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Introduction

The videolaryngoscope (Glidescope® or MacGrath®) is a valuable aide for the exposure of the larynx in difficult airways; however, there are risks associated with the implementation of any technology. We present nine soft palate injuries associated with intubation with the aide of a videolaryngoscope. Risks associated with the videolaryngoscope and the management of soft palate injuries will be discussed.

Methods

- Retrospective chart review was performed on patients with soft palate injuries related to the use of the Glidescope® or MacGrath® videolaryngoscope from 2010 to 2016 at three tertiary care hospitals.
- Data collected included: age, sex, BMI, Mallampati score, acuity of surgery and management.
- Conservative management was defined as supportive therapy with watchful waiting, ingestion of cold fluid or ice, throat lozenges or spray, and/or post-operative follow up.



Figure 1: Left to right: Glidescope®, Macintosh®, MacGrath®



Figure 2: Patient with right palatal laceration

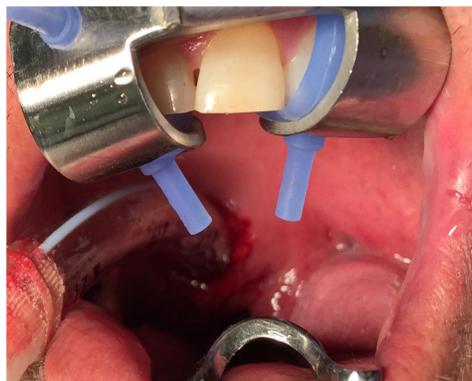


Figure 3: Patient 1, Right palatal Perforation

Results

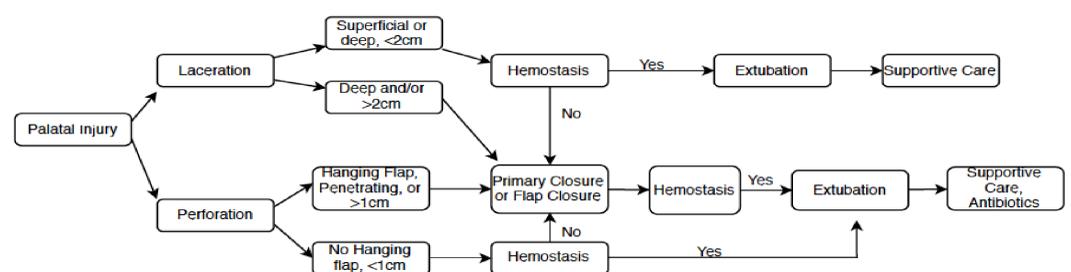
Patient	Sex	Age	BMI	Mallampati Score	Laryngoscope	Emergent vs Elective	Laceration Vs Perforation	Management
1	M	60	45	III	Glidescope®	Elective	Perforation	Primary closure, Steroid
2	M	54	36	III	Glidescope®	Elective	Perforation	Primary Closure, Steroid
3	F	52	55	III	Glidescope®	Emergent	Perforation	Primary Closure, Antibiotics
4	M	41	36	III	Glidescope®	Elective	Laceration	Conservative
5	F	59	23	II	Glidescope®	Elective	Laceration	Conservative
6	M	73	22	II	MacGrath®	Elective	Laceration	Conservative
7	F	59	20	II	MacGrath®	Elective	Laceration	Conservative
8	M	81	24	II	Glidescope®	Elective	Laceration	Primary Closure
9	M	80	25	III	Glidescope®	Elective	Laceration	Conservative

- Three of the nine patients had soft palate perforations. These patient were treated with primary closure, had BMI >35 and Mallampati Score of III
- Six of the nine patients were injured with the Glidescope®
- Six of the nine injuries had oropharyngeal lacerations. The majority were treated conservatively, with the exception of one that was treated with primary closure.

Discussion

- User factors that may contribute to increased risk of injury include: use of a rigid stylet, increased flexion to accommodate the stylet, increased tonsillar pillar tension, and blind insertion of the ETT into the oral cavity/oropharynx while the user's visual attention is diverted from the mouth to the monitor.
- Patient factors that may contribute to increased risk of injury include: higher Mallampati scores, obesity, and urgent/emergent intubation.
- Soft palate and oropharyngeal injuries are generally self limited in severity and require minimal, if any, surgical interventions. Most injuries are treated with conservative management.

Management



- Injury to be reviewed by otolaryngology prior to extubation of patient.
- Prophylactic antibiotics for larger injuries greater than 1-2cm or those requiring surgical repair. The use of steroids is debatable.
- Surgical repair for injuries resulting in through and through perforation and/or large flap >1cm.
- Safely extubate patient once hemostasis and/or repair is achieved.

Conclusion

- Soft palate injuries associated with the videolaryngoscope have been increasingly reported in the literature. This is the largest series reported in the otolaryngology literature.
- ETT insertion and advancement should be controlled and under direct visualization. Advance the tube along the videolaryngoscope beyond the uvula prior to diverting attention to the video monitor
- Soft palatal injuries should be evaluated by an otolaryngologist for management prior to safe extubation of patients. The majority are treated with conservative management.

Works Cited

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