Use of Simple CPAP Method – Not as a Choice but by Compulsion

To,
The Editor, IJA
Madam,

I am happy to see the interest of Dr. Rakesh Garg in my article “Use Of Simple CPAP Method” published in October 2008 issue of IJA.1 The points the authors have raised are valid as an Intensivist and if we are using this setting for COPD management or even otherwise electively. This is an emergency post operative scenario where you have to decide either to reintubate the patient or buy some time to avoid intubation. Use of CPAP has been documented in treatment of post operative hypoxemia and also it decreases the need for reintubation and mechanical ventilation. Quantification of pressure is a welcome addition but we are not using it electively but out of compulsion as proper CPAP apparatus was not available. This method I am using just to tide over some desperate post operative emergency situations like the one we faced in above case. Had author given some pictorial representation of what and exactly how it was done? If it is possible to make such an arrangement without compromising leaks is a welcome thing and can come handy for our colleagues but then it has to be kept prepared in advance. Many a times when crisis occur you rely on things which are readily available. Definitely I would suggest and also agree with authors that this method is not for COPD cases where you don’t administer 100% oxygen as in post operative cases. In this reference the authors have misquoted my case report as that was a general reference regarding use of CPAP in COPD cases.

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References

Carbon-Dioxide Rebreathing Caused by Displaced Sealing Ring in Circle Absorber System

To,
The Editor, IJA
Madam,

During an elective list anaesthesia was commenced with circle breathing system (CAS II, Blease focus, Spacelabs Healthcare Ltd, UK). Two hours later, the soda lime in the upper canister was exhausted. Even though the lower canister did not show any colour change, the FiCO2 increased from 0 to 8 mmHg. On close inspection, the central sealing ring between the two inner canisters was found to be displaced, exposing some of the perforations at the bottom of upper inner canister (Fig 1). This had allowed gases to escape to outer chamber bypassing the lower inner canister. There was no problem as long as the sodalime in the upper canister was intact, but once exhausted it caused carbon-dioxide rebreathing. The problem was solved once the sealing ring was adjusted and placed correctly.

Human error is more frequent than equipment failure in problems related to anaesthesia equipment, but poor equipment design may increase the chances of human error. The circle absorber breathing system mentioned above contains two inner sodalime canisters surrounded by an outer chamber. The exhaled gases

Fig 1 Sodalime assembly (A) with displaced central sealing ring shown in relation to lower canister (B), upper canister (C). Perforations in the upper canister seen ‘outside’ the sealing ring (D).

Correspondence:Letter to Editor

Indian Journal of Anaesthesia 2009; 53 (6):702-710 Correspondence
pass above downwards through sodalime and then below upwards in the space between outer chamber and inner canisters. A black rubber sealing ring is kept between the two inner canisters. The design and diameter of this ring allows it to be displaced from the centre. Moreover, the visibility of the sealing ring was decreased by water condensation on the outer canister, resulting in failure of early detection. Problem with similar model of soda lime canister had been reported where the sealing ring was misplaced at the top of the canister. Even though these problems were caused by error in assembly, improving the design of the circle absorber can help minimize these errors. The manufacturer of the equipment had been informed about this problem.

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References


The First use of Ether Anaesthesia in India – A Plea for More Information

To,
The Editor, IJA
Madam,

Most anaesthetists are aware of events that led to the introduction of modern anaesthesia after the public demonstration of ether anaesthesia on October 16, 1846 at Massachusetts General Hospital (MGH), Boston, USA.1 2

News about the efficacy of ether spread rapidly, and it was soon adopted into surgical practice in North America, Europe, Asia, and the rest of the world. The first ether anaesthetic in India is reported to have been administered, within 6 months, on March 22, 1847, at the Medical College Hospital, Calcutta.3 This is remarkable considering that telegraphy had not yet been introduced, and the primary means of transportation and communication between England and India was by sea. The use of ether anaesthesia in India preceded its introduction in South Africa, Rhodesia, Australia, China, and Japan. Ether was used in London during an operation by Robert Liston on December 21, 1846.

Almost half a century after the event, Robert Cutler Hinckley, the son of a wealthy Boston merchant created a classic oil painting (The First Operation with Ether). The painting was completed as part of his graduation requirements at an Arts school in Paris. After many unsuccessful attempts to sell his work, a frustrated Hinckley was about to destroy the painting when a kindly curator convinced him to donate it to the Boston Medical Library. It is currently on display at Francis A. Countway Library of Medicine, Harvard Medical School, Boston, Massachusetts. In a strange turn of events, this painting has become one of the most famous works of art depicting medical events. In 2001, a few years after the 150th celebration of the introduction of ether anaesthesia, MGH unveiled another painting (Ether Day, 1846) depicting the same event.4

Morton’s ether demonstration received prominent coverage in newspapers, medical journals, biographical works, novels, and in works of art. Moreover, articles about both paintings too have appeared in newspapers, magazines, and medical journals. In addition, a scholarly book has been written about Hinckley’s masterpiece.

Compared to the amount of information available about the anaesthetic of October 16, 1846, very little is known about the first use of ether as an anaesthetic in India. Published articles do not provide references to document their claim. Interestingly, a newspaper report suggests that anaesthesia may have been used earlier than March 11, 1847, at Madras General Hospital. In any case, we only know the last name of the surgeon in Calcutta (O’Shaughnessy), and nothing about the anaesthetist, the patient, the surgical procedure, the
Neonate with Tracheo-Esophageal Fistula, Down’s Syndrome and Congenital Heart Disease-An Anaesthetic Challenge

To,

The Editor, IJA

Madam,

Tracheoesophageal Fistula (TEF-1:4000 live births) is commonly associated with prematurity (30%-40%), VACTERL syndrome, tracheal web, tracheomalacia and congenital heart disease (20-30%). Presence of Down’s syndrome (1:800 live births) further complicates the anaesthetic management, by increasing the risk of atelectasis, pneumonia, obstructive sleep apnea and pulmonary hypertension (due to pulmonary hypoplasia and arterial hypoxemia)².

We report case of a 3 day, preterm (32 weeks), 1.35 kg male, neonate, who was scheduled for repair of tracheo-esophageal fistula. He presented with continuous drooling of saliva, inability to breast feed, cough and fever. He was having pink color, high arched palate and short neck. His vitals were - HR- 140/min, regular, RR- 45/min, BP-70/40mmHg, SpO2- 89% (room air) and 98% (100% O2) and core temperature-101F. There were crepitations in right side of chest and pansystolic murmur at the left parasternal border.

The investigations were - Hb- 16gm%, TLC- 25000/cumm, random blood sugar - 85mg%, serum calcium- 9.2 mg%, Echocardiography - ventricular septal defect (VSD- 5 mm), atrial septal defect (ASD- 4 mm) with normal ejection fraction and chest radiography- nonhomogenous opacity in right lung. He was diagnosed as a case of tracheoesophageal fistula and Down’s syndrome complicated by VSD, ASD and pneumonia.

The skin folds (due to Down’s syndrome) caused difficulty in IV canulation (24 G ). Intraoperatively, SpO2, End-tidal CO2, NIBP, ECG, urine output and temperature were monitored. After pre-oxygenation, fentanyl 2.5 µg was given intravenously and anaesthesia was induced using sevoflurane (3-6%) in 100% O2. Neonate was intubated (in neutral position) using uncuffed endotracheal tube of size 2.5. Endotracheal intubation was very difficult due to short neck, large tongue and high arched palate. Anaesthesia was maintained using O2/N2O/isoflurane (Jackson-Rees Circuit) and neonate was allowed to breathe spontaneously till ligation of fistula, when atracurium was administered. Neonate remained haemodynamically stable intraoperatively and postoperatively. He was electively ventilated in Pediatric ICU and discharged on day 5.

References
Correspondence

Neonates with tracheoesophageal fistula are kept in upright position with intermittent suctioning of pouch, physiotherapy and antibiotic therapy. In view of anticipated difficult intubation, muscle relaxant was not given for intubation. Neonate was allowed to breathe spontaneously till ligation of fistula to prevent any gastric insufflation and aspiration pneumonia. Oral intubation was attempted without any flexion or extension of neck, because 20% of children with Down’s syndrome present with atlanto-axial instability.

In ASD & VSD, antibiotics are started preoperatively as prophylaxis for infective endocarditis. Increase in systemic vascular resistance (SVR) or decrease in pulmonary vascular resistance (PVR) can accentuate the magnitude of left to right shunt. Hence, volatile anesthetics (decreases SVR) and positive pressure ventilation of patient’s lungs (increases PVR) are well tolerated. ECG was continuously monitored due to high incidence of conduction disturbances following repair of A-V canal and VSD. Hypoglycemia and hypocalcaemia being common in prematurity, were also ruled out preoperatively.

To conclude, with the best of understanding of the pathophysiological changes of TEF, CHD and Down’s syndrome, such difficult cases can be managed successfully.

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References


during anaesthesia and for up to 2-4 days for ventilation in neonates. 5 Though the LMA may be considered the gold standard for a supraglottic airway device, its role for use with muscle relaxants is controversial. 6 Brain recommended that the placement of a gastric tube with the LMA increases its safety in protecting from possible pulmonary aspiration without compromising the oropharyngeal seal of the cLMA. ProSeal LMA is emerging as a suitable alternative to even the tracheal tube for positive pressure ventilation. As regards to the other issue of increase in the cuff pressure with the prolongation of the surgery, the authors correctly switched off the nitrous oxide from the second intraoperative hour onwards, since nitrous oxide is known to diffuse into the silicon based cuff of the cLMA.

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References

An Unusual Case of Internal Jugular Venous Cannula Folding Back During Guidewire Removal

To,
The Editor, IJA

Madam,

A 51 year old male presented to our hospital with a history of meningococcal meningitis. In view of poor peripheral venous access, we put a central venous cannula into the internal jugular vein for administering antibiotics.

After inserting the triple lumen cannula using seldinger technique, we encountered resistance while taking out the guide wire 1. However, all three ports of the cannula were checked for free flow of blood. The patient complained of uneasiness in the neck. A chest skiagram was immediately done and it was noted that the cannula had folded back in the neck in a U shape while taking out the guidewire. The patient was taken into the operation theatre and under C arm image intensifier guidance, a guidewire was reinserted 2 into the cannula and after straightening the cannula into correct position, the guidewire was taken out. The patient immediately felt relief after the cannula was repositioned. We want to highlight this unusual incidence of the cannula getting folded due to the guidewire getting caught in the cannula while taking out. However, the cannula was easily repositioned by inserting a guidewire under C arm image intensifier guidance.

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References
Imipenem: A new culprit for Leucocytoclastic Vasculitis in the Intensive Care Unit

To, The Editor, IJA
Madam,

Leucocytoclastic vasculitis is a small vessel inflammatory disease mediated mostly by deposition of immune complexes. Infections, medications, chemicals, bacteria, viruses, and diseases associated with immune complexes have been accused in the pathogenesis.

A 31-year-old man was admitted to our intensive care unit postoperatively after surgery for large bowel perforation.

Combination antibiotic therapy, which included metronidazole, gentamicin and imipenem-cilastatin was started. He had no history of allergic reactions to any drugs. Five days into his ICU stay, he developed a purpuric, nonblanching and non palpable rash. Initial distribution included the abdomen and axillae, however there was a gradual spread to both the upper and lower extremities within the next 48 hours. (Fig 1) Readministration of both metronidazole and gentamicin failed to induce similar lesions. However, on the third day of reintroduction of imipenem-cilastatin therapy, he developed a widespread purpuric rash on the abdomen and extremities again. These skin lesions resolved after imipenem-cilastatin discontinuation.

Antibiotics are a very common, often overlooked cause of leucocytoclastic vasculitis. Leucocytoclastic vasculitis has been previously documented with a number of pharmacological agents namely ciprofloxacin, zidovudine, piperazone, lithium and macrolide antibiotics. Imipenem-cilastatin combination has emerged as a promising agent for the treatment of complicated infections. The usual spectrum of side effects reported from this drug combination include phlebitis, mild liver function abnormalities, eosinophilia, and thrombocytosis.

However, leukocytoclastic vasculitis induced by imipenem is a rarity. Intensive care physicians should be in a position to exclude any such potential antibiotics which can trigger such dermatological pathologies. Imipenem-cilastatin, though a much sought after agent for treatment of septicemia and complicated polymicrobial infection is a culprit worth adding to the long list of drugs which can lead to leucocytoclastic vasculitis.

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References

Look Alike Drugs- A Worrying Issue

To,
The Editor, IJA
Madam,

Recently, Neon Pharmaceuticals, Mumbai has launched Inj Anawin (Bupivacaine) 0.5% heavy 4 ml ampoule in sterile pack with an intention to avoid contamination during filling in a syringe. This is a clear glass ampoule with embossed printing in black colour, which strikingly look alike to another preparation Inj Artacil (Atracurium) 50 mg/ml 5 ml ampoule of the same company (Fig 1).

This similarity had led to a near disaster in our department. During performing spinal anaesthesia the anaesthetist filled the drug in a syringe assuming it as Inj Anawin 0.5% for spinal. While attaching the syringe to lumbar puncture needle anaesthetist noticed that amount of the solution was 5 ml instead of 4 ml, hence procedure was abandoned. On searching for empty ampoule we found that Inj Artacil was given to anaesthetist by junior staff because both the ampoules were almost identical at first look from a distance. On close examination we noticed that printing over both the ampoules were with black embossed letters and the coloured snap off ring at the neck also looked almost similar (green/grey). However, due to vigilance of anaesthetist a certain fatal mishap was avoided. We all agree that it was a serious lapse on account of both the doctors that they did not read the drug label properly which is must before giving any injection.

Preventable medication error due to look alike preparations have been reported in literature from primary to tertiary level hospitals in past. Epinephrine to glycopyrrolate\(^1\) and phenylephrine to metoclopramide\(^2\) have been given by mistake. In New Zealand, dopamine and magnesium led to near disaster due to look alike preparations. This incidence was almost similar to a case where an anaesthetist was convicted for manslaughter due to wrong administration of dopamine to doxapram\(^3\)

Most anaesthesiologist experienced at least one drug error, majority being of minor consequences. However, serious morbidity and mortality have resulted from clearly preventable events.\(^4\) Currie et al\(^5\) reported that factors which contributed significantly to these incidents were identical preparation, inattention, haste and failure to communicate.

We conclude that development of improved standards for drug packing, labels, establishment of reporting system for medication errors and strict following of recommendations of National Health Services, United Kingdom\(^6\) (Table 1) for improving medication safety is the need of hour.

Table Recommendations to reduce the risk of drug error in anesthesia Modified from Building a safer NHS for patients: improving medication safety

| 1. | Anesthesiologists should be aware of the risks of drug errors and ensure that checking procedures are in place. Errors often occur in situations of haste, distraction or fatigue. |
| 2. | Lighting of the operating room environment is critical for safety. In situations of reduced lighting, specific arrangements should be made for checking anesthetic drugs. |
| 3. | Drug storage arrangements should be consistent in all anesthetic care delivery units. |
| 4. | Ampoules should be read and re-read before drugs are drawn up into a syringe. Errors are unlikely to be detected once the syringe is prepared. |
| 5. | Ideally, drugs are prepared by the person who will administer them, immediately before use. |
| 6. | Syringes should be labeled with the name and concentration. |
| 7. | Syringes intended for an emergency should be stored away from the immediate work area. |
| 8. | The international colour-coded syringe labeling system should be used. |
| 9. | Consider using pre-filling syringes for emergency drugs that |
are prepared by the pharmacy unit to assure quality of contents and accurate labeling.
10. Pharmacists should regularly visit the operating rooms to ensure safe drug use
11. When drug manufactures, packaging and formulation changes, anesthesiologists should be alerted to the change before the drugs are provided in the operating rooms.

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References

Rebreathing and Intraoperative Hypercapnia Caused by A Displaced Unidirectional Valve

To,
The Editor, IJA
Madam,

We report an interesting case of rebreathing and intraoperative hypercapnia caused by a displaced unidirectional valve.

A 66 year old, ASA1 lady was posted for elective shoulder arthroscopy. General Anaesthesia was induced with intravenous fentanyl and propofol, followed by insertion of LMA. Anaesthesia was maintained with oxygen/air and sevoflurane using circle breathing system and the patient breathing spontaneously. She received further analgesia in the form of intravenous paracetamol, boluses of morphine and diclofenac. Intraoperative parameters were stable, when suddenly a rise in ETCO2 levels was noticed. Patient was immediately examined, her chest was clear and her temperature was found to be normal. Haemodynamic parameters were normal. Gas flows were increased, sodalime changed, endotracheal tube and breathing circuit were checked. On closer inspection it was noticed that one of the unidirectional valves of the circle breathing system was displaced. The valve was repositioned, followed by an immediate return of ETCO2 levels to normal. The case proceeded without any problems and the patient had an uneventful recovery.

Fig 1 Displaced value

Intraoperative hypercapnia is caused by inadequate CO2 elimination or increased CO2 production. The causes of inadequate elimination include use of respiratory depressants, inadequate fresh gas flow, exhausted sodalime, airway obstruction and rebreathing due to faulty unidirectional valves1,2. The main causes of increased CO2 production are hyperthermia, sepsis, increased skeletal muscular activity, malignant hyperpyrexia and hypermetabolism. Absorption of CO2 during laparoscopic surgeries can also cause hypercapnia3.

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## References


### CALENDER FOR AWARDS

Indian Society of Anaesthesiologists has instituted certain awards for its members every year. The eligible candidates have to submit the requirements to the Secretary ISA and some to the chairman of the scientific committee of ISACON 2009. The details of the awards and the procedures are available in our website [www.isaweb.in](http://www.isaweb.in).

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