¹, Siti Nur

Akmar Ali Absar¹, Nur Liyana Othman¹, Mohd Fitry Zainal Abidin^{1 1} *University Malaya, Kuala Lumpur, Malaysia*

Primary tracheal tumors are rare, accounting for approximately 0.2% of malignant tumors. Conducting anaesthesia for tumour resection could be highly challenging, especially if safe methods of securing airway are deemed impossible.

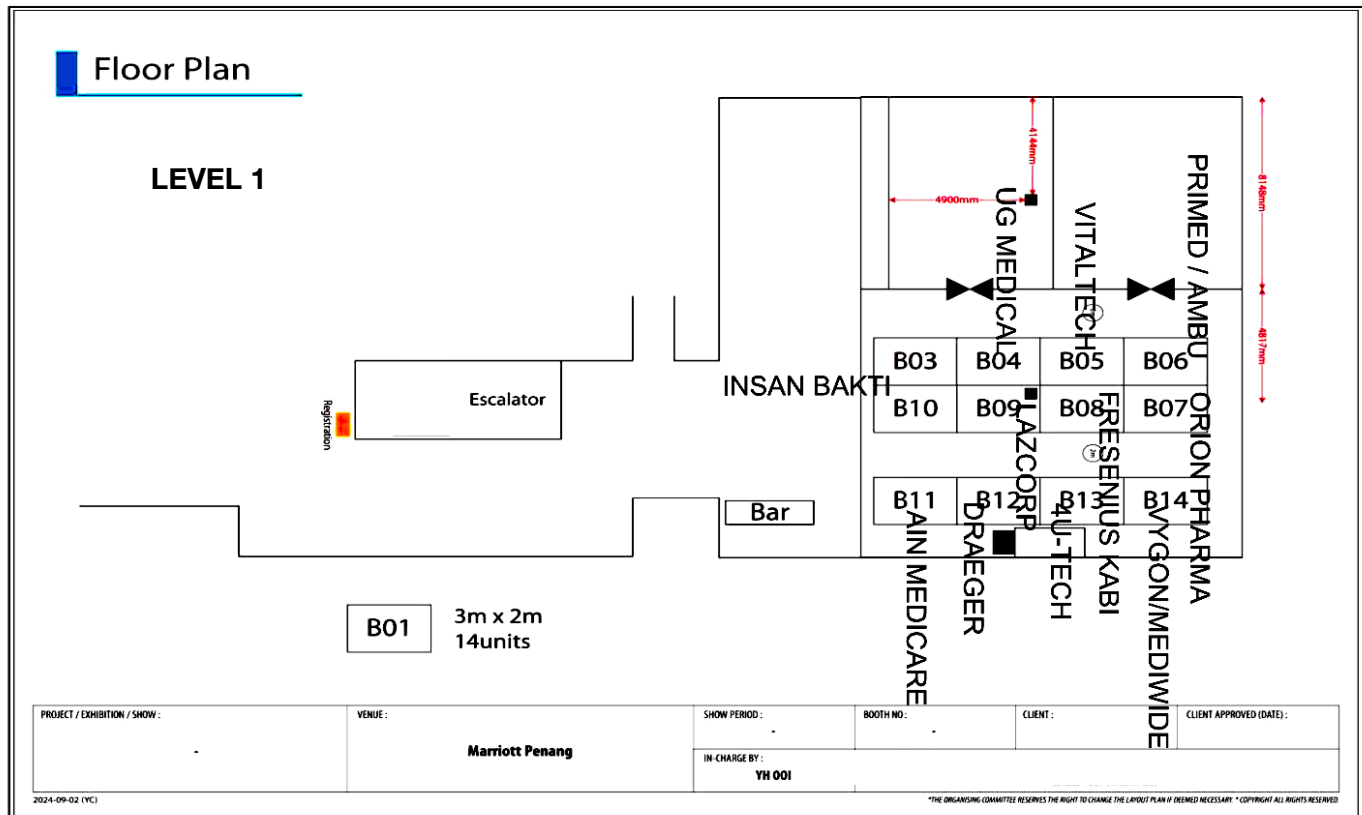
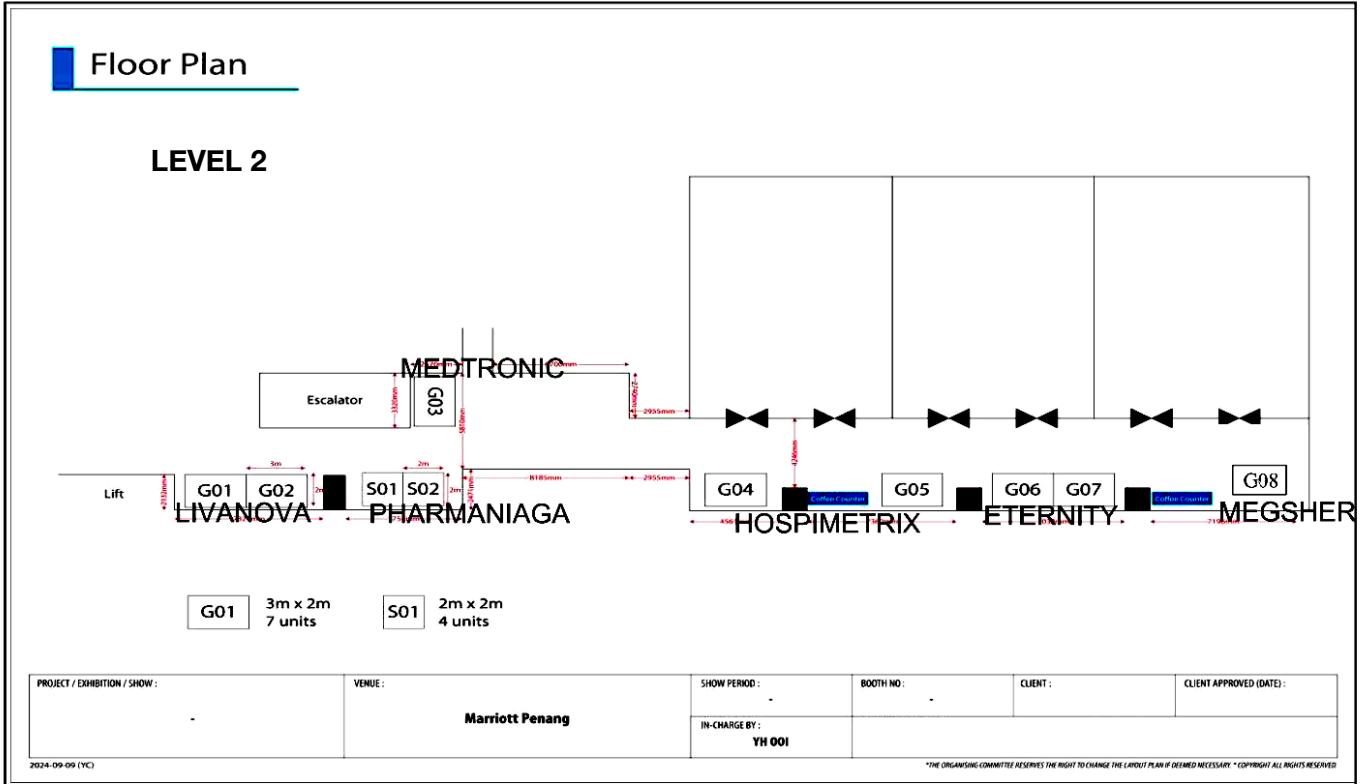
Hereby, we present a case of a 66-year-old man with a tracheal tumor causing near-complete occlusion of the tracheal lumen. He presented with a cough, progressive dyspnea and occasional stridor. The PET scan revealed a hypermetabolic posterior infra-cricoid subglottic mass located at C6/C7 level, measuring 1.6cmx1.5cmx1.5cm, occluding more than 2/3 of the tracheal lumen. Due to the complexity of the case, we planned for an endoscopic transoral resection under extracorporeal oxygenation via a cardiopulmonary bypass (CPB) machine. A microlaryngeal tube size 4 and a rigid bronchoscope was on hand in the event of an airway crisis. A right femoral nerve block was administered for analgesia and immobilization during femoral cannula insertion. Once CPB has been instituted, the patient was induced using total intravenous anaesthesia. Depth of anaesthesia was guided by way of processed EEG throughout the surgery. The intraoperative finding was a 2x2cm well-rounded, broad-based vascular

. To prevent soiling of the lower airway, a few ribbon gauzes were packed adjacent to the mass. IV tranexamic acid 1g was also

administered. Following tracheal mass resection, we performed a bronchoscopy to clear up the airway. We then intubated the patient with an endotracheal tube before weaning off the CPB. We kept him ventilated in the cardiac intensive care unit overnight. Examination under anaesthesia was performed on post operative day (POD)1. He was extubated successfully on POD2.

This case highlights the role of CPB in maintaining oxygenation during complex airway tumor resections. It also emphasizes the importance of multidisciplinary teamwork and close communication, as well as detailed and safe backup plan in the event of a crisis.

FLOOR PLAN



SPONSORSHIP

PLATINUM SPONSORS



SILVER SPONSORS



BRONZE SPONSORS



PRIMED MEDICAL SDN BHD 199201018455 (249939-U)



towards better health
UG MEDICAL SERVICES SDN. BHD.



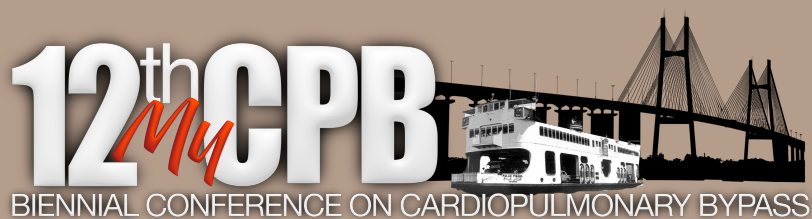


**SCAN QR CODE FOR
FURTHER DETAILS**

SECRETARIAT

***Persatuan Kardiotorasik Anestesiologi dan Perfusi Malaysia
(Malaysian Cardiothoracic Anaesthesiology and Perfusion Society (MASCAP))***

Registration No. : **PPM-003-07-13032017**
Address : **Solok Batu Uban 4, The Sanctuary,
Gelugor, 11700, Pulau Pinang, Malaysia**
Telephone : **04-2225178**
Email : 12thCPB@gmail.com



“The Art of Precision For Better and Safe Patient Care”