

### Editorial

#### Happy New Year to the IAPA Family!

We approached 2023 with enthusiasm and the intention of establishing objectives that we wished to complete before the end of the year.

First, let's reflect and take pleasure in our inheritance. Our organization was established in 2006 and it took another 9 years for the newsletter to be initiated with the intention of fostering greater contact.

The first newsletter editorial team was led by Dr Elsa Varghese and Dr Vibhavari Naik under the able leadership of Dr. Pradnya Sawant. First newsletter was rolled out in January 2016 and since then we have published 13 editions. Currently, the newsletter is published biannually and is uploaded on website for everyone to read. Newsletter has expanded from 6 pages to 16 pages with new sections like the achiever's section, the fellow's experience, and the PG-themed articles. We share our clinical experiences through the newsletter, which enables everyone to benefit from one another's knowledge. Crossword puzzles and quizzes are popular sections amongst our readers.

Because the newsletter is freely available on our website and read by both members and even nonmembers, it has expanded our reach to every region of the nation. We share our clinical experiences through the newsletter, which enables everyone to benefit from one another's knowledge. Crossword puzzles and quizzes are popular sections amongst our readers.

Dr Murthy, IAPA secretary, proposed to include the Newsletter editor as a part of executive committee member which was supported by our president, Dr Neerja and the executive committee in 2021. I happened to be the first editor to represent the newsletter in the executive board.

IAPA guidelines are published by committed paediatric anesthesiologists who are world-renowned authorities on the subject, under the direction of Dr. Indu Sen. The team is publishing newer guidelines and also updating the previous ones. This will serve as a safety benchmark for a variety of practising paediatric anesthesiologists.

Our fellows are our future; therefore, we are determined to nurture them and support them. IAPA online academic program is one such activity where all IAPA fellows and other IAPA member paediatric anaesthesia fellows gain from the lectures given by renowned paediatric anesthesiologists. It is our duty to mentor and support our aspiring paediatric anesthesiologists so that they can keep their enthusiasm alive in the face of limited employment and educational options.

We've reached a point where we need to reflect and review our goals for the newsletter.

Continuing to interact actively and engaging with more members is our first goal for this year. So, I welcome you to actively participate by sharing your clinical work with clear take home messages. Our newsletter welcomes your contributions of all kinds in addition to its scholarly content.

We intend to establish the first Indian paediatric anaesthesia journal with the help of IAPA members since IAPA is the only paediatric association with representation from the majority of India. This goal is far from reality now, but we need to take baby steps now to lay the groundwork for our journal.

With these wishes in our hearts, we wish you all a very happy new year.

Long live IAPA!



*Dr Ekta Rai,  
Editor*

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**Moving towards Green Operating Rooms****Dr Nandini Dave,  
Mumbai**

The issue of global warming is the largest threat to global health ever described.(1) The World Health Organization (WHO) predicts an excess in mortality due to climate change by the year 2030, of 250,000 fatalities per year as a direct consequence of extreme changes in weather events.(2) Globally the health care sector contributes to about 5% of the greenhouse gas (GHG) emissions. According to a report released in 2019 by Health Care Without Harm, an international NGO, India figures among the top ten countries that account for 75% of global healthcare climate footprint. India's healthcare sector's contribution to total carbon emissions is 1.5 per cent as compared to the global average of 4.4%.(3)

Operating rooms (ORs) contribute significantly to the carbon footprint of hospitals because of the used anaesthetic gases, energy-intensive equipment and waste. As anaesthesiologists, we can lead the green campaign by improving operating room design and functioning, by altering our choice of anaesthetic agent and management, waste disposal methods and diversion. These can mitigate to some extent, the negative environmental effects of anaesthesia practice. The major contributory factor related to anaesthesia is the use of volatile anaesthetic agents. Measured atmospheric concentrations of volatile anaesthetics were first published in 2016 by Vollmer and colleagues demonstrating that desflurane pollution was increasing, sevoflurane's static, with halothane and isoflurane's decreasing.(4) Desflurane contributed 80% of the estimated greenhouse effect from all measured volatile anaesthetic pollution. One MAC- with sevoflurane is equivalent to driving 6.5 km, isoflurane 13 km, and desflurane 300 km per hour (2.2% sevoflurane, 1.2% isoflurane, 6.6% desflurane, at 1 L min<sup>-1</sup> fresh gas flow [FGF]).(5) Nitrous oxide (N<sub>2</sub>O) is responsible for the majority of ongoing ozone depletion by anaesthetic agents, and approximately 6% of anthropogenic global warming. Avoiding desflurane and N<sub>2</sub>O, practising low-flow anaesthesia, and using techniques, such as regional and total intravenous anaesthesia (TIVA) go a long way to minimize OR and atmospheric pollution, to minimize the requirement for inhalation agents. Reducing the FGF, not the concentration on the vaporizer during intubation, and then adjusting the FGF to a minimum setting soon after intubation, helps preserve the anaesthetic vapour concentration in the circuit. Recaptured volatile drugs may be adsorbed, and then either subsequently destroyed or desorbed, separated, and stored for potential reuse.

In 2015, Thiel et al demonstrated that switching to total intravenous anaesthesia(TIVA) where clinically applicable, with propofol or other IV or regional anaesthesia techniques would reduce ozone depletion by 3% during laparoscopic and by 28% in robotic surgeries.(6) The propofol footprint was found to be four times less in magnitude than inhaled agents. However, improper discarding of unused propofol and other intravenous drugs may have deleterious effects on aquatic and terrestrial ecosystems due to bioaccumulation, and toxicity.(2,7) Using prefilled syringes, minimizing the use of syringes and appropriate-sized drug vials for an individual patient can make TIVA even more environment friendly. Emergency drugs need not be loaded daily but ampoules can be kept handy.

Waste disposal contributes majorly to OR energy expenditure and carbon footprint. The 5R rule (Reduce, Reuse, Recycle, Rethink and Research) used to promote an environmentally friendly way of life, can be applied to the medical field and specifically to the ORs and anaesthesia.1 The "blue wrap" used to keep surgical supplies and equipment sterile is estimated to make up almost 20 % of all operating room waste and is difficult to recycle. It can easily be replaced with rigid metal containers, that can be re-sterilised. Prefabricated instrument kits and anaesthesia supply carts can be reformulated to eliminate unnecessary items. Anaesthesia equipment waste can be reduced by only opening equipment intended for immediate use and promoting reusable or reprocessed equipment over disposable ones. Reusable linen and minimizing excessive use of disposable towels and blankets will also help. Basically, it means going back to our older ways of recycling equipment and linen as the majority of our hospitals did in the past.

Other simple, low-cost strategies to reduce energy consumption in the OR include turning off lights, using LED lights, keeping doors closed, unplugging equipment, disconnecting vacuum and medical air, and putting computers and monitors in power saving modes. Personal habits like travelling by public transport or walking to work if possible, using reusable mugs for beverages, eliminating plastic bottles, etc also make a difference if implemented on a large scale. There are free teaching tools to estimate one's own carbon footprint like the Yale Gassing Greener App and the Association of Anaesthetists Anaesthetic Gases Calculator.(1)'Choosing Wisely', an initiative by the American Board of Internal Medicine that seeks to improve clinical care by reducing unnecessary investigations and medications, can significantly reduce the environmental footprint of healthcare.(8)

A survey conducted in Delhi in 2014 showed that though most of the anaesthesiologists were aware of the greenhouse effect, only 29% could identify GHGs in the OR.(9) It is therefore necessary to inculcate environment friendly practices in registered anaesthesiologist as well as in anaesthesiology trainees and include these as a part of the training curriculum for better compliance and motivation. The Green OT certification project is a first in the world and the first 'Make in India' certification protocol developed by Bureau Veritas in conjunction with Abbott India. It conducts audits and rates the hospitals as per their patient safety protocols and environment friendly amenities.(10) In India, the Chhattisgarh State Renewable Energy Development Agency and State Health Department have collaborated to install, operate and maintain solar panelled systems in 900 health centres and district hospitals, reducing their carbon footprint while building resiliency.

Many hospitals in India are working towards obtaining "Green Certification" from various accreditation societies. It is important to take collective responsibility for slowing down the progress of climate change and to uphold our motto of 'First Do No Harm'.

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### Obituary

It is with a very heavy heart that we mourn the loss of our beloved senior and the Founder President of IAPA Bengal, Dr. Indrani Mitra who left us for her heavenly abode on January 14, 2023 after putting up a brave fight with a terminal illness. She received her primary and secondary education at Calcutta Girls School and St. Joseph's Convent in Cuttack, and her further secondary education at Scottish Church. She graduated from Calcutta Nation Medical College from 2009 to 2011 after attending RG Kar Medical College in the 1984 batch.

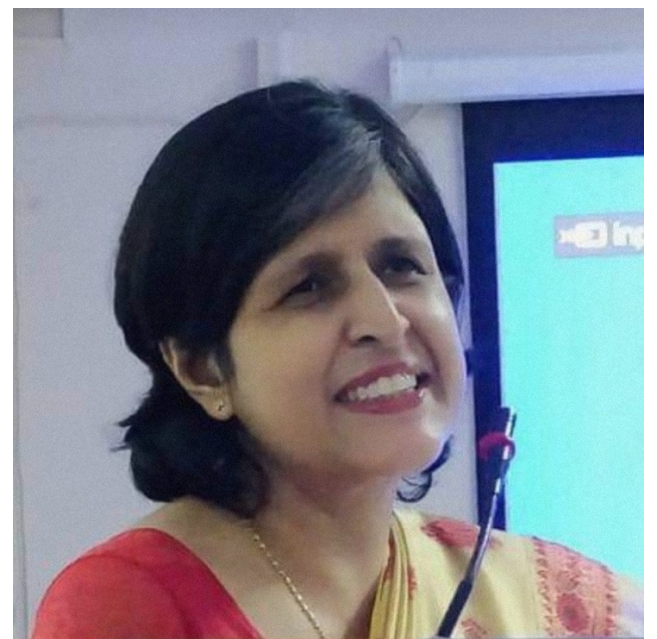
She began working for West Bengal Health Services as a medical officer anaesthetist at Lady Dufferin Victoria Hospital in 1993 and remained there until 2007. She took a brief paediatric anaesthesiology training course at NRS Medical College around this time. She joined the Bangur Institute of Neurology as an assistant professor and continued to serve until 2021 but had to take voluntary retirement in October 2021 because of her health issues. She later became an associate professor at R K Mission Seva Pratishthan on April 20, 2022, and retired on October 31, 2022. She was also attached to the Park Clinic as a consultant since 2007.

She joined IAPA in 2013 and served as Founder President of the West Bengal Chapter. She participated in the annual conferences of the IAPA as a faculty member and speaker.

Her untimely demise is extremely heart-breaking for all those who had the opportunity to interact and work with her over the years. Her infectious enthusiasm, zest to live life sportingly, love, respect, and compassion towards her seniors, colleagues, and juniors, and most importantly, her never say die attitude, were unfathomable and will remain etched in our hearts and minds forever.

She will remain in our hearts forever.

Om Shanti



**Dr Indrani Mitra**  
(11/07/1967 -14/01/2023)

## Role of guidelines for the safe outcome of paediatric surgical patient

Dr Neerja Bhardwaj

Chandigarh

Guidelines are meant to improve our clinical management skills based on high quality evidence. These provide a bridge between the availability of large body of scientific evidence and the ability to choose desired clinical practice. Therefore, they are named “**Clinical Practice Guidelines**” and are recommendations intended to optimize patient care based on a systematic review of evidence and an assessment of the benefits and harms of alternative care options.<sup>(1)</sup> For guidelines to be effective they need to target practical questions related to patient care, should be trustworthy and useful as well as current, undergoing modifications based on the recent change in knowledge. They also need to be unbiased and with no conflict of interest.

Guidelines are usually made by societies and organisations based on GRADE (Grading of Recommendations Assessment, Development and Evaluation) criteria which is currently the gold standard.<sup>(2,3)</sup> However, adopting GRADE criteria for standardisation of guidelines for paediatric anaesthesia is difficult as this is a relatively new and small specialty. The fraction of children coming for anaesthesia is small compared to adults and so there is a small financial incentive for organisations as well as societies to fund research. Based on lack of high quality studies, high-quality evidence is limited and the best evidence in such cases is limited to observational studies or large cohort studies or historical cohorts from databases.<sup>(4)</sup> Therefore, guidelines may be based on weak recommendations supported by poor evidence. It also requires time and commitment to come up with guidelines and this has to be weighed against time for education and research. Based on all these points, a collaboration between various societies to come up with a guideline is more productive in terms of quality and time conservation like the recent *Consensus statement on clear fluid fasting for elective pediatric general anaesthesia* a joint statement of the APA, the ESPA and L'Association Des Anesthésistes-Réanimateurs Pédiatriques' Expression Française (ADARPEF) and subsequently endorsed by the Society for Paediatric Anaesthesia in New Zealand and Australia (SPANZA).<sup>(1)</sup>

Various international societies like Society of Pediatric Anesthesia (SPA), European Society of Paediatric Anaesthesia (ESPA), Association of Pediatric Anesthesia (APA), Association of Paediatric Anaesthesia Great Britain and Ireland (APAGBI) and SPANZA have guidelines on various aspects of paediatric anaesthesia. In India, paediatric anaesthesia as a sub-specialty is still in its nascent stage and Indian Association of Paediatric Anaesthesiologists (IAPA) came into being only in 2006. Additionally in spite of India having a large patient pool, observational studies or large cohort studies related to paediatric anaesthesia are lacking and databases are non-existent making drafting guidelines a difficult task. IAPA in collaboration with Children's Hospital of Philadelphia, USA is in process of formulating a database of critical events- 'Wake Up Safe India'.

In spite of these limitations, IAPA in 2015, decided to formulate practice guidelines on various clinical situations to standardise paediatric anaesthetic care in children based on global evidence but modified keeping Indian resources in mind. These guidelines were conceptualised keeping in mind with the likelihood that both an exclusive paediatric anaesthesiologist (medical institutes, standalone paediatric hospitals both government and private) and an occasional paediatric anaesthesiologist (small government hospitals and private nursing homes) would be providing anaesthesia care to children in India. For formulating the guidelines a “Guidelines Committee” consisting of 4-5 members was formed by the executive committee members of IAPA. The subject for the guidelines was chosen by this committee who then deputed an IAPA member to collect available literature on the subject and draft guidelines. The guidelines were subsequently assessed by the Guidelines Committee team for their applicability and strength and then uploaded on the website from where they were free to be accessed by anyone who needed them.

'Fasting Guidelines' and 'Minimum Mandatory Monitoring Guidelines' were the first to be formulated. The decision to start with fasting guidelines was based on the thinking that across all health care providing institutes, maintaining minimum fasting time is seldom achieved or ensured and is not considered a priority. This may be based on lack of updated knowledge and awareness regarding importance of clear fluid administration 2 hrs before surgery by both anaesthesiologists and surgeons. Often, the anaesthesiologist is not the person giving fasting instructions. The guidelines also mentioned the type of permitted fluids based on the region of India in the list of fluids allowed to be consumed to meet 2 h fasting criteria. It was felt that availability of fasting guidelines which were authenticated by IAPA would encourage the caregivers to use them in their clinical practice more effectively.

The 'Minimum Mandatory Monitoring Guidelines' were made to guide anaesthesia providers in providing safe anaesthesia in operation theatre, as well as post anaesthesia care unit (PACU) and non-operating room (NORA) locations. These guidelines stressed on the availability of minimum monitoring standards which were needed to be met before a hospital provided anaesthetic care to children keeping in mind Indian hospitals with low resources. It also ensured that hospitals which were providing anaesthesia services to children had monitors with these facilities so that a safe environment is created for the child undergoing surgery.

Subsequently guidelines on sedation, COVID Advisory, Airway Management Advisory and Advisory for neonates with CHD for non-cardiac surgery were also formulated. However, it remains to be seen whether these guidelines have impacted the outcome of children being anaesthetized. IAPA is now entrusted with the task of performing audits in various hospitals to enable an answer to these questions on safety.

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## A Novel Anesthetic Recipe for Paediatric Thoracoscopic Thymectomy: A Case Report

Drs. Ravikiran H M, Anuradha G, Chandrika Y R

Bangalore

An eleven-year-old girl, recently diagnosed with acetylcholine-receptor positive Juvenile Myasthenia Gravis (MG). She presented with drooping of eyelids and difficulty in climbing stairs for the two months. On examination she weighed 46kgs and measured 155cm tall with bilateral limb hypotonia, grade 4/5 motor power in all limbs, and normal tendon reflexes. Rest of her systemic examination was normal. She was on an oral prednisolone 40 mg bd and pyridostigmine 60 mg QID for the last 2 weeks. The chest computed-tomography showed a 1.7x1.5x1.5cm anterior mediastinal mass arising from the thymus without compression of vital structures. Hemogram, blood sugars, and serum electrolytes were normal. The child was scheduled for a thoracoscopic video assisted thymectomy and she was advised to continue her oral medications till the day of surgery. Written, informed consent for surgery and anaesthesia was obtained. Total intravenous anaesthesia with regional anaesthesia was planned for the procedure.

In the operating room, standard monitors were connected. Anaesthetic induction was accomplished with appropriate doses of intravenous fentanyl and propofol. Prior to laryngoscopy, the vocal cords were sprayed with lignocaine 4 % and the trachea was intubated with 6.5 mm ID reinforced endotracheal tube with the child breathing spontaneously. Additional monitoring included bispectral index (BIS) & neuromuscular (NMT) monitors and invasive arterial blood pressure monitoring. Baseline values were noted including a post induction Train of four (TOF) 89%. Under ultrasound guidance, 20 mL of 0.2% Levobupivacaine was injected in the left serratus anterior plane. Anaesthesia was maintained with infusions of propofol infusion @ 6mg/kg/hr and dexmedetomidine @ 0.3µg/kg/hr maintaining BIS value between 25-45 and TOF at 65%. Muscle relaxants and inhalational agents were avoided throughout the procedure. With the conclusion of surgery, i.v. neostigmine was administered and a corresponding rise in TOF to 96% was noted following which she was successfully extubated. She had an uneventful postoperative period and continued her oral medications post-surgery and discharge on the third post operative day.

### Discussion

Myasthenia gravis is an autoimmune disorder of the neuromuscular junction with an incidence of approximately 1 in 30,000 people. Children younger than 16 years of age account for 10 % of cases females have a higher predilection. The usual forms of presentation in children include a transient neonatal form, an autosomal recessive congenital one and juvenile type which is seen in 80% of cases. Acetylcholine (Ach) receptor antibody is positive in 80% of patients with M.Gandin 20%, muscle specific kinase (MuSK) antibody is present, which unfortunately does not respond to anticholinesterase. Antibodies develop against  $\alpha$ -subunit of the muscle-type nicotinic acetylcholine receptor and destroy the acetylcholine receptors of the neuromuscular junction. This results in classic transmission failure of neuromuscular signals with subsequent muscle weakness and fatigue.

Thymectomy is a widely accepted therapy for myasthenic patients, particularly those with thymoma and early-onset generalized MG. The goal of thymectomy is to cause remission and permit a reduction in the immunosuppressive medication. Clinical improvement is seen in 50-80% of patients undergoing thymectomy. Thoracoscopic procedures in addition to being minimally invasive also help in early recovery in paediatric patients. Challenges pertinent to paediatric thoracoscopy include age related anatomical and physiological considerations with positioning, lung isolation and ventilation and effective management of artificial capnothorax. Goals for anaesthetic management in children undergoing thoracoscopic thymectomy involves balancing ideal surgical operating conditions with use of anaesthetic drugs which minimally interfere with neuromuscular transmission and to facilitate faster recovery and earlier discharge from hospital.(1)

Use of intra-operative muscle relaxants and volatile anaesthetic agents may result in muscle weakness and cause postoperative myasthenic crisis leading to prolonged respiratory failure with dependence on mechanical ventilation.(2,3) General anaesthesia with controlled ventilation via an endotracheal tube using diverse anaesthetic agents without reliance on muscle relaxants and inhalational agents have been described successfully.(4) Use of regional anaesthesia as standalone anaesthetic plan, if possible, is best and has been found suitable for biopsy and for use in older children. However, toxicity of ester local anaesthetics due to anticholinesterase interaction and potentiation of neuromuscular blockade due to systemic absorption at higher dose has to be well-thought-out. The combination of a regional anaesthetic technique in the form of an ultrasound guided Serratus Anterior plane block and a total intravenous technique with propofol and dexmedetomidine aided with point of care monitoring devices like NMT, and BIS are an ideal anaesthetic technique for children undergoing thoracoscopic thymectomy. Serratus Anterior interfascial plane block is an attractive option to provide analgesia to anterolateral and posterior chest wall from T2-T9 dermatomes. Propofol based total intravenous anaesthesia with dexmedetomidine as an adjuvant has been found to provide superior analgesia, hemodynamic stability with superb operating conditions with minimal interference in neurophysiology.(5)

To conclude, management of children with MG posted for video assisted thoracoscopic thymectomy needs a team approach. Coordinated efforts with use of novel anaesthetic drugs, latest equipment and monitoring aids alongside innovative techniques can have a positive impact on healthcare outcomes in children undergoing advanced thoracoscopic procedures.

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## Anaesthetic Management of a Patient with Freeman Sheldon Syndrome: A Case Report

Sheetal K, Deepthi Manjunath, Chandrika Y R

Bangalore

### Introduction

Freeman Sheldon syndrome (FSS) is a congenital disorder characterized by joint deformities involving head and neck. Patients show craniocarpotarsal dysplasia, contractures of musculature and soft tissues leading to characteristic circumoral fibrosis, microstomia with pursed lips giving the appearance of a whistling face, prominent forehead, brow ridges, a short nose, hypertelorism, blepharophimosis, ptosis, microglossia and micrognathia. In addition, patients may also have neck contractures and short webbed neck with severely limited range of motion. All the features pose difficulty in securing the airway in these patients. Other features include club foot, hand and foot defects, and scoliosis. There is an increased risk for individuals with this disorder to develop malignant hyperthermia during the intraoperative period.(1,2) This was first described in 1938 and is part of a group of pathologies referred to as distal arthrogryposis (DA).Freeman Sheldon syndrome is caused by mutations in the myosin heavy chain 3 (MYH3) gene. The defect leads to abnormal contraction and relaxation patterns of myocytes. Genetic testing may be useful to confirm a suspected diagnosis.

### Case Report

A six-year-old male child weighing 15kgs, was scheduled for corrective osteotomy of both knee joints. He had undergone genetic testing and was diagnosed to have Freeman Sheldon syndrome. He presented with microstomia, circumoral fibrosis, 'whistling appearance of the face' and thumb in wrist condition. Airway evaluation comprised of limited mouth opening admitting one finger, crowded teeth, micrognathia, short neck and restriction of neck movements. Prior to starting the case, a difficult airway cart comprising of video laryngoscope, conventional laryngoscope with all paediatric sized blades, bougie, stylet, oropharyngeal airway, sizes 3-5 mm ID endotracheal tubes, laryngeal mask airway (LMA), I-Gel, fiberoptic bronchoscope 3.1 mm and emergency tracheostomy kit were kept ready. The anaesthetic vaporisers were removed and the machine was flushed with oxygen to prepare for malignant hyperthermia. A 22G cannula was secured on the dorsal aspect of the left hand after application of prilocaine cream. ASA standard monitors were connected. After preoxygenation, the child was given i.v. ondansetron 1.5 mg, dexamethasone 2mg, and fentanyl 15 µg .Induction was done with i.v. propofol 15mg. Mask ventilation was not difficult. An infusion of propofol 6mg/kg/hr was started and the child was maintained on spontaneous respiration. Afterspraying the pharynx and larynx with 4% lignocaine, video laryngoscopy was attempted which revealed zero percentage of glottic opening (POGO score 4)and Cormack-Lehane Grade 3. A nasal flexible fiberoptic bronchoscopy was planned and a 4.0 ID endotracheal tube was inserted under vision and its position confirmed by EtCO<sub>2</sub>. The child was then paralysed with IV atracurium 7.5 mg and anaesthesia was maintained with TIVA and controlled ventilation with air oxygen mixture(50:50). Transoesophageal temperature was within normal limits peri-operatively. A caudal block was given with 10 mL of levobupivacaine 0.125%. Additional analgesia was provided with i.v 200 mg paracetamol. The intraoperative period was uneventful. The child was reversed with i.v.neostigmine 7.5mg and glycopyrrolate 0.2 mg. Postoperatively the child was stable and pain free . The duration of the surgery was one and half hours.

### Discussion

Our primary objectives were to secure the airway and prevent malignant hyperthermia intraoperatively. Patients with Freeman Sheldon Syndrome provide a huge anaesthetic challenge with regard to securing the airway. Severe microstomia, micrognathia, kyphoscoliosis, and small nasal passages pose a great difficulty in assessment and management of airway. Further, the rami of the mandible may be hypoplastic and diffuse fibrosis of orbicularis muscle and dermal fibrous band along the vermilion border of the lower lip result in contracted mouth opening.(1,2) The case reports available for airway management for Freeman Sheldon Syndrome (FSS) have either emphasised on difficulty or failed endotracheal intubation.(2,3,4) Cruicksanks et. al. successfully used an LMA for a child undergoing elective inguinal hernia repair with FSS. Analgesia was achieved with ilioinguinal block. Tateishy et. al. reported elevated rigid epiglottis making it impossible to intubate a child with FSS. Okawa M, et al. reported difficulty in mask ventilation and direct laryngoscopy and the insertion of an LMA were impossible due to microstomia with the limited mouth opening.(5) They successfully managed a nasotracheal intubation using a fiberoptic bronchoscope. No adverse intraoperative events were reported. Supraglottic airway devices can serve as a rescue in these patients. However, regional anaesthesia in the form of nerve blocks can be used as another alternative wherever possible.

Underlying myopathy may predispose these patients for malignant hyperthermia. Constant monitoring of temperature becomes mandatory. Jonas et al. presented two cases of FSS with muscle rigidity while using halothane as an induction agents. Sobrado et. al. used succinylcholine and halothane in a patient with FSS and described severe muscle rigidity that compromised ventilation and had to administer i.v. dantrolene.

### Conclusion

Adequate preoperative evaluation of the airway with appropriate planning and preparedness is the key to secure the airway in children with Freeman Sheldon syndrome. Drugs that trigger malignant hyperthermia should be avoided. A balanced anaesthesia technique with short acting opioids and TIVA combined with regional anaesthesia will have a better outcome in these children.

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**Image 1 - Child with FSS showing Microstomia**



**Image 2 – Videolaryngoscopic view of oral cavity**

## Sellick's Maneuver – Not Dead As Yet

Ranju Singh, Raksha Kundal  
New Delhi

### Introduction

Removal of a tracheobronchial foreign body is a risky procedure in the paediatric population, considering their smaller airways, reduced oxygen (O<sub>2</sub>) reserves and increased oxygen consumptions. We describe a case in which the rigid bronchoscope was inappropriate in size and Sellick's maneuver helped to effectively ventilate the patient's lungs during removal of the foreign body (FB).

### Case report

A 30 Kg, 10-year-old boy, with history of aspiration of his own tooth around 36 hours previously was admitted to our tertiary care center. Physical examination revealed increased respiratory rate, wheezing and decreased air entry on right side of the chest. Preoperatively his O<sub>2</sub> saturation (SpO<sub>2</sub>) was 92%-94% on 2 liters of O<sub>2</sub> by nasal prongs, blood pressure was 95/70 mmHg; heart rate was 100 beats per min with no arrhythmias. Pre-oxygenation was done with 100% O<sub>2</sub>, then injection atropine (0.02mg/Kg), propofol (3mg/Kg), and fentanyl (2µgm/Kg) were administered intravenously. Injection atracurium (15mg) was administered to allow a size 3.7 rigid bronchoscope (length 26 cms, 5.7 mm inner diameter and 6.4 mm outer diameter) to be passed through the glottic opening. Jackson-Rees circuit was connected to side of bronchoscope to facilitate ventilation, but there was significant leak around the bronchoscope making adequate ventilation impossible. Even after increasing the fresh gas flow, ventilation was not possible and it was decided to introduce a bigger size bronchoscope. Mask ventilation was resumed, and a size 5 rigid bronchoscope (length 39 cms, 7.1mm inner diameter and 7.8mm outer diameter) was introduced. Although ventilation became adequate, instrumentation was not possible through this long bronchoscope.

It was decided to insert the smaller size rigid bronchoscope again to allow the retrieval of the FB. Significant leak and compromised lung ventilation was expected as before. To circumvent this problem, packing was done around the bronchoscope, but still there was gas leak resulting in gastric insufflation and inadequate ventilation. Stomach was decompressed by passing a suction catheter. Sellick's maneuver was applied in an attempt to reduce gastric insufflation, and to our surprise it improved the lung ventilation. Propofol (@0.15 mg/Kg/min) and fentanyl infusions (@0.5µgm/Kg/hour) was used for maintenance of anaesthesia. Multiple attempts were required to retrieve the tooth from right main bronchus, and the procedure lasted almost one hour. During the procedure, the patient's heart rate was 100-140 beats/min, systolic blood pressure ranged between 100 to 70 mmHg, and SpO<sub>2</sub> was 75% to 95%. Upon removal of the bronchoscope, a 5.5-mm cuffed oro-tracheal tube was inserted and connected to the breathing circuit. The patient's end-tidal carbon dioxide (ETCO<sub>2</sub>) was 40-49 mm Hg. After 15 minutes of ventilation, the ETCO<sub>2</sub> decreased to 35-40 mm Hg and SpO<sub>2</sub> was 97%. Muscle relaxation was reversed and patient's trachea extubated. He was shifted to paediatric intensive care unit for monitoring.

### Discussion

Sellick's maneuver was a technique that had become part of rapid sequence intubation to prevent aspiration of gastric contents in a full stomach patient.(1) As per Sellick's, the extension of neck and application of cricoid pressure obliterated the esophageal lumen at 5th cervical vertebral level. Currently the technique has limited evidence to support its utility and many clinicians have questioned the efficacy and necessity of the maneuver.(2) In our case there was a significant air leak present around the small sized rigid bronchoscope which was causing gastric insufflation and also ineffective ventilation. We were unable to reduce the leak by packing and tried using the Sellick's maneuver to eliminate the leak and improve ventilation. As per Moynihan RJ et al appropriately applied cricoid pressure is effective in preventing gastric insufflation in the paediatric population.(3) However, oesophageal rupture and exacerbation of unsuspected airway injury should be kept in mind.(4) Through this case report we wish to highlight that this novel use of an age-old technique that has otherwise lost its clinical significance can be extremely beneficial in critical situations. Clinicians in situations similar to ours may find it very useful.



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1. Sellick BA. Cricoid pressure to control regurgitation of stomach contents during induction of anaesthesia. *Lancet*. 1961; 2:404-6.
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### Free App.

The Society for Pediatric Anesthesia Pedi Crisis 2.0 Critical Events Checklists Mobile App® is now available for the iPhone and iPad on the Apple App Store at and for Android on the Google Play Store.

### Good Read

1. Amanda N. Lorinc,\* Camila B. Walters, Hannah K. Lovejoy, Christy J. Crockett, and Srijaya K. Reddy. Hot Topics in Safety for Pediatric Anesthesia Children (Basel). 2020 Nov; 7(11): 242.
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Ekta Rai,  
Vellore



PEDI CRISIS APP®

## Activity

### IAPA TELANGANA STATE BRANCH - Annual report January - December 2022

IAPA -TS being one of the first state branches under IAPA, has been very active in the academic front. As decided, during its conception, we have regularly been conducting scientific sessions once every 2 months involving premium institutes practising paediatric anaesthesia which include Niloufer hospital, Rainbow Children's hospitals, Basavatarakam Indo-American Cancer hospital, LV Prasad Eye Institute along with many other enthusiasts of this specialty. These bimonthly meets were definitely an academic feast attended well by postgraduates, senior residents, junior and senior paediatric anaesthesia consultants. These half day programs brought about good interaction and exchange of knowledge and techniques among the attendees with pearls of wisdom transferred from the experienced seniors.

The academic and governing activities held were as follows-

**15/03/2022** - Held at The Plaza Hotel

**Guest lecture** - Child with congenital heart disease posted for non cardiac surgery by Dr. B. Srinivas Reddy, Consultant, Malla Reddy Narayana hospital

**Case presentations** - 4 from different paediatric institutes

**GBM** - Felicitation of outgoing President : Dr. Gita Nath and Vice President : Dr. Damodhar Rao M

- Welcoming unanimously elected President : Dr. P.V. Shiva, Vice President : Dr. N. Srinivas Reddy, Executive committee members : Dr. Saritha Kumari, Dr. Srikanth MVN, Dr. Shiva Krishna Sampathi and Dr. Shwetha Ambati.



**13/05/2022** - Held at The Plaza Hotel

**Guest lecture** - Anaesthetic implications in children with haematological malignancies by Dr. Vibhavari Naik, Consultant, Basavatarakam Indo American Cancer hospital.

**Case presentations** - 4 from different paediatric institutes

**22/07/2023** - Held at Blue Fox Hotel

**Guest lecture** - TIVA in Paediatrics by Dr. Aanchal, Consultant, Basavatarakam Indo American Cancer hospital.

**Guest lecture** - Safe paediatric anaesthesia in remote locations by Dr. Raja Narsing Rao, Consultant, LV Prasad Eye hospital.

**Case presentations** - 2 from different paediatric institutes.

**GBM** - Felicitation of outgoing Secretary : Dr. Ravi Naga Prasad, Treasurer : Dr. Sunidhara Reddy P and Executive committee member : Dr. Raja Narsing Rao

- Welcoming unanimously elected Secretary : Dr. Sunidhara Reddy P. , Treasurer : Dr. Sailaja K, and Executive committee member : Dr. Sai Bhargavi Panchangam.

**21/09/2022** - Held at Niloufer hospital

**Guest lecture** - Extension of Anaesthesiologist role in perinatal neonatal resuscitation by Dr. Aditya Kabra, Consultant, Pulse health care associates, HOD anaesthesia and critical care.

**Case presentations** - 4 from different paediatric institutes.

**GBM** - Handing over proceedings and accounts from past secretary and treasurer to the newly elected ones, Drive to increase the number of memberships to IAPA.

**21/11/2022** - Held at LV Prasad Eye Institute

**Guest lecture** - Anaesthesia for Laparoscopy in paediatrics by Dr. Srikanth MVN, Consultant, EMRI Hospitals, Director - Pulse Health Care Associates.

**Case presentations**

Anaesthetic Management of paediatric patient posted for Ventriculo-Pleural shunt by Dr. Anupama and Dr. Suneetha, ESI hospital

Anaesthetic Management of Oesophageal duplication cyst ( posterior mediastinal tumour) by Dr. Hymavathi, Niloufer hospital

Anaesthetic Management in paediatric baby with Ichthyosis by Dr. Charan and Dr. Dilshaad, LV Prasad Eye Institute.

**GBM** - Compilation of the IAPA membership numbers, Planning to conduct one day CME program with workshop in the upcoming months by IAPA-TS.



**IAPA Membership**

The membership drive for IAPA has been the topmost priority of IAPA - TS to increase the number of our tribe so as to improve the safe practices in paediatric anaesthesia and to spread our wings to wider horizons. At present there are 85 IAPA members from Telangana state, out of which 5 have been added in the last year. The strive to increase the number will be ongoing.

The governing body of IAPA - TS hopes to work actively to continue the academic activities in form of bimonthly meets, workshops and CMEs in the future too.

**IAPA BENGAL REPORT****PAEDIATRIC ANAESTHESIA - A Child With Cardiac Co-morbidities**

Organised by IAPA-Bengal Branch

25th June, 2022

Having learnt to take up the challenges put up by the much dreaded COVID, IAPA Bengal attempted to revert back to our original offline academic sessions and organised a focused CME on 'Paediatric Anaesthesia - A Child With Cardiac Co-morbidities', on 25th June, 2022 at Park Clinic Auditorium, Kolkata. We received an overwhelming response from around 70 delegates including senior faculties and post graduate trainees from all over the state. The CME was chaired by Dr Jayanta Bhattacharya (RKM, VIMS) and Dr Jayanta Chakravarti (NRS Medical College). After a brief welcome note from the organising secretary Dr Anisha De, the CME started with an interactive lecture on 'Paediatric Cardiology: What an Anesthesiologist should know' by the renowned Pediatric Cardiologist Dr Anil Singhi (Medica Super Specialty Hospitals). This was followed by a Panel discussion on 'A Child with Heart Disease and Anaesthesia: How we do it?' The panelists included Dr Writuparna Das (Medica Superspeciality Hospitals), Dr Sudhadeb Roy ( B M Birla Heart Institute) and Dr Soumitra Mukherjee ( R N Tagore Hospitals). The session was moderated by Dr Kakali Ghosh from IPGMER &H, SSKM Hospitals. The most enthusiastic participation was seen during 'Chocolate Quiz' based on the CME topic. The last lecture was on 'Consent and Paediatric Anaesthesia' by Dr M Afzal (Medica Superspeciality Hospitals). It was an enlightening talk on the different aspects of taking informed consent in Pediatric Anaesthesia. The session concluded with felicitation of our esteemed speakers and chairpersons followed by a vote of thanks by our IAPA BENGAL President Dr Indrani Mitra. Delegate interactions with the speakers was encouraged after each session. The feedback was uniformly positive with regards to the topics and content of the lectures.

**STATE ELECTIONS-**

Team IAPA Bengal also conducted their first ever state elections in December 2022, following the protocols set by the national committee. Our heartfelt gratitude to the National body for all the support and guidance extended to us.

**List of members in the new committee is as follows-****Chief Advisors-**

Dr Indrani Mitra

Dr Debasish Saha

**President-**

Dr Sarbari Swaika (new)

**Vice President**

Dr Chiranjib Bhattacharyya (new)

**Secretary**

Dr Anisha De

**Treasurer**

Dr Ratul Kundu

**Joint Treasurer**

Dr Krishnendu Chandra

**EC members**

Dr Rakhi Khemka

Dr Kasturi Hossain Bandopadhyay

Dr Sudeshna Bhar Kundu

Dr Anjana Ghosh Dastidar (new)

Dr Purba Halder (new)

Dr Suchismita Pal (new)

The results were forwarded to the honourable National Secretary for inclusion on the IAPA website and was also announced in the IAPA Bengal official group.



**IAPA- Maharashtra – Annual Report -II****July 2022 – Jan 2023**

IAPA -Maharashtra branch has conducted successfully 7 CMEs and workshops in last 6 months . Basic topics, recent updates and practical day to day tips and tricks of paediatric anaesthesia have been discussed at various sessions . The activities were conducted under the aegis of IAPA in collaboration with GS Medical College and KEM with IAPA and BJ Wadia Children’s Hospital, Mumbai. The academic and governing activities held were under the leadership of IAPA Maharashtra President , Dr.Indrani Chincholi and IAPA Maharashtra secretary - DR Poonam Bhadlikar and they are as follows:

**09/07/2022****Academic Activity Type-** Hybrid Academic Meet ( **KEM HOSPITAL+ IAPA**)**Discussions**

Challenges and anaesthetic concerns in paediatric GI endoscopic procedures .

Two Interesting cases –

a)Utility of echocardiography for management of an intraoperative critical event in a term baby with PDA -**Dr Gayathri P**b) Anaesthesia management of scoliosis in a syndromic patient - **Dr Rudra Deshpande****Guest lecture- Dr Swarup Ray****No. of Attendees – 73(Online )+20 ( offline)****20/08/2022****Academic Activity Type-**Workshop- Advanced Hemodynamic monitoring in children. (**KEM HOSPITAL**)**Discussions**

Static Indices of fluid responsiveness - Dr Nikhil Kesarkar

Dynamic Indices of fluid responsiveness - Dr Indrani Chincholi

Cardiac Output monitoring- Dr AnilaMalde

Hemodynamic Focussed Echocardiography - Dr Pravin Lovhale

**Workshop Details**

Station 1- USG guided central lines insertion- Dr Nikhil Kesarkar, Dr Harick Shah

Station 2- Landmark guided CVC insertion- Dr IndraniChincholi, Dr KarthikaRajan

Station 3- Landmark guided arterial line insertion- Dr Priyanka Muneshwar, Dr Priyanka Karnik

Station 4- Minimally Invasive continuous cardiac output monitors- Dr AnilaMalde, Dr Raylene Dias, Dr Swarup Ray

Station 5- Hands on Transthoracic -Pravin Lovhale, Dr Neeraj Barnwal, Dr Gourish Shinde, Dr Amruta Shringarpure

**No. of Attendees – 124****23/01/2023****Academic Activity Type-** Online academic meet ( **KEM HOSPITAL+ IAPA**)

Non Operative room anaesthesia in children

**Discussions**

NORA in neonates - Dr Raylene Dias

NORA in children -Dr Amrit Kaur

One Interesting cases –

Interesting Case in MRI suite -Dr Udit Parmar

**No. of Attendees – 36 attendees**

Landmark guided CVC Workstation

**15/09/2022****Academic Activity Type-** Workshop ( **SRCC,CHILDREN’S HOSPITAL,MUMBAI + IAPA**)

Workshop on regional Anaesthesia for orthopaedic surgery in children

**Faculty**

Dr. Nandini Dave

Dr. Priyanka Karnik

Dr.Harick Shah

**No. of Attendees – 10 attendees**

Continuous cardiac output monitoring workstation

**13/11/2022****Academic Activity Type-** CME ( **SRCC,CHILDREN’S HOSPITAL,MUMBAI + IAPA**)

Paediatric Neuro- Anaesthesia –“Making Neuro-anaesthesia safer”

**ANSWERS TO QUIZ**

1 c	2 a	3 a	4 c	5 c
6 b	7 b	8 b	9 b	10 d

**Discussions**

Applied neuro-physiology- Dr.Hemangi Karnik  
 Advanced neuro monitoring- Dr. Vidhu Bhatnagar  
 Positioning in paediatric neurosurgery - Dr.Naresh Biyani  
 Anaesthesia management for hydrocephalus- Dr. Anita Shetty  
 Anaesthesia management for Neural Tube Defects- Dr.Anila Malde  
 Craniofacial surgery: surgeon's perspective - Dr.Uday Andar  
 Craniofacial surgery : Anaesthesiologist's perspective- Dr.Hemangi Karnik  
 Anaesthesia management for posterior fossa surgery- Dr. Anil Parakh  
 Acute head injury and anaesthesia management- Dr. Manisha Katikar  
 Anaesthesia management for epilepsy surgery- Dr. Nandini Dave  
 Neuro radiological procedure and Anaesthesia- Dr. Poonam Bhadlikar  
 Battle of idea- Dr.Pradnya Sawant

**No. of Attendees – 100**

**MMC points-2**

**22/01/2023**

**Academic Activity Type - Webinar ( AIMS, Nagpur + IAPA)**

Revisiting Neonatal Anaesthesia- Need of the hour

**Discussions**

Pre-anaesthesia checkup- Dr.Bhuvneshwari B  
 Applied airway anatomy and physiology- Dr.Barkha Agarwal  
 Applied airway anatomy and physiology- Dr.Barkha Agarwal  
 Fluid management- Dr. Priyanka Karnik  
 Pain assessment- Dr. Anita Nehte  
 Epidural anaesthesia- Dr.BhauRajurkar  
 Neonatal Spinal- Dr.AmrushaRaipure  
 TAP and ESP block- Dr.Pradnya Sawant

**No. of Attendees – 150 (Online )**

**MMC points-2**



Hemodynamic focused Transthoracic Echocardiography Workstation (simulator)



Team KEM Paediatric Anaesthesia

**PPLS Event report**

A one-day certified course and workshop by Asian Society of Paediatric Anaesthesia (ASPA) on Paediatric Perioperative Life support (PPLS) was conducted on 4th December 2022 from 8.00 am to 5.00 pm in Delhi under the aegis of IAPA Delhi Branch organised by VMMC and SJH, Delhi after a long gap of Covid pandemic. This course is primarily aimed for occasional paediatric anaesthesiologists. It intends to improve the safety and quality in Paediatric Anaesthesia. The course was attended by 30 delegates comprising of a mixed crowd of faculty and senior residents from different hospitals in Delhi. The course began with introduction of the course by Dr Elsa Varghese, past president of IAPA National. The course had various talks interspersed with interactive sessions on very important and practical topics that were covered by eight instructors from Delhi and outside. It also had 3 skill stations and various case scenarios on Paediatric CPR, arrhythmias and intraosseous access. The course began with a 'Sarasvati Vandana' as a tradition and lamp lighting by dignitaries including Dr Vandana Talwar - Head of Department, Department of Anaesthesia at VMMC and SJH, Dr Ranju Singh - President IAPA Delhi, Dr Navdeep Sethi - Vice President IAPA Delhi and Dr Kavita Rani Sharma - Secretary IAPA Delhi. This event is an addendum in the list of various other academic activities been conducted by IAPA Delhi branch led by dynamic leader and team in the year 2022.

Report compiled by course coordinators.

Dr Sapna Bathla, Dr Shipra Aggarwal

**Dr Sapna Bathla, Dr Shipra Aggarwal**



## PPLS PUNE REPORT

By Dr Saroj Bande,

On 20th November 2022, the Perioperative Pediatric Life Support (PPLS) course was conducted at simulation lab of Bharati Vidyapeeth Medical College, Pune. This course was conducted by IAPA Maharashtra state with support from national IAPA.

Total 27 participants attended this course. It was a good mix of anesthesiology practitioners from institutes as well as freelancing practitioners. This led to a good interaction and an engaging discussion on various practical problems encountered in practice of pediatric anesthesia. Especially the role play on Breaking Bad News was highly appreciated by the audience. All this effort was appropriately supported by Bharati Vidyapeeth Medical College, who lent us not only the necessary mannequins and equipment, but provided us with the essential technical support too. The scientific material was already shared with the participants in soft format. As usual, a pretest and posttest was conducted and the successful participants were issued certificates from ASPA.

Overall, the activity was highly appreciated by the participants and it was suggested that more of such interactive activities should take place.

The faculties were ably led by Dr Elsa Varghese, whose enthusiasm is infectious. The other faculty were Dr A Muralidhar, Dr Nandini Dave, Dr Anita Nehete, Dr Vibha Naik, Dr Priyanka Karnik and Dr Saroj Bande.



## CONGRATULATIONS!

**Dr Aavula Muralidhar M.D., Hon. Paediatric anaesthesia Fellowship by IAPA.**

Dr Aavula Muralidhar is currently a professor at Gandhi Medical College, Telangana. He has been solely practising paediatric and neonatal anaesthesia in Hyderabad for the past 16 years. He has made a substantial contribution to IAPA growth on both the national and state levels. He has been actively participating in IAPA academic activities since 2012. He has held a variety of posts, including member of the executive committee (2018–2019) and National IAPA Treasurer (2019-2023).

In 2018, he received an honorary fellowship in paediatric anaesthesia. He is trainer for safe paediatric anaesthesia (2018 onwards) and ASPA -PPLS (2019 onwards). His contribution towards academics is well appreciated by Hyderabad state branch.

We congratulate Dr Aavula Muralidhar for taking up his new responsibility as IAPA secretary.



## Congratulations!

### Winners of Mid Term Meeting at Chandigarh

#### Category A (PGs)

**Dr. Ashima Mahajan**, Dayan and Medical College and hospital, Ludhiana.  
“Sublingual hematoma : a rare complication associated with cleft palate”

#### Category B( SRs, Fellows, DM )

**Dr. Rajit Kumar**

PGIMER, Chandigarh

“Anaesthetic management of a child with tracheal tumour for resection”

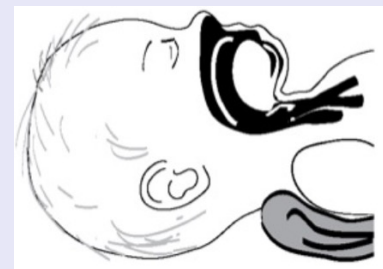
Answers Crossword IAPA	
Across	Down
4. Blue	1. Bline
6. Perlas	2. Vein
9. Hepatorenal	3. Bullseye
13. Doppler	5. Linear
15. Femoral	7. Dvt
17. Ivc	8. Fate
19. Sinusoid	10. Barcode
20. Motion	11. Long
21. Gain	12. Sliding
	14. Ra
	16. Fast
	18. Ctm

## QUIZ IAPA NEWSLETTER

## Theme- pediatric airway

Dr Rakhee Goyal

New Delhi



Question 1 Which of the following is true about the pediatric airway?

- a) Large occiput, small chin, posterior larynx
- b) Large tongue, big chin, posterior larynx
- c) Large occiput, large tongue, higher larynx
- d) Large nostrils, small tongue, lower larynx

Question 2 In an infant, the optimal position of the head and neck for the airway management should be-

- a) Tragus should be in line with the sternal angle
- b) Neck should be extended maximally
- c) Flexion of neck is preferred in infants
- d) Small circular pillow should always be kept under the head

Question 3 What is the correct way to approximate the size of oral airway to be used?

- a) Central incisors to the angle of the jaw
- b) Nose to ear
- c) As per weight and age
- d) Size of the oral airway does not matter

Question 4 Which one of the following is not true regarding the breathing in neonates?

- a) Chest expansion is limited due to more horizontal ribs and dead space is more
- b) Elastic recoil and FRC are less
- c) Hypoxia results in sustained hyperventilation
- d) FRC is dynamically maintained



Question 5 What does above figure show?

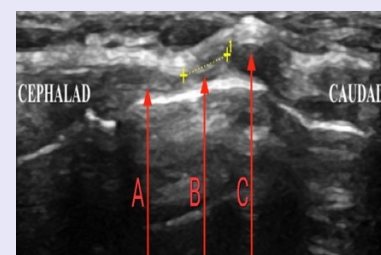
- a) Normal glottis in neonate
- b) Tracheal stenosis
- c) Laryngeal web
- d) Laryngeal cleft

Question 6 Which of the following is true regarding trachea-esophageal fistula.

- a) It is an emergency and should be done immediately after birth
- b) It can be a single surgery or a staged operation depending on the type of fistula with or without esophageal atresia
- c) It is always associated with a congenital cardiac anomaly
- d) Thoracoscopic repair of this fistula is not possible in neonates

Question 7 Laryngo-tracheomalacia is a cause of stridor in neonates.

- a) Immediate tracheostomy should be done in all the cases
- b) Dynamic bronchoscopy can be done to diagnose the etiology
- c) Stridor never improves with age, it worsens
- d) Humidified air and CPAP do not help as it is a structural abnormality



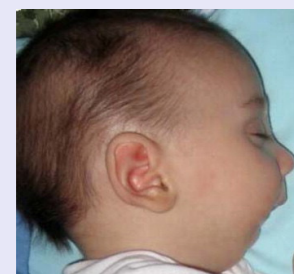
Question 8 Figure shows ultrasound of the pediatric airway in sagittal plane with three structures labelled A, B and C

- a) A- tracheal ring, B- cricothyroid membrane, C- cricoid cartilage
- b) A- thyroid cartilage, B- cricothyroid membrane, C- cricoid cartilage
- c) A- cricoid cartilage, B- cricothyroid membrane, C- thyroid gland
- d) A- hyoid bone, B- cricothyroid membrane, C- cricoid cartilage



Question 9 Which of the following is not correct regarding tracheal stenosis?

- a) Tracheal stenosis can be congenital or acquired
- b) Cuffed endotracheal tube should not be used because cuff will cause stenosis
- c) Can present as stridor, recurrent pneumonia, wheezing
- d) Bronchoscopy, Ct and MRI help in the diagnosis



Question 10 Which of the following is not correct regarding the airway management of this infant?

- a) Micrognathia, glossoptosis and upper airway obstruction
- b) Airway improves with age
- c) Cleft lip and palate are commonly associated with it
- d) Supraglottic airway devices are contraindicated

## **Team-based care in contrast to individual department-based care for acute pain services (APS): Our Experience at Christian Medical College, Vellore**

**Ekta Rai, Anita Shirley,  
Vellore**

Prior to the establishment of acute pain services (APS), the practice followed at our institution was to initiate the pain relief modalities in operation theatres by anaesthesiologists and they transferred responsibility for patient care to surgeons after surgery. We realised very early that the system was inadequate due to poor communication and mutual respect between the two teams as well as the nurses' lack of participation, a vital group directly involved in patient care. Around 20 years ago, our hospital realised the need for APS, and under the direction of Dr. Mary Korula, early efforts were undertaken to increase the post-operative engagement of anaesthesiologists. In its early stages, APS included all patients receiving continuous infusions. Anaesthesiologists monitored these patients at regular intervals throughout the day and were available round-the-clock for troubleshooting. The children and adults with single shot blocks or no regionals were continued to be managed by surgeons in their respective wards. Around a decade ago, senior anaesthesiologists in the department and senior nurses created a tailored curriculum to teach the nurses for assessment and management in our hospital. This was done in response to the demand for a team-based approach rather than a specialist-based approach. At our hospital, we established accreditation by regional administrative bodies. We currently use nurse-based, anaesthesiologist-supervised Acute Pain Services (APS) for both adults and children to treat pain for our patients.

Children under the age of six require a little more complex care because they are unable to communicate their pain, which causes doctors to delay writing prescriptions. Neonates and newborns provide significant challenges because medicine dosage and assessment both require in-depth knowledge of their special demands. As a member of the acute pain team, nurses have the distinct advantage of constantly being present at the bedside for patients and the people providing care for them. This enables them to check and monitor the child more regularly, as well as establish the need for the frequency of postoperative analgesics.

The major challenges in bringing the nurses on board was the knowledge and defining their role and developing standard operating procedures. Training and creating the curriculum for the nurses are the first and foremost important steps of a successful pain program. We addressed this by planning a curriculum which is a joint venture by the departments of anaesthesiology, and nursing services. The goal of this training program is to equip the pediatric pain nurse to be able to provide specialized care for children regarding pain education, assessment, and management. They are trained to use different age related scales for pain measurement, assess the adequacy of pain relief with various pain relief modalities, be familiar with management of regional analgesic catheters and local anaesthetic infusions, and identify and manage analgesic-related complications. In our institution, we conduct one week program of training with emphasis on various aspects of pain followed which an official assessment.

The first day schedule covers introduction to pain services, concepts about acute pain and different pain management strategies, age specific pain assessment tools, roles of an acute pain nurse, systemic and regional analgesic options. The second and third day schedule involves observation in the OR's where regional blocks are performed. The aim of this posting is to familiarise the candidate about the placement of different regional blocks and catheters, the dressings used to secure catheters, calculation of local anaesthetic doses for boluses and infusions, setting up and maintenance of patient / nurse controlled opioid analgesia, infusion pump functioning. Ward rounds along with the pain team and hands on experience with dressing changes, trouble-shooting technical complications like infusion pump errors, catheter kinks or displacements happens on fourth and fifth day. The last day of the program is for assessment of both theoretical and practical knowledge. Candidates who clear the final assessment are certified by the institution as Acute Pain Nurses and they are the first responders for pain for children.

For last 5 years, we are successfully managing the post-operative pain relief for our children and slowly extending it to our chronic pain patients as well. We have carried out numerous audits and prospective studies to discover that the average of our post-operative pain scores is less than 3, and we are confident in saying that this is made possible by a committed team effort. We believe that we are on right track but there is still room for improvement before the system becomes a perfect one.

### **First Paediatric Pain Nurse at our institution : My Experience**

**Beulah Devadharshini,  
Vellore**

Pain, a subjective sensation, the expression of which is unique to every person, especially children. As a pain nurse, the genuineness of children in expressing their pain left me overwhelmed. Young children communicate their pain with non-verbal expressions so genuinely and older children are so sincere in expressing their pain by numerical rating scale.

Children are not fussy as perceived. They forget their pain and hurt once they get relief and start engaging in play activities. Their innocence and genuineness moved me to put my heart and soul in ensuring children stayed free of pain. It made me more sensitive to even the hint of any pain.

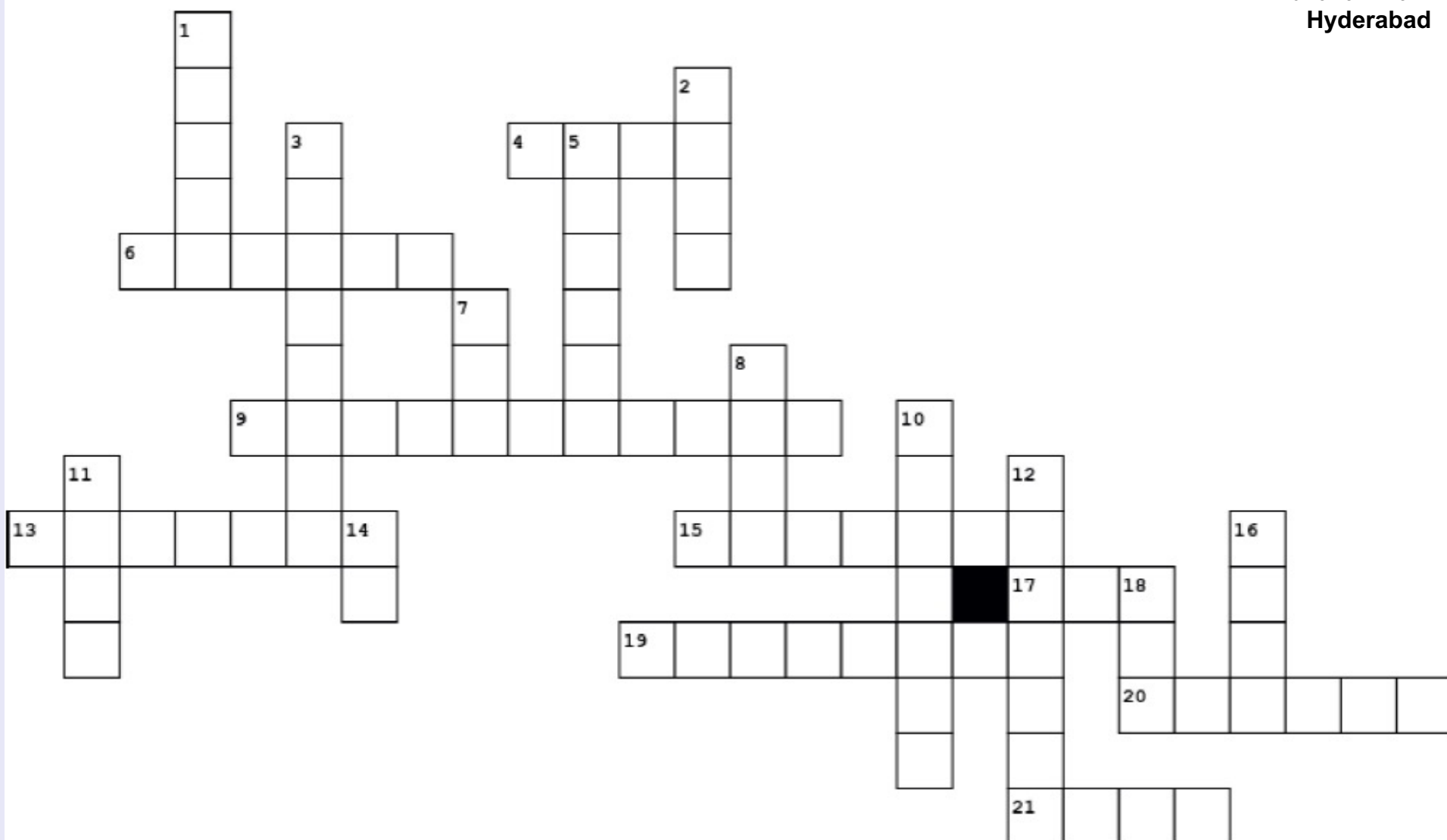
Assessing pain in children is a great challenge and requires expert clinical skill and knowledge, lack of which, leaves pain undertreated. I was fortunate to learn the FLACC scale for the assessment of pain for our children through Acute Pain Service ( Anaesthesia ) and get a better understanding of assessment of pain . Use of opioids in children post-operatively after intensive monitoring and accurate dosing has defeated the myth of not using opioids in children. Nonpharmacological intervention e.g. breast feeding or Non-nutritive sucking are also effective ways of pain management in younger children. Transdermal analgesic patches have done wonders in children above 7years for all types of pain including post-surgical, neuropathic, oncological etc.

Being a paediatric pain nurse is not just scoring children based on the pain scales available, you need to understand them to make the best assessment, to intervene appropriately. Working with children as a pain nurse gives me immense delight and contentment. Making a child smile by preventing physical and emotional trauma makes me proud to say "I am the first Paediatric Pain Nurse".

Children are unique, precious, and clever and they keep communicating in their own fashion, so never disregard them. They need to be respected and given polite and proper explanation before doing anything. Professionally, I feel highly privileged and honoured to be a pain nurse where I get to explore pain management trends through research.

# Paediatric POCUS crossword

Dr Vibhavari Naik  
Hyderabad



## KEY

### Across

4. Protocol that allows diagnosis of acute respiratory failure
6. This formula is used to estimate the gastric volume based on the cross-sectional area of the antrum
9. This space is visualised with curvilinear probe in the axillary line at 7th - 9th intercostal space
13. Technique used to assess the blood flow through the blood vessels
15. This central venous access cannulation is possible during on-going CPR
17. This vessel is assessed for size and respiratory variation to determine fluid responsiveness
19. This sign is seen in pleural effusion during respiratory variation
20. This mode has a single scan line emitted, received and displayed temporally
21. The buttons on ultrasound machine to increase or decrease brightness of the image

### Down

1. Comet tail artifact indicating subpleural interstitial edema
2. This structure is compressible, non-pulsatile and increases in size with Valsalva manoeuvre
3. The description for the empty antrum view on gastric ultrasound
5. This transducer is used for vascular access
7. Two point compression technique is used to rule this out
8. Protocol developed by Eric Sloth in 1989 to evaluate cardiac chambers
10. This sign on M-mode is indicative of pneumothorax
11. This axis view is preferred to keep the entire needle shaft in view while advancing
12. This sign is shimmering to and fro movement of the two pleural surfaces
14. This cardiac chamber is not seen on parasternal long axis view of heart
16. Protocol that uses sequential ultrasound windows to assess hemoperitoneum in trauma
18. Ultrasound can be used to visualise this membrane for emergency front of neck access