Case report - Thoracic non-oncologic
Late extrusion of pulmonary plombage outside the thoracic cavity

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Abstract

Plombage, a variant of collapse therapy for patients with pulmonary tuberculosis that uses a variety of foreign materials, was undertaken until the 1950s before the invention of effective antimicrobial therapy. Complications related to previous plombage procedures are not uncommon. Management of these complications can be challenging. We report a patient presenting with extrusion of plombage 59 years later and managed successfully with removal of the plomb and pectoral muscle flap transposition.

Keywords: Plombage; Tuberculosis; Pectoral muscle flap

1. Introduction

Complications following thoracic plombage for treatment of tuberculosis can be observed years after placement of the filling [1–3]. The management of these late complications is challenging and frequently requires surgical intervention [4, 5]. We report management of a patient who received a plombage in 1950 and presented with late extrusion of the plombage.

2. Case report

An 80-year-old man was referred to us with a chief complaint of fever and left supraclavicular swelling for a month which was progressively increasing in size and limiting his neck movements. The patient was treated for tuberculosis of the left lung in 1950 with plombage therapy through left thoracotomy (the details of the operation were not available). The patient had no history of any other major medical or surgical illness. On examination, a 10 cm × 5 cm cystic swelling was felt in the left supraclavicular region with no pulsation. All laboratory findings were within normal range except for the raised neutrophil count and C-reactive protein. The tests for tuberculosis were negative.

A chest X-ray showed characteristic appearance of plombage balls packed at the apex of the left hemithorax (Fig. 1a). A computer tomographic scan of the thorax showed plombage balls at the left apex. Air fluid levels could be seen, which suggested a communication between the plomb and lung parenchyma (Fig. 1b). It also showed the plombage intrusion into the supraclavicular fossa resulting in a cystic mass. Magnetic resonance imaging confirmed these findings and ruled out any aneurysm or hematoma produced

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![Fig. 1. (a) Chest X-ray (posterior-anterior (PA) view) showing the characteristic radiological appearance of lucite balls: multiple, perfectly round lucencies, closely packed at the apex of the hemithorax. (b) Computer tomographic scan of the thorax showed lucite balls at the left apex. (c) A magnetic resonance imaging showing plombage extrusion from thoracic cavity into the supraclavicular fossa.](image-url)
by the vascular invasion of the plomb (Fig. 2c). Considering the age and the general condition of the patient, a further one stage surgical treatment, such as removal of the plombage material followed by soft-tissue transfer was thought to be a major undertaking. As a result he was treated initially with drainage of the supraclavicular swelling. This was carried out under general anesthesia. The swelling was drained through posterior triangle of the neck. A large amount of grossly purulent fluid was evacuated and a 16-Fr drain was inserted into the plombage cavity. The fluid grew Citrobacter Koseri. The cavity was washed out with saline for a few days and the patient also received antibiotic treatment. Once his general condition improved, the second stage of the operation was planned. Under general anesthesia, the left pectoral muscle flap was raised based on thoracoacromial vessels. The chest was entered through the third intercostal space via an anterior thoracotomy. The plombage cavity was opened up and 23 lucite balls were removed from the cavity (Fig. 2a). Most of them were fractured and filled with pus (Fig. 2b). Along with the balls a degenerating polythene bag and polythene strips were removed (Fig. 2c). After cleaning the cavity and irrigating it with antibiotic solution, an attempt was made to resect the wall of the cavity. It was adherent to the main pulmonary artery medially and hence only a partial resection was done. The space was filled with a pectoral muscle flap (Fig. 2d) and the chest was closed in layers after leaving chest drains. Postoperative recovery was smooth and the patient was discharged on the seventh postoperative day. Four months later, he continues to do very well with no complications.

3. Discussion

Because of the difficulty in treating pulmonary tuberculosis medically during the early to mid-20th century, adjunctive surgical techniques were developed, particularly for cavitory disease [1]. These included excisional surgery, cavitary drainage, and collapse therapy. The morbidity and intraoperative mortality associated with these procedures were elevated, especially when upper lobe cavities persisted and patients were unable to tolerate lung resection. This prompted the development of other surgical techniques, one of which was plombage therapy.

Plombage refers to the placement of any inert object against the lung to collapse the underlying cavity [1]. Polymerized methyl methacrylate, or lucite, balls – similar in size and form to ping-pong balls – were inserted into the chest to collapse the lung and to maintain adequate thoracic expansion [2]. These spheres were supposed to be non-irritating to adjacent tissue, non-carcinogenic and non-antigenic, insoluble, slightly resistant to Roentgen rays, round and easily fitted into any space, lightweight to prevent erosion or migration, and able to float (in case fluid developed). The assumption was that the spheres stimulated a thin, strong, dense, fibrous membrane that could prevent the spread of disease beyond its surface [2]. Because of hardness and unresilient qualities of the lucite balls, other alternatives were developed. These included the polythene packs which were filled with polythene strips in lipidol [3].

Lucite spheres caused numerous complications, including migration and erosion into adjacent structures [4–6], extrusion of foreign material or fluid into the chest wall [7], hemoptysis, intestinal obstruction, vocal cord palsy, major vascular erosion, tracheal compression, malignancy [8] (epithelioid angiosarcoma, squamous cell carcinoma, and lymphoma), empyema, and sinus tract formation. These complications necessitated removal of the lucite balls and repair of the affected tissue, at times involving decortica-
ment of tuberculosis, clinicians may still encounter patients who underwent lucite ball plombage. When evaluating these patients, it is important to confirm that they subsequently received appropriate therapy for tuberculosis. In patients who had received thoracic plombage, long-term postoperative follow-up should be made.

References


