
DIFFICULT AIRWAY SOCIETY

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Newsletter

This newsletter was written by members of the Difficult Airway Society. The opinions expressed are those of the individual members and do not represent necessarily the view of the Society.

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The Difficult Airway - Choose box A and plan for failure

There is much debate amongst anaesthetists as to whether muscle relaxants should be employed as part of the technique for securing the difficult airway. A controlled trial to compare the safety of different techniques is not realistic and arguments in defence of individual techniques are already very well rehearsed.

The recent CEPOD report looking at difficult airway management (page 28) highlights more problems and increased mortality in those patients who were paralysed than in those where spontaneous ventilation was maintained. While it is possible that paralysing patients is an inherently more dangerous technique there are many potential confounders:

- i) Anaesthetists who choose to paralyse patients may for some reason be less experienced or less competent than those who choose spontaneous ventilation, therefore apparently increasing the risk of the technique.
- ii) Fall back plans that are chosen to deal with failed intubation by anaesthetists who prefer paralysis may be inadequately thought through, inappropriate or outwith their experience, again making paralysis per se appear more dangerous (see below).
- iii) Finally we should realise that as the total number of cases managed with each technique is unknown we do not actually know the incidence of problems associated with each and cannot say therefore which, if either, is more dangerous. So where do we go from here?

The initial decision of whether to paralyse or maintain spontaneous ventilation reflects only the very start of the anaesthetic management plan, and if either technique works well there's nothing to choose between them. What is needed in practise however is a reliable series of fall back plans in the event of things not going as anticipated. Conversion through the fall back plans and coping with any problems that arise along the way should involve as little risk and physiological upset to the patient as possible. To deal with any difficult situation in life what is required is a good plan that is well carried out. There are however, three other possible scenarios to consider:

	<i>Well carried out</i>	<i>Badly carried out</i>
<i>Good Plan</i>	A	B
<i>Bad Plan</i>	C	D

Relating to difficult airway management, examples might include:

A Tracheal access with a jet ventilation device, followed by total intravenous anaesthesia, muscle relaxant and jet ventilation, followed if deemed necessary by laryngoscopy and tracheal intubation.

B As above, but giving the patient surgical emphysema because the position of the cannula wasn't checked or the cannula wasn't secured before jet ventilation was instituted.

C Propofol, vecuronium, planning to intubate the trachea, using the LMA as a fall back in case of failed intubation and difficult or failed ventilation. (But with no well thought through plan of what to do if the LMA doesn't help).

D Rectally administered oxygen and being unable to get the tube in. (This could also be an example of **C** if the tube was inserted correctly).

Many other examples of plans and execution of those plans that fit into categories **A-D** can be drawn up for paralysed or spontaneously ventilating patients. The take home message is not that one technique is right or wrong but that an entire plan is needed with the skills to carry it out *to the very end* if necessary. Think of plans that you have used and consider seriously which category they fit into.

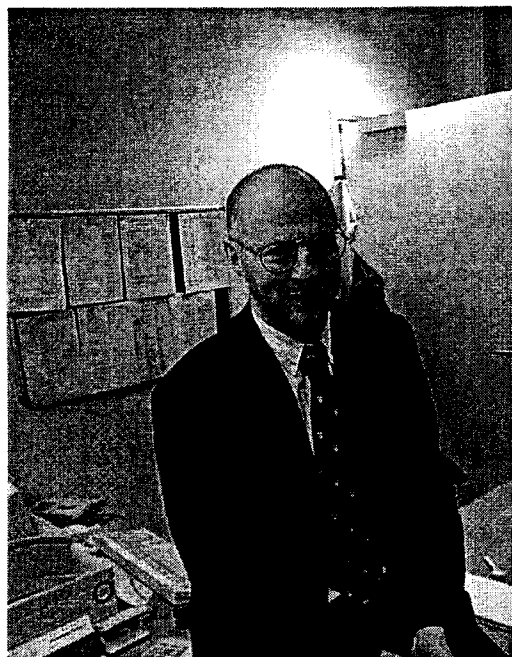
All anaesthetists have a different skill base so this needs to be considered as well as the patients condition when devising a plan. One of the main problems is that people plan for success; the likelihood of having to use the entire contingency plan is not considered seriously enough and it may therefore not be terribly well thought through.

The difficult airway presents a potentially life threatening hazard and we must consider the need for a change in mindset when dealing with these patients. Instead of planning for success we should consider more seriously planning for failure. Many anaesthetists would include jet ventilation with a cricothyroid cannula at the end of their plan in extremis when all else had failed. However some of those same anaesthetists might be reluctant to use this technique electively. Gaining transtracheal access to the airway would undoubtedly be more stressful at the end of a plan with a blue patient than at the beginning of a plan with a pink one.

Individual anaesthetists should consider their own personal skill base and if unhappy to perform transtracheal jet ventilation (TTJV) electively then they should not be embarking on a plan which relies on it at the end. Whilst elective TTJV has risks and assessing the risk benefit ratio is nigh on impossible we should perhaps be giving it serious consideration in those patients with difficult airways for whom awake fiberoptic intubation is not an option.

So what should we be doing for the difficult airway. There is no magic recipe but best advice has surely got to be:

Choose box **A** and plan for failure.



Well if you've got this far you're doing very well. This is the introduction from the incoming editor (pictured left looking rather perplexed).

When you've read as much as you want of this leave it in your juniors room, they may fancy joining DAS, the application form is on the back!

I'm an old fashioned boy and like Adrian before me it cheers me up to have things land on my mat at home – if you think that the newsletter should be available by email let me know, if there's enough demand I'll try and sort it out.

In the papers you may have missed there are several on submental intubation – should we be more aware of this? The 2* paper is of life threatening complications of using Heath Robinson kit to oxygenate patients during fiberoptic intubation – this is still being taught by experts –surely it must stop! There are also a few papers on fancy HFJV for those of you doing laryngeal work.

If you have any suggestions for style or content of this publication let us know – the address is on the front page. Letters are more than welcome – if you are sending them via email it would really help a rather computer illiterate editor if you could send stuff as attachments in word as he is getting on his colleagues nerves every time he has to ask them how to do something that should be very simple on his computer.

Or if you know of meetings / courses that need publicising or you've got a clinical conundrum like on the sports page let us know.

Chris Frerk

Forthcoming Meetings

2nd November 2000

3rd Oxford Difficult Airway
Workshop

Telephone 01865 221590 Fax 01865 220027

Email maguerite.scott@orh.anglox.nhs.uk

23rd & 24th November 2000

Difficult Airway Society meeting
Manchester

Telephone 0161 276 4551/2

Airway Papers You May Have Missed

Papers considered by contributors to be especially worth a look are marked with an asterisk* This list is not exhaustive and if there are top papers you have read that we've missed, let us know!

Canadian Journal of Anesthesia – January to March 2000

- *Subcutaneous emphysema following Trans Cricothyroid injection of local anesthetic. 2000; 47: 165-168.
- Advancement of the mandible facilitates nasal breathing in human subjects sedated with midazolam. 2000; 47: 215-219.
- Sevoflurane mask anesthesia for urgent tracheostomy in an uncooperative patient with a difficult airway. 2000; 47: 242-245.
- * Difficult airway management: Comparison of the Bullard scope with the video-optical intubation stylet. 2000; 47: 280-284.
- * New Media. 2000; 47: 285-287. (Gives a useful list of addresses of airway topics on the Internet)

Anaesthesia and Intensive Care – February and April 2000

- * Cricothyroidotomy and Transtracheal High Frequency Jet Ventilation for elective Laryngeal Surgery. An audit of 90 cases. 2000; 28: 62-67.
- Post obstructive pulmonary Oedema- A Case Series and Review. 2000; 28: 72-76.
- The Use of End-Tidal Carbon Dioxide Monitoring to Confirm Intratracheal Cannula Placement Prior to Percutaneous Dilatational tracheostomy. 2000; 28: 191-192.
- Submental Intubation: An Alternative to Short – Term Tracheostomy. 2000; 28: 193-195.

Anesthesiology January – April 2000

- *Left molar approach improves the view in difficult laryngoscopy. 2000; 92: 70-4
- Impossible rigid laryngoscopy in mandibular osteoma. 2000; 92; 261-2
- **Life threatening airway obstruction caused by oxygen administration 2000; 92: 266-8
- Oropharyngeal burn from laryngoscope bulb 2000:92;277-9
- Pharyngeal mucosal pressures with ILMA 2000:92;620-1
- Postop airway edema and obstruction 2000:92;288-90
- Recurrent airway stridor requiring tracheostomy 2000:92;893-5
- Submental intubation for maxfac surgery 2000:92;912
- History of cuffed oral & nasal airways 2000:92;913-8
- Hairy bearded patients and mask ventilation 2000:92;1199
- The styletscope for intubation 2000:92;1210-1

Anesthesia and Analgesia January – April 2000

- Cricoarytenoid joint laxity and intubation trauma 2000:90;180-5
- Submental intubation in a max fac trauma patient 2000:90;222-3
- Haemodynamic responses to combitube/LMA/ETT 2000:90;231-2
- Supraglottic combined frequency jet ventilation for laryngeal surgery 2000:90;460-5
- Lighted stylet intubation – a review 2000:90;745-56
- Difficult intubation associated with sublingual exostoses 2000:90;757-9
- Additional techniques for the difficult paediatric airway 2000:90;878-90
- Combitube a study for proper use 2000:90;958-62
- Fibreoptic intubation of a newborn baby 2000:90;1007

British Journal of Anaesthesia

- LMA &ILM insertion by the naïve intubator 2000; 84: 103-5.
- Identifying tracheomalacia. 2000; 84: 127.
- Anaesthetic complications of acromegaly. 2000; 84: 127.
- *The ILM does not facilitate intubation in the presence of a neck collar. 2000; 84: 254-6.
- Interesting study showing that the 'Stiffneck' collar and cricoid pressure lead not only to failed intubation with the ILM but also difficult ventilation. Abandoned as 'unethical' after only ten patients.

Retrograde nasotracheal intubation with a new tracheal tube. 2000; **84**: 257-9.
Comparison of two tracheal tip designs for oral fiberoptic intubation. 2000; **84**: 281P.
Placement of double lumen tubes-time to shed light on an old problem. 2000; **84**: 308-10.
Effect of cricoid pressure on insertion of and ventilation through the COPA 2000; **84**: 363-6.
Pulmonary aspiration of gastric contents in obstetrics. *BJA* 2000; **84**: 420-1.
Delayed bilateral carotid artery thrombosis following strangulation. 2000; **84**: 521-4.
Tracheal intubation via the ILMA by inexperienced personnel. (And reply) 2000; **84**: 538-9.

Anaesthesia

Awake tracheal intubation with the intubating laryngeal mask 2000; **55**: 70-8.
Ease of intubation through the ILM during in-line head and neck stabilisation. 2000; **55**: 82-5.
Rapid sequence induction; suxamethonium or rocuronium? (And reply) 2000; **55**: 86-7.
Use of airway exchange catheter for the patient with partially obstructed airway. 2000; **55**: 87-8.
Training in fiberoptic intubation. 2000; **55**: 99-100.
Percutaneous tracheostomy by forceps dilatation: report of 162 cases. 2000; **55**: 125-30.
Gorham syndrome: anaesthetic management. 2000; **55**: 157-9.
Management of a patient with pemphigus vulgaris for emergency laparotomy. 2000; **55**: 160-2.
*Laryngoscopy grades and percentage glottic opening. 2000; **55**: 184.
Mechanical failure of the McCoy scope during difficult intubation. (And reply) 2000; **55**: 185.
Reinforced laryngeal mask severed by biting. 2000; **55**: 186.
An unusual cause of airway compromise during percutaneous tracheostomy. 2000; **55**: 202.
*Airway obstruction with cricoid pressure. 2000; **55**: 208-211.
*The effect of cricoid pressure on the cricoid cartilage and vocal cords: endoscopic study in anaesthetised pts. 2000; **55**: 263-8.
*Clonidine premed & haemodynamic responses to fiberoptic bronchoscopy. 2000; **55**: 269-74* A new practical classification of the laryngoscopic view. 2000; **55**: 274-9.
Airway obstruction in head and neck surgery. 2000; **55**: 290-1.
Grading systems for direct laryngoscopy. 2000; **55**: 291.
Importance of direct laryngoscopy before fiberoptic intubations. 2000; **55**: 292.
Popular hair style-an anaesthetic nightmare. 2000; **55**: 305-6.
Fentanyl, mivacurium or placebo to facilitate LMA insertion. 2000; **55**: 323-6.
Emergence characteristics and postoperative laryngopharyngeal morbidity with the laryngeal mask airway; a comparison of high versus low initial cuff volume. 2000; **55**: 338-43
A comparison of the ILM tube with a standard tube for fiberoptic intubation. 2000; **55**: 358-61.
Upper airway obstruction secondary to a lingual tonsil. 2000; **55**: 393.
A novel approach to inspiratory vocal cord dysfunction. 2000; **55**: 394.
The role of the Combitube in airway management. 2000; **55**: 394-5.
The tracheal tube 'pull-back' test. 2000; **55**: 395.
Right- or left-handed laryngoscopy? 2000; **55**: 395-6.
Caesarean section in a patient with Engelmann's disease. (And reply) 2000; **55**: 406-7. Hypoxia caused by body piercing. 2000; **55**: 413.

European Journal of Anesthesiology

*Questions about Macintosh laryngoscopy 2000;17;2-5
*Airway fire during laser laryngeal surgery with HFJV 2000;17;204-7
Awake fiberoptic intubation for LSCS after failed epidural 2000;17;211-4
& Hoards of abstracts from the April supplement

Correspondence

Research idea

The Henderson laryngoscope blade is now commercially available from Stortz. I have been using it for a while now having had initial training from John Henderson. I think this blade should be formally evaluated in routine and difficult intubation. One person is obviously not going to see enough difficult cases to get a useful evaluation of the blade in less than 10 or 20 years but if we can get a multicentre evaluation going we may be able to say yes or no to the Henderson blade with a decent evidence base in 2 or 3 years. If anyone is interested in joining me in this project call or write to Chris Frerk at Northampton General Hospital, Billing Road, Northampton NN1 5BD, 01604 545671.

Old editor

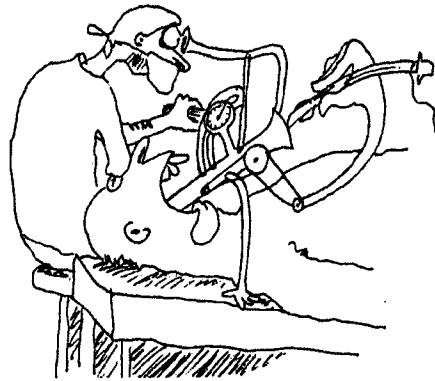
I was sorry to hear that Adrian Pearce had been sacked as editor. He has worked extremely hard for DAS over the years and while he spent his time thanking everyone else for their work in his last newsletter he ignored his own vital role in the society. Now he is chairman I expect he'll be working harder than ever and I am sure that the society will go from strength to strength.
B.Bold

Gadgets

Many anaesthetists will have developed modifications to kit in their time but this appears now to be completely stymied by the old CE marking malarchy. Even fairly simple devices aren't being greeted with the same enthusiasm by companies that they used to be because of the huge costs and uncertain rewards. Journals are turning innovative papers down on the basis that they cannot be seen to be supporting the use of non CE marked equipment or the use of equipment for other than its original intended purpose.
The worlds gone mad!

Anon.

(I'm reluctant to publish anon. stuff but cos there isn't much else this month I'm going with it Ed)



We have had two contributions in the form of artwork from Guy Rousseau which appear in this edition of the newsletter. Mixed in on this page is "the gadget".

Buffy

I think it's outrageous that Spike has not been featured much in the latest series of Buffy the Vampire Slayer. I think he deserves a series all of his own. Never mind Angel the spin off from the main series. Neck trauma is always a worry in the Accident & Emergency department in Sunnydale!



Entitled The Difficult Airway, I'm not entirely sure whether this is a new diagnostic test akin to Mallampati or whether it's a therapeutic manoeuvre to reduce stress in the anaesthetist. Nevertheless I'm grateful to Guy Rousseau for submitting his work and apologise if it's changed shape slightly due to the vagaries (sp?) of my computer skills.

SPORTS PAGE

A 5 year old child with TMJ ankylosis presented for surgical release of the same. She had had a general anaesthetic 6 months previously for examination under anaesthetic at which time she had an inhalational induction with sevoflurane followed by a size 2 ½ LMA with some difficulty. Anaesthesia thereafter was uneventful. The anaesthetist at the district general hospital was a sport. How would you have managed her care?



The plan used by the anaesthetist is given below

The plan was gas induction with sevoflurane, LMA, 5.0 nasal tube over fibroscope through nose behind LMA into larynx, remove LMA proceed with surgery. Surgeon was scrubbed and ready for transtracheal access if needed, a bed was booked on ITU just in case.

The reality was the gas induction became difficult as the mandible could not be subluxed at all so the airway was tending to obstruct earlier than anticipated, head extension helped. A 2LMA would only just fit between the teeth and gave a clear airway, we were reluctant to remove the LMA to do fiberoptic inspection because of risk of losing the airway. So the scope was passed through the LMA, cords were seen easily. Attempts to railroad the tube failed and the child got complete airway obstruction. This was assumed to be laryngospasm so sux was given and thankfully ventilation was straightforward. A size 4.0 tube was passed over the scope and into the trachea and ventilation was easy. The tube and LMA were secured and surgery proceeded with them in situ.

The lesson I learnt from this was that a 5.0 tube doesn't fit through the bars of a 2 LMA and I should have tried it in vitro after changing my plan then I could have gone straight for a 4.0 tube and avoided the laryngospasm!

Application Form For Membership of Difficult Airway Society

If you would like to join the DAS, a non threatening, non expensive society then just photocopy this form fill it in and return it to the membership secretary:

Dr Ian Calder, National Hospital for Neurology and Neurosurgery, Queen Square, London, WC1N 3BG

Name

Address

email

Grade Cons SpR SHO Staff Grade Other.....

In which specialty do you meet difficult airways