Impact Surgery

Case Report

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Emergency resection of tracheal inflammatory myofibroblastic tumour in a young adult: Case report

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Abstract

Introduction: Inflammatory myofibroblastic tumour (IMT) is a rare benign lesion occurring mainly in children and adolescents. Airway involvement, particularly of the trachea, is exceptional and poses risk of suffocation. We describe a young adult presenting with near-fatal obstruction who required urgent surgical management.

Case report: A 20-year-old non-smoker developed progressive hoarseness and exertional breathlessness over three months, culminating in severe inspiratory stridor. Spirometry showed fixed upper-airway blockage. Computed tomography demonstrated an intraluminal mass obliterating more than 90 % of the subglottic trachea and severe hypercapnia was confirmed. A 5 mm tube was railroaded over a bronchoscope to bypass the lesion, followed by cervical resection of the affected segment with primary anastomosis. Histology confirmed IMT. Recovery was uneventful; six-month review revealed normal spirometry and no recurrence.

Discussion: Misdiagnosis as asthma is common when IMTs narrow the airway gradually. Prompt recognition of fixed obstruction should trigger imaging and bronchoscopy. Complete resection remains the definitive therapy, even in emergencies, and gives excellent outcomes with clear margins. Adjuvant treatment is reserved for unresectable or recurrent disease. This case underlines the need to consider tracheal tumours in young adults with unexplained stridor and shows that timely surgery can reverse life-threatening hypercapnia while preserving long-term airway function. Long-term surveillance with bronchoscopy remains essential because recurrences have been described.

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Introduction

Inflammatory myofibroblastic tumours (IMTs) are uncommon benign lesions that usually affect children and adolescents. Their pathogenesis remains uncertain[1]. Although they can arise in almost any site, tracheal involvement is exceptionally rare, representing only 0.04–0.07 % of cases[2 3]. We describe a tracheal IMT in a 20-year-old man who presented with life-threatening airway obstruction.

Case report

The patient, a previously healthy non-smoker, reported progressive hoarseness and exertional dyspnoea for three months, culminating in acute respiratory distress. He had been mislabelled as asthmatic and treated with bronchodilators and anti-tuberculous drugs without benefit[4]. Examination revealed inspiratory stridor. Plain radiography was normal, but spirometry showed a fixed obstruction (FEV1/FVC 0.65, FEV1 28 % predicted, FVC 45 % predicted) that did not respond to bronchodilators.

Computed tomography demonstrated an enhancing endoluminal mass occupying more than 90 % of the intrathoracic tracheal lumen just below the vocal cords (figure 1). Arterial blood gas analysis revealed severe hypercapnic acidosis (pH 6.88, $PaCO^2$ 162 mm Hg). The patient was intubated; however, adequate tidal volumes could not be delivered, necessitating emergent surgical intervention. During bronchoscopy a smooth lobulated lesion arising from the right lateral wall 2–3 cm below

the cords was visualised[5], leaving only a pin-hole airway. A 5 mm tube was railroaded over the bronchoscope to restore ventilation and correct hypercapnia[6].

Through a transverse cervical incision the trachea was mobilised. Circumferential resection of the affected segment, including the fifth tracheal ring, was performed with clear margins (figure 2). Cross-field ventilation of the distal stump allowed an end-to-end anastomosis, reinforced with strap muscle and protected with a Redivac drain. The postoperative course was uncomplicated; flexible bronchoscopy on day 10 confirmed a patent lumen with intact sutures (figure 3). Final histology showed spindle-cell proliferation with plasma-cell-rich inflammatory stroma. The tumour cells expressed smooth-muscle actin and vimentin, confirming IMT.

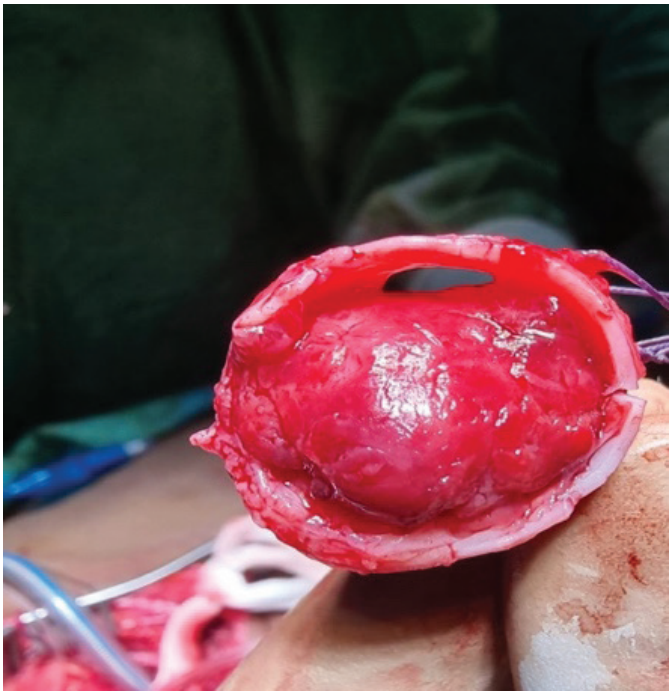

Figure 1: pre-operative CT scan

Discussion

IMT is defined by the World Health Organisation as a myofibroblastic spindle-cell lesion with inflammatory infiltrate[3]. Fewer than 3 % of reported thoracic IMTs arise in the trachea[8], and only about 10 % involve the central airways overall[7]. The aetiology is unclear; associations with trauma, surgery, inflammation and infection have been suggested, but our patient had none of these factors.

Symptoms depend on the degree of luminal compromise. Delay in diagnosis is frequent because manifestations such as wheeze mimic asthma. Computed tomography and bronchoscopy establish extent and guide management. Complete surgical excision is the treatment of choice and affords excellent prognosis[9]. Microscopically positive margins may be managed with adjuvant radiotherapy[10], yet clear margins were achieved in this case, obviating additional therapy. Early recognition of tracheal IMT as a potential cause of upper-airway obstruction is crucial, and emergency tracheal resection with primary anastomosis is safe when performed by an experienced multidisciplinary team.

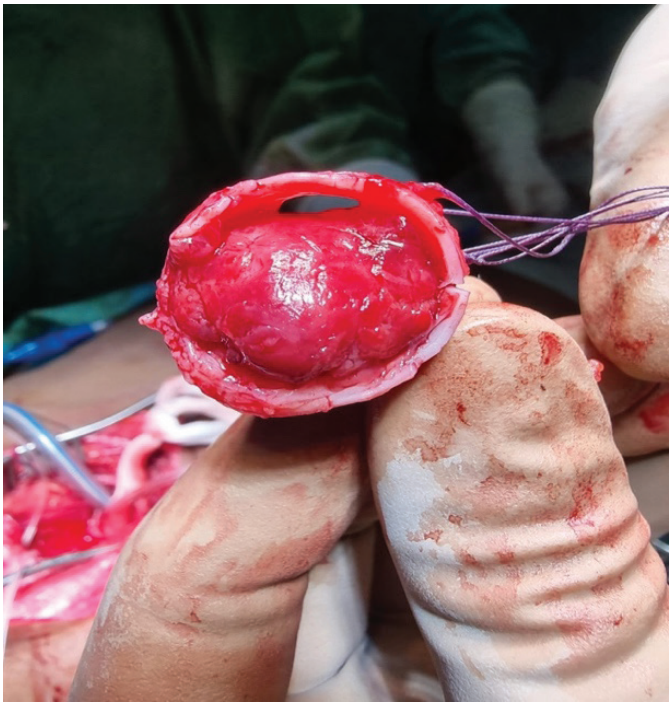

Figure 2: excised tumour with trachea

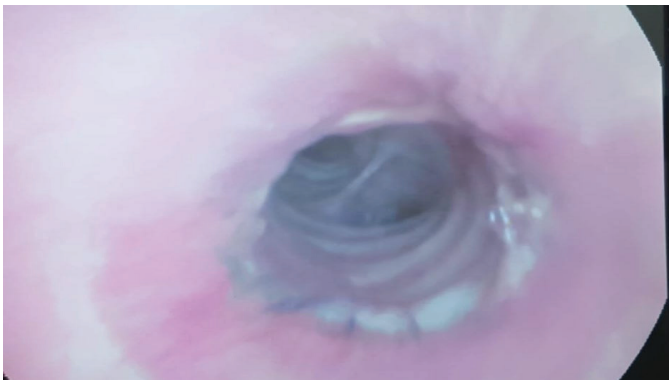

Figure 3: Post-operative bronchoscopic view of anastomotic site

Consent: The patient granted written informed consent for the publication of this case report which is held by the authors.

Conflict of interest: In compliance with the ICJME uniform disclosure form, the authors have no conflicts of interest or other relationships to declare.

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References:

1. Debelenko LV, Arthur DC, Pack SD, Helman LJ, Schrump DS, Tsokos M. Identification of CARS-ALK fusion in primary and metastatic lesions of an inflammatory myofibroblastic tumour. *Lab Invest*. 2003;83(9):1255-1265. doi:10.1097/01.lab.0000088856.49388.ea

2. De Palma A, Loizzi D, Sollitto F, Loizzi M. Surgical treatment of a rare case of tracheal inflammatory pseudotumour in paediatric age. *Interact Cardiovasc Thorac Surg*. 2009;9(6):1035-1037. doi:10.1510/icvts.2009.216499

3. Venizelos I, Papathomas T, Anagnostou E, Tsanakas J, Kirvassilis F, Kontzoglou G. Paediatric inflammatory myofibroblastic tumour of the trachea: a case report and review of the literature. *Pediatr Pulmonol*. 2008;35(6):516-519. doi:10.1002/ppul.20869

4. Li X, Li J, Rao X, et al. Tracheal inflammatory myofibroblastic tumour in a 34-week pregnant woman misdiagnosed as asthma: a case report. *Medicine (Baltimore).* 2017;96(33):e7872. doi:10.1097/MD.0000000000007872

5. Özgül MA, Toru U, Acat M, et al. A rare tumour of the trachea: inflammatory myofibroblastic tumour diagnosis and endoscopic treatment. *Respir Med Case Rep.* 2014;13:57-60. doi:10.1016/j.rmcr.2014.10.001

6. Pecoraro Y, Diso D, Anile M, Russo E, Patella M, Venuta F. Primary inflammatory myofibroblastic tumour of the trachea. *Respirol Case Rep*. 2014;2(4):147-149. doi:10.1002/rcr2.81

7. Do KH, Jin SL, Joon BS, et al. Pulmonary parenchymal involvement of low-grade lymphoproliferative disorders. *J Comput Assist Tomogr*. 2005;29(6):825-830. doi:10.1097/01.rct.0000179597.93844.23

8. Barker AP, Carter MJ, Matz LR, Armstrong JA. Plasma-cell granuloma of the trachea. *Med J Aust*. 1987;146(8):443-445. doi:10.5694/j.1326-5377.1987.tb120339.x

9. Ohba S, Matsumoto F, Kojima M, Fujimaki M, Fukumura Y, Ikeda K. Inflammatory myofibroblastic tumour of the trachea excised by transtracheal surgery: case report. *Ear Nose Throat J.* 2023;102(8):511-515. doi:10.1177/01455613211014076

10. Gaissert HA, Grillo HC, Shadmehr MB, Wright CD, Gokhale M, Moncure AC. Uncommon primary tracheal tumours. *Ann Thorac Surg.* 2006;82(1):268-272. doi:10.1016/j.athoracsur.2006.01.065

11. GAIT 2024 Collaborative Group. Generative artificial intelligence transparency in scientific writing: the GAIT 2024 guidance. *Impact Surg.* 2025;2:6–11. doi:10.62463/surgery.134.