

Airway management of hypopharyngeal stricture: An out of the box method

Airway management is an integral part of safe anaesthesia practice. Though fiberoptic intubation is accepted as “gold standard”^[1] for difficult airway management in awake and spontaneously breathing patient, it has its own limitations. Herein, we report a case of successful airway management using zero-degree endoscope [Figure 1] for laser assisted dilatation of hypopharyngeal stricture.

A 27-year-old male patient presented with complaint of difficulty in swallowing, associated with cough and change in voice. He had a history of corrosive ingestion four months ago, causing hypopharyngeal stricture and post glottic stenosis, requiring a tracheostomy. Later, the trachea was successfully decannulated. He developed a recurrent hypopharyngeal stricture and was posted for laser-assisted stricture release to facilitate oral feeds. Airway assessment revealed normal inter-incisor distance, temporomandibular mobility, modified Mallampati grading, thyromental distance, cervical range of motion and a healed tracheostomy scar.

The patient refused to consent for a repeat elective tracheostomy. A fiberoptic intubation (FOI) would have turned this partial occlusion into complete occlusion causing “cork in bottle phenomenon”.^[2] So, it was decided to widen the stricture under local anaesthesia. Consent for conversion to general anaesthesia and emergency tracheostomy was



Figure 1: 0° endoscope

obtained. After 4% lidocaine nebulization and 10% lidocaine aerosolisation, awake direct laryngoscopy was performed which revealed a stricture, through which larynx was not visualized [Figure 2a]. Laser-assisted stricture release was started, but further attempts were abandoned due to patient's discomfort. After adequate pre-oxygenation, general anaesthesia was induced with oxygen and sevoflurane. Spontaneous respiration was preserved and surgery was continued. The stricture was dilated under direct vision of zero-degree endoscope [Figure 2b] and glottic opening was visualized to guide 5 mm uncuffed tube beyond vocal cords [Figure 2c]. With the airway secured, anaesthesia was deepened and the stricture was further dilated uneventfully.

Hypopharyngeal stricture can be an early or late complication of corrosive ingestion, radiotherapy,^[3] trauma, burn or surgery. It can be associated with airway, nutritional issues, and psychological issues and need of multiple surgeries. Options for airway management are limited, including tracheostomy, FOI and transtracheal jet ventilation. Tracheostomy is usually chosen as first line because of its relative safety, but our patient did not consent for it. FOI has its own limitations in severe airway obstruction, as it may be impossible to pass the bronchoscope beyond the stenosis or possibility of “cork in bottle phenomenon”^[2] converting a partial obstruction into total. Transtracheal jet ventilation is associated with risk of barotrauma and carbon dioxide retention. Therefore, we decided to place a paediatric endotracheal tube under guidance of zero-degree endoscope. Zero-degree endoscope is a surgical endoscope with fiber optic light transmission that is used for ENT surgeries. As the airway was non-linear, zero-degree endoscope helped in sequential dilatation and visualisation of airway opening through each layer of stricture without affecting the patency of airway. The dilatation of stricture was still not enough to allow the use of flexible fiberoptic bronchoscope. In a case of carcinoma larynx, Gupta P, *et al.*^[4] used zero-degree

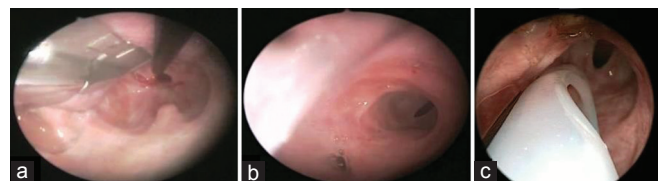


Figure 2: (a) Endoscopy showing hypopharyngeal stricture through which the larynx is not visualized. (b) Glottic opening visualized with 0° endoscope. (c) Passage of 5 mm uncuffed endotracheal tube under direct vision of 0° endoscope

degree endoscope to visualize glottic opening and to decide the size of endotracheal tube.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their 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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Conflicts of interest

There are no conflicts of interest.

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