

Airway management post cervical spine fixation: is it a problem?

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Background and aims

The term "difficult airway" compasses a range of scenarios from difficult facemask ventilation to difficulty intubating the trachea (1). A fixed cervical spine is a predictor of difficulty in face mask ventilation and laryngoscopy (2) and the use of a supraglottic airway device (SAD) is a recognised strategy in the management of a difficult airway. Male gender, age > 45, short thyromental distance and limited neck movement may predict difficult ventilation via SAD (3), however, there is currently no literature related to difficult ventilation via facemask or SAD post cervical fixation in adults or children. Our institution, a tertiary children's hospital with neurosurgical and spines services, manages children requiring cervical fixation. We aimed to identify if cervical spine fixation resulted in future difficulties ventilating via SAD.

Methods

Registered as Audit

- 10 years
- All cases of
- Cervical fixation
- Laminoplasty
- Decompression

Patient Notes Examined

- Age
- Weight
- Comorbidities
- Spinal pathology
- Age and weight during operations

Operative Notes examined

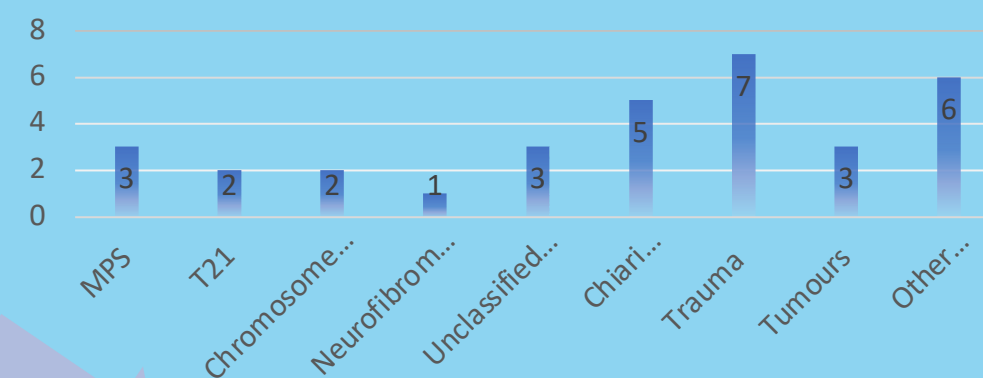
- Any GA pre fixation
- GA for fixation operation
- Any post fixation GA
 - For difficulty in
- Bag valve mask ventilation
- SAD insertion/ventilation
 - Intubation

Results

10 years of C- spine fixation operations at Birmingham Children's Hospital

32/36 cases examined (4 notes inaccessible)
• 2-15 years old

AETIOLOGY OF C SPINE INSTABILITY



Post Fixation GA (3 cases of difficulty)

- 1 x NF1 case → polio blade for HALO, LMA OK
- 1 x Chiari Malformation
- Prefixation straightforward – post fixation failed LMA + oral FOI
- 1 x Segmental anatomical anomaly
- Straightforward @fixation
- Difficult LMA + Glidescope post fixation

Fixation GA (4 cases of difficulty)

- Polio blade
- NF1 → HALO → Polio blade
- FOI x 3
- Unknown syndrome x 2
 - 1 x difficult/1 straightforward
- Tumour x 1 (to avoid movement) → uneventful

No pre-fixation airway issues

Conclusions

In summary of 36 cases of cervical spine fixation in children, only 3 presented post fixation difficulties with SAD ventilation or intubation but all patients remained easy to face mask ventilate. Whilst cervical spine fixation is theoretically a risk factor for future difficult airway management, the incidence remains low in children.

References

- 1) Practice guidelines for management of the difficult airway; an updated report by the American Society of Anaesthesiologists Task Force on Management of the Difficult Airway. *Anesthesiology* 2003; 98: 1269 – 77
- 2) Crawley SM, Dalton AJ. Predicting the difficult airway. *BJA Education* 2015; 15:5 253-257
- 3) Sait T, Chew STH et al. A proposal for a new scoring system to predict difficult ventilation through a supraglottic airway. *BJA* 2016 117 (S1) i83-i86

