DIFFICULT AIRWAY MANAGEMENT IN TRAUMA

Blair Munford, FANZCA

Senior Specialist Anaesthetist

Liverpool Hospital, Sydney, Australia

&

Senior Flight Physician & Deputy Medical Director

NRMA CareFlight/NSW Medical Retrieval Service

Classification of airways

	TRANSGLOTTIC	
SUPRAGLOTTIC	Orotracheal tube	SUBGLOTTIC
Oropharyngeal airway	Nasotracheal tube	Cricothyrotomy
Nasopharyngeal airway	(Intubating LMA)	Transtracheal jet catheter
Laryngeal Mask Airway	(Combitube/PTL)	Tracheostomy
Combitube/PTL *		


Plain dumb luck is
useful sometimes, too!

Four short stories:

"Paint me warts and all"

-Oliver Cromwell

Case I: "Seasonal Goodwill at the Railway Hotel"

- 28 year old male
- 3 days prior to Christmas
- Intoxicated, involved in dispute
- Hit in face with frozen turkey (!)
- Le Fort III and mandibular #s

Case I: Airway management

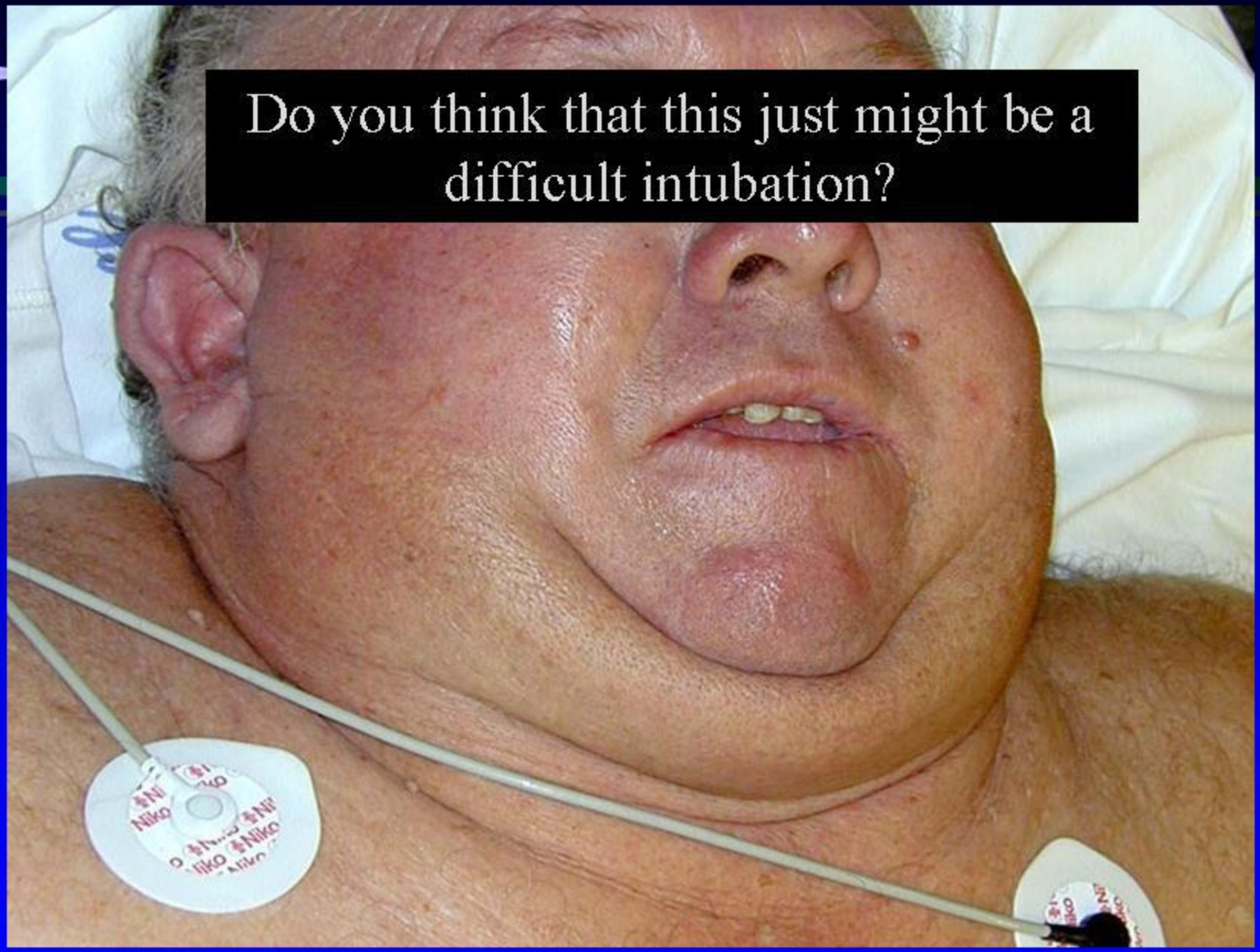
1. Topical airway anaesthesia
   - with nebulised lignocaine – (then)
2. Fibreoptic assisted awake oral intubation attempted
   - unsuccessful because of bleeding/restlessness
3. Plan B: Rapid sequence induction
   - with head up position till induction
   - then Trendelenberg till airway secured

Case I: Take home message

1. *Do what you do well*
2. *Have a backup plan*
3. *Blood in the airway & fibreoptic intubation don't mix well.*

Case II: There are old motorcyclists & bold motorcyclists – but no old bold motorcyclists.

- 56 yr old male Harley Davidson rider
- Morbid obesity (approx 155kgs)
- Involved in MBA
- Fractured ribs/pulmonary contusions
- Borderline hypoxia
  (SaO2 90-91% on high flow O2 via NRBM)
- Suspected Cx/Tx spine #s


Do you think that this just might be a difficult intubation?

Case II: Airway management

- **Topicalisation of airway**
- **Awake fibreoptic nasal intubation**
  - Surgical insistence on supine posture due potential spinal #s.
  - Extremely technically difficult & patient hypoxic throughout procedure.
  - Improved after intubation & IPPV/PEEP.

Very nearly a failed intubation – then what?

Case II: Take home message

Airway comes before disability!!!

Sometimes you may be the only one who can see this.

If so, you need to be assertive.

If the protocol doesn't fit the patient, you have to change the former .


Airway isn't everything . . .

Case III: When you race a train to a level crossing, coming first equal is not good.

- MVA vs train, 36 yr old woman driver
- Trapped by legs, inverted position
- Partial impalement through abdomen
- Progressive blood loss
- Impaired & decreasing LOC.
- T wave peaking on ECG

INJURY 2006

Case III: Airway management

- Small dose of morphine – further decrease in LOC
- Laryngeal mask placed, hand bag assisted ventilation where possible (CPAP/PSV)
- After extrication, modified RSI
  (no suxamethonium)
- Concomitant treatment for hypovolaemia & crush injury syndrome

Case III: Take home message

The best airway is the one you can get!

Case IV: Double (jump) Trouble

- 19 year old motocross rider, went over handlebars landing from double jump, handlebar struck neck.
- Brought in by private car (~25km)
- X-ray at district hospital:

1. Extra-laryngeal/pharyngeal air
2. C1 & C2 fractures

Case IV: Airway management

- Retrieval team called
- Cx collar removed (!)
  - Immobilisation with sandbags/tape
- Expedient transfer to regional trauma centre
  - Stable in transit
  - Backup plan: surgical cricothyrotomy
- Had awake tracheostomy then delayed surgical stabilisation of vertebrae

Case IV: Take home message

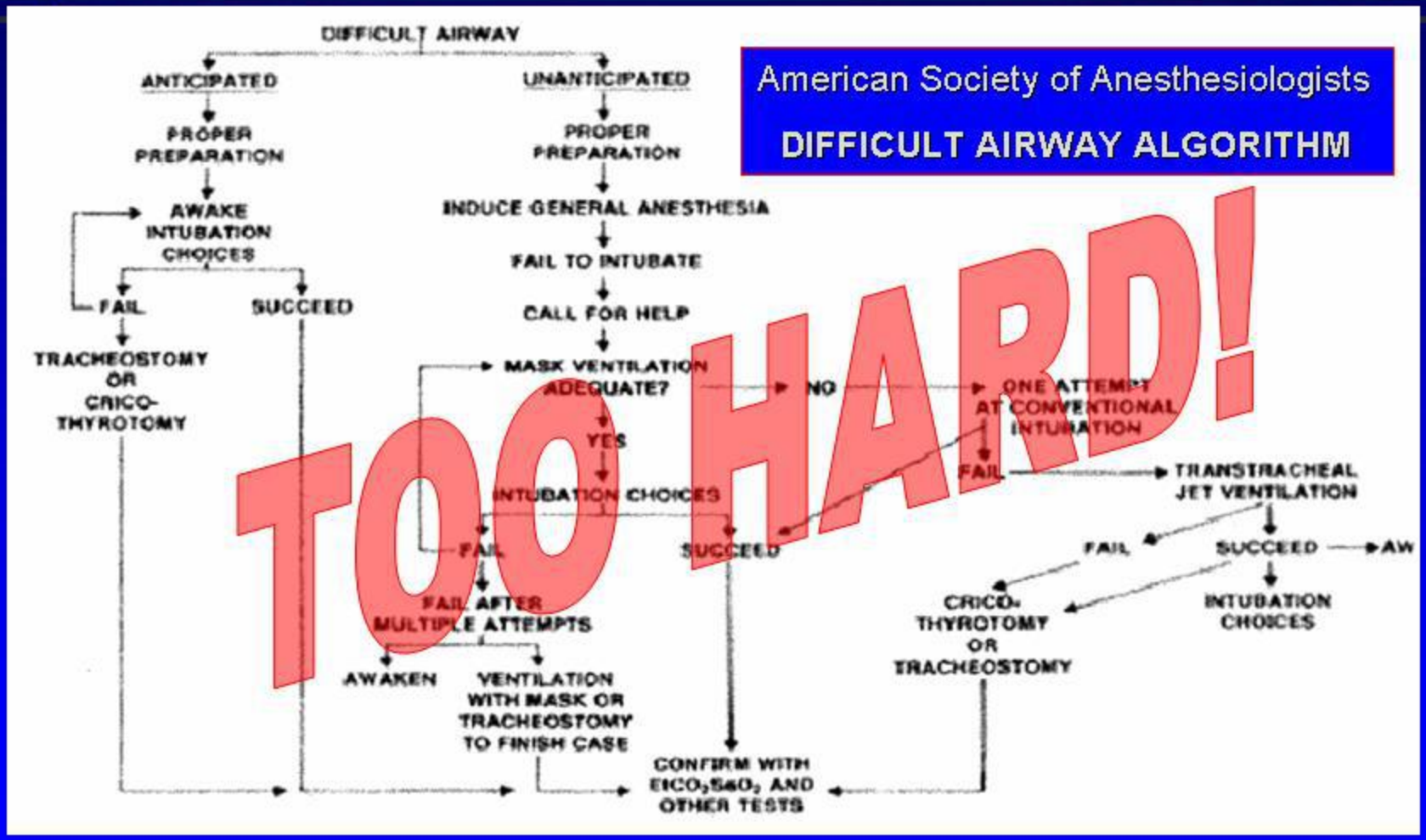
(Sometimes):

"The best medical care is the delivery of as much nothing as possible"

-The Fat Man (in)

'The House of God'

So, what is the answer?



My top tips:

- Be prepared
- Use most experienced team possible
- Time is important
- Airway comes first
  (This may be difficult)
- Customise to patient
- But do what you do well
- Anatomy may be unfavourable
  (Difficulty increases further)
- Assume full stomach
- Cooperation not assured
  (Difficulty increases again)
- Be flexible
- Have a backup plan

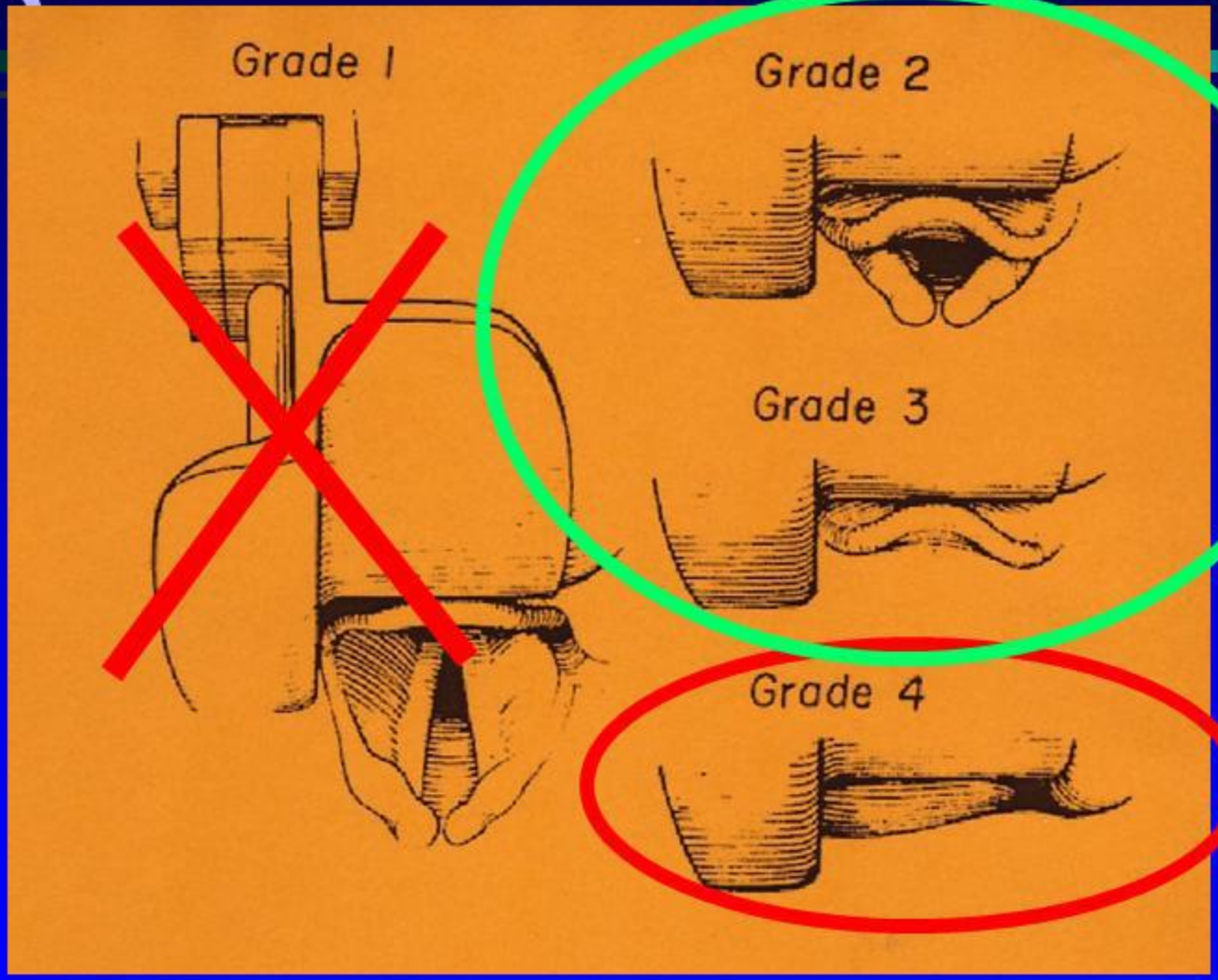
*"Prior Planning Prevents P*** Poor Performance"*

Rapid sequence induction (1)

- Most common airway technique in trauma
- Needs up to four team members:
  1. Preoxygenation/intubation
  2. Drug administration
  3. Cricoid pressure administration
  4. Inline Cx spine immobilisation
- Laryngoscopy with anterior jaw lift only.


. . . But without it, everything else is nothing!

Sometimes less is more:



This is trouble!

Rapid sequence induction (2)

- Use the least force that gives Grade 2-3 view
- Pass a silicone bougie
- "Railroad" (small-ish) ETT over the bougie
- Confirm position with capnography & clinically

But what if this fails?

- **Failed intubation:**

After two optimal attempts by most experienced operator available

- **Remember:**

People don't die of failure to intubate - but of failure to oxygenate

THEN → 1. Supraglottic rescue airway

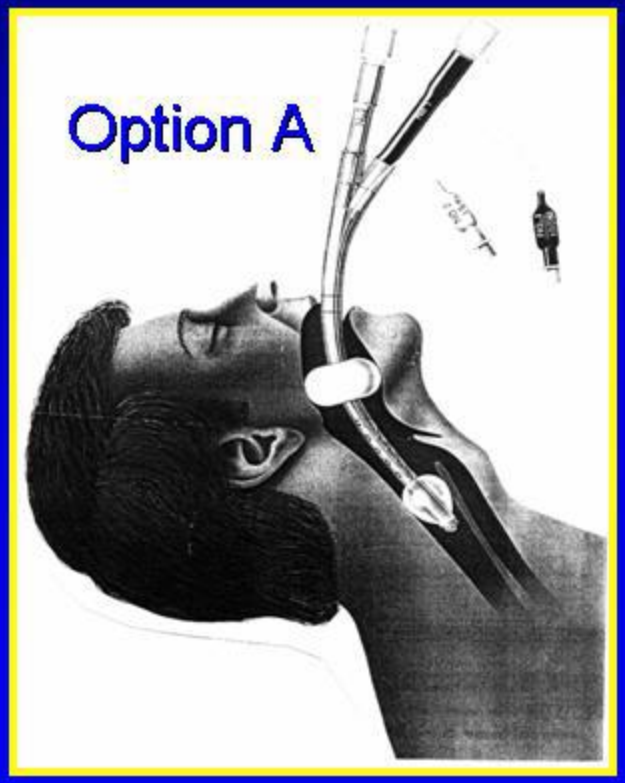
OR → 2. Subglottic (surgical) airway

OR → 3. Alternate technique to intubate

FIRSTLY MAINTAIN OXYGENATION

Supra-glottic airway options:

Initial step: BMV with oral &/or nasal airway.



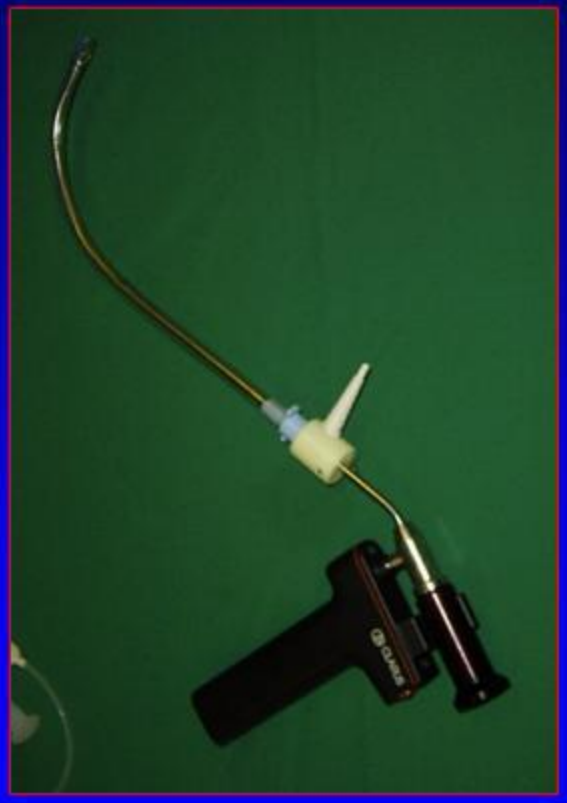
Sub-glottic airway options:

- **Needle cricothyrotomy**
  - **Technique of choice in paediatrics**
- **Tube cricothyrotomy**
  - **Technique of choice in adults**
- **Tracheostomy**
  - **Only on television!**

Alternative intubating devices (1)

Bullard Laryngoscope

Alternative intubating devices (2)



Fiber optic/video laryngoscopes

Alternative intubating devices (3)

Intubating LMA & Intubating video LMA

Making a decision

The choice will depend on:

- The patient
- The situation
- What you think you are good at

Remember – it's going to be your choice, so have a think about it.

Airway Control – Why?

- A for Airway

  Obstructed/at risk/soiled airway.

- B for Breathing

  e.g. Flail chest/high spinal deficit.

- C for Circulation

  e.g. Anaesthesia for laparotomy.

- D for Disability

  e.g. confused or paediatric patient for CT.

Because:

"*. . . Life is like a box of chocolates – you never know what you're gonna get*"

-Forrest's mother (Sally Field)

in "*Forrest Gump*"

THE END

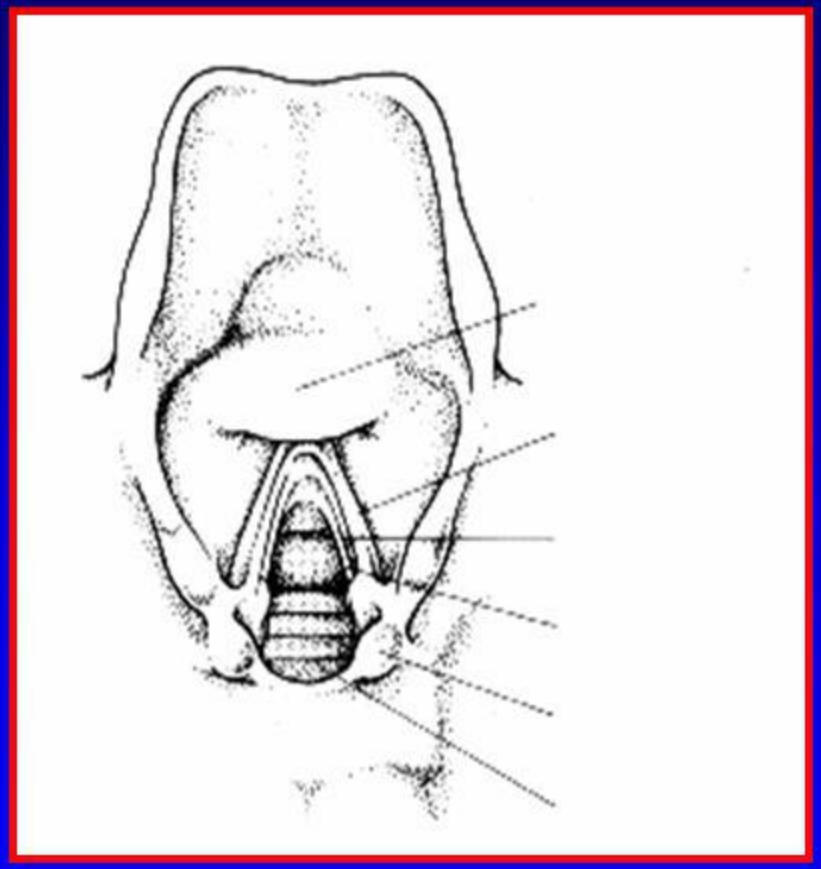
Any questions?

The winner, and still champion:

Endotracheal intubation (usually oral), remains the gold standard for trauma airway management, but . . .

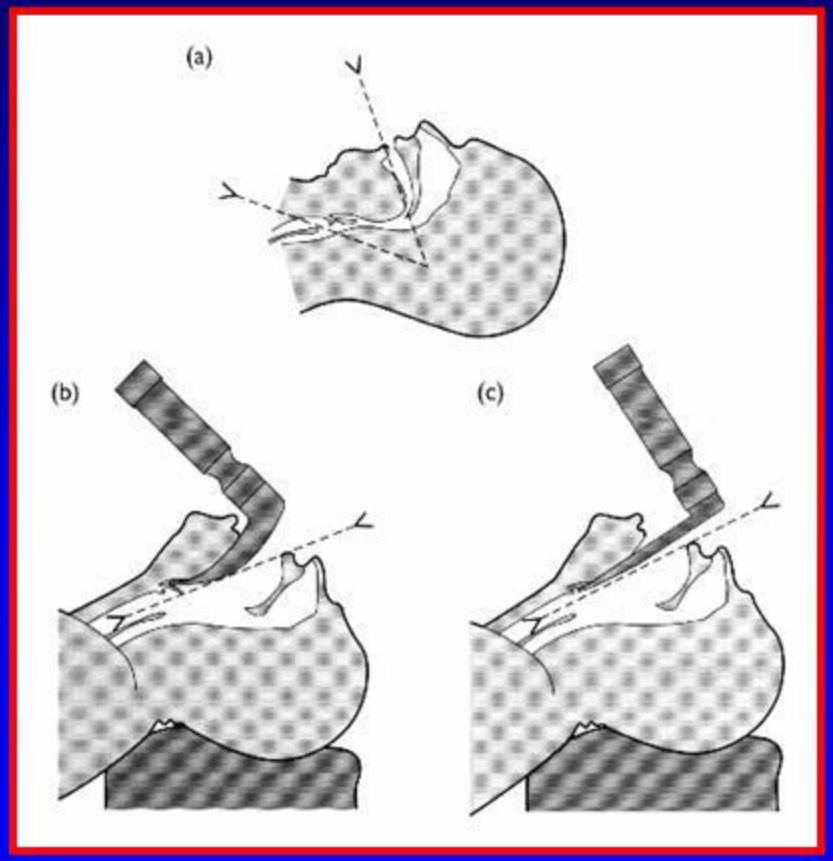

There are no easy intubations in trauma!

Why not?



Because you should (almost) never see this view during intubation of a trauma patient.

Why not?



Because look what you have to do to the cervical spine to achieve this sort of view!

"Sometimes, you have to box clever"

- Anon