

CASE REPORT

Central Airway Obstruction Tumour Debulking Using Rigid Bronchoscopy and Cryotherapy: A Case Report

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ABSTRACT

Sarcomas usually frequented in the head and neck region of young adults. Trachea is a rare site, and due to scarce clinical data, its clinical outcome is unclear. We reported a case of 60-year old patient presented with progressive worsening shortness of breath, cough, and progressive worsening dysphagia. Computer tomography scan revealed extensive 2 lobulated soft tissue lesions within and surrounding the trachea at the T4 level. Rigid bronchoscopy with mass cryo-debulking was performed and ultimately synovial sarcoma was diagnosed. Shortness of breath was completely relieved post-procedure.

Keywords: Central airway obstruction, Cryotherapy, Interventional pulmonology, Rigid bronchoscopy, Tumour debulking

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INTRODUCTION

The trachea is relatively free from malignant tumour, with the prevalence of primary tracheal cancer ranging from 0.1% to 0.4% of all new developed cancers (1). Development of tumour within tracheal region carries high degree of morbidity and mortality due to availability of curative treatment. Tumour mass often grow and enlarged within tracheal lumen due to lack of tissue resistance. Palliative unresectable tumours often needed invasive procedures to relief central airway obstruction caused by the mass, these include therapeutic bronchoscopy, endobronchial brachytherapy, laser application, cryotherapy, or stenting (2).

CASE REPORT

A 60-year old well-controlled diabetic and hypertensive man presented with progressive worsening shortness of breath for one month. It was associated with non-productive cough and progressive worsening dysphagia, causing loss of appetite and weight. There were no family histories of malignancy.

Chest radiograph was normal. A computed tomography (CT) scan revealed lobulated soft tissue lesions within the trachea at T5 level (Figure 1) with endoluminal extension. There were no mediastinal lymph nodes enlargement or distant metastases seen.

His case was discussed in a multidisciplinary meeting composed of pulmonologists, cardiothoracic surgeons and radiologist. Due to the extent of the disease, tracheal resection and reconstruction with anastomosis was not

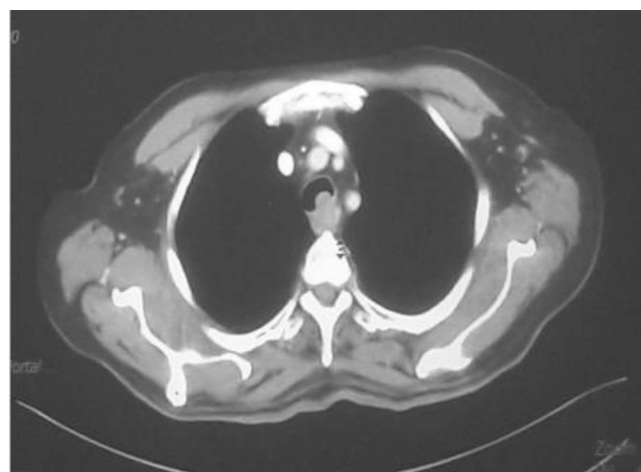


Figure 1: Axial cut of CT thorax in mediastinal window. A round, enhancing mass in the trachea is seen with no evidence of mediastinal lymphadenopathy

suitable. He was arranged for rigid bronchoscopy for tumour debulking. Intraoperatively, an oscillating and pedunculated mass seen at the at the upper tracheal region causing 90% lumen obstruction (Figure 2). Cryobiopsy and cryo-debulking was done with minimal bleeding and good result (Figure 3). Histology confirmed synovial sarcoma.



Figure 2: Bronchoscopic finding at middle third of the tracheal region. Intraluminal lesion observed with 90% obstruction



Figure 3: Bronchoscopic finding at middle third of the tracheal region. Post-tumour debulking showing minimal bleeding over the tumour stump

Post-operatively, the patient symptoms of shortness of breath resolved completely, with minimal coughing. Dysphagia, however, persisted.

DISCUSSION

Central airway obstructions (CAO) secondary to tracheobronchial malignancy are considered oncological emergency that often requires invasive procedures. Before contemplating any intervention, a CT scan should be obtained for obstruction assessment. As a general principle, purely extraluminal CAO is managed with dilatation, whereas purely endoluminal CAO requires debulking (3). Stenting played some

role, in selected cases, for both post-dilatation or post-debulking.

There are several available techniques for bronchoscopic CAO tumour debulking. Generally, they are classified into hot and cold techniques. Cold techniques referred to cryotherapy, which utilises extremely cold (-70 °C) to malignant tissues. As cartilages and collagen contained low level of water, this technique is considered safer towards the normal surrounding/underlying tissues (4). Hot techniques referred to thermal ablative therapy, such as electrocautery, laser applications, and argon plasma coagulation. These techniques are associated with greater tissue penetration thus effective destruction, made it suitable for mixed endo- and extraluminal mass (5). Hot techniques also associated with post-procedural tissue oedema, and a small risk of airway fire.

In reality, it is not common to combine these techniques for CAO tumour debulking. A combination of therapy, taking into consideration of tumour type, tumour extent, bleeding, and extent of tissue debulking, often lead to successful recanalization and clinical relief. Often in mixed type of CAO, airway stent is indicated to relief CAO. Prior to the deployment of stent, the size, diameter, and length have to be approximated from both CT scan and bronchoscopic findings.

CONCLUSION

Interventional pulmonology has enabled the reversal of CAO, thus treating this oncological emergency entity. Immediate symptomatic relief is expected in most cases. With the advancement of new techniques, CAO tumour debulking can be performed in most vulnerable and inoperable patients. CT scan provides paramount insight for complete airway assessment and giving information for stenting, if stenting was indicated.

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