

# Bronchiectasis consequent upon foreign body retention

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**Kürklü, E. U., Williams, M. A., and le Roux, B. T. (1973). *Thorax*, 28, 601-602. Bronchiectasis consequent upon foreign body retention.** A series of patients in whom bronchiectasis was related to long retention of an intrabronchial foreign body is reported. The surgical rules which apply to management of intrabronchial foreign bodies by bronchotomy are restated.

While the long retention of an intrabronchial foreign body is well recognized as a cause of permanent dilatation of subtended bronchi, few patients who present with respiratory symptoms and who are found by investigation to have bronchiectasis have, at the time of investigation, an intrabronchial foreign body. It is usually presumed, in these circumstances, that if bronchiectasis is not the result of a destructive lesion such as tuberculosis or chronic suppurative pneumonia permanent bronchial damage is the consequence of evanescent bronchial obstruction. This may have been intraluminal (perhaps mucus or pus), intramural (perhaps bronchial oedema), or extramural (perhaps lymph glandular enlargement)—or perhaps, particularly in children, a combination of all three.

Of 1,038 patients investigated in the Edinburgh Thoracic Unit over a 15-year period and shown to have bronchiectasis a long retained foreign body was the cause in eight (le Roux, 1969). In three adult patients a fragment of bone had been retained for, in each, more than 10 years. In a child a plastic pen cap had been retained for 30 days. In these four patients management of lobar bronchiectasis was by pulmonary resection. In the other four patients lobar bronchiectasis in one, total unilateral bronchiectasis in one, and segmental bronchiectasis in two were attributable to a foreign body, but in only one of these was the foreign body present at the time of investigation and in none was the severity of symptoms, after a period of observation after removal of the foreign body and bronchography, judged to necessitate surgical management. In this group of four patients the only foreign body found at bronchoscopy was a piece of Timothy grass

lodged in the intermediate bronchus, and the history seemed accurate—of retention of the foreign body for eight days. It is thought that the duration of the retention of the foreign body in this child was not in itself the cause of middle lobar bronchiectasis, shown six months later by bronchography, but that the bronchi had been damaged by the corrosive nature of the grass sap.

In the Thoracic Unit of the University of Natal in Durban, in a six-year period between 1967 and 1972, 500 patients with bronchiectasis have been investigated. In these the cause of bronchiectasis was, in 120, a chronic suppurative pneumonia; in 33, tuberculosis; in six, a congenital broncho-oesophageal fistula; and in eight, a long-retained and still present foreign body. In the remaining patients bronchiectasis was attributed to a period of bronchial obstruction by the mechanisms earlier mentioned and in relation to an illness such as measles or whooping cough. In 200 of the 500 patients bronchiectasis was managed surgically.

The purpose of this paper is to present briefly those patients in whom bronchiectasis was directly attributable to the retention of a foreign body. The relevant clinical data are presented in the Table.

Case 1 had also a right empyema managed by open drainage at the time of bronchoscopy for removal of a foreign body. By the time bronchography was undertaken the empyema had healed.

Case 3, a year after pneumonectomy, developed an empyema in the pneumonectomy space. This was complicated by septicaemia and subsequently death from intracranial infection. In case 4 the foreign body was so densely incorporated in the bronchial wall that recourse was made to right thoracotomy and bronchotomy, at which the screw

TABLE

Case	Age	Sex	Race	Nature of Foreign Body	Period of Retention	Site of Retention	Bronchographic Findings	Interval between Removal of Foreign Body and Bronchography	Management
1	7	F	African	Metal cap	30 days	Intermediate bronchus	Intermediate bronchus stricture and middle and lower lobar bronchiectasis	2 months	Middle and lower lobectomy
2	8	M	African	Battery terminal	40 days	Left main bronchus	Left lower lobar and lingular bronchiectasis	3 months	Left lower lobectomy and lingulectomy
3	16	F	Asiatic	Peanut	2 months	Left main bronchus	Total left bronchiectasis	4 months	Left pneumonectomy
4	11	M	African	Screw	6 months	Intermediate bronchus	Not done	—	Screw removed at bronchotomy and middle and lower lobes resected
5	10	F	Caucasian	Nature uncertain, probably vegetable matter	10 months	Right basal bronchus	Right basal bronchiectasis	3 months	Right posterior segmental resection
6	9	M	African	Sugar cane	25 days	Left main bronchus	Left lower bronchiectasis	2 months	Left lower lobectomy
7	8	F	Mulatto	Food	30 days	Left and right stem bronchi	Total left and total right bronchiectasis except for anterior segment	2 months	Not surgical
8	5	M	African	Pebble	36 days	Left main bronchus	Total left bronchiectasis	2 months	Not yet surgical

was removed. This procedure was followed immediately by middle and lower lobectomy because large abscess cavities in these lobes began to evacuate through the open bronchus, and in the abscess cavities were large areas of gangrenous lung. In case 7 the extent of bronchiectasis precludes surgical management, and in case 8, despite the bronchographic extent of bronchiectasis, the symptoms do not yet justify aggressive management. Pulmonary resection was undertaken in all patients because of the severity of symptoms.

In the period during which 500 patients with bronchiectasis were investigated, a bronchial foreign body was removed from 103 patients, nearly all children. Subsequent to removal of the foreign body bronchography was undertaken only in those in whom the duration of bronchial obstruction had been in excess of five days.

By definition, bronchiectasis is permanent bronchial dilatation. As long as a foreign body is *in situ* there is not the opportunity for broncho-

graphy. Bronchography within days of removal of an intrabronchial foreign body is probably not a valid diagnostic procedure, since fusiform bronchial dilatation demonstrated in an incompletely aerated lobe may not be permanent. An intrabronchial foreign body which resists removal at bronchoscopy, and in the management of which recourse is made to bronchotomy, may be associated with distal pulmonary infection. The temptation to resect lung distal to the foreign body removed at bronchotomy should be resisted, as the opportunity for meaningful bronchography has not arisen, and the subtended bronchi, although infected, may not be permanently damaged. This rule was waived in relation to case 4 because of the extent of lung gangrene.

## REFERENCE

le Roux, B. T. (1969). Bronchiectasis: the place of surgery in its management. *Medical Proceedings*, 15, 23.