The patient was a 72-year-old man with a superior mediastinal, paratracheal mass that was first noted on a chest x-ray film obtained 3 years earlier during a hospitalization after a tractor accident. Further evaluation was not undertaken at that time given the seriousness of the patient's trauma. The patient survived his injuries and over the following 3 years noted progressive breathlessness with exertion. The patient had never smoked and denied weight loss, dysphagia, or chest pain. Medical history was otherwise noncontributory.

Physical examination revealed an elderly man in no apparent distress at rest. Vital signs were stable but chest examination revealed scattered rhonchi. Stridor could be provoked with voluntary hyperventilation. An x-ray film examination of the chest, shown in Figure 1, illustrates a left paratracheal mass causing significant tracheal compression. Pulmonary function tests confirmed a severe obstructive ventilatory defect with impaired expiratory flows suggesting a variable intrathoracic obstruction of the trachea. A chest computed tomography (CT) scan confirmed a well-defined mediastinal mass measuring about 5X4X5 cm. The mass caused significant lateral compression of the left side of the trachea, and a portion seemed to be intraluminal. Multiple punctuate calcifications within the mass were noted (Fig 2). Bronchoscopy confirmed high grade, extrinsic, midtracheal compression with minimal mucosal abnormality. A thoracotomy was performed.

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Diagnosis: Chondrosarcoma of the trachea

This elderly gentleman presented with several years of progressive dyspnea. A high-grade tracheal obstruction was the source of his dyspnea. The patient underwent a right thoracotomy with the finding of a 7- to 8-cm, hard, round mass impinging on the left side of the trachea. The mass was found to arise from the distal trachea. After its resection, severe tracheomalacia at the adjacent compressed tracheal cartilage necessitated resection of a 3-cm length of trachea and a primary end-to-end anastomosis. Gross pathology showed a 6.5 cm incompletely encapsulated, white-tan mass that was partially calcified. Histologic features supported a diagnosis of chondrosarcoma.

Primary neoplasms of the trachea are very rare and have a slight malignant predominance in adults and a slight benign predominance in children. Of the malignant neoplasms of the trachea, squamous cell carcinoma comprises 80 to 90 percent. These neoplasms, however, only account for 0.2 percent of all respiratory tract malignancies. Chondrosarcoma of the trachea is even rarer with only seven known cases in the literature (including the current case). Of these, six were in men and one was a woman. The age range for this group was 48 to 74 years.

There appears to be an even distribution within the trachea of the chondroid malignancies. The most common symptoms are chronic nonproductive cough, dyspnea on exertion, and stridor. Less common symptoms include hemoptysis, atelectasis, and postobstructive pneumonia from extension into the mainstem bronchi. If there is a large extraluminal component, the first clinical symptoms may be superior vena cava obstruction or Horner's syndrome.

Plain film evaluation of chondrosarcoma of the trachea shows a well-circumscribed mass indenting the air column as in our patient. A CT has added significantly to the evaluation of such neoplasms and is currently the preferred radiographic modality for evaluation. It allows evaluation of size and extent of the lesion as well as involvement of contiguous structures. The CT typically shows a large, lobulated mass with coarse calcifications arising from the tracheal wall and significantly narrowing the tracheal lumen. Chondroid neoplasms tend to be predominantly intraluminal with extraluminal extension more commonly seen in the chondrosarcomas (as in our patient). Chondrosarcomas are also more apt to cause tracheal wall thickening than their benign counterparts. The CT appearance is not pathognomonic for a chondroma or chondrosarcoma, and the differential diagnosis includes hamartomas and chondroblastomas.

Pathologically, chondrosarcomas of the trachea are usually well-differentiated tumors with benign clinical characteristics. Pathology shows a fairly well-circumscribed gray-white firm mass arising from a cartilage ring. The preferred treatment is tracheal resection with end-to-end primary anastomosis. The incidence of local recurrence appears low.

REFERENCES