Fibrous Histiocytoma of the Trachea*

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CHEST, 68: 3, SEPTEMBER, 1975

A histologically benign but locally infiltrating tumor of histiocytes, fibrous histiocytoma, was found in the trachea of a 26-year-old man. Partial resection of the trachea afforded the successful removal of the growth with no evidence of recurrence or metastases 27 months after surgery. Pathology and prognostic aspects of the tumor are discussed.

Primary tracheal tumors are much less frequently encountered than those in the proximal and distal segments of the respiratory tree. As in the other portions of the respiratory tract, benign and malignant epithelial growths are more common than tumors of the mesenchymal tissues. The purpose of this report is to describe a variety of mesenchymal tumor, fibrous histiocytoma which, to our knowledge, has not been found in the trachea.

CASE REPORT

A 26-year-old Caucasian man was admitted to Henry Ford Hospital on May 29, 1972 with history of cough and hemoptysis for one week. He also complained of weakness and loss of six pounds over a period of six weeks. Past history was unremarkable. Physical examination revealed a slender, young man in no acute distress with blood pressure 120/70 mm Hg and pulse rate 80 per minute. Examination of the heart and lungs, as well as the balance of the physical examination were within normal limits. Chest roentgenogram revealed normal lung fields. However, on the lateral view a round mass could be seen in the tracheal lumen at the level of the thoracic inlet. Tomogram of the trachea confirmed the presence of the tracheal tumor.

At bronchoscopy, a round, lobulated, gray-yellow mass was found to occlude about 60 percent of the tracheal lumen. A biopsy was not attempted due to danger of bleeding and possible acute obstruction of the airway.

On June 5, 1972 through a cervico-mediastinal incision and without the use of cardiopulmonary bypass, approximately 5 cm of the trachea, containing the tumor, was resected and the trachea was reconstructed by end-to-end anastomosis. The postoperative course was uneventful and he was discharged eight days following surgery. The patient has been reevaluated by radiographs and bronchoscopy at regular in-
Details of the spindle cells and the polygonal cells (H&E, original magnification × 390). Tends for 27 months after surgery without evidence of recurrence.

Pathology

A segment of trachea 5 cm in length and 7 cm in circumference was removed. The tracheal wall was 2 to 3 mm thick. A firm 2 × 1.5 × 1.5 cm lobulated nodule protruded into the tracheal lumen and eroded the overlying mucosa in one area. Its cut surface was gray with small irregularly distributed brown areas. Uninvolved trachea, 2.5 cm and 0.5 cm was present at either end of the specimen.

The tumor consisted of a mixture of spindle cells and large, round or polygonal cells with rare multinucleated giant cells of the osteoclastic variety occupying the full thickness of the tracheal wall (Fig 1, 2). It infiltrated and separated tracheal smooth muscle and glands and encroached on and ulcerated the overlying mucous membrane which had undergone orderly squamous metaplasia in some areas. Tumor replaced the perichondrium of the tracheal cartilage and produced focal cartilaginous scalloping and the areas of marked diminution in thickness of the cartilage (Fig 3). The connective tissue between the cartilaginous rings was infiltrated by tumor and in one area extended to the external surface of the cartilage being covered by a thin layer of connective tissue. One small vascular channel, removed from the main tumor nodules, was found to have tumor in its lumen.

The tumor nuclei showed little variation in size and shape and no mitoses were observed. Special stains further confirmed the diagnosis.

Discussion

The nomenclature of the histiocytic tumor is dependent upon their histiocytic, fibrous and xanthomatous makeup. Histiocytoma has been applied to those tumors with a spindle cell or combined spindle cell and large mononuclear cell composition and fibrous xanthoma when there are lipid containing cells in association with a fibrous appearance. The tumor which is the basis of this report had a spindle cell and round cell histiocytic component but lacked lipid containing (xanthoma) cells.

Tumors of the histiocytic series are not newcomers to the respiratory tract. They have been reported in the bronchial tree1 and lungs, but their occurrence in the trachea appears to be rare. The two cases of tracheal xanthoma reported in the review of tracheal tumors by Moersch and colleagues2 appear to belong to this tumor category. Assessment of the behavior of histiocytomas on the basis of their histology is difficult. Although malignancy is generally associated with tumor cell pleomorphism and mitoses, exceptions do occur—a benign course with malignant histology and a malignant course with benign histology. Because of the rarity of this variety of growth in the trachea, evaluation of the malignant potential must be postponed. Optimism regarding prognosis is likely if one considers the favorable outcome of the histiocytic tumors in the bronchus and lung. Among 13 of 23 reported cases3 with follow-up information, there were no recurrences, metastases or deaths attributable to the tumor and there were 6 survivors 4 to 11 years following lobectomy or pneumonectomy. Although the histology of the tumor being reported was benign, we believe the prognosis should be guarded in view of the tumor’s infiltrative character, the presence of tumor in a small vascular space and the malignancy of some histiocytic tumors despite their benign microscopic appearance. One of the authors (GF) has observed distant metastases from a histologically innocuous-looking bronchial fibrous xanthoma seven years after lobectomy.

References