

CT Findings of Tracheal Lipoma : A Case Report¹

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A patient with a history of asthma underwent computed tomography (CT). With a soft tissue window (width 330, level 30) the scan of the neck did not show any lesion within the airway lumen, but with a lung parenchymal window (width 1300, level -500), we were able to find a low attenuating endotracheal mass lesion measuring -320HU. A bronchoscopy was performed and a polypoid mass approximately 2cm in diameter was found within the tracheal lumen. An endoscopic biopsy was not performed due to the risk of bleeding and the bronchoscopy was inconclusive for tissue diagnosis. CT, however, provided a definitive diagnosis by demonstrating fat within the tumor on the lung window.

Index Words : Trachea, CT
Trachea, neoplasms
Lipoma and lipomatosis

Benign neoplasms of the trachea are rare, and tracheal lipomas are among the rarest (1-4). Symptoms of tracheal obstruction due to tracheal tumors are similar to those of asthma and chronic bronchitis (2), and diagnostic delay is common. CT which is highly specific and sensitive in detecting fat can provide a definitive diagnosis of endotracheal lipoma.

We describe the CT findings of an endotracheal lipoma.

Case Report

A 59-year-old woman admitted because of aggravated dyspnea that had started after symptoms of URI and lasted for a week. For four years she had been suffering from obstructive symptoms such as wheeze, dyspnea and stridor. A chest radiograph showed a subtle polypoid mass in the trachea at the level of the thoracic inlet (Fig. 1).

Using a GE0800 scanner, a CT scan was obtained.

With a soft tissue window (width 330, level 15), the scan of the neck revealed no endotracheal lesion (Fig. 2A). However, with window width 1300 and level -500 the lesion could be demonstrated as a low attenuating mass measuring -320HU (Fig. 2B). This was considered to be due to partial volume or beam hardening artifacts.

To evaluate this endotracheal lesion, a bronchoscopy

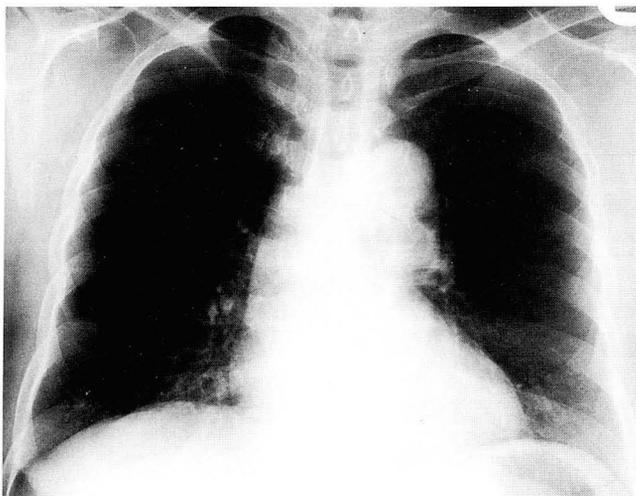


Fig. 1. Posteroanterior radiograph shows a subtle polypoid mass in the trachea at the level of thoracic inlet.

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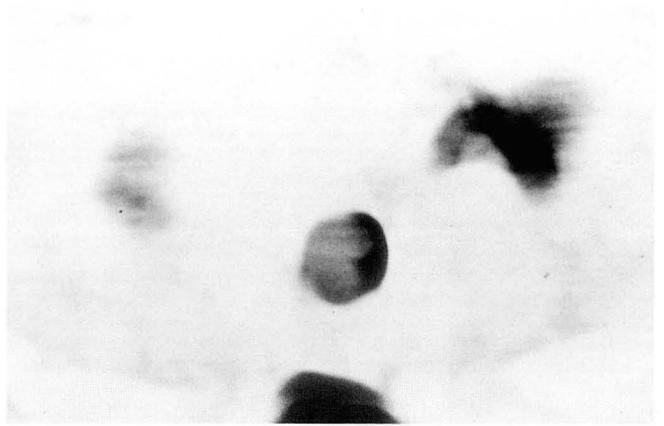
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A



B

Fig. 2. A. CT scan at a level of thoracic inlet reveals no demonstrable mass lesion within the tracheal lumen with window width 330 and window level 15

B. Same scan as figure 2a demonstrates a low attenuating endotracheal mass measuring -320HU that almost filling the tracheal lumen on the lung parenchymal window setting with window width 1300 and window level -500.

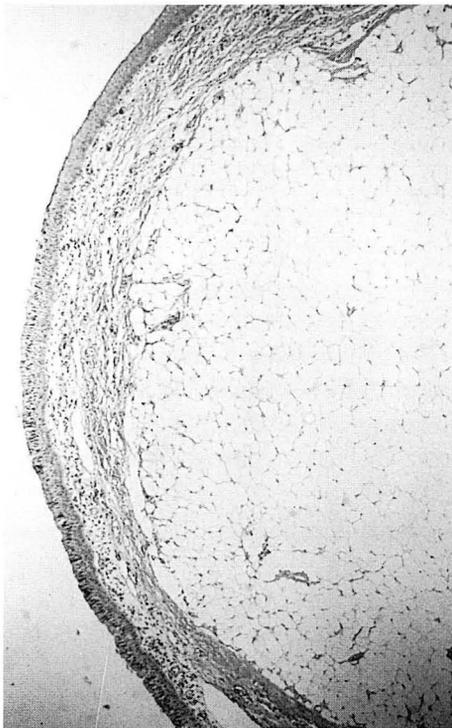


Fig. 3. Resected mass reveals pure lipoma composed of mature adipose tissue and completely covering with respiratory epithelium.

was performed ; it revealed a polypoid, well encapsulated, and elongated mass approximately 2cm in diameter in the trachea, 3 cm below the vocal cord.

Because of severe respiratory obstruction, the patient was referred for emergency tracheostomy with excision, and a long elongated endotracheal mass was excised. The patient made an uneventful postoperative recovery and was discharged on the 15th postoperative day. Histological examination showed the tumor to

be a benign lipoma (Fig. 3).

Discussion

A tracheal lipoma is extremely rare, and only six of cases have been reported in the literature (1 – 4).

The pathogenesis of these lipoma is unclear ; they may arise from fully differentiated lipocytes or primitive mesenchymal cells. Most adipose tissue in the major airways lies outside cartilage, but small amounts are present in the submucosa (3). Endotracheobronchial lipomas arise from the submucosal fat of the tracheobronchial tree and are usually pedunculated with a narrow stalk; they may extend between the cartilaginous rings into the peritracheal tissue and may recur after endoscopic resection (5).

Patients may have symptoms of an obstructing lesion in the trachea: wheeze, dyspnea, and stridor—the “tracheal syndrome”. The symptom is present in up to 85% of patients with primary tracheal tumors, but such patients are often misdiagnosed as asthmatics and treated as such for protracted periods before the correct diagnosis is made (2). In this patient, the onset of the symptoms was four years ago.

Since the tracheal air column constitutes a “blind area” for many radiologists, the presence of tumors as revealed by standard posteroanterior and lateral chest roentgenograms is all too frequently overlooked (6). A chest radiograph is not sufficient to detect tracheal tumors, especially lipoma, because of their low density.

CT, which is highly specific and sensitive in detecting fat provides a definitive diagnosis by demonstrating the fatty nature of the tumor within the

tracheobronchial lumen (7). Most CT scans of the neck are commonly evaluated with the soft tissue window, however, and as on a plain radiograph, fatty tumor can be missed. A biopsy may be traumatic and potentially hazardous, with the risk of hemorrhage leading to complete tracheal obstruction, and should only be performed with full surgical facilities available (6). CT diagnosis of a tracheal lipoma is easy but a window change is an essential part diagnosis. CT density of the mass was measured as -320HU in this case, and this was probably due to partial volume averaging between the mature fat tissue and intraluminal air or beam hardening artifact.

A lipoma confined to the lumen of the trachea can be removed endoscopically, and recurrence has not been reported. For the few lipomas seen to be penetrating the space between cartilage rings, a larger resection is needed in order to ensure complete removal and prevent recurrence (4). In this patient, complete excision by tracheostomy was possible on an emergency basis because of symptoms of severe respiratory obstruction.

In conclusion, CT with a proper window can, by

demonstrating fat, provide a definitive diagnosis of an endotracheal lipoma.

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기관 지방종의 전산화 단층촬영 소견: 1예 보고¹

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변 경 환 · 강 덕 식

기관내의 지방종은 매우 드문 것으로 알려져 있으며, 기관종양에 의한 기도 폐색의 증상은 천식이나 만성 기관지염과 유사하여 진단이 늦어지는 경우가 흔하다.

저자들은 기관내에 생긴 양성 지방종 1예를 경험하여 그 방사선학적 소견을 보고하고자 한다. 병변은 처음 단 순흉부사진과 경부 전산화 단층촬영사진의 soft tissue window에서는 발견되지 않았으며, lung parenchymal window에서 기관내 지방종이 발견되었다.

