Combining glidescope and fiber-optic for intubation in oral maxillofacial surgery

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Abstract

Airway management for patients with recent oral facial injuries is always a challenge for the anesthetist. We describe how the glidescope (GLS) and fiber-optic (FOB) can be effectively combined in three patients undergoing oral maxillofacial surgeries after sustaining multiple facial fractures from trauma to allow less traumatic intubation; an option to visualize on either monitor and faster intubating time compared to using either one alone. Although it allows for better visualization of the vocal cords, it requires 2 trained anaesthetists to perform and this would need to be considered when using this technique.

Key words: Difficult intubation, fiber-optic, glidescope, oral maxillofacial surgery

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Three cases scheduled electively for open reduction and internal fixation of their fractures were selected and consented to this write-up [Table 1]. Patients were positioned supine with a head ring for support and given 200 mcg of intravenous glycopyrrolate and 2 mg of midazolam 5 min before induction. 100 mcg of fentanyl and 100-150 mg of propofol were used. After ascertaining the ability to ventilate manually, patients were given 0.6 mg/kg rocuronium. The first anesthetist inserted the GLS® GVL (Canada) to identify the larynx up to the visualization of the epiglottis, and then the second anesthetist inserted the FOB bronchoscope D Olympus LF-GP Size 6 (Japan) loaded with an armored endotracheal tube (ETT) Size 7.5 through the nostril. Two cases had Cormack-Lehane (CML), Grade I views on the videolaryngoscope screen while another had a Grade III view initially but improved until the posterior part of the vocal cords could just be identified with external cricoid manipulation. Visualization was entirely through the GLS monitor while the FOB tip was positioned toward the glottis and advanced between the vocal cords. The ETT was then railroaded and advanced using the FOB as the guide and successful placement was confirmed with auscultation and capnography.

Intubating patients with recent oral facial injuries may be difficult because of bone fractures, dislocated temporomandibular joints and blood in the oral cavity.[1]

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Assessment of Mallampati scoring and mouth opening of these cases may be suboptimal.[2] Most of the time, mouth opening is limited by pain, or swelling. Hence, at the end of the preoperative examination, these cases are safer treated as potential candidates for difficult ventilation and intubation. Furthermore, surgeons often request for nasal intubation as a prerequisite for their surgery.[1]

Many airway techniques have been described to be useful in situations of difficult intubation that rely on the advantages of only one piece of equipment. At present, there is no “one best method” without problems. The GLS is a videolaryngoscope which combines the unique features of a 60° angulated blade with detailed visualization on a monitor screen.[3] Although there is an improvement in obtaining the glottic view with such a steep blade, this feature also results in difficulty in placing the ETT in 4% of patients despite obtaining a satisfactory view.[4] The FOB has been the gold standard for placement of ETT in cases with anticipated difficult intubation. However, it is also limited due to difficulties in maintaining the patency of the upper airway, providing a “tunnel view” and a possibility of complete view obstruction in the presence of blood or secretions.[4]

The ease of nasal intubation can be achieved with a useful combination of the GLS as a viewing monitor and FOB as a maneuverable stylet, both commonly used and available in our anesthetic practice. In 2009, Sukernik et al. proposed an algorithm to divide the GLS view to two groups; CML Grades I or II as the first group which will use FOB as a stylet-guided by the GLS view while the second group with CML Grades III or IV should view through the FOB.[5]

Limitations of this technique include the requirement for two operators. A single operator technique can only be possible if a small, light and flexible stylet can be held in the right hand to be manipulated single-handedly while the left-hand holds the GLS. Airway equipment that can incorporate both the elements of GLS and FOB into a single unit and monitor can ideally overcome this. Newer devices such as the videolaryngeal mask airway with intubating modalities may also prove to be another useful combination with lesser limitations than its predecessors of each individual capacity. Mouth opening that is severely restricted by disease or other pathology may make the insertion of the GLS very difficult and limit its use. This technique can only be recommended if the anesthesiologist and skilled assistant are familiar with the usage of both equipment as it should not be the technique of choice under duress in an emergency situation if both are otherwise unfamiliar with it.

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Conflicts of interest
There are no conflicts of interest.

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Table 1: Patient demographic data and surgical details

| Details                        | Case 1                      | Case 2                      | Case 3                      |
|--------------------------------|-----------------------------|-----------------------------|-----------------------------|
| Age (year)                     | 14                          | 52                          | 46                          |
| Gender                         | Male                        | Male                        | Male                        |
| BMI                            | 15                          | 31                          | 20                          |
| Mallampati score               | III                         | III                         | IV                          |
| Thyromental distance (cm)      | >6                          | 6                           | >6                          |
| Mouth opening (cm)             | <3                          | <2                          | <2                          |
| Neck movement                  | Full                        | Limited (short and thick-set neck) | Full                     |
| Others                         | Nil                         | Partial dentures (removed)  | Nil                         |
| Medical background             | Nil                         | Hypertension                | Ex-intravenous substance use (on methadone) |
| Surgical diagnosis             | Fractures of right mandible and left parasymphy | Fractures at left parasymphy of mandible and left zygomatic complex | Bilateral fractures on the body of the mandible |

BMI = Body mass index