BRONCHIAL CAST – AN ENDOGENOUS FOREIGN BODY

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Bronchial cast is an infrequently reported endogenous type of foreign body. Awareness of the condition is of paramount importance for treatment. Severe bouts of paroxysmal cough, dyspnoea, non-resolving pneumonic consolidation should arouse the suspicion of an endobronchial obstruction. Prompt removal of the casts by rigid bronchoscopy using powerful suction is rewarding.

A case of bronchial cast in a four year old child is reported. They result during the resolution of an inflammatory reaction. The inflammatory exudate is rich in fibrin hence the casts are firm and tough to be expectorated by the patient. Bronchial casts are also known in a few diseases of unknown aetiology.

Case Report

S. K. a four year old male child was admitted in the paediatric unit of our hospital on 19. 1. 87, with the history of fever and cough of six days and breathlessness of two days duration. On examination the child was febrile and toxic. The heart rate was 160/min and respiratory rate 65/min, with expiratory type of dyspnoea. On auscultation air entry was found to be equal with coarse crepitations in the lower zones. Skiagram of the chest showed air trapping, patchy pneumonitis both bases and hilar lymphadenopathy. The child was treated with oxygen, antibiotics in the form of crystalline penicillin and garamycin, bronchodilators and expectorants. The child remained toxic with persistence of dyspnoea. Conservative measures including postural drainage were ineffective and an ENT consultation was requested to exclude the possibility of foreign body. On bronchoscopy two tree shaped whitish foreign bodies were sucked out with the help of strong vacuum suction from Rt. bronchus at the level opening of middle lobe bronchus (Fig.2). The foreign body came out intact and was rubbery in consistency. Microscopic examination revealed fibrinous material with mononuclear cell...
infiltration. Post bronchoscopic skiagram of chest showed gradual clearing of the consolidation and the child was discharged after 10 days (Fig 3).

Discussion

Foreign body in the air passage is exogenous or endogenous in nature. The incidence of bronchial endogenous foreign body is low - 2 out of 225 cases (Rothmann and Boeckman, 1980), 3 out of 225 cases (Harboyag and Nassif 1970). In our series of about 80 bronchoscopies for a suspected foreign body only one case of endogenous foreign body was encountered.

The bronchial endogenous foreign body are of two types. Mucous plugs and bronchial casts. Mucous plugs consist of thick inspissated mucous with variable amount of inflammatory cells. The bronchial cast in addition contains a matrix made of fibrin. The presence of fibrin makes it more thick and tough lining the bronchial wall. Thus they form a cast or mould of the bronchial tree.

The following are a few of the important pathological conditions in which bronchial endogenous foreign bodies are found.

1. Membranous Laryngotracheobronchitis

An acute inflammatory condition of the tracheobronchial tree, both viral and bacterial in aetiology. The bacterial inflammation produces thick mucopurulent plugs. The condition is common in children. A variety of bacterial agents have been implicated but the predominant organism is S. aureus (Demeny and Handler 1982).

2. Diphtheria

Diphtheric involvement of the larynx is well known. Extension of the membrane to trachea and even bronchi can occur. When the lesion resolve the membrane can suddenly get dislodged and plug the bronchial lumen.

3. Pneumonia

Pneumonic consolidations are frequent among children. The thick mucopurulent secretion and plugs block the ventilation thus increasing the mortality rate. It is of interest to note that mucous plugs involve the left lung more than the right because of anatomical reasons that an endogenous foreign body is more difficult to be expectorated from the left than from the right lung (Ghosh 1987).

4. Bronchial Asthma

In chronic asthmatic bronchitis the sputum is tenacious, consisting largely of mucous and eosinophils. Cast formation can also be seen in few patients taking the shape of terminal bronchioles.

5. Acute fibrinous bronchitis

It is a rare disease characterised by formation of bronchial casts. The existence of acute fibrinous bronchitis as a primary disorder is doubtful, it may occur as a complication of measles, typhoid fever or pulmonary tuberculosis. The casts are grevish white, solid and when large bear the impression of the bronchial wall in which they have been enclosed. They are made up of fibrin or fibrin and mucin. Hence they are firmer than those found in other conditions (Scott 1966).

6. Mucoviscidosis

Mucoviscidosis is a genetic disorder affecting the exocrine secreting glands of the body. The lungs are