A 65-Year-Old Man With an Endobronchial Gossypiboma After Lobectomy for Abscessing Pneumonia

Michael Kreuter MD, Ralf Eberhardt MD, Matthias Wiebel MD, Martin R Schulz MD, Klaus-Michael Mueller MD, and Felix JF Herth MD

We present a case of a 65-year-old man with recurrent hemoptysis and weight loss for 6 months. Thirty-two years earlier, lobectomy of the right lower lobe had been performed for abscessing pneumonia. Due to recurrent pulmonary infections after lobectomy the patient had to retire at the age of 46. A diagnostic procedure to explain the hemoptysis was performed. A computed tomogram revealed a suspicious formation in the bronchus intermedius, and the patient was referred to our department with the suspicion of lung cancer. During bronchoscopy an endobronchial mass was detected and extracted whole with a foreign-body forceps. Textile fibers of a sponge in the histology specimen led to the final diagnosis of gossypiboma (also known as textiloma). After removal of the gossypiboma no further pulmonary infections occurred.

Key words: gossypiboma; textiloma; lung cancer; bronchoscopy; foreign body; hemoptysis; pulmonary infection.

Introduction

Gossypiboma (synonymous with textiloma) is a rare but important complication after surgery, with important clinical and legal implications. Gossypiboma can present as a tumor-like lesion and should be included in the differential diagnosis of suspicious chest findings in any patient who has undergone thoracic surgery. Diagnosis of gossypiboma is usually delayed and should be considered in patients with relapsing pulmonary infections after thoracic surgery, especially when the workup fails to confirm other more common causes.

Case Report

A 65-year-old man was referred to a pulmonary clinic with a 6-month history of productive, purulent cough, dyspnea, relapsing hemoptysis, weight loss, and moderate night sweats. A course of oral antibiotics was completed without substantial improvement of his symptoms. Thirty-two years earlier, lobectomy of the right lower lobe had been performed for abscessing pneumonia. The patient was a former truck driver, who retired at the age of 46 because of relapsing pulmonary infections. His health history also included pancreatitis from ethanol abuse, and intracerebral bleeding, but without persistent neurologic limitations. His medications consisted of phytotherapeutic drugs, terazosin, and lipase supplementation. He had smoked about 20 pack-years, until the age of 34. His family history was not contributory.

Physical examination revealed a patient in a good general condition other than moderate weight loss. Body temperature was normal, but he was tachycardic, with a heart rate of 115 beats/min, and his blood pressure was elevated, at 150/80 mm Hg. Lung examination demonstrated wheezing. The remainder of his examination was normal.

Laboratory examination showed normocytic anemia. The white-blood-cell count and its differential and the C-reactive protein were within the normal ranges, and there was no sign of infection. Other laboratory results were also
normal. Pulmonary function tests demonstrated small-airways disease (reduced mid-expiratory flow rate). The arterial blood gases were within normal limits. Prior to referral, a computed tomogram had revealed a suspicious formation in the bronchus intermedius, without substantial mediastinal lymph node enlargement (Fig. 1).

Bronchoscopy with a rigid bronchoscope found an endobronchial mass resembling a tumor in the right bronchial tree, in the bronchus intermedius. The lesion was first biopsied and then removed whole with a foreign-body forceps. A final control confirmed complete removal of the lesion. (Fig. 2). Afterwards, the bronchus intermedius was reopened, and macroscopically granulomatosis at the resection margin of the right lower lobe was detected. Microscopically, the extracted lesion showed granulomatous and necrotizing inflammation and attached fungal structures, but no evidence of malignancy. Cultures were negative for bacteria and mycobacteria. Polarizing microscopy (Fig. 3) found textile fibers of a sponge in the lesion, leading to the final diagnosis of gossypiboma/textiloma.

Discussion

Gossypiboma is the technical term for a retained surgical sponge. It is derived from the Latin word "gossypium" (cotton) and the Swahili word “boma” (place of concealment). A commonly used synonym is textiloma. Gossypibomas are rare but potentially serious complications following surgery. The estimated incidence is one case per about 5,500 to 19,000 operations. Older studies suggest that textiloma occurs in one per 1,500–3000 operations performed. Reasons for that incidence decrease might be the institution of policies for better accounting and detecting of surgical equipment, such as radiopaque sponges. Gossypibomas are mostly reported after abdominal surgery, but can appear after any surgical procedure. Thoracic gossypibomas count for about 11% of the cases. Furthermore, a mortality rate of about 15% has been described. Symptoms reported by patients with thoracic gossypibo-
mas are cough, expectoration, recurrent hemoptysis, chest pain, low-grade fever, and weight loss,\textsuperscript{3,6-8} which our patient also complained of. The clinical presentation of a thoracic gossypiboma depends on the location of the sponge and the type of reaction it causes. Typically the acute presentation consists of a local inflammatory reaction. In the case of infection, usually an abscess develops and fistulas may form. In such cases the differential diagnoses of a postoperative collection, hematoma, or non-foreign body abscess have to be excluded. However, alternatively, delayed symptoms can develop months or even years after the initial surgery, as in our patient.\textsuperscript{3} The median time to discovery is reported to be about 7 years, which may lead to missed diagnosis and treatment delay.\textsuperscript{3} Adhesions and encapsulation are common, and the lesion may present as a tumorous mass or obstructive endobronchial lesion. In these cases the differential diagnosis typically includes malignant tumor. Histologically, aseptic fibrous response with encapsulation, granuloma formation, or an exudative reaction leading to abscess formation can be detected.\textsuperscript{7} Polarization microscopy can reveal the textile fibers of the sponge, as shown in Figure 3.

The typical radiologic appearance of gossypiboma includes a whirl-like pattern of radiopaque thread. On computed tomogram, especially in abdominal formations, gas trapped within the sponge might be visible, and after some time calcifications in the gas-cavity walls can be found. Furthermore, rim enhancement may be seen. Reports on gossypibomas in the pleural space have described a lack of gas lucencies, due to air resorption by the pleura. Thoracic gossypiboma can also resemble thoracic aspergilloma.\textsuperscript{5-11} However, the radiologic findings, although very specific, are not pathognomonic, often leading to misinterpretation as bronchiectasis, abscesses, cysts, or neoplasm.\textsuperscript{8,11,12} Magnetic resonance imaging might be helpful in problematic cases such as in distinguishing a textiloma from cancer. Here a sponge may present as a soft tissue mass with a thick, well-defined capsule and whorled internal configuration on T2-weighted imaging.\textsuperscript{13} Positron emission tomography was reported to result in false-positive findings, with fluorodeoxyglucose (FDG) uptake similar to that of a neoplasm.\textsuperscript{14}

The possibility of aspiration of a foreign body also has to be discussed. Foreign-body aspiration can occur during dental or medical procedures, and such foreign bodies are usually found in the right bronchial tree.\textsuperscript{15} In our patient, arguing against the aspiration hypothesis was his history of thoracic surgery and the lack of anamnestic evidence of foreign-body aspiration. However, other mechanisms, such as transluminal migration of a foreign body from other locations through the tracheobronchial wall, have been reported, even for surgical gauze.\textsuperscript{16} Yet the detection of the sponge close to the resection margin of the right lower lobe might argue for retained gauze directly in the bronchial tree.

The legal implications of a textiloma are important, as patients might experience chronic pain or chronic infection, resulting in early retirement, as in our patient.

Our patient’s clinical findings were suspicious for a cicatricial carcinoma. However, during endoscopy a retained surgical sponge was detected and removed, after which the patient recovered rapidly from his symptoms, without any reported relapsing pulmonary infections.

In conclusion, gossypiboma is a rare but important complication after surgery, with important clinical and legal implications. It can present either in clinical (eg, radiographic) findings as a tumor-like lesion or with symptoms of infection. Therefore it should be included in the differential diagnosis of suspicious chest findings and in relapsing hemoptysis and pulmonary infections in any patient who has undergone thoracic surgery.

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REFERENCES