

Airtraq rescues failed fiberoptic intubation

Dear Sir

The Airtraq laryngoscope has been recently introduced as an aid to intubation which avoids many of the difficulties of the use of conventional direct laryngoscopy (1). A recent proposal that the Airtraq be kept in situations where difficulty of intubation can be anticipated but a fiberoptic laryngoscope is not available, such as a Field Hospital, has been drawn to our attention (2). We have recently managed a case where a failed awake fiberoptic intubation was successfully intubated with the use of an Airtraq.

The patient was a 65kg, 21 year old male with uncontrolled epilepsy. During a fit he had fallen and fractured his left zygoma. He presented 3 days later for open reduction and internal fixation. On examination, he appeared mildly micrognathic with limited mouth opening of only 2cm (the patient reported that this was not a result of limitation by pain), Mallampati grade 4 and jaw protrusion grade B. Neck movement was normal. His left upper incisor was very loose, having been damaged in a previous fit-associated fall, when he had also lost his upper incisor, there now being a gap. Elective awake oral fiberoptic assisted intubation was planned.

He was sedated with midazolam 1mg and Propofol TCI at between 1 and 1.4 micrograms/ml. 4% Lignocaine was used to topicalise his mouth and pharynx sufficiently. Any attempt at inserting the fibrescope resulted in gagging when it reached the uvula and was abandoned. His nose was then anaesthetised with 4% Lignocaine spray and then 5% Lignocaine ointment on a size 6 nasopharyngeal airway inserted into his right nostril and left for 3 minutes. However, insertion of the fibrescope into the anterior nasal space resulted in the patient struggling to get off the trolley and was obviously not tolerated despite a small Propofol bolus and reassurance.

The attempt was abandoned after multiple attempts taking a total period of just under one hour. With sedation it became apparent that the patient had better mouth opening than the 2 cm previously observed. Once a consultant skilled in the use of Airtraq was present, general anaesthesia was induced using Propofol (target 6 micrograms/ml). Ventilation with bag/mask was confirmed and the patient then paralysed with atracurium 30mg. The use of Airtraq was introduced and a size 7.5 armoured endotracheal tube inserted at the first attempt. The surgery was uneventful and the patient was grade I laryngoscopy prior to extubation, which was also uneventful.

It is difficult to criticise the primary airway management plan to use an awake fiberoptic assisted technique in a patient with suspected limitations of mouth opening and a hazardous dental profile. In this case due to the sensitivity of the patient's airway it was not possible to safely introduce the 'scope with the patient awake, or even with light sedation. The use of a conventional Macintosh laryngoscope was avoided because of the perceived inability to open the mouth adequately and because of the anxiety at the loose upper incisor being misplaced during a difficult airway manipulation. However, one of the advantages of the Airtraq laryngoscope is its narrow profile, requiring only 17.5mm of mouth opening in the current model, with a smaller size (which will be launched at the beginning of 2007) with a smaller size of 15.5mm planned (3). Furthermore the Airtraq's upper border being flat, unlike

the Macintosh, made it unlikely to slip into the gap left by the absent upper right first incisor.

We believe that in addition to its clear value in this case that the Airtraq will prove to be an ideal candidate for the standard intubating device in all all cases, with its ease of use, enhanced light, excellent visualisation capability and low profile, as well as its single use advantage.

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References

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2. Tong JL. Management of difficult direct laryngoscopy and intubation in a field hospital: an alternative to fiberoptic intubation. *J R Army Med Corps* 2007; 153(3)
3. Personal communication, Pedro Acha, Prodol Spain

Military Tourniquets

Dear Sir,

I write regarding the interesting article 'For Debate' on Military Tourniquets by Parker and Clasper (1) and would like to briefly add my own comments having recently returned from OP HERRICK 6A in Afghanistan. Whilst I agree with many of their points, these are only relevant when evacuation timelines are prolonged. During 6A we had very short evacuation times due to the dedicated Support Helicopter (CH 47 Chinook) and the Medical Emergency Response Team (MERT), this was not the case when Lt Col Parker was deployed on Herrick 4. During 3 months on Herrick 6A, tourniquets applied to limb injuries undoubtedly prevented death from exsanguinating haemorrhage on at least 6 occasions (ie. when removed in theatre there was continued torrential arterial bleeding). This is not to say that they are the total solution. There were many other cases where the tourniquet was self applied when under fire, as BATLS instructs, but removed appropriately by the medic "on the ground" on further assessment when the tactical situation permitted, prior to evacuation to the hospital. As the response from Hodgetts and Mahoney (2) acknowledges there are training issues that have been, and continue to be, addressed in respect of tourniquets, and that they are the final stage in the haemorrhage control algorithm. They should only be used in extremis when all else has failed, but may be life-saving

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Hartman's solution in haemorrhagic shock-now & in the future

We read with interest the recent review by Khan and Garner, on the evidence for using Hartmann's solution in haemorrhagic shock (1) and would like to make some comments.

Hartmann's has an electrolyte composition bearing more resemblance to plasma than other crystalloids, and it is often regarded as the anaesthetic-panacea of fluid resuscitation. Therefore, we were surprised to identify errors in their table of ionic contents. The correct British National Formulary ionic composition for Hartmann's solution is shown in Table 1. Although the ionic composition of Hartmann's is very similar to Ringer's Lactate solution (RL), it is not identical. Licensed manufacturers of intravenous solutions do have slight variations in the concentrations of constituent ions, and a range within 95 – 105% of the ideal is acceptable.

Table 1.

	Sodium	Chloride	Potassium	Calcium	Lactate
Hartmann's solution	131	111	5	2	29

The authors describe why RL is isotonic and compare its osmolality with the ECF, but they have used incorrect units of measurement. The osmole defines the number of moles of a chemical compound that contribute to a solution's osmotic pressure. Osmolarity is a measure of the osmoles of solute per litre of solution, while the osmolality is a measure of the osmoles of solute per kilogram of solvent. Therefore, the correct unit of measurement for osmolality is mOsmol Kg⁻¹.

Whilst Hartmann's has many advantages in haemorrhagic shock, the administration of stored blood is also likely. Your readers should be aware that stored blood and the calcium in Hartmann's are potentially incompatible, leading to the risk of thrombus formation and clinically significant emboli (2). Although transfusing blood and Hartmann's through the same warmed intravenous administration device, is practiced in the USA (3), a recent report of incompatibility reminds us that continued caution is required when transfusing Hartmann's either before or after blood (4).

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Authors reply

We are grateful for Tong and Gait's interest in our review article and the reminder of the potential hazards of blood transfusions after Hartmann's administration. The inadvertent error regarding the units of osmolality is also acknowledged. The ionic content of lactated Ringers solution described in our article is indeed ever so slightly different to the BNF values for Hartmann's solution - but within the 95-105% tolerances Tong and Gait describe, suggesting that any differences are academic rather than practical.

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