Solitary Squamous Papilloma-Rare Endobronchial Lesion-Case Report and Review of Literature

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ABSTRACT

Introduction: Solitary squamous papilloma are very uncommon but benign neoplasms of the lower respiratory tract. Since it arises from the bronchus, it is widely regarded as the most rarest pulmonary neoplasm.

Case report: In this case report, we describe the clinical and imaging features of solitary squamous papilloma, an endobronchial mass lesion in a nineteen year old male along with histo-pathological correlation to give ideal management of these lesions.

Conclusion: Solitary squamous papilloma is a rare pulmonary tumor. Early detection by computed tomography and appropriate treatment can prevent further complications and reduce unwanted resection.

Keywords: Squamous papilloma, Bronchus, Computed tomography

INTRODUCTION

Solitary endobronchial papilloma are rare benign tumors with only few cases reported in literature to date. They are known to occur in the lower respiratory tract with rare occurrence in the upper respiratory tract. They often seen in middle aged adults, appearing as a discrete polypoidal mass lesion, typically located within the trachea, lobular or segmental bronchus.[1,2]

CASE REPORT

A nineteen year old non smoker male, visited to the Department of Radiology and Imaging sciences, Sri Ramachandra Medical College and Hospital, Porur, Chennai, and presented with complaints of breathlessness (grade III MMRC) for the past six months duration. He also gave history of cough with expectoration with minimal foul swelling whitish sputum, chest pain and fever, which was intermittent, associated with chills, rigors. No history of hemoptysis, orthopnea and paroxysmal nocturnal dyspnea. Past medical history revealed that he was a known asthmatic for the past six months. On physical examination there was reduced air entry with occasional rhonchi on the right side. Routine blood sample analysis were within normal limits.

Chest radiograph revealed consolidation with significant collapse of the right lower lobe (Figure 1). In view of the chest radiograph findings the patient was further evaluated with contrast enhanced computed tomography of chest. Contrast enhanced computed tomography of chest revealed an enhancing endobronchial mass lesion of size 3 x 1.5cm seen occupying the right lower lobe main bronchus, causing occlusion (Figure 2a, 2b, 3a). The lesion delays the blood supply mainly from the bronchial arteries. There was no evidence of calcification seen within the endobronchial mass lesion. Fluid bronchogram was seen within the collapsed right lower lobe. Extensive mediastinal lymphadenopathy and few nodular opacities in the medial basal segment of right lower lobe were also seen (Figure 3b).

Following radiological evidence of an endobronchial mass lesion, Bronchoscopy also revealed an endobronchial mass occluding the right bronchus intermedius (Figure 4a). Right upper lobe bronchus and left bronchial tree were normal. Punch biopsy (Figure 4b) and bronchial wash performed from endobronchial mass lesion and sent for histo-pathlogical examination. Histo-pathological analysis revealed hyper plastic, edematous squamous epithelium with subepithelium showing focal areas of mucous impaction suggestive of squamous papilloma.

DISCUSSION

Squamous papilloma of lung are comparatively unusual, should be included in the differential diagnosis of benign neoplasms. Multiple papillomas, inflammatory polyps and solitary papilloma are the three clinically described presentations.

Multiple squamous papillomas were more often among children and primarily located in the larynx, trachea and bronchi. Spontaneous regression is the hallmark feature of this particular lesion. Lesions seen among the adults usually vary, as they arise from vocal chords and are keratinized. Inflammatory polyps occur in the mucosa of patients with long -standing respiratory infection. Polyps enclosed by a ciliated epithelium, own a fibrous tissue which shows edema and inflammatory cell infiltration. Most rarest type is solitary squamous papilloma however the incidence and etiology is unknown.[3]

Incidence of this solitary squamous papilloma has been revealed only in five cases out of the 15000 bronchoscopic examinations. Patients usually present with symptoms such as hemoptysis, cough, wheezing, dyspnea and sometimes recurrent pneumonia and lobar collapse can occur as complication of bronchial obstruction.[3,4]

They are more common among the middle age males than females. Patients with postobstructive pneumonia, bronchiectasis produced by solitary papillomas, fever is very common. Chest x-rays may show a hilar mass, lobar collapse

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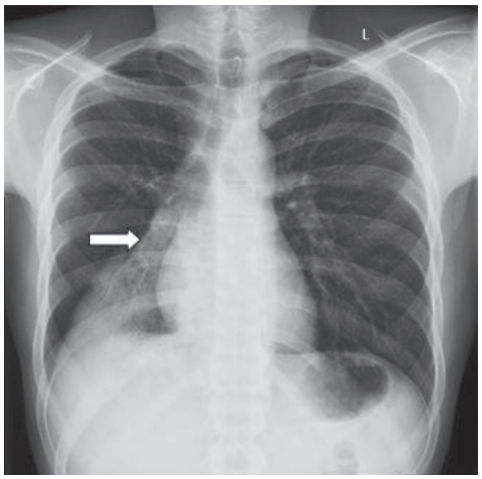

Figure-1: Chest radiograph frontal projection shows consolidation with significant collapse of the right lower lobe(right arrow).

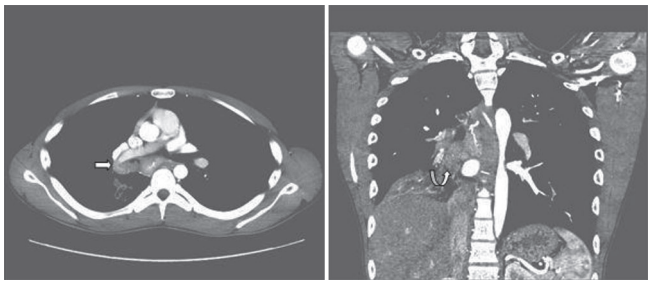

Figure 2a and b: Contrast enhanced computed tomography of chest-mediastinal window on axial and coronal view shows an enhancing endobronchial mass lesion seen occupying the right lower lobe main bronchus causing occlusion.(Right arrow on 2a, Curved up arrow on 2b)

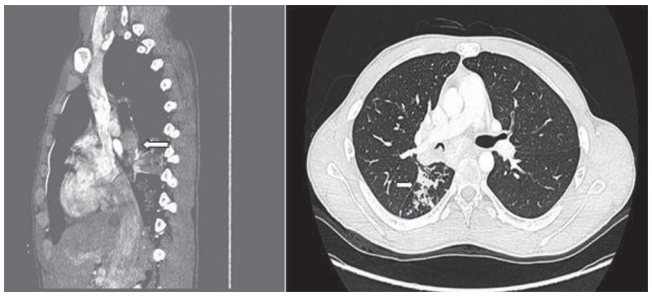

Figure 3a and b: Contrast enhanced computed tomography of chest-mediastinal window sagittal view shows an enhancing endobronchial mass lesion seen occupying the right lower lobe main bronchus causing occlusion(left arrow) and axial image- lung window shows nodular opacities in the medial basal segment of right lower lobe(right arrow).

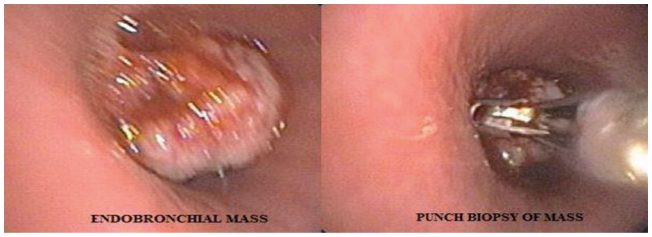

Figure 4a and b: Bronchoscopic view showing endobronchial mass occluding the right bronchus intermedius and punch biopsy of the endobronchial mass.

or even normal in some cases. Location of most lesions were either segmental or central bronchi and few were seen in sub segmental or peripherally bronchi. Papillomas tend to spread exophytically, but rarely they are penetrating into the deeper layers of the bronchial wall giving a typical "ice mountain" appearance and these lesions can safely resected with endoscopic guidance along with less rate of recurrence.[5] Even though squamous papilloma are benign lesions, they may have a tendency to undertake malignant transformation to squamous cell carcinoma. In most of the cases, lesion usually has malignant cells and in some cases, papilloma were in close relation with carcinoma have been reported in literature. Smoking, patients above forty years of age, infections with human papillomavirus increases the risk of malignant transformation.[5,6]

Interestingly in our study, our patient was very much younger than the other cases in reported in literature. Patient was also non smoker but was a known asthmatic under medication.

Human papilloma virus plays a pathogenetic role in certain cases of squamous papilloma. In situ hybridization helps to detect HPV types six, eleven. Infections with HPV, sixteen or eighteen serotypes, have been linked with malignant transformation of squamous papilloma, but there are few studies proving presence of HPV.[6] HPV DNA in squamous papilloma detected by Katial et al who proposed that virus obtained either through birth infection or from infected secretions and stated that HPV plays a part for development of squamous papilloma but not alone.[7] Viral cytopathic effect depreciated in solitary papilloma lesions under light microscopy and in situ hybridization failed in detecting HPV DNA have also been reported in literature.[8]

For the detection and extent of solitary squamous papilloma, computed tomography is modality of choice. They are usually seen as a polypoidal mass seen projecting into the air way lumen. They can also result in obstructive pneumonitis and atelectasis. Involvement of distal airway/parenchyma cause multiple nodules of varying sizes and often cavitate. Wall of the cavities are usually thin.[9,10] Bronchoscopy has been considered the second best modality for evaluation of the squamous papilloma. In our case CT revealed an enhancing endobronchial mass lesion occupying the right lower lobe main bronchus causing secondary collapse of right lower lobe. Few nodular opacities in medial basal segment of right lower lobe. Fluid bronchogram seen within the collapsed right lower lobe. Bronchoscopic examination revealed similar findings.

Endoscopic option for removal of squamous papilloma is excision either by snare electrocautery or laser. Sometimes endoscopic destruction by may hamper the full pathologic evaluation of the entire papilloma. which may have had some evidence of carcinoma at the base of tumor. For a more precise pathological evaluation of the papilloma, it is advisable to use snare electrocautery. Even this method can falsely suggest the underlying malignancy. Most common method of treatment, resectional surgery with lung sparing techniques is the preferred choice, as any occult malignancy could be removed and recurrence could be avoided.[5,6,10]

CONCLUSION

Solitary squamous papilloma is a rare pulmonary tumor. Computed tomography plays an important role in the differential diagnosis of endobronchial mass lesions that give combination of imaging features inclusive of site, type of lesion, presence of fat and pattern of calcification. Early diagnosis is essential

to rule out malignant lesions, further complications, and avert resection in benign self-limited lesions.

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