

Leiomyoma of the Trachea : A Case Report¹

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Tracheal leiomyoma is a rare benign tumor arising from the smooth muscle in the tracheal wall. As in other cases of benign tracheal tumors, the obstructive symptoms due to leiomyoma are similar to those of asthma and bronchitis, and diagnostic delay is therefore common.

We describe the case of a patient with leiomyoma arising from the trachea and review the literature, with particular emphasis on the two dimensional CT images.

Index Words : Trachea, CT

Trachea, neoplasms

Computed tomography(CT), image processing

Benign tumors of the trachea are exceedingly rare and leiomyomas are among the least frequent; in the literature, 23 cases are previously reported. These tumors arise from the smooth muscle of the tracheal wall and grow as polypoid tumors, usually with a broad base.

We present an additional case of leiomyoma of the trachea and review the literature, emphasizing the radiographic and computed tomographic features, including those of our own case. To our knowledge, there has been no prior published report describing two dimensional reconstructed CT image of the tracheal leiomyoma.

Case Report

A 36-year-old man was admitted to our hospital for recent hemoptysis which occurred three days earlier. For two years, he had suffered from coughing, with the presence of sputum, and initially been treated for bronchitis and later for bronchial asthma. On physical examination, expiratory wheezes were heard diffusely

throughout the chest without rales.

Chest radiographs showed a faint intraluminal mass with wide attachment to the posterior wall of the trachea, just above the carina (Fig. 1). Computed tomography showed a 2×3×3cm, sharply defined polypoid mass of soft tissue density, which showed subtle delayed homogenous contrast enhancement.

The mass was occluding nearly 60% of tracheal lumen to which it was confined (Fig. 2A). Multiplanar reconstruction images showed the exact origin and longitudinal extent of the mass on the tracheal wall (Fig. 2B, C). Fiberoptic bronchoscopy revealed a smoothly rounded mass with pedicle, arising from right posterolateral wall of the trachea, and with prominent and tortuous vessels on its surface.

A segmental sleeve resection of the trachea was performed with end to end anastomosis. The gross specimen was a well encapsulated, firm, tannish white mass measuring 3×2.7×1.5cm attached by a pedicle to the resected segment of the tracheal wall. Histologic study of the tumor showed a benign leiomyoma without tracheal wall invasion (Fig. 3).

Three months after the surgery, the patient became clinically normal. Spirometry and flow volume curves were within normal limits.

Discussion

Primary tumors of the trachea of which 80% or more

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malignant neoplasm are uncommon. Squamous cell carcinoma accounts for about 50% of malignancies and adenoid cystic carcinoma is slightly less common. The most common benign tumor of the trachea is squamous cell papilloma, followed by fibroma and hemangioma (1, 2).

Leiomyomas of the trachea are among the rarest tracheal neoplasms. Gilbert et al (1) found two leiomyomas in a review of 546 cases of primary tracheal tumors, 256 of which were benign. In the literature in English, we found only 23 reported cases. The discussion which follows is based on 19 cases including our own, for which data is available(3–5).

The age of the 19 previously reported patients ranged from 15 to 72 years, with a mean of 35.8 years.

There were 12 males and 7 females, a slight male predominance. In twelve cases (63.2%), tumors were located in the lower third of the trachea; four (21.0%) in the middle third; in three (15.8%) in the upper third. The site of origin was usually the posterior membranous portion of the trachea, where smooth muscle is abundant and reported size of the tumors was relatively small (1 to 2.5cm in diameter).

The duration of symptoms before diagnosis ranged from 2 months to 20 years, most of these patients, including ours, had symptoms of bronchial asthma or bronchitis.

Methods of diagnosis varied. Plain chest radiographs showed or suggested a tracheal mass in only six cases, while plain tomograms were abnormal in all five

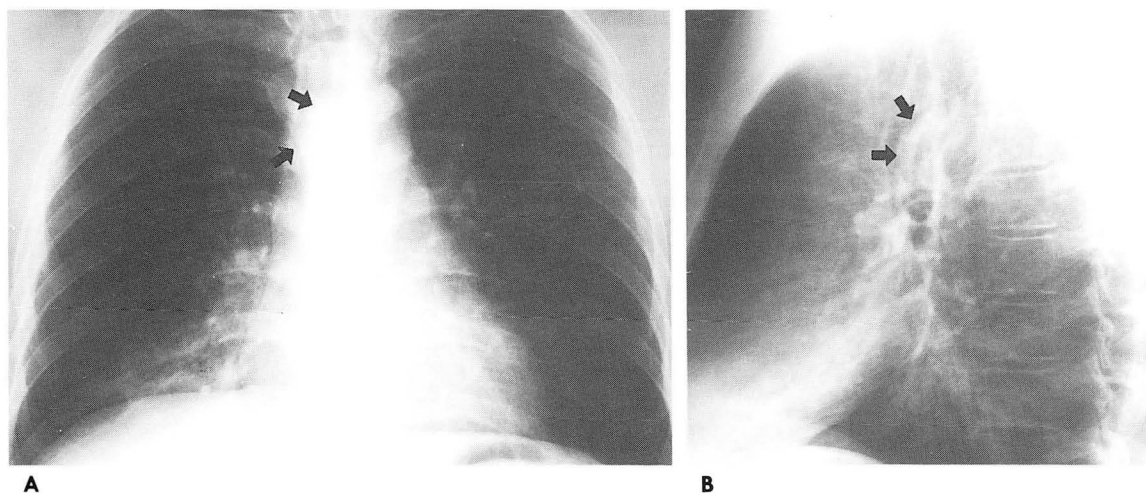


Fig. 1. A. PA chest radiograph shows ill defined increased density (arrows) in lower trachea.

B. Lateral chest radiograph demonstrates soft tissue mass (arrows) attached to the posterior wall of the trachea with wide base, just above the carina.

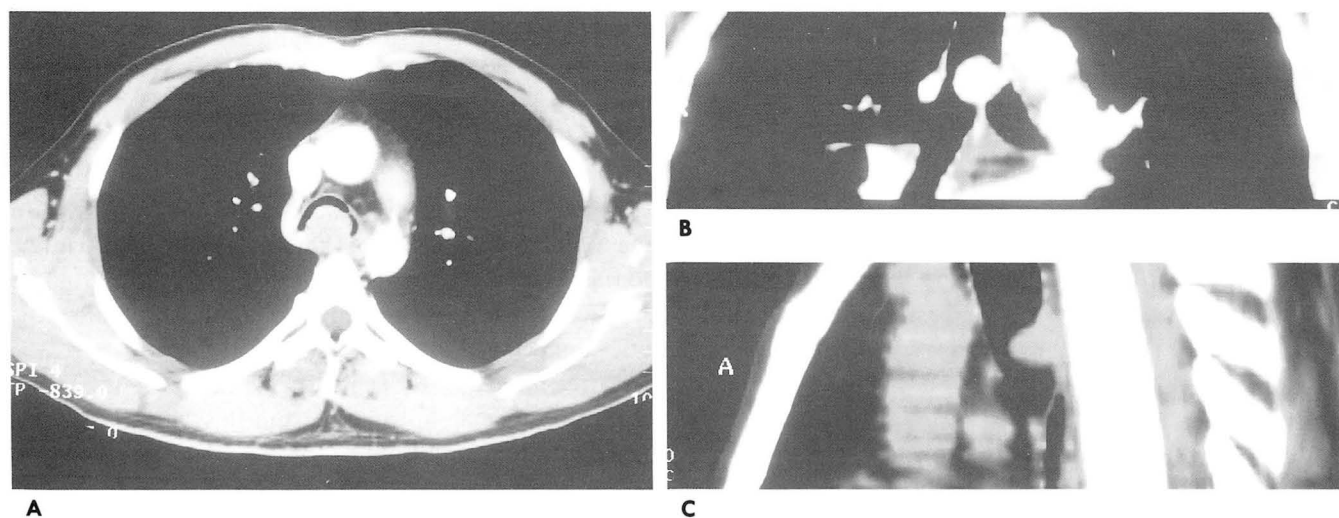


Fig. 2. Axial(A) and coronal(B) and sagittal reconstruction(C) CT images demonstrate an approximately 2×2×3cm sized sharply defined intraluminal projecting polypoid mass. The mass has wide attachment to posterior wall of trachea. There is no evidence of extraluminal involvement.

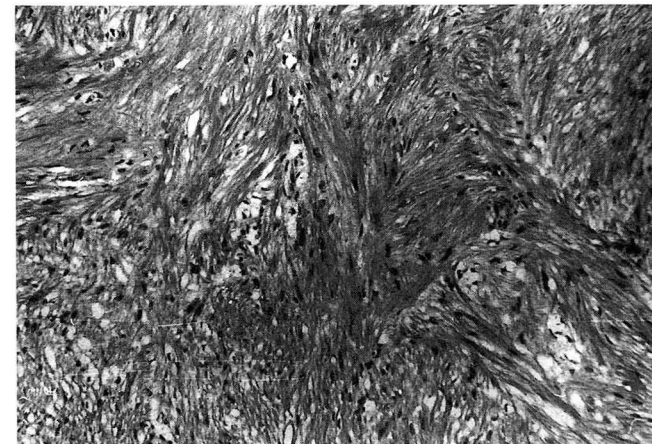


Fig. 3. Microphotograph shows spindle shaped cells with oval nuclei arranged in parallel bundles and whorling pattern. (H and E, $\times 200$).

cases in which they were performed, including three in which plain chest radiographs had been normal. Six cases were discovered by bronchoscopy and two during postmortem study. Chest CT scans were performed in three cases including our own (4, 5); in two of these, chest radiographs were at first thought to be normal, but on reviewing the scans, an obstructive tracheal lesion was seen. In all cases, however, CT revealed a compact solid intraluminal mass with a wide base but no extratracheal involvement.

With aid of three-dimensional and multiplanar reconstruction images, we were able to obtain more detailed spatial information relating the tumor and tracheobronchial system. In the previous two cases in which CT scans were performed, there was no mention of contrast study, but we found slight homogenous

enhancement of the tumor on delayed enhancement scan in our case.

Tracheal leiomyomas have been treated by varying methods such as endoscopic removal, local excision at tracheostomy and segmental resection with end to end anastomosis. but segmental resection of the trachea is considered to be the treatment of choice (4). Although endoscopic biopsy can reliably establish the histologic diagnosis, proper pre-operative evaluation requires evaluation of extraluminal involvement as well as detection of the mass. CT can show the size, configuration, location and vascularity of intraluminal mass and successfully exclude extratracheal and mediastinal involvement. In addition, multiplanar reconstruction through the airway provide easier visualization of the longitudinal extent of the tumor and also is useful in planning reconstructive surgery. This is especially important because recent advances in tracheal surgery have made possible the resection of long tracheal segment.

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기관의 평활근종: 1예 보고¹

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기관의 평활근종은 기관의 근층에서 기원하여 기관의 내강안으로 자라는 아주 드문 기관의 양성 종양이다. 다른 종양과 같이 이 근종에 의한 기도 폐색의 증상은 천식이나 만성 기관지염과 유사하여 진단이 늦어 지는 경우가 많다.

저자들은 기관에 발생한 평활근종 1예를 경험하여 간단한 문헌 고찰과 함께 방사선학적 소견을 수술 계획시 유용하게 사용되었던 2차원 재구성 전산화 단층촬영 소견을 중심으로 보고하고자 한다.

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대한방사선의학회에서는 국제화 전략의 일환으로 다음과 같이 1999년도 해외연수 장학생을 모집 하오니 많은 응모가 있기를 바랍니다.

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3) 연수계획서(희망국가 및 병원, 희망전공분야, 연수기간 등 포함)

4) 추천서(소속 과장, 과장의 경우 소속 병원장)

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