

0.1-0.4%^[1] of all malignancies. Reports of tracheal leiomyoma are even less common and account for approximately 1% of all tracheal tumours.^[2] The presentation of the tracheal tumour depends on the location of the tumour, its size and changes in the lung, distal to the lesion. These patients usually become symptomatic when the tumour starts obstructing more than 75% of the tracheal lumen.^[3] They are usually misdiagnosed and treated inappropriately for asthma.

Management of airway of these patients who present with critical tracheal stenosis presents a formidable challenge to the anaesthesiologist. Problem in such cases arises due to the difficulty in establishing a patent airway, providing space for operation, need to control bleeding and prevention of tumour tissue from travelling distally into tracheobronchial tree while resecting the primary tumour.

We report, the anaesthetic management for successful removal of an intratracheal tumour in a young female using rigid bronchoscopy.

CASE REPORT

A 23-year-old, 54 kg and 153 cm height girl presented for resection of a primary tracheal tumour. She reported a history of dry cough for 2 years with progressive dyspnoea, hoarseness of voice and wheezing for last 3 months. Patient had received treatment with bronchodilators and steroids and was being managed on the lines of bronchial asthma with no relief. Auscultation of chest revealed bilateral wheeze. Chest X-ray was normal, computerized tomography of chest and lower neck revealed a soft-tissue mass close to thoracic inlet, attached to left posterior wall in upper trachea causing luminal compromise. Positron emission tomography scan revealed 1.2 cm × 1.1 cm size soft-tissue mass at the level of C7 to D1 projecting into the tracheal lumen. On room air SpO₂ was 95.3% while the arterial blood gas analysis showed PaO₂ of 86 mmHg, PaCO₂ 40 mmHg, pH 7.42.

Pre-operative fiberoptic bronchoscopy was not done so as to avoid any airway irritation, which might have led to critical or complete airway obstruction.

In the operation theatre, patient was placed in supine position and standard monitoring including pulse oximetry, electrocardiography and non-invasive blood pressure was connected. An intravenous access was

Leiomyoma of trachea: An anaesthetic challenge

INTRODUCTION

Primary tracheal tumours are rare, contributing to

obtained followed by commencement of intravenous fluid. Injection fentanyl in slow incremental doses up to 100 µg and injection midazolam 1.5 mg intravenous bolus was given. This was followed by propofol infusion starting at 10 mg/kg/h until patient slept and gradually titrating it to 6 mg/kg/h followed by 1.5 mg/kg/h, at which level it was maintained throughout the procedure. After obtaining an adequate depth of anaesthesia an appropriate size nasopharyngeal airway was inserted, which was connected to anaesthesia circuit for delivery of air-oxygen mixture while maintaining spontaneous ventilation. Local anaesthetic spraying of airway with 4% lignocaine spray was done before insertion of rigid bronchoscope to prevent any stimulation of airway. This was followed by connection of anaesthesia circuit to the side arm of rigid bronchoscope and 2-4% sevoflurane with air O₂ mixture was given to supplement intravenous propofol infusion for prevention of any stimulation of airway, which could precipitate complete obstruction.

A tracheostomy tray was prepared and kept ready in the event of failure to control airway. Tumour tissue [Figure 1] was extracted with rigid bronchoscopy forceps; bleeding was controlled by using adrenaline soaked gauze pieces and cautery. Seepage of blood and tissue distally into the trachea-bronchial tree was prevented by using judicious suctioning. A flexible bronchoscope was introduced through the barrel of rigid bronchoscope for further evaluation and suctioning.

The whole procedure was completed in 1 h during which time patient maintained oxygen saturation within normal range. Arterial blood gas analysis done during and completion of the procedure showed no



Figure 1: Rigid bronchoscopic view of the tumour

retention of carbon dioxide. There were no episodes of desaturation, hypoxia or airway obstruction and patient was discharged home after 2 days. Histopathological evaluation of the excised tissue revealed it as tracheal leiomyoma.

DISCUSSION

Tracheal leiomyoma is a rare disease, which can manifest with symptoms of upper airway obstruction, cough and haemoptysis. Several different approaches such as tracheal sleeve resection, endoscopic resection, electrocoagulation, cryotherapy and neodymium-doped yttrium aluminium garnet laser ablation have been reported in the literature.^[4]

In case of wide-based tumour, bronchoscopic intervention can result in incomplete resection or recurrence and many surgeons prefer complete resection.^[5]

If the lesion is well-circumscribed, bronchoscopic removal the most conservative treatment is also recommended.^[6]

Anaesthesia strategies developed for critical airway management include the use of fiberoptic intubation, laryngeal mask airway, high frequency jet ventilation, total laryngeal bypass device, tracheostomy under local anaesthesia, use of cardiopulmonary bypass (CPB) and rigid bronchoscopy.^[7] Rigid bronchoscopy is very useful as it can core out tumours and provide pathway for ventilation.^[8] In case of bleeding it can tamponade the source, facilitate suctioning and insertion of epinephrine soaked gauzes as the surgeons did in this case. Ventilation can be maintained through the side port and it is not as invasive as tracheostomy or CPB and there is less risk of barotrauma as occurs with the use of high frequency jet ventilation.

Bronchoscopic resection can be diagnostic as well as curative in benign tumours as was in our case. We preferred intravenous induction with propofol over inhalational induction as the latter can sometimes lead to airway irritation (though less with sevoflurane).^[9] We were able to maintain adequate depth of anaesthesia with intravenous propofol infusion supplemented with sevoflurane along with topicalisation of the airway. Supplementation of intravenous propofol with sevoflurane was done to avoid use of high doses of either of these agents which might have led to respiratory depression.

We avoided muscle relaxants as we wanted to maintain the patient on spontaneous ventilation, besides there is always a possibility of inability to maintain gas-exchange during positive pressure ventilation in such patients.^[10]

Meticulous planning and communication between anaesthesia and surgical teams are mandatory for successful outcome of surgery. Rigid bronchoscope under spontaneous ventilation with prudent combination of intravenous, inhalational and topical agents is a simple and safe method of airway control on patients with airway stenosis due to a benign lesion such as a leiomyoma.

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