

## Use of GlideScope in airway management of a patient with osteogenesis imperfecta

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To the Editor:

Patients with osteogenesis imperfecta (OI) have multiple factors that impact airway management, including mega-locephaly, macroglossia, and a short neck, which may be complicated by the potential risk of cervical spine injury during neck extension. We present the first reported case of the use of the GlideScope for endotracheal intubation in a patient with severe OI.

A 65-year-old woman (86 cm tall, 18.6 kg) with OI congenita was admitted for umbilical hernia repair. She had a history of multiple extremity fractures and contractures, fractures with coughing, and scoliosis (Fig. 1). Airway examination showed mild macroglossia, Mallampati grade II, 3-cm mouth opening, and neck fixed in 20° extension. Planned anesthetic management included local anesthesia and sedation with midazolam 2 mg and fentanyl 125 µg IV. The incision site was infiltrated with local anesthetic. The patient tolerated the procedure until intra-peritoneal stimulation caused herniation of abdominal contents, so general anesthesia was induced with propofol 2 mg/kg and rocuronium 1 mg/kg IV. A mask airway was

easily obtained. Succinylcholine was avoided because of the risk of fasciculation-induced fractures. Placement of a #3 laryngeal mask airway (LMA) was attempted, but the distorted oral anatomy would not allow it to advance into the hypopharynx. The patient was easily intubated using a GlideScope #3 and cuffed endotracheal tube size 5.5 with in-line stabilization. Direct laryngoscopy was avoided to prevent facial, dental, or spinal trauma. Anesthesia was maintained with O<sub>2</sub> and propofol, avoiding volatile triggers for malignant hyperthermia [1]. Blood pressure was measured with a pediatric cuff, set at child inflation limits, every 15 min. The patient was extubated after reversal of muscle relaxation with no coughing. Postoperatively, the patient had a mild sore throat, but no injuries or nausea. She was discharged home on postoperative day 3.

Osteogenesis imperfecta is an autosomal dominant disorder characterized by defective synthesis of collagen type I (abnormal mineralization) and a triad of skeletal fragility, blue sclera, and conductive hearing loss [2]. Preoperative evaluation should include an echocardiogram, pulmonary function tests, and assessment of platelet function. Airway management can be complicated by macroglossia, cervical spine problems, micrognathia, and dental fractures with minimal manipulation. The GlideScope uses less force as compared to conventional laryngoscopy. It has an anti-fogging mechanism and unique angulation permitting a better view of the anterior glottis and can be used with in-line stabilization. The distortion of anterior airway anatomy is reduced with use of GlideScope as compared to a Macintosh blade. Cervical extension between the occiput and C4 as well as anterior deviations of the vertebral bodies from baseline are significantly less with the GlideScope [3]. Previous reports illustrate the use of nasal fiberoptic intubation in patients with OI and dental anomalies presenting for maxillary surgery. LMA and intubating LMA

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**Fig. 1** Chest X-ray of the patient

have also been used [4, 5] given the advantages of less trauma compared to direct laryngoscopy and smoother extubation than endotracheal tubes. However, placement may be difficult, as was noted in our patient. The OI patient presents a challenge for formulation of an adequate and safe anesthesia plan.

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