

Fig. 3. Case 2, plain X-ray showing opacification of left lung.

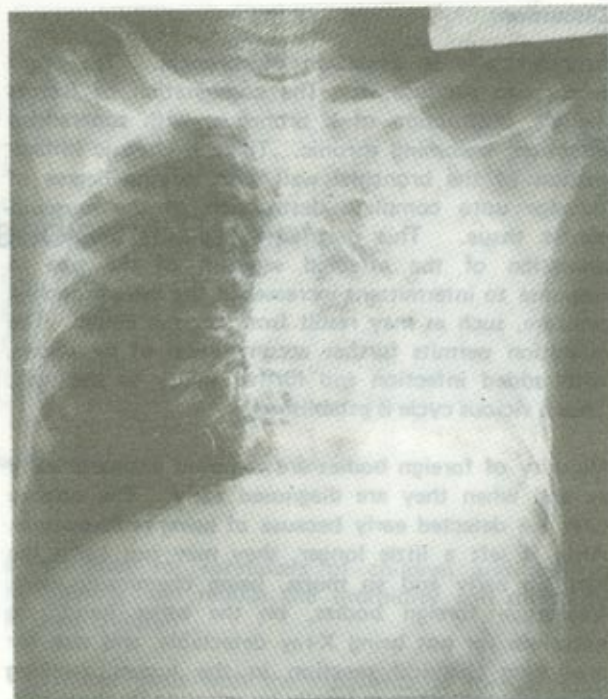


Fig. 5. Case 2, bronchogram showing bronchiectasis of the left lung.

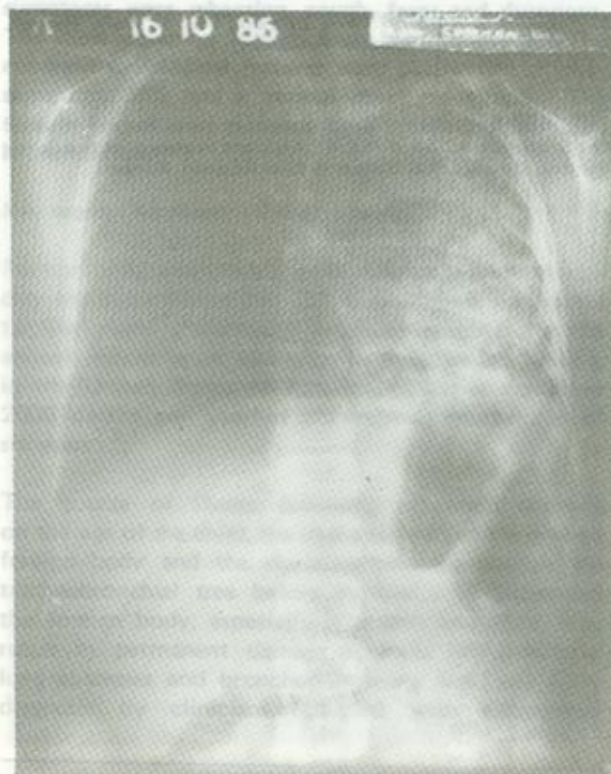


Fig. 4. Case 2, tomogram showing multiple abscesses in left lung.

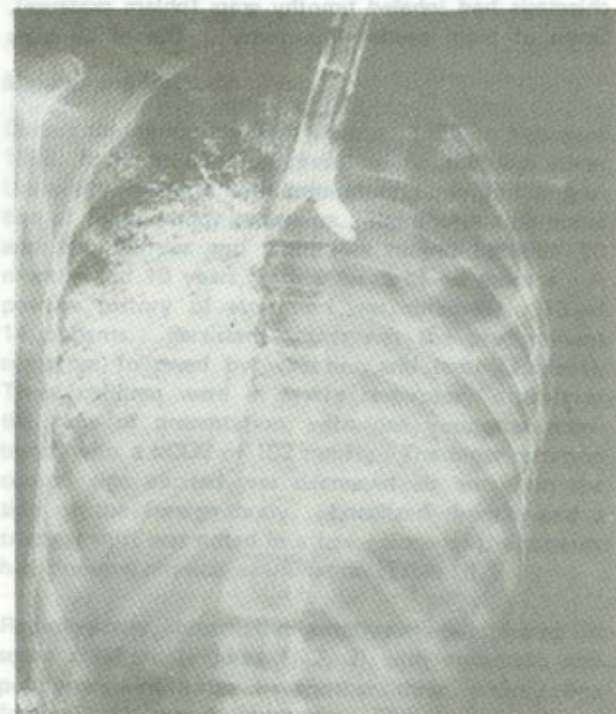


Fig. 6. Case 3, bronchogram showing obstruction of left main bronchus.

Four years ago she had inhaled a supari and developed acute respiratory distress, for which she was taken to an E.N.T. Unit and scoped. A supari piece was removed. However, she did not improve and was kept in the ward for about two weeks. No repeat bronchoscopy was done. Her symptoms persisted and she developed chronic cough, which gradually became productive, with yellowish green sputum. She started getting high grade fever which initially used to subside with one antibiotic or the other. Two months prior to admission, the sputum had become copious and the fever unremitting. Air entry in the left lung was present with the noises of air bubbling through water. Plain X-ray of the chest showed opacification of the left side (Fig. 3) but penetrating views showed gross bronchiectatic changes throughout the left lung (Fig. 4). Bronchogram revealed extensive bronchiectasis (Fig. 5). Pneumonectomy was done and postoperative recovery uncomplicated. She is being followed up. She has given up supari.

### Case 3:

Aziza was a ten year old girl, rather ill and emaciated with a weight of 20 kilos. She presented with cough and fever for three years, and a recent onset of severe breathlessness.

It all started three years prior to admission, when she had choked on a mouthful of suparis. She coughed out a lot soon, and was better. But gradually she developed cough which became chronic and productive. After a year she was taken to a T.B. centre and was started on antituberculous treatment. This she took religiously for 18 months, but to no benefit. X-ray of the chest done one year after treatment showed the same left lung opacification as before. She was told to continue with the treatment for another year. We saw her in October 1986. Bronchograms were done, showing total blockage of left main bronchus (Fig. 6). Bronchoscopy showed stenosis of the bronchus totally obliterating the lumen. Thoracotomy revealed firm dark coloured lung which could not expand. It was full of pus cavities. The main bronchus was closed and did not show any foreign body or tumour. A large lymph node was found at the hilum and removed with the pneumonectomy. Histology revealed universal bronchiectasis with no evidence of active or healed tuberculosis in either the lung or the gland. Her post-operative recovery was smooth. She is well and on no treatment. She is being followed up.

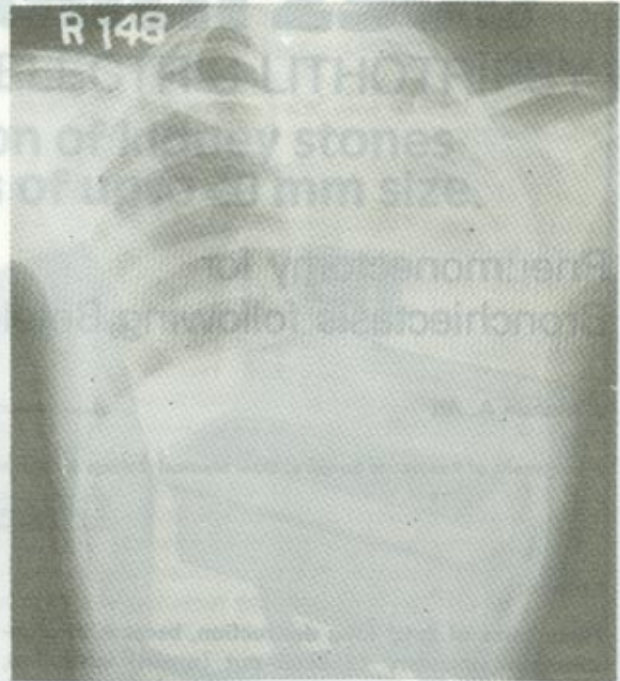


Fig. 1. Case 1, plain X-ray showing abscess cavities in left lung.



Fig. 2. Case 1, bronchogram showing abscess cavities with destroyed lung parenchyma.

## Pneumonectomy for Bronchiectasis following Betel-nut

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### Abstract

Three cases of total lung destruction, because of bronchiectasis secondary to betel-nut (supari) inhalation, are presented. All three cases had a definite history of supari inhalation, and endoscopic removal was not carried out. All three required pneumonectomy, and recovered completely after surgery.

**Key words:** Pneumonectomy, Aspiration of a foreign body, Bronchiectasis, Betel-nut (supari)

Over two thousand children die of inhaled foreign bodies in United States alone. Complications are from temporary infection to permanent residual damage to the pulmonary tissue, even after the foreign body has been removed. In our part of the world, aspiration of supari is very common. It produces intense inflammation and oedema at the site of impaction, and may lie there for a long time before disintegrating.

We are reporting on three cases where supari was known to be the clear cause of bronchiectasis in whole of the left lung.

The unusual thing about these cases is that the left lung was involved in all the three cases, and that the whole of the lung was destroyed rather than just a segment or a lobe.

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Four years ago the child inhaled a supari and developed acute respiratory distress for which the chest was taken to an ENT Unit and scoped. A supari piece was removed, however, the child did not improve and was kept in the ward for about two weeks. The repeat bronchoscopy was done. Her symptoms persisted and she developed chronic cough, which eventually became productive, with yellowish green sputum. She started coughing night after night which initially led to admission with one antibiotic or the other. Two months later on admission, the sputum had become copious and the fever unremitting. Air entry in the left lung was absent with the nose of air bubbling through water. Plain X-ray of the chest showed opacification of the left side (Fig. 3) but penetrating rays showed gross bronchiectatic changes throughout the left lung. Bronchogram revealed extensive bronchiectasis. Pneumonectomy was done and postoperative course was unremarkable. She is being followed up.

### Case 1:

Mumtaz came at the age of twelve years with a history of having choked on a supari when he was four years old. He recovered from the acute episode soon, but gradually developed cough which became purulent and productive with recurrent and generally "weak lungs". He had been treated all these years with various medicines and antibiotics till he stopped responding, and was brought to Civil Hospital in July 1985. On admission, he was a rather small boy for his age, moderately anaemic, and coughing continuously. The cough was productive and the sputum grew mixed organisms, including *Pseudomonas*. Air entry in the right lung was satisfactory but the left lung was full of coarse noises without a trace of what would sound like air entry into the alveolar tissue.

Plain X-ray of the chest showed collapse of the left side with air trapping (Fig. 1). A clinical diagnosis of Bronchiectasis of the left lung was made and bronchogram was done (Fig. 2). This revealed complete loss of lung tissue and replacement with small abscess cavities. Left pneumonectomy was done and the postoperative course was uneventful. He was discharged on tenth postoperative day. He was followed up for one year and was doing well.

### Case 2:

Shabnam, a ten year old girl, was pretty and smart and fond of supari and Pan.

She came with a history of cough with sputum for four years, and fever on and off for the same time.

### Discussion:

Bronchiectasis is dilatation of bronchi. No single factor can produce it. The combination of factors include obstruction of a bronchus, with superadded infection, becoming chronic. There is chronic inflammation of the bronchial wall with varying degree of damage upto complete destruction of the musculo-elastic tissue. This destruction permits subsequent dilatation of the affected segment of the tree in response to intermittent increases in the intra-bronchial pressure, such as may result from chronic cough. The dilatation permits further accumulation of secretions, with added infection and further injury to the wall. Thus a vicious cycle is established.

Majority of foreign bodies are removed endoscopically as and when they are diagnosed early. The opaque ones are detected early because of being radio-opaque. Also, if left a little longer, they may not harm the lung so early and so much, being chemically inert. Vegetative foreign bodies, on the other hand, are notorious for not being X-ray detectable, and also for producing chemical reaction in the lumen, swelling up, or producing spasm locally by releasing its chemicals. Prolonged stay produces irreversible damage of pulmonary parenchyma. Eight out of 32 patients with bronchiectasis had inhaled timothy grass (phlem prateuse). Seven of them needed lobectomy<sup>1</sup>. Out of 49 cases

needing resection for bronchiectasis in Children's Hospital Medical Centre, Boston between 1966 and 1977, six were for foreign bodies<sup>2</sup>. There is no report, to our knowledge, showing such extensive damage as necessitating total lung removal. But then, here a specific foreign body, i.e. supari is implicated. Average history was of five years duration (case 1: 8 yrs; case 2: 4 yrs; case 3: 3 yrs). In one case the main bronchus was stenosed to the extent of obliteration.

All the three cases did well after pneumonectomy. They are not on any medication now.

Foreign bodies, even in the Western world, are the cause of around 10% cases of bronchiectasis<sup>2</sup>. This is unfortunate, because this is an entirely a preventable condition. In our series of cases with foreign bodies, a large majority are suparis.

### References:

1. Welch K.J., and Carter M.D., Bronchiectasis following aspiration of timothy grass: Report of 8 cases. N. Eng. J. of Med. 238:832, 1948.
2. Paediatric Surgery Third Edition, Vol. 1, Mark Ravitch et al, Year Book Medical Publishers.

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