IAPA NEWSLETTER

by Indian Association of Paediatric Anaesthesiologists

August 2016

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EDITORIAL

Dr Elsa Varghese
Newsletter editorial chief, IAPA
Bangalore

Developing the art of communication

What have I learnt as a pediatric anesthesiologist over almost four decades? What have I passed on to my students and peers? Besides being meticulous in planning, preparation and following safe anesthesia practices, the key to my success as I perceive it has been the art of communication. Being confident and competent in handling children under anesthesia is not enough to do a good job. Pediatric anesthesia involves the development of many other skills. Continuously educating oneself, being knowledgeable besides sharpening ones technical skills is one aspect. Developing the art of communicating with parents and children (whose ages varies from neonates, toddlers, pre-schoolers, preteens, teens and adults with pediatric problems) is quite another ball game. It's this ability to communicate before, during and after surgery which can make or break the entire perioperative experience. Learning and improving on how and what to communicate is not easy, one is truly fortunate if one has trained under or observed a mentor with these skills and realised the difference it has made.

The majority of people have a blurred impression of what we do as anesthesiologists. How does one convince children and their parents to trust our expertise as anesthesiologist and create an awareness of the significant role we play? The first impression we make is vital. Looking professional despite wearing sloppy ill-fitting theatre clothes (I designed my own), introducing oneself by name, clarity of instructions, calming the child and relatives with the assurance of keeping the child asleep, pain free and safe during the storms of surgery and above all, treating each child with dignity. All the above mentioned and more are crucial in creating trust and commanding respect.

Years ago a young, impatient surgeon asked my assistant if I always wasted time talking to patients. What irritated him? I was taking a few minutes to calm a distraught, devastated single mother of a 2-year-old boy, injured after a hit and run accident. Was that a waste of time? All children and parents are petrified at the thought of surgery and what a difference we *can make* in allaying their anxiety when we demonstrate sincerely that we care. Do we pick up fear, anxiety and panic by astute observation of facial expressions or body language of the child or parents? Do we bother to make friends with the child, explain our perioperative role in ensuring safety and comfort? What are their other anxieties? This process takes no more than a few minutes. Do you notice the look of relief and the smile through their tears of parents, as you wheel their calm child away for surgery?

No patient comes to a hospital to see an anesthesiologist. I've often been asked whether I've missed out on this sacred patient-doctor relationship as an anesthesiologist. On the contrary, the gratitude I've experienced when parents take the trouble to visit me during the postoperative check-up after discharge touches my heart and keeps me going with renewed energy to this day. The happiness of meeting a brave child, who has endured multiple surgeries, who just dropped in to say hello; the confidence of a job well done when a mother calls to confirm I personally am available to provide anesthesia, before scheduling her child's surgery. Or the humility I felt when a father made a special 'thank you' visit after his daughter's naming ceremony, conducted on her first birthday. On seeing me he removed his shoes and offered me prasadam. The girl had undergone very major surgery

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QUIZ SECTION

Dr Sapna Dhingra
New Delhi

1. What percentage of a term newborn's total body weight consists of water?
a. 40%
b. 65%
c. 75%
d. 80%

2 . Most suitable replacement fluid for a 3-year-old, 14-kg child undergoing inguinal hernia repair is …..
a. 5%D
b. ½ DNS
c. NS
d. Lactated Ringer's solution

3. What is the maximum inspiratory pressure at which an endotracheal tube should leak in a child?
a. 5 to 15 cm H_2O
b. 15 to 25 cm H_2O
c. 25 to 35 cm H_2O
d. None of the above

4. The spinal cord of newborns extends to the
a. L1 vertebra
b. L2-L3 vertebrae
c. L4-L5 vertebrae
d. S1 vertebra

5. What is the most common initial symptom of Esophageal atresia and Tracheo-esophageal fistula?
a. Hypoxia
b. Regurgitation during feeding
c. Respiratory distress
d. Projectile vomiting

(Don't peek…….answers on Page 3 !! Challenge your mind first ☺)

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as a five-day-old neonate. He appreciated the compassion, understanding and important role I had played to ensure her survival.

As anesthesiologists, we can be perceived as unknown, nameless masked strangers who walked up, picked up the child without saying much and proceeded to the operating room. Often the time and energy taken to communicate is mistakenly considered a waste, especially with busy operating room schedules and unrealistically long surgical lists.

I love my profession, I chose to be a pediatric anesthesiologist very early in my career and sought out mentors from whom I picked up various skills, both verbal and technical and developed my methods over time to be culturally sensitive. My sincere hope is that all of us in the profession feel the same and hone these skills.

LITERATURE REVIEW

Dr Elsa Varghese
Bangalore

Are nocturnal hypoxemia and hypercapnia associated with desaturation immediately after adenotonsillectomy?

Dalesio et al. have published a retrospective review of 319 children (5 months-17 years), the majority overweight. Each had detailed polysomnography evaluation prior to adenotonsillectomy.[1] General anesthesia included sevoflurane or desflurane for maintenance along with intraoperative opioid in 92% of children. For 2 hours postoperatively, oxygen desaturations were observed and the number of obstructive apnea and hypopnea events per hour of total sleep time calculated. Their results showed that the children who desaturated were significantly younger, < 3 years of age (median age 2 vs 6 years; $p< 0.001$) with higher peak $EtCO_2$ levels (55.5 vs 52.0 mmHg; ($p = 0.02$) during the sleep study, those with $EtCO_2 > 55$ mmHg were about three times more likely to have postoperative hypoxemia. Despite the limitations of this retrospective analysis, this study implies there is a relationship between nocturnal hypercapnea and obstructive sleep apnoea and postoperative hypoxia. There is also a correlation between postoperative respiratory complications and age adjusted BMI.

UPCOMING INTERNATIONAL CONFERENCES

ESPA - 8th European Congress on Pediatric Anaesthesia on 29th Sept - 1st Oct 2016 at Belgrade,Serbia. (http://www.euroespa.com/congress/2016-belgrade/)

SPA – 30th Annual meeting SPA on 21st Oct 2016 at Chicago, USA. (www.pedsanesthesia.org/)

SPANZA - The Society of Pediatric Anaesthesia in New Zealand and Australia (SPANZA) 2016 on 27th - 30th Oct 2016 at Adelaide, Australia. (http://www.spanza.org.au/)

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LITERATURE REVIEW CONTD…..

Essential ultrasound techniques of the pediatric airway

This excellent review article by Staface et al. lucidly describe in detail how ultrasound can be used to assess the pediatric airway, how and where to identify structures related to the airway and oropharynx and the probes and techniques to be used.[2] By identifying pre-existing airway lesions or assessing the hyo-mental mobility during flexion or extension this technique will help towards predicting difficult tracheal intubation. Children who present electively with known difficult airways may benefit from sonographic identification of structures such as the cricothyroid membrane as well as location and depth of the trachea. It is possible to use this technique as an adjunct in planning for invasive procedures, already described in adults. In the neonates the location of the tip of the endotracheal tube in relation to the aortic arch measured with ultrasonography can be used to confirm acceptable depth of insertion of the tube. Other areas of clinical importance include the prediction and quantification of obstructive sleep apnea by assessing the anatomical space as well as functional obstructions during sleep.

Tension pneumothorax during flexible bronchoscopy in a non-intubated infant

Chan and Gamble describe a case of tension pneumothorax during flexible bronchoscopy in a nonintubated stable 3-month-old expremature baby, performed to evaluate unexplained hypoxemia since birth.[3] Following titrated doses of propofol and remifentanil, the flexible 2.8 mm bronchoscope was passed via a swivel adapter connected to the mask, with oxygen on flow and advanced nasally into the airway. Oxygen 1 $L.min^{-1}$ was delivered by intermittent bursts. When the bronchoscope was in the right middle lobe, biopsies were taken and intermittent bursts of oxygen delivered, acute bradycardia and cardiac arrest followed. The bronchoscope was removed, ventilation via bag and mask and endotracheal was impossible. Prompt management of cardiac arrest with compressions and medications resulted in return of spontaneous circulation however, the oxygen saturation remained low. Suspecting tension pneumothorax a needle decompression was performed which made ventilation immediately easier and a chest tube inserted following radiological diagnosis of pneumothorax. The child was intubated and admitted in the ICU in a stable condition.

The learning points in this case: i) Barotrauma can occur in the non-intubated patient when insufflating oxygen through a bronchoscope ii) When delivering oxygen using wall source, an occlusion can create a closed system rapidly increasing the delivered gas pressure and iii) there are safer, readily available alternative methods to increase the inspired FiO_2 during bronchoscopy other than oxygen insufflation via the working channel.

In the editorial by Kavatis et al accompanying this article, the authors comment, “This case highlights a serious safety issue.[4] The use of oxygen via the bronchoscope working channel is tempting, especially in infants, as the risk of hypoxemia is high. Focusing on avoiding hypoxemia using inherently dangerous oxygen supply pressures is short sighted. There are safer ways to increase the oxygen delivery to distal airways. Alternative methods include using nasal prongs or a simple facemask. Other methods include performing bronchoscopy through a connector elbow attached to a tight-fitting mask or a laryngeal mask airway. These latter methods allow positive pressure ventilation in addition to a FiO_2 close to 1.0.” For those who read this editorial and case report and contemplate how many times and/or years they have given oxygen through a working channel without any issues, they need to rethink the safety of this technique.

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ACROSS

4 Turner
5 TAPVD
6 Intraosseous
8 Funnel
9 Craniosynostosis
10 Sevoflurane
12 Brownfat
13 Miller

DOWN

1 Sixty
2 Transitional
3 Goldenhar
7 Duchenne
11 Adult

Crossword Answers

CONFERENCE PROCEEDINGS OF NCPA 2016

Dr Ekta Rai
Vellore

8th National Conference of Paediatric Anaesthesia 2016 was conducted by the Department of Anaesthesia, Christian Medical College, Vellore between 28th to 30th January 2016. The conference was attended by more than 300 delegates and 50 faculty. The Faculty contributed significantly by sharing their knowledge at all stages of the conference during workshops, sessions, judging the podium and poster presentations as well as answering the various queries of the delegates during break times. International faculties came from Singapore, Australia, Italy and USA. Dr G Marraro, Dr Rob Mc Dougall, Dr Agnes Ng, Dr Josephine Tan, Dr Verghese Cherian, Dr Vidya Raman and Dr Lalitha Manickam are known for their teaching and their contribution to paediatric anaesthesia. The academic session started with Pre-Conference Workshop and was followed by two days of intense sessions on the anaesthetic management of children.

The Pre-Conference Workshop was conducted on 28th January 2016. Workshop had 8 High Skills stations with 4 simulation stations. Simulation was done with high fidelity mannequins. All the stations had renowned National and International faculty. "The Training the Trainer" station was focused on improving teaching skills and the importance of preparation and planning. The message conveyed by the workshop stations was that practice and preparation with proper planning can avoid many untoward incidents. The Inauguration Ceremony of the Conference took place on the evening of January 28th. The chief guests of the occasion were Dr. Sunil Chandy, Director, Dr. C.E. Eapen, Medical Superintendent and Dr. Alfred Job Daniel, Principal, Christian Medical College, Vellore. The audience was welcomed by Dr. Sajan Philip George, Organizing Chairperson. The chief guests highlighted the importance of Paediatric Anaesthesia as a sub-specialty. IAPA president, Dr. Pradnya Sawant summarized various activities conducted by IAPA in different parts of India and inaugurated the first newsletter of IAPA . The ceremony concluded with vote of thanks by Dr. Ekta Rai, Organising Secretary. The event was attended by all the past presidents Dr Snehlata Dhayagude, Dr Bharati Kulkarni and Dr Rebecca Jacob.

The next two days of the conference were intense with academic sessions each followed by vibrant interactions in the comfortable auditorium and interspersed with delicious food and friendly discussions. The sessions aptly highlighted the theme of the conference "Prepare and Prevent". The overall success was further established by the feedback evaluation forms. The academic sessions were awarded 4.36/5 on average. The individual sessions feedback were personally given to the speakers. This was a three day conference filled with knowledge shared amidst a relaxed atmosphere.

The next conference, NCPA 2017 will be held in Lucknow under the guidance of Dr Anita Malik.

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Fig 1 Vein on the dorsum

Fig 2 Long saphenous vein

Fig 3 Transillumination

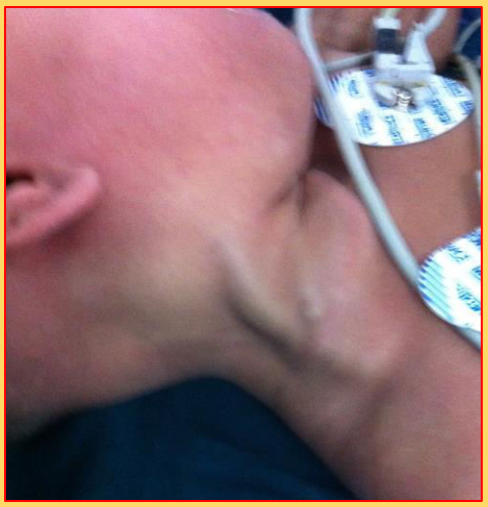

Fig 4 External jugular vein

CLINICAL CHALLENGES

To insert an intravenous cannula in a chubby infant - it's no more a nightmare !!

Shilpa SN, Jayanthi R, Ramesh S
Chennai

It is a real nightmare when a chubby infant is brought into the operation theatre for an emergency day care surgery. The surgeon is waiting with scalpel in hand, restless and eager to get on with the procedure. The skill of a trained pediatric anesthetist is severely put to test when IV cannulation has to be done prior to induction of anesthesia. Intravenous cannulation is a challenge even for an experienced anaesthetist because of the invisibility and small size of the veins in an infant.

Here are some of the tips and tricks of successful cannulation for a chubby infant.

Usually there is one reliable vein between the 4th and 5 th metacarpals, on the dorsum of the hand (Fig 1). The long saphenous vein is another reliable vein, anatomically fixed, superficial and can take a large bore cannula (Fig 2). It is present medial and anterior to the medial malleolus. It may not be visible but may be felt on palpation and is most often constant in location. This is the ideal choice for IV cannulation in the chubby infant where other veins are not visible.

Transillumination is the next best method to improve the success rate of cannulation. The principle is that deoxygenated blood in the vein absorbs the light and hence is visible on transillumination (Fig 3). But we should be aware of the complications (of using a light source), like burns, due to heat from the light source (especially if used against the tender palmar skin of the infant or newborn). Use a gauze interface between the light source and the patient. Always keep the light source under the skin only for the very brief period when you are actually cannulating the vein – a few seconds. Also keep the light intensity at a minimum and turn off the surrounding lights for better visibility. New devices like the 'veinlite' help overcome this problem.

If all else fails "go for the jugular". The external jugular vein is a superficial, large and visible vein in the neck that can take a large bore cannula (Fig 4). Careful cannulation of this vein is helpful in critical situations. Even in children who have been in hospital for long, it is usually untouched. It is more clearly seen with the child awake than anaesthetised.

We hope these few tips and tricks of cannulation will help you with your next chubby infant. No more nightmares.

Bonne chance /good luck!

Answers to the Quiz Section

1. C – 75%
2. D – Lactated Ringer's solution
3. B – 15 to 25 cm H_2O
4. B – L2-3
5. B – Regurgitation during feeding

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REVIEW ARTICLE

Management of the Difficult Paediatric Airway - A Brief Review

Dr Gita Nath
Hyderabad

Difficulty in airway management is not uncommonly encountered in the paediatric age group, especially by non-paediatric anaesthetists. The actual incidence is lower than adults, estimated at 1.35% in a large retrospective review.[1] Even the normal paediatric airway may present difficulties sometimes because of the various anatomical differences from adults. These factors may be exaggerated in some children. Apart from this, the higher oxygen consumption along with decreased functional residual capacity makes babies prone to desaturate rapidly. Several studies have reported that the majority of cardiac arrests in paediatric patients are due to respiratory events – 20% in a study from 2000 but 56% and 71.5% in more recent papers.[2,3] Though this problem is acknowledged, paediatric difficult airway guidelines have come out only recently unlike adult guidelines which have been published since many years.[4,5]

Classification of difficult airways:
Compromised airway
Unfavourable anatomical factors
Unanticipated difficulty in ventilation or intubation

Compromised airway:
An airway can be considered compromised if there is narrowing or distortion of the air passage even at rest. Epiglottitis and retropharyngeal abscess are examples of infections compromising the airway. Papillomata and other types of tumours can also cause obstruction, though these are rare in the paediatric age group. Laryngomalacia and tracheomalacia are more commonly seen nowadays, with the increasing number of premature and sick babies surviving with improved neonatal care. Foreign bodies, ingestion of corrosives burns and inhalational injury are all important causes of airway compromise. Anaesthetizing these children can be extremely hazardous and should not be undertaken without adequate assessment, planning and preparation.

Unfavourable anatomical factors:
In this group of patients, there is no encroachment on to the air passage but there may be difficulty in mask ventilation and/or intubation. However, the airway can become compromised during anaesthesia and intubation because of loss of resting tone in the airway muscles as well as oedema due to repeated or prolonged airway manipulation. The various congenital anomalies and syndromes come under this heading. Among these, the conditions associated with mandibular hypoplasia or micrognathia are difficult to intubate; maxillary or mid-face hypoplasia are difficult to ventilate; whereas conditions with macroglossia are difficult to ventilate by mask *and* intubate. Other important factors to keep in mind are cleft palate, restriction of neck movement and atlanto-axial instability.[6]

Unanticipated difficulty in ventilation or intubation:
Sometimes, intubation is found to be unexpectedly difficult, though thankfully these cases comprise only a small proportion of difficult intubations in children because of increased awareness of this problem and hence better and more comprehensive pre-anaesthetic assessment.[7] In the National Audit Project (NAP4) study from UK which looked at complications of airway management, 8% of the cases were children. It was found that though most airway difficulties are predictable, there is still a small incidence of unexpected difficulty; and they recommend that systems should be in place to deal with this.[8] An important finding from this audit is that airway difficulties may also occur at emergence from anaesthesia.

Tools and techniques
Supraglottic airways
The introduction of the laryngeal mask airway (LMA) in the late 1980s revolutionised anaesthetic practice, both in adult and paediatric age groups. Apart from its role in allowing hands-free airway management, it soon became useful in difficult airways, both for airway maintenance and also as a conduit for intubation.[9] The LMA also made its way into the ASA Difficult Airway Algorithm.[10] Of course, some degree of mouth opening is necessary for insertion. However, there are some drawbacks in the use of the LMA. The incidence of failure is either due to difficulty in insertion or failure to provide an adequate airway. Leakage of air during IPPV may result in hypoventilation. There is also a risk of gastric distension and aspiration of gastric contents.[11] In addition, the design of the LMA classic limits the diameter as well as the length of the endotracheal tube which can be inserted through it and the bars may obstruct passage of the tube. Various modifications of the LMA, and also other similar devices, have been introduced to obviate one or more of these problems. These are all grouped under the heading of second-generation supraglottic airway devices (SAD).

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The **LMA Proseal (PLMA)** has a separate tube opening at the distal end of the bowl through which a gastric tube can be inserted for decompression and can thus be used in patients who are not fasted. It is available down to size 1.5, and is easier to insert than the adult PLMA because of the absence of a second dorsal cuff. The **intubating LMA (ILMA)** was designed with a larger diameter, with an anatomical curve and without bars in the bowl to facilitate passage of the tube. Intubation can be done directly through the ILMA or over a fibre-optic scope, in which case intubation can be facilitated with a guidewire and airway exchange catheter.[12] The smallest ILMA is size 3, which can be used in adolescent patients.

Several second generation SADs have provision for gastric decompression as well as intubation. Most of them are rigid with an anatomical curve and also have a built-in bite block; examples are the **Air-Q, LMA supreme** and **Ambu AuraGain**. The **i-Gel** is different in having a non-inflatable cuff, but has the other features mentioned of gastric access, provision for fibre-optic intubation (FOI) and an integral bite block. All these SADs are available in paediatric sizes as well and have been used as conduits for fiberoptic intubation (FOI).[13,14] The **laryngeal tube airway (LTA)** is another SAD with two cuffs of different sizes which isolate the laryngopharynx. The lungs can be ventilated through the ventilation holes situated between the cuffs. The LTA has been used to provide a clear passage in difficult airways where the small size of the distal cuff may be an advantage compared to the LMA. The LTA cannot be used as a conduit for FOI, but it can provide a clear airway while FOI is done nasally.[15,16] The **COBRA perilaryngeal airway** has a novel design and has been used as the primary airway as well as for FOI, but has had mixed reviews due to trauma and aspiration.[17,18]

Laryngoscopy and intubation

Direct laryngoscopy:

This option may be chosen if the airway is judged to be not too difficult. Head and neck position should be optimised with a shoulder roll if necessary, and usually straight blades are used, such as Miller, Wisconsin or Magill; usually lifting the epiglottis with the blade. The procedure is done under general anaesthesia with or without muscle relaxants. The advantage of maintaining spontaneous respiration is that the opening and closing of the air passage can guide intubation. But muscle relaxants provide better conditions for laryngoscopy. Use of a bougie may be helpful since the fine bougie can be inserted without obscuring the view of the vocal cords.

Videolaryngoscopy

This is a more recent addition to the armamentarium of the anaesthetist. It is a form of indirect laryngoscopy in which the clinician does not directly view the larynx, but the image is transmitted to a monitor. The fibre-optic or digital laryngoscope is inserted orally; hence at least a small degree of mouth opening is necessary. Since there is no need for a straight line between the eye and larynx, it is not necessary to put the patient in the sniffing position. The Bullard laryngoscope was the first videolaryngoscope introduced, but now there are several types with some differences in how they are used.

Channelled (or point and shoot) devices

The **AirTraq** and **Pentax Airway Scope** come under this heading but only the AirTraq is available in paediatric sizes. The AirTraq laryngoscope has an optical system to convey the image to the eyepiece or to the display monitor. It has a channel into which the endotracheal tube is loaded. After central insertion into the mouth, the device is advanced till the glottis is visualized and intubation is completed. There is a learning curve and care must be taken not to cause injury in the mouth while concentrating on the image. This principle applies to all videolaryngoscopes. The device is disposable and relatively inexpensive and has been shown to be efficacious in paediatric difficult airways.[19,20]

Non-channelled videolaryngoscopes

The Glidescope and McGrath laryngoscopes come under this category, and both are available in paediatric sizes. Instead of the C-Mac from Storz, there is a video-intubation set with a selection of paediatric curved and straight blades. The image is conveyed to the video monitor. With these devices, it is easy to get an excellent view of the glottis, but it is not as simple to intubate. They all need specially shaped introducers which conform to the shape of the blades. There is a 4-step procedure: (i) look into the mouth when introducing the blade, (ii) look at the screen to get a good view, (iii) look at the mouth again when introducing the tube with the introducer and (iv) look at the screen while advancing the tube. The Glidescope has significantly improved the view in children with history of failed

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intubation.[21] Since there are so many choices available, it is better to get familiar with one or two techniques and gain experience with intubating normal airways.[22]

Fibre-optic intubation

This is the gold standard for difficult airways, but again needs practice to maintain skill. Awake intubation is rare in paediatric practice; it is more commonly done under anaesthesia. Oral intubation can be done through a special adaptor in the circuit with the child breathing spontaneously, through a mask or one of the SADs. The LMA or other SAD provides a patent airway, a conduit for the bronchscope and a means to control ventilation at the same time. If the desired tube is too large to pass through the SAD, a guidewire is inserted through suction port of bronchoscope, which can then be removed. A tube exchange catheter is passed over the guidewire to increase its stiffness and the SAD can be removed. The tube exchanger is then used to guide the tube into the trachea. For nasal intubation, a nasopharyngeal airway or trumpet in one nostril is connected to the circuit to maintain anaesthesia. The other nostril is used for FOI. It is helpful to pull the tongue forward or perform a jaw thrust during the attempt. Maintaining spontaneous ventilation is also helpful here, as the patient's breathing can guide intubation.[23]

Planning the management

Airway assessment is the first step, and management is then planned based on the findings and prediction of any difficulty.

Airway assessment

Important points in the history include history of snoring or obstructive sleep apnoea (OSA), feeding difficulties, choking and any airway infections. History of previous difficult intubation, previous ICU treatment including artificial ventilation, previous surgery on head, neck or throat/mouth should be elicited. Syndromic children, those affected by storage disorders, and those with congenital lesions merit close assessment. Children are often uncooperative when it comes to airway examination, and many of the tests done in adults may not be possible in the paediatric population. Mallampati classification in particular was found not to be useful in children.[24] One has to rely on external features such as long or protruding upper incisors, size of the chin and whether it is receding, length and thickness of the neck and so on. It may be possible to assess head and neck mobility. The COPUR scoring system has been proposed for paediatric airway assessment, consisting of **C**hin, mouth **O**pening, **P**revious difficulty, **U**vula visibility and **R**ange of head and neck motion.[25] Signs of a compromised airway include increased work of breathing, tachypnoea or tachycardia, use of accessory muscles or retraction of muscles, nasal flaring, drooling, wheezing, stridor and head bobbing. There may also be cyanosis despite oxygenation, irregular breathing or apnoea, altered consciousness or agitation, inability to lie down and diaphoresis.

Choosing the technique

The decisions to be made are:
Is it safe to anaesthetize the child?
Is it safe to paralyze the child?
How is the airway going to be secured?
Communication with the surgeon is important to find out what the procedure is, whether an endotracheal tube is mandatory and whether spontaneous ventilation is necessary. Apart from the primary course of action, plans B and C should be formulated. Additional back-up and equipment should be arranged beforehand.
The plan of action for a cannot ventilate/cannot intubate (CV/CI) should always be in place. **LMA or other SAD** can be used in the CV/CI situation, but there is no guarantee that they will work. Transtracheal or transcricoid oxygenation should then be resorted to, either with a large cannula or surgical tracheostomy.

Extubation in a difficult airway

Not only induction but also emergence is a critical time for the anaesthetist, especially with a difficult paediatric airway. Several airway complications reported in NAP 4 actually occurred at the end of anaesthesia, hence a plan should be in place for extubation in a difficult airway.[8] Awake extubation is recommended in these cases. Consider the possibility of airway oedema, especially after repeated airway manipulation. Give dexamethasone 0.25mg.kg^{-1} IV, (maximum 8 mg) after securing the airway. Formulate plan for a failed extubation. Consider using an airway exchange catheter or guide wire in smaller children. This is placed in the endotracheal tube before extubation, and used to railroad tube back into the trachea in case of a failed extubation. Adrenaline nebulization should be given after extubation.

Guidelines for difficult paediatric airway

The Difficult Airway Society (DAS) and Association of Paediatric Anaesthetists of Great Britain and Ireland have published Paediatric Difficult Airway Guidelines in 2012, which were updated in 2015. There are three

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algorithms; namely Difficult Mask Ventilation, Unanticipated Difficult Tracheal Intubation and Cannot Ventilate and Cannot Intubate respectively; all for children aged 1 to 8 years. These can be downloaded from the following link:
https://www.das.uk.com/guidelines/paediatric-difficult-airway-guidelines

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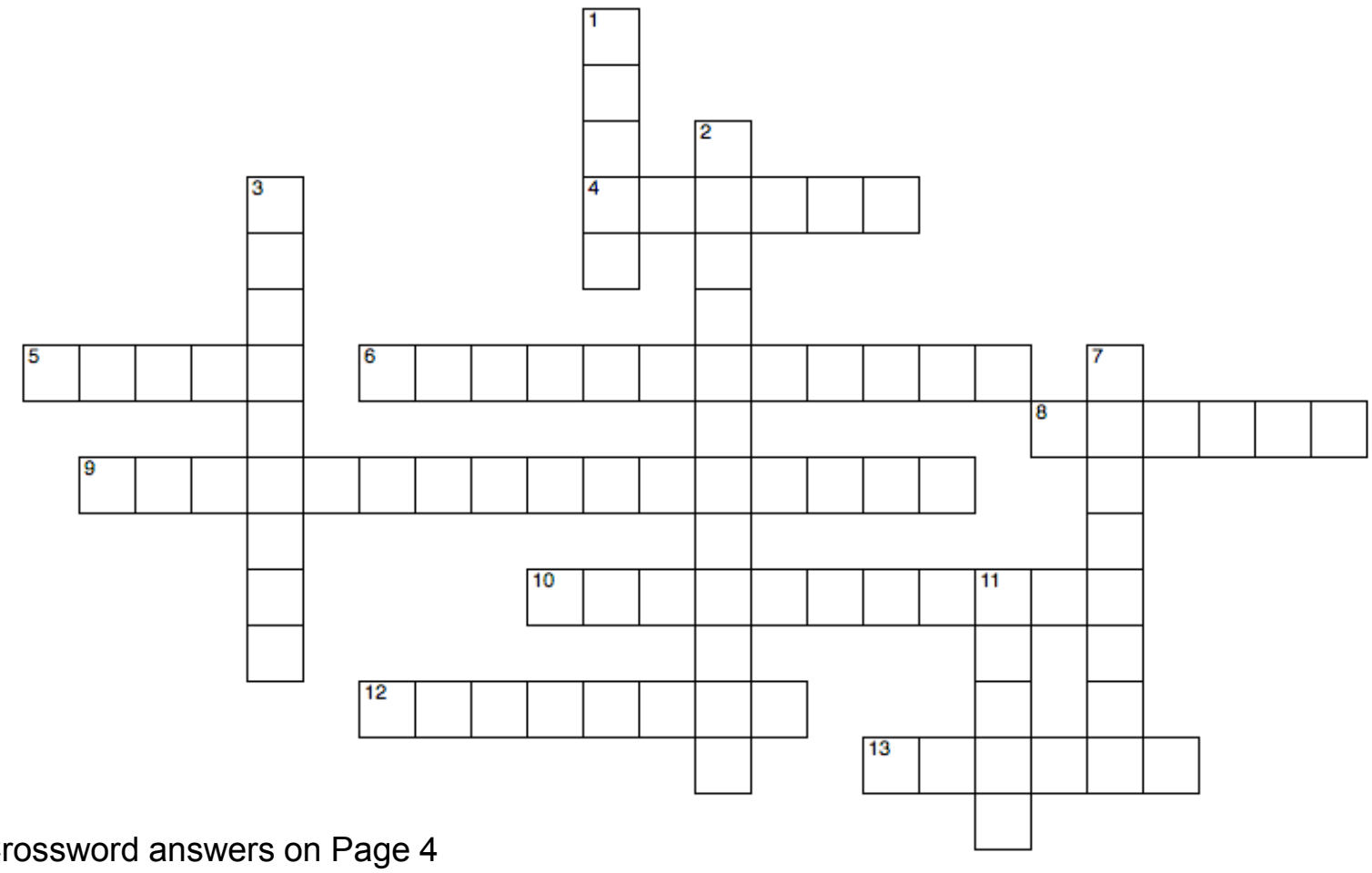
IAPA NEWSLETTER

by Indian Association of Pediatric Anaesthesiologists

READY FOR SOME FUN FILLED ACADEMIC ACTIVITY ??
SCRATCH YOUR BRAINS !!

Paediatric Anaesthesia Crossword

Dr Vibha
Hyderabad



Crossword answers on Page 4

Across

4 Syndrome with XO karyotype
5 Common mixing cyanotic heart disease
6 Vascular access for emergency
8 Shape of larynx in child
9 Early closure of skull sutures
10 Inhalational induction is easier
12 Used for non-shivering thermogenesis
13 The most popular straight blade

Down

1 Start CPR if heart rate drops below
2 Circulation at birth
3 Hemifacial microsomia syndrome
7 Muscular dystrophy
11 It is often said that child is not a small ….

HELPFUL WEBSITE LINKS

Dr. Vibha
Hyderabad

1 . SPA releases Pediatric critical care events checklist. A set of must-have reference cards for each pediatric OT. Download it for free
Click http://www.das.uk.com/guidelines/paediatric-difficult-airway-guidelines

2. Apps for distraction in children are very helpful !! Find age-wise list on APAGBI website. Some are new, some are free !!
Click http://www.apagbi.org.uk/professionals/education-and-training/apps-distraction

3. TOTW from WFSA on ‘Epidural Anaesthesia in Children’ July 2016. Check out the link below -
Click http://www.wfsahq.org/resources/anaesthesia-tutorial-of-the-week
A simple sign up may be required for those not already registered with WFSA to view the TOTW

IAPA NEWSLETTER

by Indian Association of Pediatric Anaesthesiologists

Upcoming IAPA 9th National Conference...

KGMU extends a warm welcome and looks forward to seeing you in Lucknow - a historical city with several places of interest

The theme of the Conference is "Inspirations & Innovations"

9th National Conference of Paediatric Anaesthesia

17th to 19th February, 2017

Organised by :

Department of Anaesthesiology & Critical Care
KGMU, Lucknow

Venue :

Scientific Convention Centre ,
KGMU, Lucknow

IAPA NEWSLETTER

by Indian Association of Pediatric Anaesthesiologists

Seasons Greetings from…

INDIAN ASSOCIATION OF PAEDIATRIC ANAESTHESIOLOGISTS

IAPA

Founded in 2006

FOR ANY QUERIES REGARDING MEMBERSHIP, FELLOWSHIPS OR TO UPDATE CONTACT DETAILS,

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