Use of the GlideScope® for enhanced airway challenges in Treacher Collins syndrome

Sir,

Treacher Collins syndrome (TCS) is an autosomal dominant disorder leading to craniofacial deformities and has an incidence of 1 in 50000 live births.[1] TCS involves first and second branchial arch and is a disorder of neural crest cell proliferation. This causes skeletal abnormalities of facial bones, especially zygoma and mandible, which increases with age. Patient presents with a square forehead, hypoplasia of mandible, high-arched palate, cleft palate, downward slanting of palpebral fissures and deformity of ears. These features pose a challenge to anaesthesiologist to secure an airway either as difficult face mask ventilation, difficult laryngoscopy or intubation.[2,3]

We present the case of a 1½-year-old male child diagnosed with TCS and scheduled for elective hip surgery for developmental dysplasia under general anaesthesia (GA). The patient had an antimongoloid slant of the palpebral fissure, low set ears, short webbed neck, torticollis, depressed nasal bridge, mandible hypoplasia, large tongue and small mouth opening. The patient had a normal birth history and had undergone a cleft palate surgery at the age of 9 months. Previous anaesthesia record was not

available. Blood investigations were within normal limits and echocardiography (ECG) showed normal study. Vitals were stable and systemic examination was within normal limits. Intra-oral airway assessment was not possible as the child had limited mouth opening and was anxious. The X-ray lateral view shows mandibular hypoplasia and straightening of the cervical spine. The weight of the patient was 8 kg and venous access was present. The risk of difficult airway in the child was explained to the parents and informed consent was obtained.

Parents were instructed to keep the child nil per oral for 6 h for solids and 2 h for clear liquids prior to surgery. A 26 G canula was secured after application of topical local anaesthetic cream and intravenous (IV) glycopyrrolate 0.1 mg was administered. A difficult airway cart was kept ready in the operation theatre. Plan A was to use GlideScope® Video Laryngoscope (Verathon, Bothell, WA, USA) with blade size 2 (4-20 kg). Plan B was intubation via supraglottic airway device after confirmation with a fibre-optic laryngoscope. Plan C was surgical airway. Monitors were attached and vitals were recorded. Jackson Rees circuit was used for the conduct of GA. Anaesthesia was induced with IV propofol 20 mg and IV fentanyl 20 micrograms. Patient's head was kept in a neutral position by elevating shoulders and pillow under the head like a ramp position. After checking for ablility to perform mask ventilation, intravenous atracurium 4 mg was given. Lungs were ventilated for 4 minutes with 100% oxygen and sevoflurane 2%. A GlideScope® blade 2 was introduced in the centre of the mouth but epiglottis could not be visualised. The patient was mask ventilated with 100% oxygen and a second attempt was planned. During the second attempt, the blade of the GlideScope® was gently introduced from the left side of mouth because of existing facial asymmetry until epiglottis was visualised. The percentage of glottic opening (POGO) was 25% during video laryngoscopy. The trachea was intubated using an uncuffed endotracheal tube (ETT) of size 4.5 mm ID using Glide Rite® rigid stylet (Saturn Biomedical Systems, Verathon, Canada). ETT was fixed at 9 cm on the left angle of mouth. After ensuring bilateral air entry in the lungs, a throat pack was placed to prevent peri-tube leakage. Anaesthesia was maintained with oxygen in air and propofol. The patient was haemodynamically stable throughout the procedure. At the end of the surgery, residual neuromuscular blockade was reversed. The trachea was extubated only after the patient was fully awake with State entropy (SE) of 89 and Response entropy (RE) of 94. The endotracheal tube was inspected, and a left curve of the ET was noted suggesting deviation of trachea to the left side. The patient had an uneventful postoperative period.

In the present case, the airway was challenging because of the features of TCS. Since age was a limitation for awake intubation we planned GA. Choices of video laryngoscopes in hospitals are limited in children less than 2 years. In the present case, initial insertion of GlideScope into the mouth in the midline resulted in non-visualisation of the glottis. During the second attempt, GlideScope® was introduced from the left side of the mouth keeping in mind the existing fascial asymmetry of the child. However, we strictly followed the four-step technique which includes looking in the mouth to insert the blade, then at the screen to see the larynx, then look in the mouth to insert the tube and finally look at the screen to insert a tracheal tube for intubation.[4] Videolaryngoscopes in normal or potentially difficult airway of children less than 17 years of age improved glottis visualisation but at the expense of prolonged intubation time and increased failures. In the present case, we could intubate in the second attempt because of difficult airway anatomy.[5]

To conclude, the use of GlideScope® resulted in a successful outcome in a patient of TCS.

Declaration of parent consent

The authors certify that they have obtained all appropriate parent consent forms. In the form, the parent(s) has/have given his/her/their consent for his/her/their child's images and other clinical information to be reported in the journal. The parents understand that their child's names and initials will not be published, and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

Vanita Ahuja, Tenzin Nyima, Parul Verma, Parmanand Gupta[1]

Departments of Anaesthesia and Intensive Care and [1]Orthopaedics, Government Medical College and Hospital, Chandigarh, India

Address for correspondence:
Dr. Vanita Ahuja,
Department of Anaesthesia and Intensive Care, Government Medical College and Hospital, Sector 32, Chandigarh - 160 030, India.
E-mail: vanitaanupam@yahoo.co.in

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