Singapore Med J 2007; 48(3) : e81

Intratracheal metastasis secondary to soft tissue liposarcoma

Nair S, Kumar P, Ladas G

ABSTRACT

Intratracheal metastasis from non-pulmonary neoplasm is extremely rare. We report a 53-year-old woman presenting with upper airway obstruction and stridor due to intratracheal metastasis from latissimus dorsi liposarcoma. Chest computed tomography revealed an intratracheal mass leading to intralumimal obstruction of the upper airway. At rigid bronchoscopy, a 2-cm intratracheal mass was identified and resected with endobronchial electrosurgery to establish a satisfactory airway with marked symptomatic benefit. We discuss this unusual metastatic presentation.

Keywords: airway obstruction, intratracheal mass, latissimus dorsi liposarcoma, liposarcoma, tracheal metastasis

Singapore Med J 2007; 48(3):e81–e83

INTRODUCTION

We report an extremely rare case of intratracheal metastasis from a nonpulmonary neoplasm. The mechanism of metastatic spread and various available treatment options are also discussed.

CASE REPORT

A 53-year-old Caucasian woman, an ex-smoker, underwent surgical resection of a pleomorphic liposarcoma of the latissimus dorsi in July 1999, followed by chest wall radiotherapy and six cycles of chemotherapy (Ifosfamide and doxorubixin), the last course being in July 2000. She was apparently in remission until November that year when she was diagnosed to have new pulmonary metastasis on routine chest radiograph. Following that, she was readmitted for a second course of chemotherapy in February 2001. On admission, she gave a two-week history of worsening dyspnoea, stridor, orthopnoea and non-productive cough. On examination, she was tachypnoeic (respiratory rate of 25/min) with stridor, pulse rate of 98/min, blood pressure of 110/70 mmHg and a raised jugular venous pressure (+5 cm). Chest examination revealed inspiratory wheeze and bronchial breathing on the right side. Arterial blood gases analysis on four litres of oxygen per minute showed a pO_2 of 10.4 KPa, pCO_2 of 5.75 KPa and saturation of 97%.

Chest radiograph showed multiple nodules of varying sizes throughout both lung fields (Fig. 1). Notably, a 2-cm round lesion located in the mid-trachea was also seen. Chest computed tomography (CT) revealed a 2-cm intratracheal mass with multiple bilateral pulmonary metastases (Fig. 2). Rigid

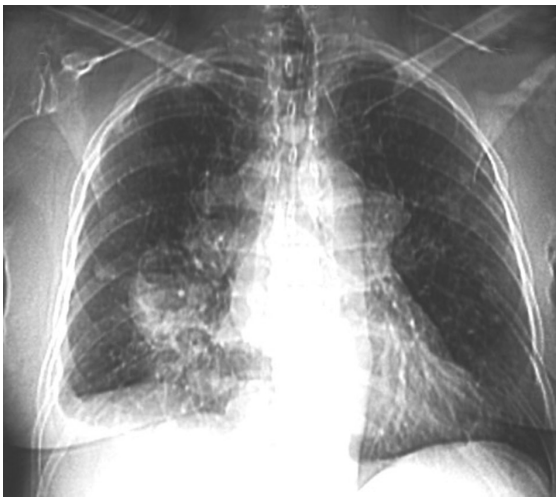

Fig. 1 Chest radiograph shows a 2-cm round lesion located in the mid-trachea and multiple bilateral pulmonary nodules of varying sizes.

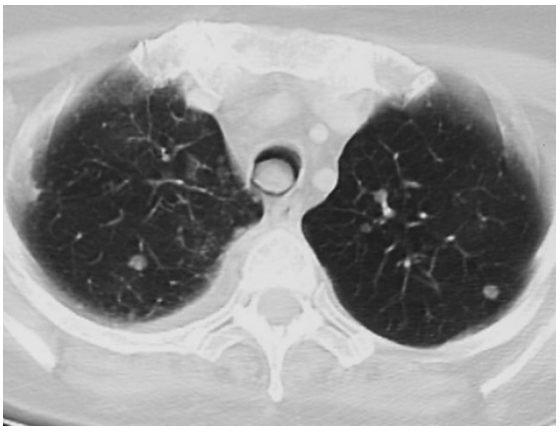

Fig. 2 Axial CT image shows multiple bilateral pulmonary metastases and a 2-cm intratracheal mass.

Department of Radiology, Hull Royal Infirmary, Hull, HU3 2JZ, The United Kingdom

Nair S, MRCS
Registrar

Department of Thoracic Surgery, Royal Brompton Hospital, Sydney Street, London, SW3 6NP The United Kingdom

Kumar P, FRCS
Registrar

Ladas G, FRCS
Consultant

Correspondence to:
Dr Sujit Nair
Tel: (44) 1482 875 818
Fax: (44) 1482 674 614
Email: drsnnair@hotmail.com

bronchoscopy showed two intratracheal lesions, the largest being 2 cm in diameter, causing more than 60% occlusion of trachea. Endobronchial electro-surgery (EBES) of these lesions was undertaken to establish a satisfactory airway and histopathology confirmed metastatic liposarcoma of pleomorphic sub-type. The patient reported marked symptomatic benefit following the procedure and was free from stridor.

DISCUSSION

Endobronchial metastasis occurring directly on the bronchial/tracheal wall is very rare with a prevalence reported to be around 2%.[1] Breast, renal and colon carcinomas are the common sites of primary carcinoma that lead to endobronchial metastasis.[2] However, other tumours are also capable of leading to endobronchial metastatic deposits, including tumours of the thyroid, ovary, parotid, maxilla, bone, nasopharynx, prostate, bladder, uterus, plasmocytoma, melanoma, testicles and sarcoma.[3-5] The time interval from the diagnosis of primary carcinoma to endobronchial metastatic deposit varies greatly, ranging from two to five years.[1,4,5] In our case, the patient presented with intratracheal metastasis 18 months after the diagnosis of primary tumour.

The mechanism of these endobronchial metastases remains unclear. It has been speculated that metastatic deposits are carried to the lung by pulmonary arteries or lymphatic channels, enter the peri-bronchial lymphatics and after antegrade or retrograde propagation, give rise to a discrete endobronchial deposit of tumour in the bronchial wall.[6] However, the others believe that the metastatic tumours migrated along the lymphatics with subsequent egress into the submucosal space.[1] Colletti et al reported that CT was sensitive in detecting and localising endobronchial neoplasms, including metastatic lesions and correlated well with bronchoscopic findings.[7] CT provides valuable information regarding the location of tumour (intraluminal or extraluminal) and its effect on the distal lung parenchyma, lymph node status, other metastatic lesion, and helps us to plan further management. In the case reported here, CT was valuable in identifying the lesion to be intratracheal. Bronchoscopy remains the gold standard for establishing the diagnosis and management quickly.[1,5]

While managing patients with central airway obstruction due to endobronchial metastasis, acuity of presentation, patient's health status, type of lesion, duration of distal lung collapse if any, histology and stage of cancer are important considerations in the selection of appropriate therapy.[2] These patients usually present with symptoms of airway obstruction and dyspnoea in an already compromised state and as such, present significant challenges. Surgery should not be considered in this case due to advanced stage, and depending on the degree of obstruction, if intervention is emergent, then bronchoscopic treatments, such as mechanical removal with rigid bronchoscope, laser photo resection and EBES with or without stenting, will achieve adequate airway patency to confer symptom relief. However, if the treatment is not emergent, other modalities such as cryotherapy, brachytherapy (endobronchial irradiation), external beam radiotherapy and chemotherapy can be considered.[2,8-12] In our case, the palliation was achieved by EBES excision of the lesion.

A MEDLINE search was carried out using keywords "intratracheal metastasis", "liposarcoma" and "latissimus dorsi". Reviewing the literature, we were unable to find any other reported case of intratracheal metastasis from soft tissue liposarcoma. Endobronchial metastasis is associated with poor long-term prognosis and the treatment is usually palliative.[1] Mean survival following the diagnosis of endobronchial lesions has been reported to be between nine and 32 months.[1,3] Long-term prognosis is dependent upon the type of tumour, its biological behaviour, responsiveness to treatment and further available management options.

In conclusion, the possibility of central airway metastasis should always be considered if patients with a past history of malignancy present with symptoms of dyspnoea, cough, haemoptysis, wheeze, stridor or recurrent chest infections. Bronchoscopy is a valuable tool in establishing the diagnosis and a satisfactory airway. The management should be individualised. Treatment is usually palliative, as most patients have advanced disease.

REFERENCES

1. Heitmiller RF, Marasco WJ, Hruban RH, Marsh BR. Endobronchial metastasis. J Thorac Cardiovasc Surg 1993; 106:537-42.
2. Lee P, Kupeli E, Mehta AC. Therapeutic bronchoscopy in lung cancer. Laser therapy, electrocautery, brachytherapy, stents, and photodynamic therapy. Clin Chest Med 2002; 23:241-56.
3. Kiryu T, Hoshi H, Matsui E, et al. Endotracheal/endobronchial metastases: clinicopathologic study with special reference to developmental modes. Chest 2001; 119:768-75. Comment in: Chest 2001; 119:679-81. Chest 2002; 121:664-5.
4. Katsimbri PP, Bamias AT, Froudarakis ME, et al. Endobronchial metastases secondary to solid tumors: report of eight cases and review of literature. Lung Cancer 2000; 28:163-70. Comment in: Lung Cancer 2001; 31:351-2.
5. Shepherd MP. Endobronchial metastatic disease. Thorax 1982; 37:362-5.
6. Schoenbaum S, Viamonte M. Subepithelial endobronchial metastases. Radiology 1971; 101:63-9.
7. Colletti PM, Beck S, Boswell WD Jr, et al. Computed tomography in endobronchial neoplasms. Comput Med Imaging Graph 1990; 14:257-62.

8. Pisch J, Villamena PC, Harvey JC, et al. High dose-rate endobronchial irradiation in malignant airway obstruction. Chest 1993; 104:721-5.
9. Cavaliere S, Venuta F, Foccoli P, Toninelli C, La Face B. Endoscopic treatment of malignant airway obstructions in 2,008 patients. Chest 1996; 110:1536-42. Erratum in: Chest 1997; 111:1476.
10. Mathur PN, Wolf KM, Busk MF, Briete WM, Datzman M. Fiberoptic bronchoscopic cryotherapy in the management of tracheobronchial obstruction. Chest 1996; 110:718-23. Comment in: Chest 1997; 112:1150-1.
11. Sutedja G, van Kralingen K, Schramel FM, Postmus PE. Fibreoptic bronchoscopic electrosurgery under local anaesthesia for rapid palliation in patients with central airway malignancies; a preliminary report. Thorax 1994; 49: 1243-6.
12. Lee P, Mehta AC. Management of obstructing airway lesions in patients with lung cancer. In: Pulmonary and Critical Care Update [online] Volume 18, Lesson 5. Available at: www.chestnet.org/education/online/pccu/vol18/lessons05_06/lesson05.php. Accessed August 10, 2006.