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4CS Bulletin

The Newsletter of Ceylon College of Critical Care Specialists

November 2025

Edition 3

IN THIS ISSUE:

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4CS
BULLETIN
NOVEMBER 2025

COUNCIL
CEYLON COLLEGE OF CRITICAL CARE SPECIALISTS

Seated (from left to right): Waruni Samaranayake, Anthony Mendis, Rasani Wanigasuriya, Dilshan Priyankara, Anushka Mudalige, Eranda Sanjeewa, Lilanthi Subasinghe

Standing (from left to right): Mathuratha Sivasubramanium, Nalika Karunaratne, Pavithra Sathananthasarma, Dushani Hettiarachchi, Sankalpa Vithanage, Himanga Beneragama, Muthulingam Navaneethan

Absent- Chamali Aluvihare, Nuwan Ranawaka, Udya Rodrigo, Krishakeesen Kamalanathan, Tharuka Kalhari, Makarim Mohomed, Amanda Ranaweera, Sunali Nanayakkara, Ishan Gamage, Leel Rathnakumara

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Dr. Anushka Mudalige

President

MESSAGE FROM THE PRESIDENT

It is with great pleasure that I pen this message for the first newsletter during my tenure as President of the Ceylon College of Critical Care Specialists. This biannual publication reflects our collective commitment to advancing critical care medicine in Sri Lanka and beyond.

The past year has been a period of growth, collaboration and learning. Through our webinars, workshops and academic initiatives, we have continued to strengthen our knowledge base and clinical practice. I take this opportunity to thank all members who have contributed to these activities with their time, expertise and enthusiasm.

This issue features a diverse selection of content - from challenging case discussions and thought-provoking quizzes to insights from international colleagues and highlights of our recent college events. I hope it serves not only as an update but also as inspiration to continue our pursuit of excellence in patient care, education and research.

As we look ahead, let us remain united in our mission to enhance the standards of critical care across the country, through collaboration, innovation and compassion.

Warm regards,
Anushka Mudalige
President
Ceylon College of Critical Care Specialists

MESSAGE FROM THE EDITOR

Dr Dushani Hettiarachchi

Editor

Past few years have tested our resilience in unprecedented ways. The growth, learning and collaboration we achieved during these years amidst the challenges we face through our commitment to the critically ill has been striking. This issue celebrates that collaborative spirit, unwavering dedication and resilience of the team.

Inside, you will find a rich collection – interesting case reports, insights from overseas colleagues, highlights from inaugural scientific sessions and a variety of educational activities that took place during the year.

I hope the content within provides not only educational value but also a resource of practical insights that can be implemented to strengthen your own team dynamics to foster optimum patient care.

Sincerely,
Dushani Hettiarachchi
Editor
Ceylon College of Critical Care Specialists

SECOND SCIENTIFIC SESSIONS AND PRE CONGRESS WORKSHOPS OF THE CEYLON COLLEGE OF CRITICAL CARE SPECIALISTS
2025

Pre congress workshops

Four successful workshops were conducted for doctors at the Neurotrauma Auditorium, National Hospital of Sri Lanka, in July 2025, focusing on key aspects of critical care.

The Airway Lifeline Workshop (22nd July), organised by Dr. Mohamed Makarim, trained 51 participants in advanced airway management through multidisciplinary, simulation-based sessions and awarded 10 Ministry of Health (MOH) and 6 Royal College of Anaesthetists (RCoA) continuous development points (CPD).

The Haemodynamic Masterclass (25th July), coordinated by Dr. Pavithra Sathananthasarma, hosted 50 participants and featured expert faculty from major hospitals in Sri Lanka and the UK, delivering comprehensive teaching on haemodynamic monitoring and management.

The Critically Ill Surgical Patient Workshop (31st July), led by Drs. K. S. Vithanage and Waruni Samaranayake, gathered 46 participants and a distinguished multidisciplinary faculty, covering perioperative and critical care management of surgical patients, with 7.75 MOH and 6 RCoA CPD points awarded.

The workshop “Getting your research published”, held on 29th July 2025 at the Faculty of Medicine, University of Colombo, offered an engaging and practical learning experience for critical care researchers. Organised by Dr. Nalika Karunarathne, the program guided participants through every step of the research journey - from developing questions and designing studies to writing proposals and navigating publication. Through interactive sessions and hands-on exercises, attendees gained valuable skills and confidence to publish their work. The workshop was highly appreciated for its inspiring, collaborative atmosphere and its strong emphasis on translating research into real-world impact.

Two additional workshops were held at the Neurotrauma Auditorium, NHSL, in July 2025, focusing on allied disciplines within critical care. The Physiotherapy in critical care workshop (23rd July), organised by Dr M. Navaneethan was attended by 47 participants and featured a distinguished multidisciplinary faculty of intensivists and physiotherapists. The program combined lectures and practical sessions on early mobilisation, ventilator weaning, ICU-acquired weakness and evidence-based physiotherapy practices, emphasising the integral role of physiotherapists in the recovery of critically ill patients. The critical care nursing workshop (24th July), coordinated by Dr. Dushani Hettiarachchi, gathered nurses and doctors for a comprehensive update on critical care principles and multidisciplinary collaboration. Led by an expert panel of intensivists from leading hospitals, the program enhanced participants' understanding of patient management, communication and safety in ICU settings. Both workshops were accredited by the Ministry of Health for CPD points and effectively strengthened essential clinical skills across the multidisciplinary critical care team.

The inauguration ceremony of the academic sessions was held on the 1st of August 2025 at the Grand ballroom of Hotel Galadari, Colombo, under the patronage of chief guest Dr. Nalinda Jayathissa, minister of Health, with guests of honour Dr. Srinivas Samavedam (president, Indian Society of Critical Care Medicine), Prof. Jan De Waele (president, European Society of Intensive Care Medicine) and Dr. Javier Perez Fernandez (president, World Federation of Intensive and Critical Care Medicine).


CEYLON COLLEGE OF CRITICAL CARE SPECIALISTS
2ND ANNUAL SCIENTIFIC SESSIONS
EMPOWERING RESILIENCE


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EMPOWERING RESILIENCE
"Advancing Critical Care through Technology and Compassion"
INAUGURATION


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2ND ANNUAL SCIENTIFIC SESSIONS
EMPOWERING RESILIENCE
INAUGURATION


INAUGURATION

The prestigious oration was delivered by Prof. Mitchell Levy, whose inspiring address set the tone for the event. Honorary fellowships were conferred upon Dr. Asoka Gunaratne, consultant anaesthetist and past president of the College of Anaesthesiologists and Intensivists and Prof. Bhagya Gunathilake, Professor in Anaesthesiology, University of Kelaniya, in recognition of their invaluable contributions to the field of critical care in Sri Lanka. The Dr. Shirani Hapuarachchi medal for the best performance in the postgraduate diploma in critical care medicine was awarded for the first time to Dr. W.M. Dhanushka Madushanka Jayathilaka (2023) and Dr. Thilini Bhagya Wijayarupa (2024). The two-day main academic sessions, held on the 2nd and 3rd of August at the same venue, served as the pinnacle of the event, accredited by both the ministry of Health, Sri Lanka, and the Royal College of Anaesthetists (UK) for continuing professional development. With the theme “Empowering Resilience,” the sessions featured engaging plenaries, symposia, and debates by eminent local and international experts, along with a highly acclaimed patient experience session featuring a live interview with a survivor of critical illness. The successful free paper and poster sessions further highlighted the commitment to promoting research and scientific exchange. The celebrations concluded with a vibrant presidential night on the 2nd of August at the Galle Face hotel - a memorable evening of fellowship and camaraderie among distinguished guests and participants.


The Recipe vs.
The Art
• Protocols are 'cookbook medicine' that stifles the 'art' of being a doctor?
• A great chef uses a recipe.
That recipe guarantees the fundamental flavors are perfect.
• The art is in the execution, the timing, the presentation
The protocol is the foundation, not the ceiling
CEYLON COLLEGE OF CRITICAL CARE SPECIALISTS
2ND ANNUAL SCIENTIFIC SESSIONS
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CEYLON COLLEGE OF CRITICAL CARE SPECIALISTS
2ND ANNUAL SCIENTIFIC SESSIONS
EMPOWERING RESILIENCE
Kavindu Mathious
HEALING PULSE

GLIMPSE OF EVENTS

5TH GENERAL MEETING OF THE CEYLON COLLEGE OF CRITICAL CARE

The 5th General Meeting of the Ceylon College of Critical Care Specialists was held on 8th September 2025 at Hotel Ramada, Colombo, as a combined physical and virtual event attended by 40 members. The meeting was opened by the outgoing President, Dr. Dilshan Priyankara, followed by General Secretary Dr. Rasanee Wanigasuriya, who presented the Annual Report for 2024/2025. She highlighted that the College currently has 117 members, including 43 full voting members, 18 non-voting members, 52 associate members, and 4 honorary members. She also noted the active involvement of council members in various subcommittees and the successful execution of academic, financial and administrative activities throughout the year. Treasurer Dr. Eranda Sanjeeva presented the audited financial statements and informed members that the accounts would be available for review upon request. Incoming President Dr. Anushka Mudalige expressed her gratitude to the membership for their confidence and extended appreciation to Dr. Dilshan Priyankara for his dedicated leadership. She concluded by outlining her vision for the future development of the College and called for the continued support of all members.

WEBINARS CONDUCTED/ PARTICIPATED BY 4CS

1

RUNNING FROM THE BEAR: VASOPRESSORS, INOTROPES AND SHOCK

By Dr Anushka Mudalige
Organised by Sri Lanka College of Internal Medicine

August 2024

2

MANAGEMENT OF SEPSIS IN CRITICALLY ILL

By Dr Dushani Hettiarachchi
Organised by Sri Lanka Sepsis Alliance

September 2024

3

CRITICAL CARE IN NEUROTRAUMA

Dr Eranda Sanjeeva, Dr Waruni Samaranayake and Dr Nalika Karunaratne represented 4CS at the Neuro trauma symposium, National Trauma Conference

November 2024

4

CHALLENGES TO OVERCOME RESOURCE LIMITATION IN CRITICAL CARE DELIVERY

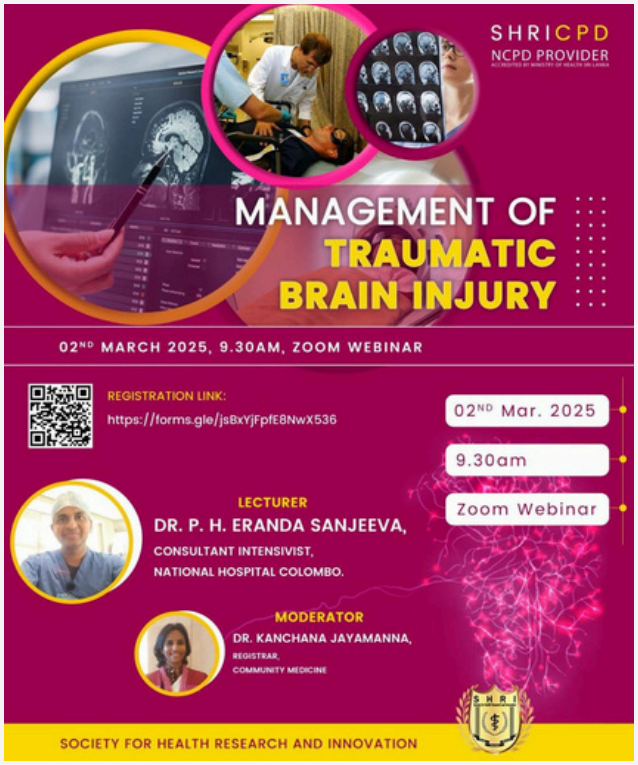
By Dr Anushka Mudalige
Conducted by Indian Society of Critical Care Medicine

February 2025

MANAGEMENT OF TRAUMATIC BRAIN INJURY SOCIETY FOR HEALTH RESEARCH AND INNOVATION

By Dr Eranda Sanjeeva

March 2025



RESOURCE-OPTIMIZED RRT IN LOW-RESOURCE SETTING

By Dr Dilshan Priyankara
At Nephro critical care society: global webinar on RRT

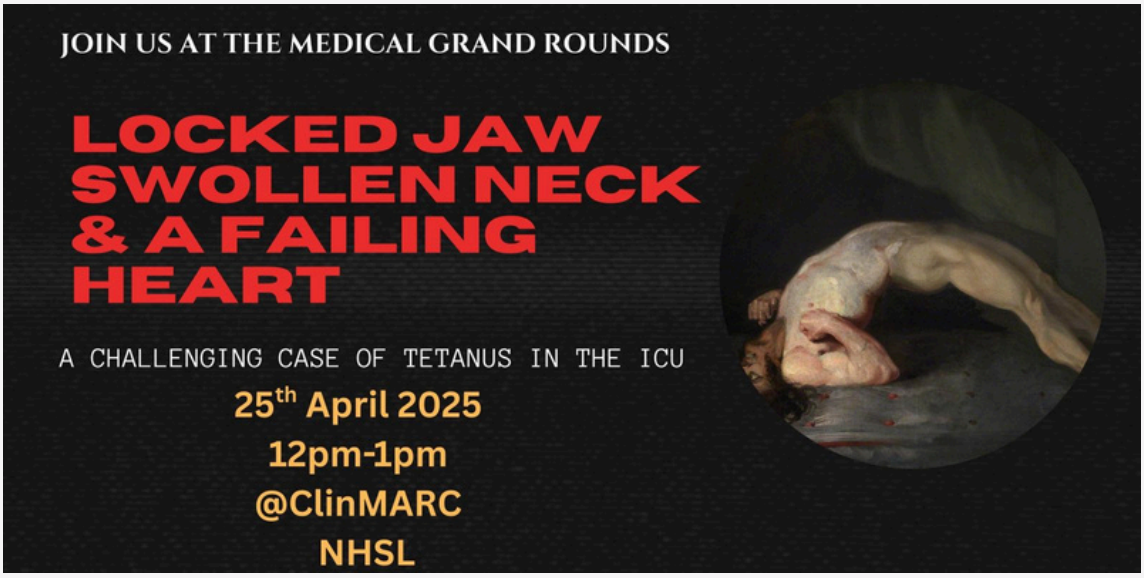
April 2025

7

LOCKED JAW SWOLLEN NECK & A FAILING HEART

By Dr Dilshan Priyankara
At Colombo Medical Grand Rounds–Professorial Unit in Medicine and Consultant Physicians of NHSL

April 2025



PROFESSIONAL RELATIONSHIPS: COLLABORATIONS WITH NATIONAL ORGANIZATIONS

We were involved with the Ministry of Health Sri Lanka for the following projects:

- National Oxygen guidelines committee
- MSD formulary revision for pharmaceuticals
- Guideline development by professional colleges
- Implementation of Early Warning Score Charts
- Continuous professional development committee
- Medical Device Evaluation Committee (MDEC) of NMRA
- Formulary revision for surgical equipment NMRA
- National Drug and Therapeutic Committee

Also we were involved with the Post graduate Institute of Medicine University of Colombo, Sri Lanka for the following activities:

- Training in critical care
- Forming the standalone programme leading to MD in Critical care (final stages of approval)
- Conducting teaching for the Diploma in critical care
- Engaging in Specialty Board in Critical care activities

We were involved with the following professional bodies in conducting educational activities:

- Sri Lanka Medical Association
- Ceylon College of Physician
- Sri Lanka College of Internal Medicine
- Sri Lanka College of Emergency Physicians
- College of Surgeons Sri Lanka
- College of Anaesthetists and Intensivists of Sri Lanka
- Sri Lanka College of Pulmonologists
- Sri Lanka College of Microbiologists
- Sri Lanka College of Nutrition Physicians
- Sri Lanka College of Oncologists
- Sri Lanka Sepsis Alliance
- National Hospital of Sri Lanka
- Trauma Secretariat and Clinical Society of Accident Service NHSL

WORKSHOPS

1

3RD FICS ECHOCARDIOGRAPHY WORKSHOP

September 2024

2

2ND TRACHEOSTOMY CARE WORKSHOP

December 2024

6TH CREST CRRT (COMPETENCY RELATED ESSENTIAL SKILLS TRAINING IN CONTINUOUS RENAL REPLACEMENT THERAPY) WORKSHOP FOR DOCTORS

February 2025

4

5

4TH FICS ECHOCARDIOGRAPHY WORKSHOP

May 2025

6

PRE-CONGRESS WORKSHOP - AIRWAY LIFELINE SYMPOSIUM

July 2025

7

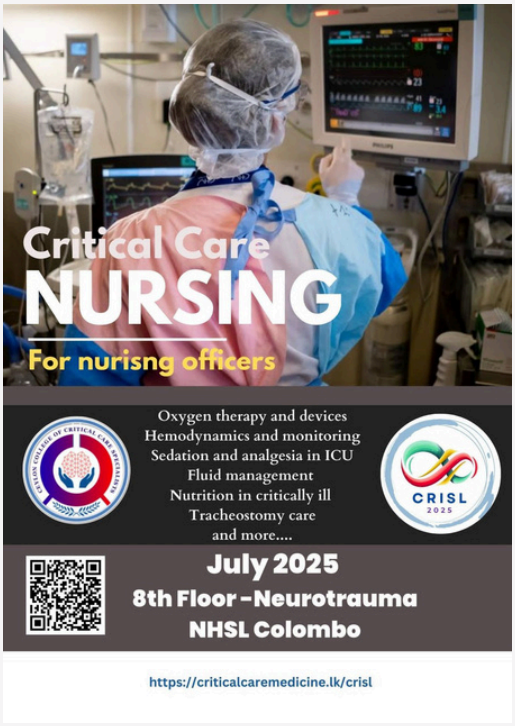
PRE-CONGRESS WORKSHOP - PHYSIOTHERAPY WORKSHOP

July 2025

8

PRE-CONGRESS WORKSHOP - NURSES CRITICAL CARE WORKSHOP

July 2025



9

PRE-CONGRESS WORKSHOP - HAEMODYNAMIC WORKSHOP

July 2025

10

PRE-CONGRESS WORKSHOP - RESEARCH WORKSHOP

July 2025

11

PRE-CONGRESS WORKSHOP - SURGICAL CRITICAL CARE WORKSHOP

July 2025

ONLINE EDUCATIONAL ACTIVITIES

UPDATES

1 INHALATIONAL SEDATION IN THE ICU

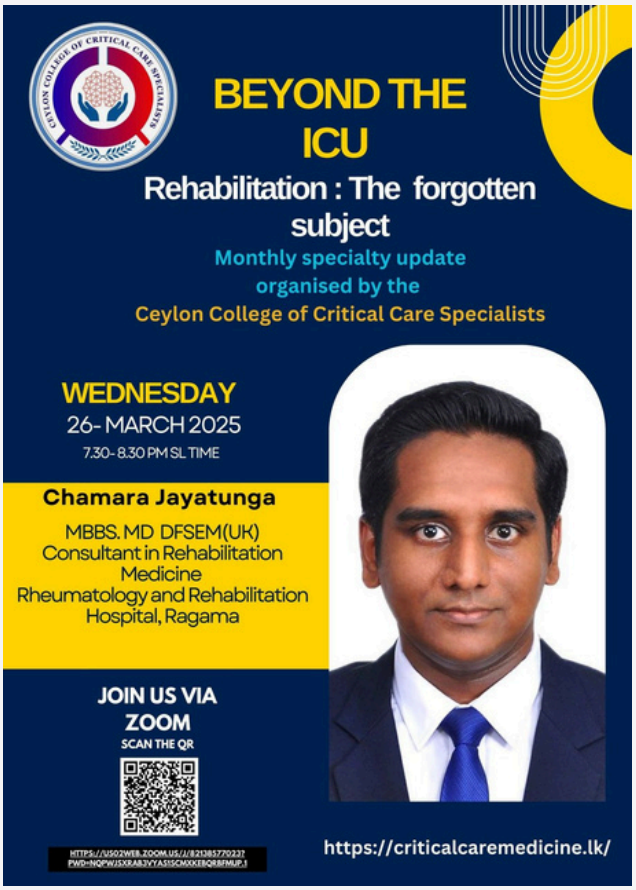
Dr Chamara Warnapura (Consultant anaesthetist– UK)

August 2024

2 REHABILITATION: THE FORGOTTEN SUBJECT

Dr Chamara Jayatunga (Consultant rehabilitation medicine – Ragama Rehabilitation Unit)

March 2025



ONLINE EDUCATIONAL ACTIVITIES

BIMONTHLY EDUCATIONAL ACTIVITIES- CASE BASED DISCUSSIONS

1

A LADY WITH SUDDEN HEADACHE

Dr Krishakeesen Kamalanath- Consultant Intensivist, Luton and Dunstable University Hospital UK

March 2025

2

A YOUNG GIRL WITH SHORTNESS OF BREATH

Dr Nuwan Ranawaka- Consultant Intensivist, Luton and Dunstable University Hospital UK

April 2025

3

Fever to failure

Dr Krishakeesen Kamalanath

May 2025

4

Case presentation

Dr Krishakeesen Kamalanath

August 2025

ONLINE EDUCATIONAL ACTIVITIES

4CS GRAND ROUND AND JOURNAL CLUB

1

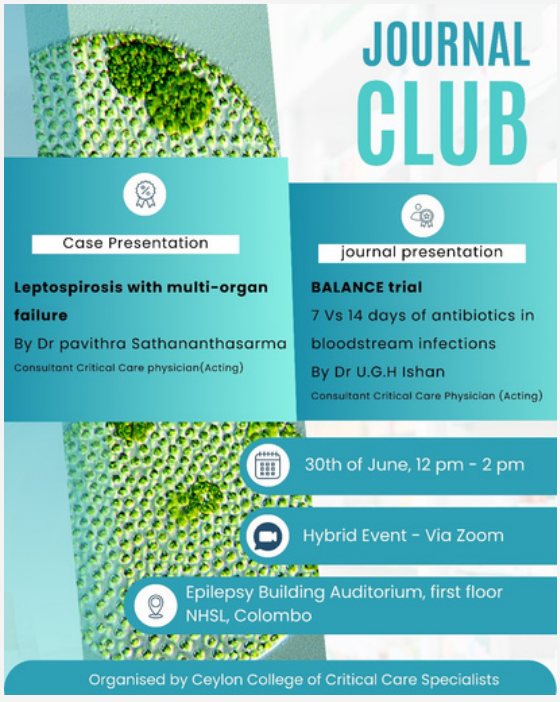
October 2024

Dr Udara Edirisinghe
supervised by
Dr Dilshan Priyankara

2

June 2025

DrPavithra Sathananthasarma,
Dr Ishan Gamage supervised by
Dr Dilshan Priyankara



CAN YOU GUESS?

THE QUIZ:

Question 1

A 28-year-old previously unevaluated female presented with painful right facial swelling, right eye proptosis and ophthalmoplegia. She also reported fever, headache and nasal congestion. On admission, her random blood sugar was 420 mg/dL and ABG showed: pH 7.22, pCO_2 22 mmHg, pO_2 95 mmHg, HCO_3 8 mEq/L, Na 130 mEq/L, K 5.6 mEq/L. She subsequently developed respiratory arrest requiring intubation. A rash was noted on her forehead after ICU admission.

1. What is the most likely diagnosis?
2. What is the most important predisposing risk factor in this patient?
3. Outline the key principles of management for this condition?
4. What is/are the reason/s for the respiratory arrest?
5. Why is early diagnosis and treatment critical in this condition?

Question 2

Identify the equipment. What is the benefit of this?

Find the Answer on page 38..

A UK PERSPECTIVE....

ANCILLARY INVESTIGATIONS TO SUPPORT THE CLINICAL DIAGNOSIS OF DEATH USING NEUROLOGICAL CRITERIA: A FRIEND OR FOE?

Dr Tharuka Kalhari Sikuradipathi
MD,EDIC, FFICM, FRCA, Consultant Intensivist, Barking, Havering and Redbridge University Hospital NHS trust, United Kingdom

1. What is the current recommendation?

Both contrast tomography (CT) perfusion scan and cerebral CT angiogram are used as ancillary investigations to support the clinical diagnosis of death using neurological criteria (DNC). As per the consensus guideline by the Faculty of Intensive Care Society in United Kingdom, published in January 2023, cerebral CT angiogram is considered as the standard ancillary investigation in United Kingdom in this purpose.
According to the recommendations:
Ancillary investigations are required in the following circumstances:

- Where a comprehensive neurological examination, including the apnoea test, is not possible.
- Where continuing effects of confounding factors (Eg: red flags) cannot be excluded.

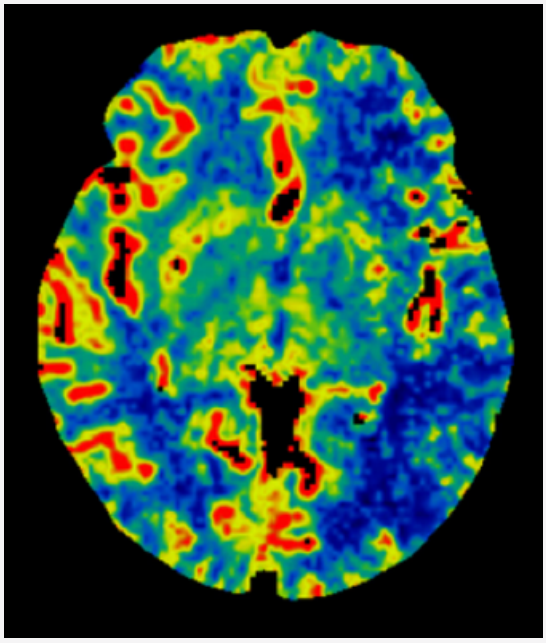
Ancillary investigations should be considered in the following additional circumstances:

- Uncertainty regarding the interpretation of possible spinally mediated movements
- To promote understanding of the clinical confirmation of death using neurological criteria to families who are uncertain/unaccepting of such a diagnosis.

A clinical diagnosis of DNC cannot be supported if the CT angiogram demonstrates contrast opacification of any of the vessels specified in the 4-point criteria, as described by Frampas 2009.

2. What is CT perfusion scan and cerebral CT angiogram?

CT perfusion scan combines CT with contrast to measure blood flow through brain tissue in real time. It produces a dynamic picture based on, cerebral blood flow (CBF), cerebral blood volume (CBV), mean transit time (MTT) and time to peak (TTP). Cerebral CT angiogram demonstrates the patency of carotid and vertebral arteries via contrast enhancement.



CT perfusion scan

Cerebral CT angiography

3. What is the evidence for diagnostic accuracy?

A recent Canadian study published in JAMA Neurology in 2025 June, investigated the diagnostic accuracy of the ancillary investigations compared to reference clinical examination for DNC (brain stem death test).
A prospective, multi-centre, blinded study was carried out from April 2017 to March 2021, in 15 adult intensive care units, with a sample number of 282 patients.

Adults more than 18 years, who were admitted to intensive care units, with a brain injury which could induce brain herniation (Eg: traumatic brain injury, stroke, anoxic brain injury) with a GCS of 3 with a sedation hold of more than 6 hours were included. Any patients with contraindications for CT and confounding factor for reference clinical examination for DNC (Eg: Cervical spine fracture C6 and above, significant facial injuries, severe hypothermia etc..) were excluded.

Patients were subjected to two interventions, results of which were blinded to each other.
Whole brain CT perfusion protocol
Reference clinical examination for DNC (brain stem death test)
Brain stem death test was performed within 2 hours of CT perfusion scan.
Qualitative brain CT perfusion scan had a sensitivity of 98.5% with specificity of 74.4%. Cerebral CT angiogram sensitivity and specificity changed with the phase of examination after injecting the contrast (early phase Vs late phase) and number of vessels examined.

The conclusion was drawn as, neither CT perfusion nor cerebral CT angiogram met the pre-specified threshold of >98% for both sensitivity and specificity. They should not be used as stand-alone tests to establish DNC and their findings must be weighted against a thorough clinical examination to minimise false positives.
A friend or foe?
Let us look at the false positives and false negatives.

		Reference clinical examination for DNC (Brain stem death test)	
Ancillary Test	Total	Death	Alive
Qualitative CT Perfusion Brain Stem			
Compatible with death	221 (78%)	201(99%)	20 (26%)
Not compatible with death	61 (22%)	3 (1%)	58 (74%)
Cerebral CT angiogram (Peak phase/ 4 vessels)			
Compatible with death	186 (66%)	178 (87%)	8 (10%)
Not compatible with death	96 (34%)	26 (13%)	70 (90%)

Twenty patients (26%) who did not fulfil clinical criteria for death by neurological criteria (DNC), had qualitative brain stem CT perfusion compatible with death. (False positive)

Whereas, in 8 patients (10%) who did not fulfil clinical criteria for DNC, cerebral CT angiogram showed no flow. (False positive)

Assume, we requested the ancillary test as we could not perform the brain stem death test (Eg: significant facial injury such as traumatized eye or ear), what are we going to do with information?

Three patients (1%) who were declared dead clinically, had perfusion in qualitative brain stem CT perfusion scan. Whereas, with the peak phase in 4 vessel cerebral CT angiogram, 26 patients (13%) demonstrated flow and results could not support the diagnosis of brain stem death despite patients met the clinical criteria for DNC.

Assume, we offered this ancillary test for a family who could not understand the clinical diagnosis of brain stem death, what are we supposed to do with this information?

But at the same time, keep in mind the following fact. Seventy eight patients (27%) who were diagnosed alive after brain stem death test (despite it was supported or not supported by the ancillary test), were not discharged home or to a rehabilitation facility. They died in a later point, by withdrawing life sustaining treatment, death by circulatory criteria (DCC) or death by neurologic criteria (DNC).

Therefore, as per the study conclusion, ancillary tests should be used with a thorough clinical examination, bearing in mind its false positive and negative rates.

References:
1.The use of cerebral CT angiography as an ancillary investigation to support a clinical diagnosis of death using neurological criteria. A consensus guideline. 2023 January. By Faculty of Intensive Care Society United Kingdom.

2. Michael Chasse et al. Computed Tomography Perfusion and Angiography for death by neurological criteria. JAMA Neurol. 2025 June 13; 82 (9): 932-940 Doi:10.1001/ jamaneurol. 2025.2375

AN INTERESTING CASE...

ENDOBRONCHIAL VALVE BRIDGING FOR TRAUMATIC BRONCHIAL RUPTURE IN HAEMOPHILIA A

Dr. Himanga Benaragama
Consultant Intensivist, MBBS, MD, Intensive care unit, Teaching hospital Karapitiya

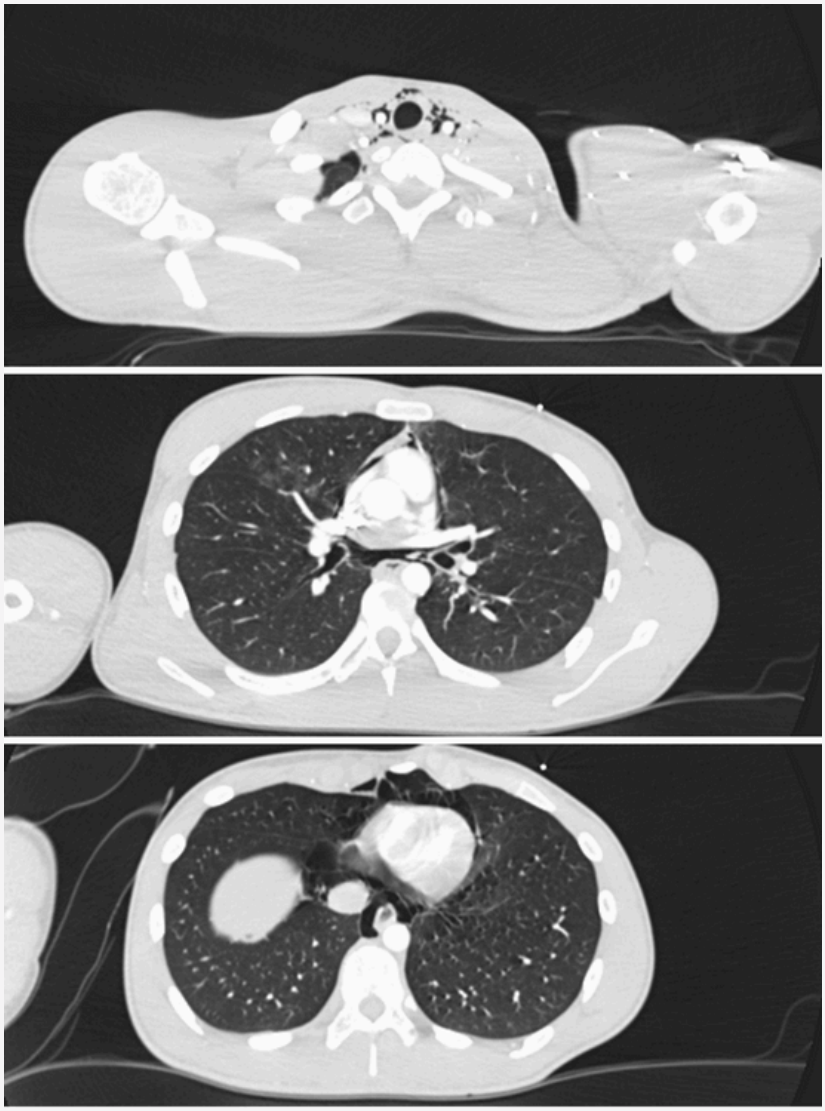
Introduction

Traumatic bronchial injury is rare but can rapidly deteriorate with positive-pressure ventilation in the presence of active air leak and pneumomediastinum, necessitating prompt airway evaluation and targeted intervention in critical care settings (1). Surgical repair is often advocated, yet coagulopathy and competing operative priorities may render thoracotomy high risk or impractical in the acute phase (1). Bronchoscopic therapies, including endobronchial valve (EBV) placement, can seal segmental leaks and enable safe ventilation as a bridge to essential procedures (2). This case illustrates EBV bridging in a polytrauma patient with mild haemophilia A, facilitating urgent anaesthesia for fracture fixation while avoiding high-morbidity thoracotomy (1).

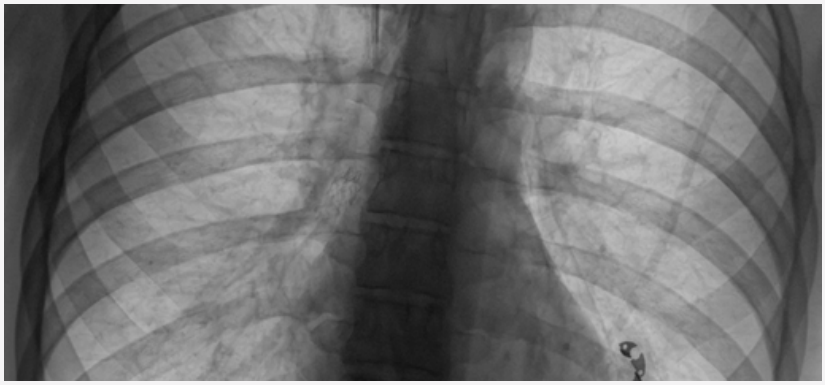
Case report

A 17-year-old male motorcyclist sustained polytrauma after a high-speed collision. CT scans revealed pneumomediastinum and a laceration at the origin of the right middle lobe bronchus, bilateral anterior lung contusions and a right lower lobe pneumatocele. Associated injuries included a small traumatic subarachnoid haemorrhage, splenic contusion, right elbow fracture-dislocation, left femoral shaft fracture and pelvic fractures that required urgent fixation (1). Known mild haemophilia A (baseline Factor VIII 0.12 IU/ml) guided immediate recombinant Factor VIII replacement (3,000 units), achieving supranormal levels and sustained therapeutic activity during early ICU care, with hemodynamic stability and preserved oxygenation on room air despite persistent pneumomediastinum on serial radiographs (3). The need for general anaesthesia and positive-pressure ventilation for orthopaedic repair conflicted with the risk of propagating the mediastinal air leak; multidisciplinary consensus recommended definitive airway assessment before surgery (2). Flexible bronchoscopy under conscious

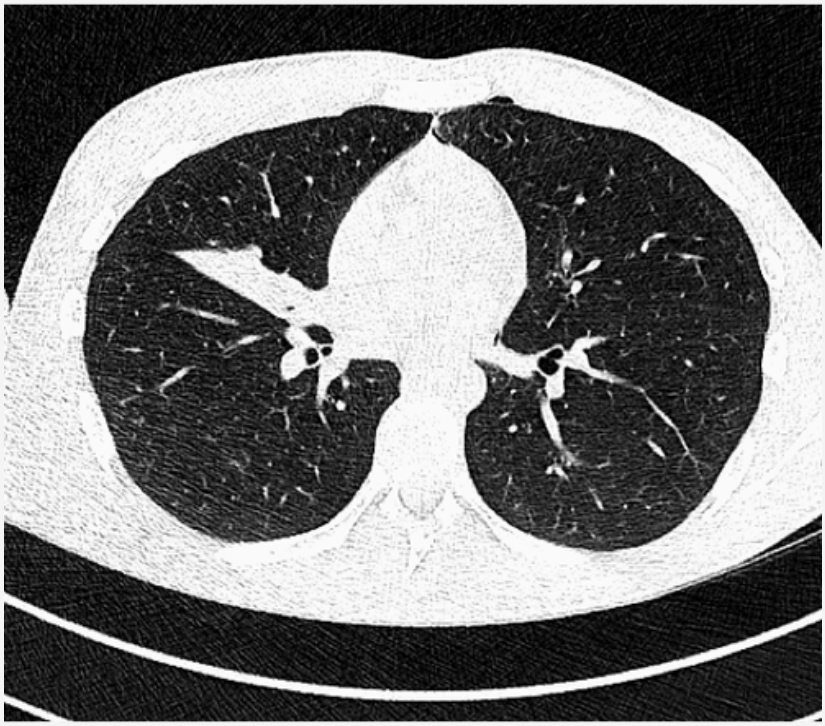
sedation confirmed a right middle lobe bronchial rupture with an active leak. A single EBV was deployed over the lesion, sealing the leak and permitting safe positive-pressure ventilation. Chest radiography confirmed the valve position and the expected right middle lobe collapse. On day 2, open reduction–internal fixation of the right elbow and intramedullary nailing of the left femur proceeded without excessive bleeding or ventilatory complication under continued Factor VIII surveillance; the valve was removed on day 5 following bronchoscopic confirmation of local healing, with persistent right middle lobe collapse deemed acceptable and no respiratory compromise at follow-up



A. CT chest showing pneumomediastinum with laceration at the origin of the right middle lobe bronchus; a) pneumomediastinum, b) laceration seen within the middle lobe bronchus at its origin, c) Right lower lobe pneumatocele and pneumomediastinum.



B. Post-bronchoscopy chest radiograph showing EBV positioned over the bronchus intermedius



c. Post-removal imaging with persistent right middle lobe collapse and no complication.

Discussion and conclusion

In this coagulopathic polytrauma patient, EBV bridging provided a conservative solution to control the bronchial air leak, enabling necessary anaesthesia and surgery while avoiding thoracotomy and its attendant bleeding risk, paralleling the focused, multidisciplinary approach emphasized for central airway emergencies in critical care (1). The diagnostic pivot, recognition of bronchial rupture with pneumomediastinum and the contraindication to immediate positive-pressure ventilation were addressed through targeted bronchoscopy, which both confirmed the lesion and delivered therapy, resulting in rapid improvement in ventilatory safety (1,2). This case supports considering EBV placement as a temporizing measure in selected tracheobronchial injuries with coagulopathy when early surgery is high risk, provided close ICU monitoring, hematologic optimization and planned short-term valve removal are in place (1,3).

References

1.Grewal HS, Dangayach NS, Ahmad U, Ghosh S, Gildea T, Mehta AC. Treatment of Tracheobronchial Injuries. Chest. 2019 Mar;155(3):595–604.

2.Ost DE, Ernst A, Grosu HB, Lei X, Diaz-Mendoza J, Slade M, et al. Therapeutic Bronchoscopy for Malignant Central Airway Obstruction. Chest. 2015 May;147(5):1282–98.

3.Srivastava A, Santagostino E, Dougall A, Kitchen S, Sutherland M, Pipe SW, et al. WFH Guidelines for the Management of Hemophilia, 3rd edition. Haemoph Off J World Fed Hemoph. 2020 Aug;26 Suppl 6:1–158.

4CS
BULLETIN
NOVEMBER 2025

BEYOND THE PULSE OXIMETER; HIDDEN HYPOXIA DESPITE NORMAL OXYGEN

P. Rishani Anupama Wijedasa,
MBBS, Trainee in Post graduate Diploma in critical care medicine

Introduction

Methaemoglobinaemia is rare and often difficult to diagnose, because routine analytical methods are impaired by the chocolate brown colour of the blood [1]. It is characterized by elevated methaemoglobin levels (more than 1%-2% of the total haemoglobin) in the blood [1]. Methaemoglobin (MetHb) is an altered state of haemoglobin (Hb) where Fe^{2+} of haem are oxidized to the Fe^{3+} and as a result cannot deliver oxygen to the tissues [2,3,4]. It may be inherited, where symptoms are present from a young age or may be acquired through exposure to oxidizing agents or medications [1,2,4]

Case Report

A 32 year old lady presented with fever, chills and rigors for 2 days duration to a hospital in private sector. She has been having shortness of breath for a week and it has worsened on the day prior to the admission. She denied any cough. There was no history of long travel or contact history of fever.
She developed a generalized erythematous maculo-papular, blanching, palpable itchy rash 1-2 days prior to the admission. There was no involvement of the mucosa.

She has been diagnosed with pauci-bacillary leprosy and was started on dapsone about one month prior to this admission. She was seen by a dermatologist and treatment was withheld as it was not a lepra reaction.

On admission to the private sector, she was tachypnoic and was saturating at 85% while breathing on room air and showed minimal improvement with 15L/min oxygen via non-rebreathing face mask. As patient was persistently dyspnoic, she was transferred to the medical intensive care unit (ICU). On admission to the ICU, she was immediately started on high-flow nasal oxygen and arterial blood gas (ABG) analysis was done. It showed normal pH, oxygenation, CO_2, HCO_3- but with high levels of lactate. Once blood was withdrawn for the ABG, it showed a darker appearance than the usual colour-filter paper test being positive.
ABG showed high levels of MetHb.

Before treatment

After the treatment

ECG, USS chest, chest x ray, troponin I and bed side echo were normal but D-dimer level was elevated. However, CT pulmonary angiogram showed no evidence of pulmonary embolism.

Patient was stabilized according to the ABCDE approach. The probable culprit was dapsone which was already withheld. Then, she was started on methylene blue and ascorbic acid. Repeated ABG analysis showed improvement in the MetHb and lactate levels. The colour of the blood was gradually gaining its normal bright red colour. Most importantly patient improved markedly and saturation increased.

Discussion and conclusion

This case illustrates dapsone-induced methaemoglobinemia, presenting with dyspnoea, cyanosis, and persistent low saturation unresponsive to supplemental oxygen, despite normal partial pressure of Oxygen. The key diagnostic clues were the saturation gap, elevated lactate reflecting tissue hypoxia and confirmatory co-oximetry as it can differentiate oxyHb, deoxyHb, carboxyHb and MetHb accurately.
Pulse oximetry is unreliable in this setting.

Prompt recognition is crucial, as treatment with methylene blue rapidly reverses the process by restoring hemoglobin to its functional ferrous state. Bedside tests such as the filter paper test may provide early diagnostic hints. This case underscores the importance of considering methaemoglobinemia in patients on oxidant drugs like Dapsone who present with unexplained hypoxia.

References

1. Zofia prus-Czarnecka [1], Anna Fuezery [2], Tom Noga[2] and Vincent Issac Lau[3] . Methaemalbumin: a diagnostic surrogate for methaemoglobinaemia and red cell exchange in a patient with thallassaemia, BMJ Case Reports

2.Methaemoglobinaemia, Chris Nickson. Dec 18, 2024. Life in The fast Lane

3.Harrison's Principles of Internal Medicine Vol 1, 21st Edition, ISBN: 978-1-26-426851-1

4. www.uptodate.com, methaemoglobinaemia

CAN YOU GUESS?

ANSWERS TO THE QUIZ:

Answers to question 1:

1. Rhino-orbital-cerebral mucormycosis
2. Uncontrolled diabetes mellitus (especially diabetic ketoacidosis)
3. Intravenous liposomal amphotericin B
   Aggressive surgical debridement ± orbital exenteration
4. Intracranial extension (cavernous sinus thrombosis/meningitis)
5. Because mucormycosis is rapidly invasive and angioinvasive with high mortality

Answer to question 2

LUCAS machine (Lund University Cardiac Arrest System) is a mechanical CPR device that delivers consistent, high-quality chest compressions to patients in cardiac arrest, freeing up medical personnel to perform other interventions

4CS BULLETIN

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