DIFFICULT AIRWAY MANAGEMENT IN A PATIENT WITH GIANT SCAPULAR CHONDROSARCOMA: A CASE REPORT

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Abstract

Chondrosarcomas are rare malignant tumours arising from cartilage-producing cells, typically affecting the pelvis, long bones, and shoulder girdle. Surgical excision remains the mainstay of treatment. Anaesthetic management becomes particularly complex in cases with large tumours due to potential airway challenges and compromised pulmonary function.

We report the perioperative management of a 38-year-old female with a massive chondrosarcoma of the left scapula (17 × 17 × 16 cm), complicated by a history of asthma and newly diagnosed moderate restrictive lung disease. Anticipating difficult airway management due to patient positioning, induction and intubation were performed in the lateral position using a bougie-assisted technique.

This case highlights the need for individualized anaesthetic strategies in patients with large chest wall tumours. Anticipation of airway difficulties, pulmonary optimization, and adaptive approaches to induction and intubation are crucial for safe perioperative outcomes.

Keywords: Chondrosarcoma, difficult airway, lateral position

Introduction

Chondrosarcomas are malignant mesenchymal tumours that produce cartilage matrix and account for approximately 20% of all primary bone sarcomas.[1] These tumours are most commonly found in the pelvis, femur, and scapula, and they typically present in middle-aged adults.[2] Chondrosarcomas may grow insidiously over time and can reach significant sizes before diagnosis due to their slow progression and relatively low metastatic potential. However, their size and anatomical location can pose considerable surgical and anaesthetic challenges.

While literature on the anaesthetic management of extremity chondrosarcomas is available, cases involving large tumours of the scapula, especially with coexisting pulmonary comorbidities, are rarely reported. The

airway in such patients may be difficult to manage due to tumour-related anatomical distortion or due to the need for non-supine positioning during induction. Previous reports, particularly those involving cervical or thoracic chondrosarcomas, have emphasized the critical importance of advanced airway strategies including awake fiberoptic bronchoscopy and video laryngoscopy.[3] Furthermore, anaesthesia in patients with bone sarcomas often demands a tailored approach depending on tumour location, pulmonary function, and patient comorbidities.[4]

This case details the successful anaesthetic management of a giant scapular chondrosarcoma in a 38-year-old asthmatic female with restrictive lung disease, emphasizing the importance of preoperative planning, patient positioning, and flexible airway management strategies.

Case Report

A 38-year-old female presented with a progressively enlarging mass over the left upper back and scapular region for the past 8 months. Imaging and biopsy confirmed a diagnosis of chondrosarcoma of the left scapula, and she was scheduled for wide local excision with soft tissue reconstruction.

Her medical history was significant for bronchial asthma for 9 years, managed with inhaled budesonide, formoterol, and levosalbutamol. She had no other systemic illnesses. On examination, a large, hard, immobile mass was noted over the left scapula extending onto the upper posterior thorax. The patient reported mild exertional dyspnoea but no orthopnoea or paroxysmal nocturnal dyspnoea.

A chest X-ray revealed a large homogenous opacity over the left chest wall with multiple calcified foci. MRI of the left scapula showed a well-defined lobulated mass measuring 17 × 17 × 16 cm involving the scapula and extending into adjacent soft tissue planes. Preoperative pulmonary function testing revealed moderate restrictive lung disease with reduced forced vital capacity (FVC) and forced expiratory volume in 1 second (FEV1), but a preserved FEV1/FVC ratio. Routine blood investigations, electrocardiogram (ECG), and transthoracic echocardiography were within normal limits.

Figure-1:Chest Xray PA view showing a large opacity in left chest wall

Given the size of the tumour and the posterior location, the surgical team requested the patient be maintained in a lateral decubitus position throughout the procedure. Due to the mass effect, supine positioning was uncomfortable for the patient and potentially risky due to compression of thoracic structures. A multidisciplinary discussion was held to address the anticipated challenges in airway management and postoperative ventilation.

In the operating room, standard monitors were applied. Video laryngoscope was kept ready anticipating a difficult airway. The patient was preoxygenated in the left lateral position. After administration of intravenous fentanyl and propofol, succinylcholine was used to achieve rapid neuromuscular blockade. Bag-mask ventilation was effective in the lateral position. Direct laryngoscopy revealed a Cormack-Lehane Grade II view and an assistant was asked to apply cricoid pressure for optimal view of the vocal cord. Then a 7.0 mm internal diameter endotracheal tube was successfully placed using a bougie to facilitate intubation in the lateral position. Bilateral air entry was confirmed and connected to the anaesthesia machine.

Anaesthesia was maintained with sevoflurane in oxygen-air mixture and intermittent doses of vecuronium. Intraoperative analgesia included paracetamol and fentanyl boluses. The surgery lasted approximately 5 hours and proceeded uneventfully with stable haemodynamics and no desaturation. Estimated blood loss was moderate and adequately replaced. She was successfully extubated after a satisfactory respiratory assessment. The patient was shifted to the intensive care unit and her postoperative course was uneventful, and she was discharged on the seventh day.

Figure-2: Mask ventilation in Lateral position **Figure-3:Intubation in Lateral position**

Discussion

This case underscores several anaesthetic concerns in managing a patient with a large scapular chondrosarcoma, particularly when associated with pre-existing respiratory pathology. Though scapular chondrosarcomas are rare, when they reach massive sizes, they may lead to substantial distortion of thoracic anatomy, impacting respiratory mechanics and airway management. While literature has primarily focused on spinal or cervical chondrosarcomas, similar principles apply regarding the need for tailored airway approaches.[1,2]

Airway management in patients with large thoracic or cervical masses is frequently complicated by limited neck mobility, altered anatomical landmarks, and positional challenges.[5,6,7] In this case, the mass prevented the patient from lying supine comfortably, necessitating induction and intubation in the lateral decubitus position. Though rarely performed, lateral position intubation has been described in complex airway cases with success.[5,7]

Our choice of succinylcholine was dictated by the need for rapid-onset neuromuscular blockade, allowing for early airway control while minimizing the risk of aspiration or hypoventilation. The use of a bougie, despite the lateral position, proved effective. This aligns with current literature that encourages the use of bougies and video laryngoscopy in patients with anticipated difficulty.[8]

Preoperative optimization of pulmonary status was equally critical. Patients with restrictive lung disease have decreased pulmonary compliance and lower respiratory reserve, predisposing them to postoperative pulmonary complications.[4] In this case, optimization with bronchodilators, physiotherapy, and incentive spirometry contributed to a smooth perioperative course.

Additionally, bone sarcoma surgeries are associated with significant operative times and potential blood loss. Planning for intraoperative fluid management, blood conservation strategies, and postoperative respiratory support should be part of the anaesthetic plan in such cases.[4]

Conclusion

Large scapular chondrosarcomas present unique anaesthetic challenges, especially when compounded by respiratory comorbidities. A careful and individualized approach to airway management, including readiness for induction in unconventional positions, is essential. Preoperative optimization, multidisciplinary collaboration, and anticipation of intraoperative difficulties are the cornerstones of successful outcomes in such complex cases. This case exemplifies the importance of adaptive anaesthetic strategies in the face of rare but challenging tumour presentations.

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