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Endobronchial neurogenic tumor: A combination of traumatic neuroma and neurofibroma

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ABSTRACT

Traumatic neuromas are uncommon and benign lesions arising from a peripheral nerve injury during surgery. Here we describe a case with histopathologic features of both a traumatic neuroma and neurofibroma in a patient without integumentary physical exam findings nor prior surgical history. A 54 year old male was admitted for surgical debridement of a foot ulcer. During pre-operative evaluation and review of imaging multiple CT scans revealed a stable, 4 mm endobronchial lesion in the left lower lobe. Given history of nicotine abuse, bronchoscopy was performed. Bronchoscopy showed a pearly, polypoid lesion. Histopathological results showed strong positivity for S-100 protein and spindle cell proliferation. Repeat CT chest showed no new lesions in the bronchial tree. The rarity of this case is noted not only by the limited number of bronchial neurogenic tumors, but the combined features in this case of a traumatic neuroma and neurofibroma which has not been described.

Endobronchial neurogenic tumors have been described in a handful of cases with a prevalence around 4% [1]. These tumors arise from the nerve sheath of the schwann cell and may cause bronchial obstruction or hemoptysis [2]. Traumatic neuromas are those seen in patients post intubation, lung cancer resection or pneumonectomy. These are uncommon and benign lesions which is due to a peripheral nerve injury during amputation leading to disordered proliferation of nerves and connective tissue [3,6]. Neurofibromas consist of neurilemmal cells and fibroblasts which can develop anywhere on the peripheral nerve, most frequently on the trunk, upper and lower extremities and head [4]. Data extrapolated single center study showed an incidence of 0.5% of neurofibromas from a total of 185 cases [1]. Here we describe a case with biopsy finding of both features of neurofibroma and traumatic neuroma in a patient without physical exam findings nor prior pulmonary surgical history.

54 year old male with recent pulmonary embolism, former smoker, poorly controlled diabetes and hypertension was admitted for a foot ulcer and surgical debridement. On physical exam there were no findings of skin lesions (café au lait spots or neurfibromas) or hearing loss. There was no family history of uncontrolled hypertension, thyroid cancers, or any other suggestion of multiple endocrine neoplasias.

While reviewing his records an endobronchial lesion in the left lower lobe was noted on multiple computer topographic exams dating back to November 2014, all stable in size. The lesion was initially thought to be retained secretions, but due to the continued presence and unchanged size a bronchoscopy was performed.

Within the posterior segment of the left lower lobe a pearly, polypoid lesion which was biopsied with forceps (See Fig. 1). Histopathological results showed spindle cell proliferation composed of cells with elongated nuclei that were arranged in disorganized fascicles and appeared to infiltrate into mucosal glands. This is suggestive of mixed characteristics of a neurofibroma as well as a traumatic bronchial neuroma. The biopsy was also strongly S100 protein positive and negative for SMA and desmin. A CT scan two months after the biopsy showed no new lesions in the bronchial tree.

Differentiating between the different types of neurogenic tumors requires histopathological analysis. The various types include neuroma, neurofibroma and granular cell tumors (here we will exclude the latter). In all cases there is a strong positivity for the S100 protein. The difference is seen in the organization of the proliferation where bronchial neurologic tumors are well organized, structured and nodular proliferation of S100 positive spindle cells. While traumatic neuromas are described as having a disorganized architecture and hypertophic anxon bundles like our lesion proved to have [5]. Neurofibromas standout by their histologic

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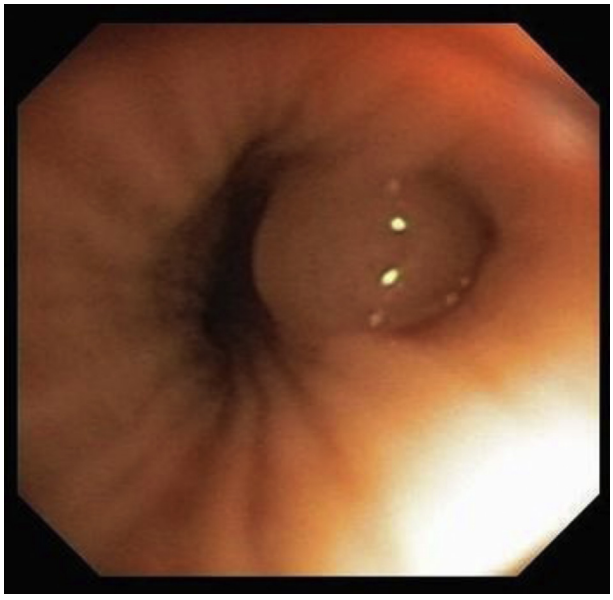

Fig. 1. Pearly, polypoid lesion in the posterior segment of the left lower lobe.

findings of elongated nuclei intermingled with collagen or mucoid background with interlacing bundles of spindle cells [5]. This case is unique in the sense that neurogenic endobronchial tumors are rare, but a combination of neurofibroma and traumatic neuroma are interlaced in a patient whom has no physical exam findings nor prior pulmonary surgeries.

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