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Benign Neoplasms of the Trachea : Case Reports[1]

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Benign tumors of the trachea are rare, accounting for approximately 10% of all primary tracheal neoplasms. They are frequently misdiagnosed and managed as bronchial asthma or chronic bronchitis.

We report a lipoma and a leiomyoma of the trachea with emphasis on the clinical, radiographic and CT findings, and review the literature.

Index Words : Trachea, CT
Trachea, neoplasms

Case 1.

A 37-year-old man presented with a 6 month history of progressive dyspnea and foreign body sensation in the neck. Physical examination revealed coarse breathing sound with stridor and rhonchi throughout the thorax. There was no past history or family history of pulmonary disease. Pulmonary function tests showed the forced expiratory volume in one second(FEV1) to be markedly impared. On chest radiograph, a thumb-tip sized, well-defined ovoid mass was seen in the mid trachea(Fig. 1A). CT revealed a 1.5cm-sized, well-defined intraluminal pedunculated mass occupying 70-80% of the tracheal lumen arising from the membranous part of the trachea(Fig. 1B). The attenuation of the lesion was −80 to −100HU. On bronchoscopy, a pedunculated mass with narrow pedicle involving the posterior wall of the mid trachea was noted. The surface of the tumor was smooth with prominent vessels. Endoscopic resection of the mass revealed a 1.5 × 1.5 × 1.0cm-sized polypoid mass with glistening capsule and homogeneously yellow cut surfaces(Fig. 1C). On microscopic examination, lipoma was confirmed.

Case 2.

A 40-year-old woman suffered from repeated episodes of asthmatic attack for two years. Despite intensive medical treatment, respiratory symptoms, wheezing and stridor persisted. On initial chest radiograph, a mass lesion was visible in the trachea. From an oblique angle, a smooth, rounded intratracheal mass just above the carina was better delineated(Fig. 2A). CT confirmed the presence of this polypoid intratracheal mass at the right posterolateral wall of the trachea, occupying approximately 80% of the tracheal lumen. On CT, the mass did not appear to involve the paratracheal mediastinum; after administration of contrast material, it showed mild enhancement, with homogenous attenuation(Fig. 2B). Bronchoscopy revealed a pedunculated mass on the trachea above the carina occupying approximately 85% of the lumen, but a biopsy was not performed for fear of bleeding. By using the segmental sleeve resection of the trachea and right main stem bronchus, the mass was resected. A surgical specimen revealed a well-encapsulated, firm, tannish-white mass, 1.2 × 1 × 1.3cm in size, arising from the membranous portion of the posterolateral wall of the trachea. Benign leiomyoma was histologically confirmed(Fig. 2C).

Discussion

Benign tumors of the trachea are exceedingly rare; the majority involve the pediatric age-group(1). A benign tumor, including lipoma, fibroma, leiomyoma,

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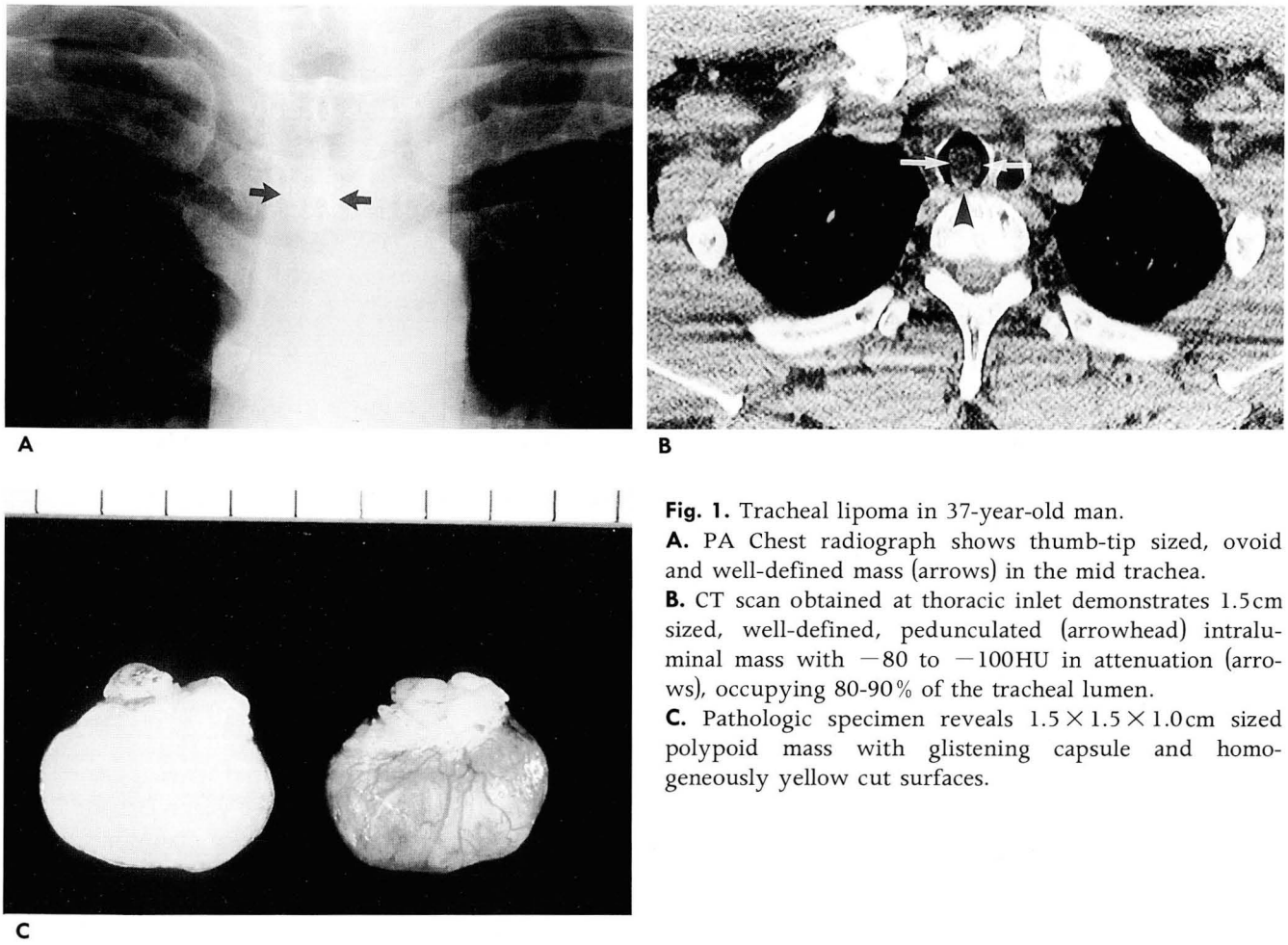


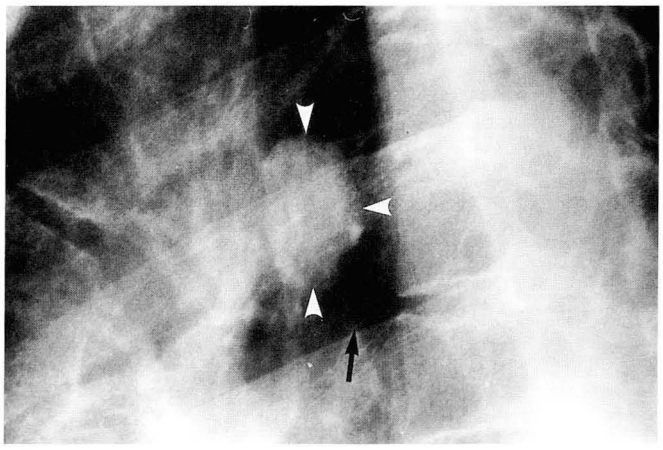
Fig. 1. Tracheal lipoma in 37-year-old man.
A. PA Chest radiograph shows thumb-tip sized, ovoid and well-defined mass (arrows) in the mid trachea.
B. CT scan obtained at thoracic inlet demonstrates 1.5cm sized, well-defined, pedunculated (arrowhead) intraluminal mass with −80 to −100HU in attenuation (arrows), occupying 80-90% of the tracheal lumen.
C. Pathologic specimen reveals 1.5 × 1.5 × 1.0cm sized polypoid mass with glistening capsule and homogeneously yellow cut surfaces.

hemangioendothelioma, cartilage tumors, granular cell myoblastoma, laryngeal papillomatosis, neurilemmoma, neurofibroma, and paraganglioma, arises from epithelial, neural and mesenchymal tissue.

Lipomas are very rare, and differ from hamartomas in that they contain only fatty tissue. Intrathoracic lipomas can be classified into five groups according to location : endotracheobronchial, parenchymal, pleural, mediastinal, and cardiac. An endotracheobronchial lipoma arises from submucosal fat of the tracheobronchial trees, and is usually pedunculated with a narrow stalk. It may extend between the cartilaginous rings into the peritracheal tissues, and may recur after endoscopic resection(2). CT findings are pathognomonic.

A tracheal leiomyoma arises from the smooth muscle in the tracheal wall, typically along the membranous portion of the lower third of the trachea because of abundant smooth muscle fibers in this area(3). A patient's age ranges from 15 to 72 years with no gender predominance. Clinical presentation is similar to that of other benign lesions. Like other benign tracheal masses, CT characteristics are not specific ; there is a smooth intraluminal soft-tissue mass limited to the tracheal wall with occasional areas of cystic degeneration due to poor vascularization(3, 4). A diagnostic biopsy should be performed with caution because death from tracheal obstruction or bleeding during the procedure has been reported(3). To completely remove a broad-based neoplasm, a thoracotomy with wide tracheal resection may be required. Tracheal leiomyoma may recur after incomplete excision(3).

A tracheal tumor can cause diagnostic and therapeutic challenges. Because tracheal mass grows silently until it narrows the airway lumen by 75%(5), the tumor becomes quite large. Dyspnea can be paradoxical in nature and usually occurs at night when the patient is in a recumbent position. The tracheal tumors are frequently misdiagnosed as asthma or bronchitis, eluding detection for months or years(6). In a patient suffering an asthmatic attack that fails to respond to medical treatment, the presence of an intratracheal mass should not, therefore, be ruled out. To evaluate air lumen in such a patient, careful scrutiny of high-quality chest radiographs is needed. Benign neoplasms are typically



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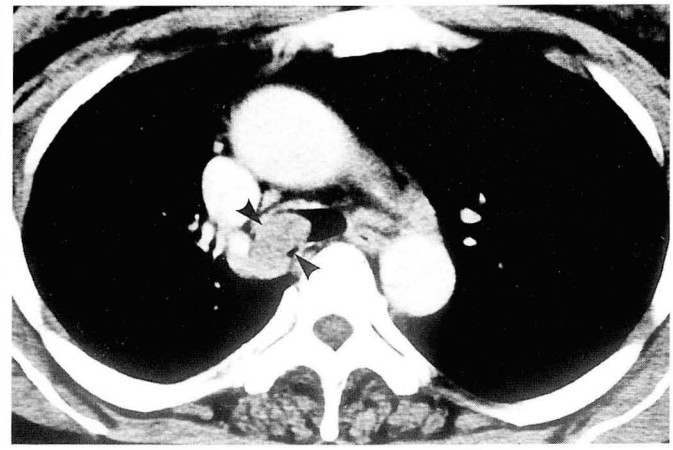

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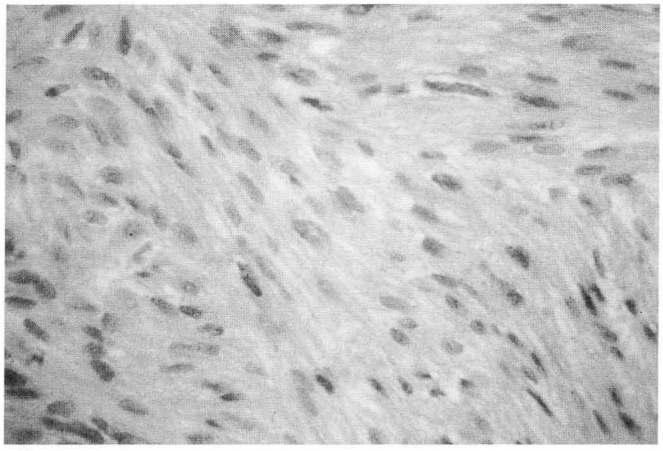

C

Fig. 2. Tracheal leiomyoma in 40-year-old woman.
A. Oblique chest radiograph shows smooth and rounded intratracheal mass (arrowheads) just above the carina (arrow).
B. Enhaced CT scan obtained at the level of carina reveals polypoid intratracheal mass (arrowheads) arising from the right posterolateral wall of the trachea just above the carina, occupying about 80% of the tracheal lumen.
C. Photomicrograph of specimen (hematoxylin and eosin, x400) reveals bundles of spindle cells intersecting each other at wide angles consistent with leiomyoma.

well circumscribed, rounded, and less than 2cm in size. On CT, benign lesions are usually polypoid or sessile, and do not extend beyond the tracheal wall. Although imaging studies do not usually establish a specific diagnosis, the detection of fat or calcification helps to establish this including the lipoma or hamartoma, for example. CT is also useful in excluding or confirming contiguous mediastinal or parenchymal involvement.

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