Bronchial mucous gland adenoma revealed following acute pneumonia

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Abstract

A 54-year old male, current smoker, was admitted to the emergency unit with lingular pneumonia. The follow-up chest CT and bronchoscopy showed an airway-blocking intrabronchial tumour. After surgical resection, pathological examination established the diagnosis of a bronchial mucous gland adenoma. The bronchial mucous gland adenoma is an extremely rare and benign lung tumour. It is composed of mucus-containing acini lined with cuboidal cells without pleomorphism. Total surgical resection is usually required for complete diagnosis and treatment. The main differential diagnoses are a low-grade mucoepidermoid carcinoma and a mucinous cystadenoma of the lung. This case highlights the importance of a complete lung workup after acute pneumonia in patients with a history of smoking, including the CT scan and bronchoscopy.

Keywords: Bronchial mucous gland adenoma • Bronchial cystadenoma • Benign lung tumour • Rare tumour

INTRODUCTION

A bronchial mucous gland adenoma is a very rare and entirely benign tumour [1]. Synonyms include bronchial cystadenoma and mucous cell adenoma, among others. The lesion is classed as a benign epithelial tumour of the lung, among the salivary gland-type adenomas [1]. We report here a case of this very rare medical diagnosis.

CASE REPORT

A 54-year old male was admitted to the emergency unit with an acute pulmonary infection. History included a current tobacco addiction and the patient presented with a mucus-productive cough. Auscultation found crackles in the left lung and the chest X-ray found lingular pneumonia, which responded well to treatment by amoxicillin/clavulanic acid and levofloxacin.

Because of the patient’s history of smoking a lung workup was scheduled for the following month. The CT scan showed a lingular atelectasis and an intraluminal opacity 12 mm in diameter along its largest axis within the upper lobar bronchus (Fig. 1). The opacity was refined with bronchoscopy, which found a whitish polypoid lesion obstructing the lumen (Fig. 2) at the beginning of the upper bronchus. The surface of the lesion was regular. At biopsy, the lesion was found to have a normal respiratory epithelium. A multidisciplinary meeting was convened and surgical removal of the lesion was agreed upon. A thoracotomy was performed. Due to the position of the tumour, at the beginning of the left upper bronchus, a lobectomy was required. Surgical resection went flush with the tumour insertion; the bronchial section slice was pathologically controlled as normal during surgery. No node extraction was performed. The post-operative course comprised a chylothorax. It was treated medically. Under macroscopic examination, the surgical specimen was polypoid, 15 mm in diameter, and presented a shiny gray aspect when cut. Microscopy found the tumour to be enclosed in the respiratory epithelium. It contained variably sized dilated glands that were concentrated centrally by a mucinous substance (PAS + Alcian blue) and lined with cubo-columnar cells. There was no cytonuclear atypia. Cell nuclei were situated basally, the apical poles were closed and mucin secretion was intracytoplasmic. There were no papillary structures. The underlying bronchial cartilage was intact. Immunohistochemical studies demonstrated that the cavity-bordering cells were strongly positive for CK7 and negative for CK20 and TTF1. The Ki-67 proliferation index was low at less than 1%.

Taken together, these observations led to the diagnosis of a bronchial mucous gland adenoma.

DISCUSSION

The bronchial mucous gland adenoma is a benign, usually an exophytic, tumour of the tracheobronchial mucus glands. It is also very rare. For example, in a major series of 164 patients...
endobronchial and expansive nature of the tumour [6]. Bronchoscopy will find a firm, smooth, shiny and well-defined intraluminal mass that is sometimes pedunculated. On average, the mass will have a diameter of \( \sim 18 \) mm (8-68 mm in the series reported by England et al.) [2, 3]. Endoscopic specimens are generally insufficient for confident diagnosis [2, 7]; complete resection is recommended as this allows for thorough histological analyses and is usually curative. Endoscopic removal has been described, but total surgical resection remains the reference [1-3, 8].

Histology studies will find a well-circumscribed (but unencapsulated) proliferation of mucosal glands in the form of an exophytic nodule with no invasion of the cartilage or bronchial wall. The lesion is composed of variously dilated, sometimes cystic glands filled with mucous. Tubules and papillae may also be present. Glands in the tumour are lined with mucous-secreting cells whose form may be columnar, cuboidal or flattened. Their cytoplasm is clear. The lining may show stratified or papillary luminal folds. Nuclei are usually normal. Indications of mitosis are rare. The stroma is composed of hyaline connective tissue. The surface respiratory epithelium may comprise the areas of squamous metaplasia [1-3]. Immunohistochemically, the gland-lining cells are positive for epithelial markers and generally express high molecular weight keratins (cytokeratins 5/6 and keratin 903); they are negative for TTF-1. Focal positivity for broad-spectrum keratins, actin and S-100 protein indicate a myoepithelial component. Ki67 and other proliferation markers are rarely positive [1, 2, 9].

There are two primary differential diagnoses that merit investigation. The first is the low-grade mucoepidermoid carcinoma with papillary or cystic components. The mucoepidermoid carcinoma is a rare malignant tracheobronchial tumour, although it is encountered more frequently than the bronchial mucous gland adenoma. The careful assessment of squamous and intermediate cells will confirm this diagnostic and careful confirmation of the absence of atypical cells will exclude it [1-3]. The second differential diagnosis is the mucinous cystadenoma of the lung. This is another benign lesion histologically similar to the bronchial mucous gland adenoma. However, it occurs in the peripheral pulmonary parenchyma, not in the tracheobronchial tree. They are often confused, even in the literature [10], despite differences in clinical presentation and natural history [1].

CONCLUSION

Benign glandular tumours of the tracheobronchial tree remain out of the limelight of pulmonary medicine. They are nonetheless capable of provoking mechanical and symptomatic bronchial obstruction. This observation gives credence to the necessity of an in-depth lung workup following acute respiratory infections in the upper lung.

Conflict of interest: none declared.

REFERENCES


