

## CAS CLINIQUE / CASE REPORT

### SURGICAL SUTURES MIGRATION PRESENTING AS A LUNG SEGMENTAL ATELECTASIS

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**ABSTRACT** • Lung resection is rarely associated with late complications. Bronchoscopy performed to evaluate a right upper lobe mass and anterior segment atelectasis in a patient with bladder cancer showed old sutures from a prior surgery. The sutures had migrated and obstructed the lumen of the anterior segment of the right upper lobe bronchus. The sutures were removed with resolution of the atelectasis. To our knowledge this is the first case report of surgical sutures that have migrated into the airway, causing airway obstruction and presenting as a lung segmental atelectasis adjacent to a lung mass.

Keywords : sutures migration; bronchoscopy; postoperative complications

#### INTRODUCTION

Lung resection surgery is associated with several potential late complications. Surgical staples and pledgets have been reported to migrate into the airway and present as metalloptysis [1,2] or airway obstruction [3]. Suture granuloma [4-6] and gossypiboma [7-11] are other late complications that were reported to present as a lung mass.

The occurrence of these late complications is rare but should be considered in patients presenting with a lung mass or airway obstruction and history of lung resection. In this report, we present a rare case of a woman with suture migration presenting as segmental atelectasis adjacent to a lung mass mimicking malignancy.

#### CASE REPORT

An 80-year-old Iraqi female with bladder carcinoma, presented to the pulmonary clinic for evaluation of a right upper lobe lung mass and adjacent anterior segment atelectasis on chest computed tomography (CT) scan.

The patient was diagnosed with transitional cell carcinoma of the bladder stage T2 N0 M0, in April 2011. In September 2011, she underwent a chest CT scan for staging of the bladder cancer that showed a 4 by 2 cm

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**RÉSUMÉ** • La résection pulmonaire est rarement associée à des complications tardives. Une bronchoscopie réalisée afin d'évaluer une masse du lobe supérieur droit et une atelectasie du segment antérieur chez une patiente avec un cancer de la vessie a révélé des sutures d'une chirurgie précédente. Les sutures avaient migré et obstrué la bronche lobaire supérieure droite. Les sutures ont été enlevées avec résolution de l'atelectasie. À notre connaissance, ceci est le premier cas observé de sutures chirurgicales ayant migré dans les voies respiratoires et provoqué une obstruction des voies aériennes se présentant comme une atelectasie pulmonaire segmentaire adjacente à une masse pulmonaire.

Mots-clés : migration de sutures; bronchoscopie; complications postopératoires

lesion in the right upper lobe, near the uptake of the anterior segment bronchus associated with a peripheral calcification (Fig. 1a). An integrated whole body CT/ PET scan showed a Standardized Uptake Value (SUV) of 2.75 at the lesion with no other uptake in the lung. A CT-guided fine needle aspiration of the lesion showed no malignant cells. Subsequently the patient was treated with chemotherapy (gemcitabine and carboplatin) for the bladder carcinoma.

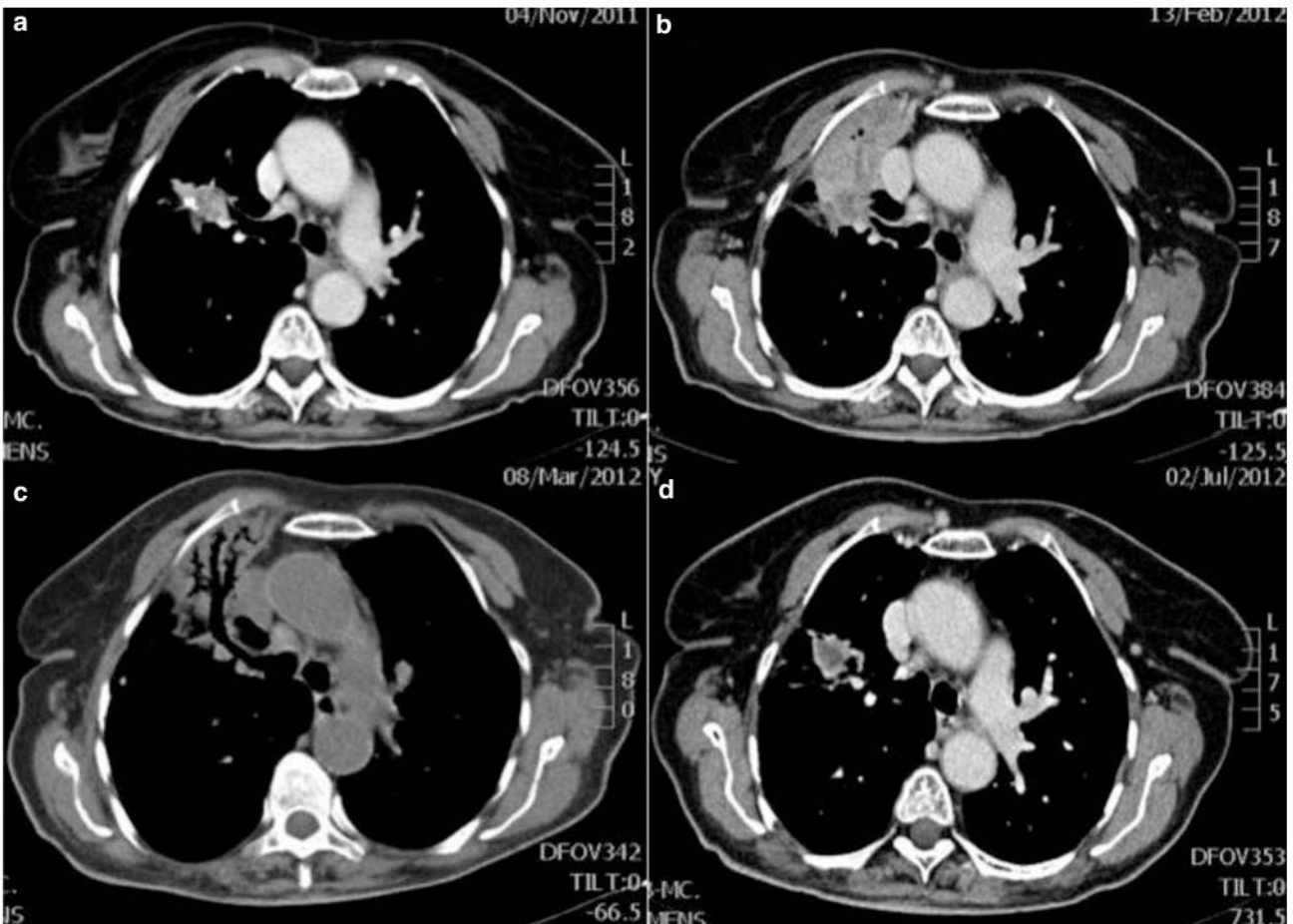
A follow-up chest CT scan done on February 13, 2012, prior to initiation of radiotherapy to the pelvis, showed increase in the size of the lesion with adjacent atelectasis of the right upper lobe anterior segment (Fig. 1b). The patient was thus referred to our pulmonary clinic for evaluation.

In clinic, the patient reported having a chronic dry cough of several months duration but she denied fever, chest pain, shortness of breath or weight loss. She reported being asymptomatic otherwise. She recalled undergoing thoracotomy in 1997 for resection of pulmonary echinococcal cyst followed by a course of mebendazol for several months. On physical examination the patient appeared healthy and comfortable, and was afebrile. Lungs exam showed a well healed thoracotomy scar over the right chest and normal vesicular breath sounds bilaterally. The rest of her physical examination was unremarkable. Oxyhemoglobin saturation was 98% on room air. A blood count showed a white cell count of 3200 with 40% segmented neutrophils.

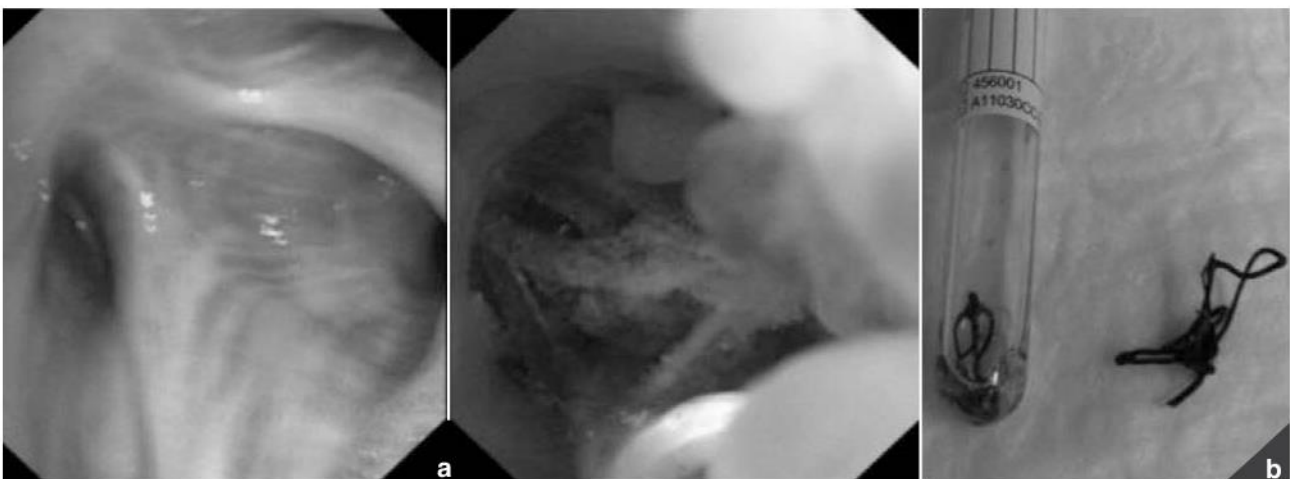
Bronchoscopy was performed, and revealed a filamentous object plugging the lumen of the anterior segment of

the right upper lobe (Fig. 2a). The filamentous object was extracted using forceps revealing old sutures (Fig. 2b). Bronchial alveolar lavage from the involved segment grew *Haemophilus influenzae* and *Serratia marcescens*. The cytologic examination and the fungal and mycobacterial cultures were negative. The patient was treated with a ten days course of cefpodoxime for likely postobstructive pneumonia with resolution of the cough.

Follow-up chest CT scan done two weeks after bronchoscopy showed resolution of the atelectasis and better aeration of the apical segment of the right upper lobe with residual lung parenchymal disease (Fig. 1c) that resolved on subsequent chest CT scan done 4 months later (Fig. 1d). The right upper lobe mass with peripheral calcification remained stable in size, suggesting that it was also of benign nature.



**Figure 1.** Serial chest-CT scans: a) Upon presentation November 2011 b) Before bronchoscopy February 2012 c) After bronchoscopy March 2012 d) Follow-up July 2012.



**Figure 2.** a) Bronchoscopic views of the anterior segment of the right upper lobe occluded with a filamentous object. b) The sutures after removal using forceps.

## DISCUSSION

The occurrence of sutures bronchial plug is rare after lung resection. Surgical staples and pledgets migrating into the airway and presenting as metalloptysis [1,2] or airway obstruction [3] have been reported. However, to our knowledge this is the first case report of surgical sutures migrating into the airway and presenting as a lung segmental atelectasis adjacent to a lung mass. Other late complications after lung resection presenting as a lung mass include suture granuloma [4-6] and gossypiboma [7-11]. In this report, we review these late complications of lung resection surgery.

Suture granulomas are relatively common after abdominal surgeries; however, the occurrence of post-surgical pulmonary suture granuloma is very rare, with only few case reports after lung resection surgeries [4-6]. Suture granulomas mimic lung cancer radiologically and are probably the result of infections, and foreign body reaction [4-6].

Thoracic gossypibomas are the result of an inflammatory reaction to textile material left in the thoracic cavity after surgery, with an estimated incidence of 1/5,500 to 1/19,000 operations [7]. Thoracic gossypibomas are associated with an estimated mortality of 15% [8] and a median delay in diagnosis of about 7 years [9]. Gossypibomas may present as a mass or an obstructive endobronchial lesion, associated with cough or hemoptysis [10]. The retained foreign body may cause an aseptic reaction with subsequent fibrosis and granulation tissue formation. Histologically, examination shows aseptic fibrous reaction with encapsulation, granuloma formation, abscess formation or bronchiectasis [11]. Radiologically, gossypiboma may mimic an abscess, empyema, aspergilloma, tumor, chronic granulomatous infection, echinococcal cyst, or a sequestration [11].

Erosion and migration of staples or foreign bodies is a well-described postoperative complication. Bronchial obstruction caused by erosion of Teflon pledgets into the airway has been reported 13 years after surgery [3]. Lyons and Rockwood reported 47 cases of pins and similar orthopedic devices migration around the shoulder area into the chest cavity and the intrathoracic trachea. [12,13]. The pediatric literature also reports cases of pulmonary artery bands migration, causing bronchiectasis [14]. Migration of foreign bodies to the bronchus may result in metalloptysis (staples expectoration) which was described after pulmonary wedge resection and after resection of a mycetoma [15], or lung volume reduction surgery [1,2]. Foreign body migration is usually associated with presence of emphysema or infection [1,2]. Metalloptysis does not usually require treatment or carry significant consequences to the patient.

In conclusion, sutures migration in the airways is a rare but important occurrence as it could radiographically mimic malignancy. In view of a history of bladder carcinoma, and a mass mimicking metastasis on chest CT

scan, a malignancy obstructing the airway was expected in this case. The bronchoscopic finding of sutures obstructing the airways was unexpected but should be considered in the context of previous thoracic surgery. Clinicians should therefore seek confirmatory diagnoses prior to initiating therapy when managing radiographic lung findings mimicking malignancy.

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The manuscript has been read and approved by all authors. Both authors satisfy authorship criteria.

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