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Challenging airway in a case of mediastinal mass

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Introduction

Retrosternal goiters are most commonly defined as extension of the enlarged thyroid gland with ≥ 50% of the mass located in the mediastinum. Not only are they surgically difficult to resect, they can also pose as an anaesthetic challenge in many ways, specifically airway encroachment and hemodynamic compromise due to vascular compression. We present a case of retrosternal goiter in a morbidly obese patient with rheumatoid arthritis and asthma. This case poses several airway, ventilatory and hemodynamic challenges arising from both the goitre and intrinsic patient factors.

Case Report

A 51 year old Indian lady presenting with a Grade 1 (Huins classification) retrosternal multi-nodular goiter was scheduled for a total thyroidectomy and sternotomy. Her other comorbidities include rheumatoid arthritis, epilepsy, brittle asthma and morbid obesity (BMI 47). Clinically the patient was asymptomatic for the goitre. She was also able to lie flat and exhibited NYHA Class II physical status. Her airway assessment was remarkable for a short neck, high anterior-posterior chest wall diameter and slight limitation in neck extension. The cervical spine X-ray showed a normal alignment with no evidence of atlantoaxial instability. Her CT neck revealed a multi-nodular goitre with an exophytic partially calcified 2.3 x 1.1 cm nodule arising from the inferior pole of the right lobe extending retrosternally. There was also mild narrowing of the trachea. We chose to perform an awake fibreoptic bronchoscopic intubation as it was deemed safest and most appropriate in view of the multiple factors contributing to a difficult airway. A 18g IV cannula and intraarterial cannula was placed in the forearm at the start. Our patient’s airway was topicalised with 2% lignocaine nebulisation and 10% lignocaine spray to the back of the throat. She was then premedicated with IV midazolam 1mg. Small boluses of ketamine was chosen for sedation due to its minimal respiratory depression, bronchodilating properties, and ability to maintain sympathetic tone and systemic vascular resistance. Intubation was conducted smoothly with minimal hemodynamic swings, no desaturation, sustained spontaneous respiration and satisfactory patient cooperation. Muscle relaxant was omitted and spontaneous ventilation maintained throughout the surgery with sevoflurane and PSV-pro ventilatory mode. Multimodal analgesia consisting of paracetamol, fentanyl and morphine were given. Our patient was successfully extubated in the operating theatre post-operatively and transferred to high dependency thereafter.

Conclusion
We present a case of retrosternal goiter in a morbidly obese patient with rheumatoid arthritis and asthma. This case poses several airway and ventilatory challenges contributed by surgical and patient factors. We discuss how a carefully considered anesthetic plan using everyday anesthetic agents can produce a sleek and safe anesthesia for the patient.