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Cavitary Lung Disease*

Paul T. King, MD, Peter Cole, MD; and Michael W. Farmer, MD

A 20-year-old female Ethiopian refugee presented with a 6-month history of cough and progressive left shoulder tip pain. After extensive investigation, which failed to demonstrate a cause, she proceeded to thoracotomy, where a 25-cm length of tubing was found that had perforated the left hemidiaphragm and had extended into the apex of the left lung. This appeared to have arisen as a complication of a termination of pregnancy performed years previously. This represents the first reported case of significant pulmonary trauma arising as a complication of a termination of pregnancy.

(CHEST 2001; 119:300–302)

Key words: cavitatory; obstetric tubing; termination of pregnancy; thoracotomy; transdiaphragmatic migration

Abbreviations: LUL = left upper lobe; TOP = termination of pregnancy

Termination of pregnancy (TOP) is the most widely performed surgical procedure in the world, with an annual incidence of up to 53 million. While complications are infrequent, sepsis, hemorrhage, and uterine perforation with trauma to adjacent organs have been reported. In this report, we describe an Ethiopian refugee who presented with progressive cavitatory lung disease. After extensive investigation and treatment, at thoracotomy she was found to have a 25-cm length of obstetric tubing perforating the diaphragm and extending into the left upper lobe (LUL). This appeared to have arisen as a complication of a TOP performed years previously in Ethiopia.

We believe there are two unique features of this report. To our knowledge, this is the only recorded description of pulmonary trauma arising from a TOP, and it is the first reported case of the migration of a foreign body from the abdomen or pelvis to the lung that has not occurred via the blood stream.

Case Report

A 20-year-old female Ethiopian refugee presented with a 6-month history of left shoulder pain, productive cough, and minor hemoptysis. Prior to emigration, screening undertaken in Khartoum, Sudan, demonstrated no evidence of active tuberculosis. The initial chest radiograph demonstrated a left basal infiltrate with associated pleural change (Fig 1).

In Australia, ongoing symptoms necessitated further evaluation. CT scan of the thorax showed additional changes of cavitation and consolidation in the LUL (Fig 2). No endobronchial abnormality was evident at fiberoptic bronchoscopy, and bronchial washings were negative for tuberculosis. CT-guided biopsy showed changes of fibrosis. Given a high clinical and radiologic suspicion of tuberculosis, empiric quadruple antituberculosis therapy with isoniazid, rifampicin, ethambutol, and pyrazinamide was commenced. Due to ongoing symptoms and progressive LUL cavitation, she proceeded to thoracotomy. A 25-cm stiff plastic tube was found to perforate the left hemidiaphragm

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and to extend into the apex of the LUL. Approximately 10 cm of tubing was situated below the diaphragm. A curative LUL lobectomy was performed.

**DISCUSSION**

We describe a unique case of an intraparenchymal pulmonary foreign body causing prolonged symptoms and progressive cavitatory lung disease.

The foreign body was a stiff smooth plastic tube, 25 cm in length and 4 mm in diameter, that extended below the left hemidiaphragm and up into the LUL (Fig 3). A retrospective review showed that it had been present on all her previous radiographs, including those taken in Sudan. The patient was questioned after the surgery to try and ascertain its origin.

In Africa, she had spent years as a refugee and had been a prisoner of war. In Ethiopia, when she was 13 years old, a TOP was performed. A second pregnancy several years later was carried to full term. No history of any other surgical procedures or trauma could be elicited that may have explained the origins of the tube.

The length and stiffness of the tube and the normal bronchoscopy would exclude a transtracheal route. There was no history to suggest introduction through the thoracic or abdominal wall. The only apparent explanation is that the tube had been introduced via the uterus at time of undergoing an obstetric procedure.

The consensus opinion of a number of senior gynecologists surveyed was that the TOP had been performed using either a minisuction technique or the installation of irritant intrauterine fluid. It is postulated that the tube had perforated the uterus and inadvertently been left in situ.

Uterine perforation is an uncommon complication of TOP. In a study of US national data from 67,175 abortions, the rate of perforation was 9 in 10,000 cases. However, a review of 144 cases in Nigeria showed a much higher incidence of perforation. Damage to pelvic and abdominal organs, especially bladder and bowel, is well recognized in this context. There is no description of pulmonary trauma in the literature.

Migration of foreign bodies from the abdomen or pelvis to the lung is a rare but well-described entity. There have been descriptions of bullets, diagnostic catheters, and venous shunts in this context, although they all appear to have migrated hematogenously. Sharp foreign bodies have been previously described migrating through tissue planes. Examples include small bones that have perforated through the esophagus and been located in the muscles of the neck, and Kirschner wires, used in orthopedic procedures to stabilize the clavicle, have been found in the mediastinum. The mechanism of how this occurs has not been elucidated.

How the tube ended up in the lung is a matter of speculation. Taking into account its length and the small
size of the patient, it would appear likely that when the termination was performed, the superior end of the tube was lodged near the diaphragm. It may have then migrated upwards spontaneously or been pushed cephalad by the subsequent pregnancy.

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Nitric Oxide and Molsidomine in the Management of Pulmonary Hypertension in Takayasu’s Arteritis*

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We present three patients with pulmonary hypertension in Takayasu’s arteritis who showed long-term favorable response, clinically and hemodynamically, to nitric oxide donor molsidomine. In these patients, nitric oxide inhalation was effective in reducing pulmonary artery pressure (PAP) and pulmonary vascular resistance (PVR). Molsidomine (single dose of 4 mg po) was also effective in reducing PAP and PVR, but nifedipine was not. With molsidomine, 4 mg tid, dyspnea, exercise capacity, and hemodynamic parameters were improved. These favorable responses have lasted during the 3-month follow-up period in all patients.

(CHEST 2001; 119:302–307)

Key words: molsidomine; nitric oxide; pulmonary hypertension; Takayasu’s arteritis

Abbreviations:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>CO</td>
<td>cardiac output</td>
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<tr>
<td>ET-1</td>
<td>endothelin-1</td>
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<tr>
<td>mPAP</td>
<td>mean pulmonary artery pressure</td>
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<td>NO</td>
<td>nitric oxide</td>
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<td>PAP</td>
<td>pulmonary artery pressure</td>
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<td>PH</td>
<td>pulmonary hypertension</td>
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<td>ppm</td>
<td>parts per million</td>
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<td>PVR</td>
<td>pulmonary vascular resistance</td>
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Takayasu’s arteritis is an inflammatory and stenotic disease of medium- and large-sized arteries, characterized by a strong predilection for the aortic arch and its branches.1 Although Takayasu’s arteritis often involves pulmonary arteries, clinically significant pulmonary hypertension (PH) or right heart failure are very rare.2 There are few reports concerning treatment of PH in these patients. In Takayasu’s arteritis, glucocorticoids may reverse steno-