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Title: Benign endobronchial inflammatory polyp with cystic degeneration: A case report

Short Title: Endobronchial Inflammatory Polyp with Cystic Degeneration

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Abstract:

Endobronchial lesions causing luminal obstruction are mostly encountered in the bronchogenic carcinoma. The inflammatory polyps originating from tracheo-bronchial tree are rarely encountered. Here we report a case of an elderly male with prolonged cough who found to have endobronchial inflammatory polyp. The polyp was resected completely with the use of the flexible bronchoscope and electrocautery snare.

Introduction:

The inflammatory polyps of the tracheo-bronchial tree are very uncommon and considered as non-neoplastic endobronchial lesions[1]. The polyps are associated with repeated and chronic inflammatory injury to the airways and represents exaggerated but localised inflammatory process[3][4]. The patients are usually asymptomatic because of slow growing nature of the polyps but may present with variety of symptoms such as cough, dyspnea, hemoptysis or obstructing symptoms like atelectasis and pneumonia[2]. Majority of the cases are diagnosed incidentally and may be confused with carcinoma bronchus thus warrants for early diagnosis and appropriate management. Here we report a case of an elderly male with prolonged cough and recurrent lower respiratory tract infection. On evaluation, he found to have an inflammatory polyp which was removed completelyusing electrocautery snare through flexible bronchoscope.

Case report:

A 61 years old male patient presented to us with complaint of cough, dyspnea, and left sided chest pain for two years with worsening of these symptoms and appearance of fever, high grade with

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chills since five days. He also had frequent worsening of his underlying symptoms with increased sputum purulence. The patient had history of pulmonary tuberculosis and was treated with six months course of anti-tubercular treatment (Isoniazid, Rifampicin, Ethambutol and Pyrazinamide) two years ago with complete cure. The patient also had history of allergic rhinitis for five years, diabetes mellitus and hypertension for one year and was on treatment for the same.

The general physical examination was unremarkable except for tachypnea (respiratory rate 28 breathes/ minute). On auscultation, crepitations were heard localized to left mammary area. Chest radiograph demonstrated multiple cystic lesions and parenchymal infiltrates at left upper zone suggestive of left upper lobe bronchiectasis. High resolution computed tomography (HRCT) scan of the thorax was performed which revealed a well-defined soft tissue endobronchial mass lesion of size 19.5 x 11.9 x 12.4 mm in left main bronchus extending into proximal part of apico-posterior segment. Post contrast CT scan showed enhancement of the lesion and multiple enhancing mediastinal lymph nodes (figure 1). The Lung window demonstrated bronchiectasis, mucus filled bronchus, calcification and centri-lobular nodules with tree in bud pattern suggestive of post obstructive pneumonia along with diffuse emphysematous changes (figure 2).The CT thorax was suggestive of neoplastic aetiology with post obstructive pneumonia.

Diagnostic bronchoscopy was performed which showed well circumscribed cystic lesion with underlying growth at the distal part of left main bronchus, arising from and near completely obliterating the opening of upper division bronchus (figure 3). White cheesy material was recovered after taking biopsy from the cystic lesion. Histopathological examination of the endobronchial biopsy specimen revealed lining respiratory epithelium and focal squamous metaplasia at places. Sub-epithelial tissue comprising of fibro-collagenous tissue with mild to moderate mono-nuclear infiltrates.

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The diagnosis of the endobronchial polyp with cystic degeneration was made and the patient was planned for the bronchoscopic resection. Bronchoscopy was performed under general anaesthesia with small sized metallic endo-tracheal tube and the bronchoscope was passed along the side of it. The polyp was lassoed using electro-cautery snare and resected enbloc by repeating cut and coagulation cycle (figure 4). The resected mass was grasped with the toothed endobronchial biopsy forcep and taken out along with the bronchoscope. The remnants at the base of the lesion was ablated using argon plasma coagulation (APC) and the openings of lingular segment and anterior segment bronchus were became patent (figure 5). Histopathological examination of the resected specimen was suggestive of chronic inflammatory pathology (figure 6). The patient provided informed consent for publication of the present case report.

Discussion:

Endobronchial polyps of the tracheobronchial tree are histo-pathologically distinct non-neoplastic lesions and are rarely encountered. They are classified as solitary papilloma, multiple papilloma and inflammatory polyps[5]. The true incidence of this pathologic entity is not known and limited only to the case reports and the case series[2][6][7][8].

Endobronchial polyps represents exaggerated and localised inflammatory response to airway injury caused by either acute injury or chronic airway irritation like in chronic bronchitis, bronchiectasis, bronchial asthma, aspirated foreign body, and the thermal injury[2][3][9][10][11]. The development of endobronchial polyp was also noted in patients who underwent endobronchial ultrasound guided trans-bronchial needle aspiration (EBUS-TBNA) termed as tracheo-bronchial puncture-site nodular reaction [12][13] [14], use of double lumen endo-tracheal tube for thoraco-abdominal surgery[15] and at the site of the airway stent[16]. The various forms of injury leads to breakage of the bronchial

mucosa and formation of the granulation tissue. This granulation tissue may further undergo replacement by the fibrous connective tissue and epithelization to finally convert in to polyp. In our case, there was bronchiectasis of the left upper lobe secondary to previous tubercular infection that may had incite the recurrent injury to the bronchial mucosa and the formation of the polyp.

Clinically, the patients usually present with complaints of prolonged cough, dyspnea, recurrent pneumonia, wheezing and occasionally with hemoptysis. These symptoms either solely because of obstructing endobronchial polyp or because of primary pathology like asthma, bronchiectasis, foreign body etc.

The natural course of the endobronchial lesions is not known. Also there is no data regarding any possibility of the malignant transformation of these lesions so patient should be wisely selected for either for conservative management or for curative resection. In some cases with symptomatic lesions, success was achieved with inhaled corticosteroids and antibiotics[3][11] but majority of the cases require curative resection. This can be achieved by either surgical resection of the affected segment or lobe or bronchoscopic removal of the polyp. The choice of bronchoscope, either rigid or flexible should be based on the location of the tumour. Rigid bronchoscopes should be used in tumours within the trachea and proximal main bronchi as there is chances of loss of grip and distal migration of the resected tumour [17] Bronchoscopic removal of the polyps could be enabled by the use of electrocautery or laser[18]. In the present case, we used electrocautery snare to resect the polyp completely and APC for debulking the base of the polyp.

In conclusion, patients with chronic airway irritation may develop endobronchial polyps that further leads to bronchial obstruction, retention of the secretions and infection. Early diagnosis and appropriate management is necessary to exclude the possibility of malignancy and further

parenchymal destruction. Bronchoscopic removal of the endobronchial polyp should be preferred approach for appropriate management of these cases.

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Figure 1

Figure 2

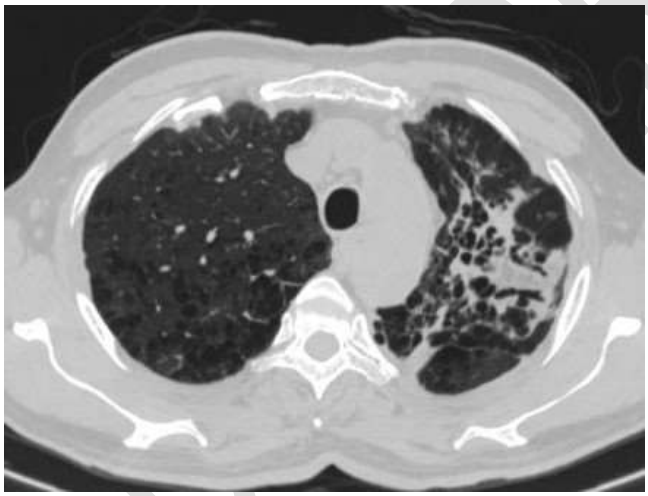

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Figure 3

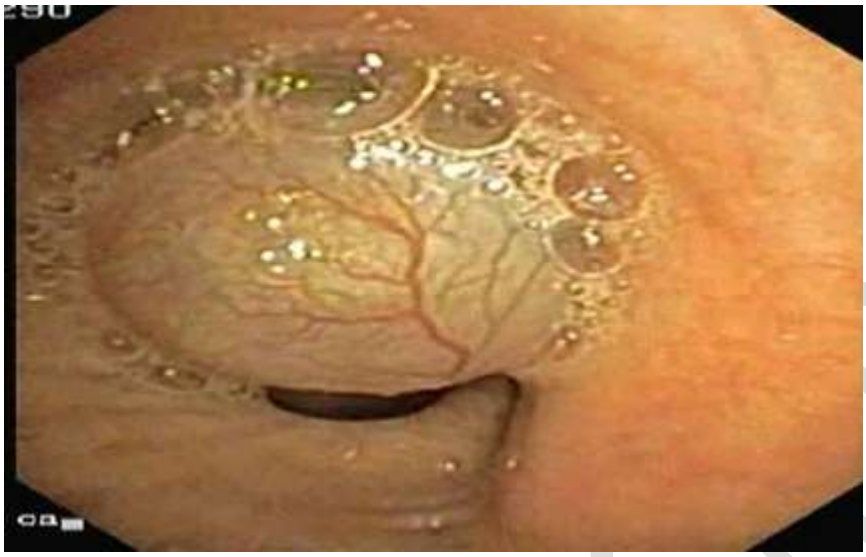

Figure 4

Figure 5

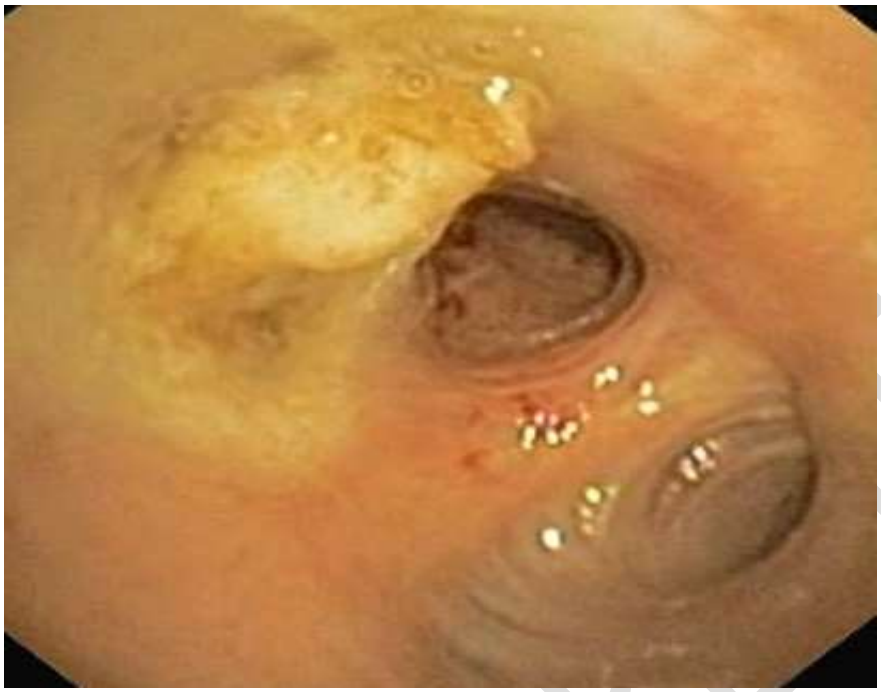

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Figure 6