Case report - Thoracic non-oncologic

Recurrent chest wall abscesses overlying a pneumonectomy scar: an unusual presentation of a cholecystocutaneous fistula

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Abstract

We report a case of recurrent chest wall abscesses overlying a right thoracotomy scar four years after a pneumonectomy for a right middle lobe bronchus squamous cell carcinoma. Exploration of the abscess cavities revealed no intra-thoracic or intra-abdominal communication. The patient developed sinuses in his thoracotomy scar and two years later, two gallstones were expelled from these sinuses. A cholecystocutaneous fistula was confirmed on a fistulogram.

Keywords: Cholecystocutaneous fistula; Abscess; Pneumonectomy

1. Case report

An 84-year-old-man underwent a right pneumonectomy through a classical right thoracotomy incision for a T2N0 right middle lobe bronchus squamous cell carcinoma. His postoperative recovery period was uneventful. Three years later, he presented to the accident and emergency department with three weeks’ history of intermittent right upper quadrant abdominal pain, nausea, darkening of his urine, and increasing jaundice. His liver function tests were deranged, consistent with obstructive jaundice. Abdominal ultrasound confirmed common bile duct (CBD) dilatation, and multiple gallbladder stones, with no radiological signs of acute cholecystitis. He underwent endoscopic retrograde cholangiopancreatography (ERCP), and three radiolucent 0.5–1.0 cm diameter gallstones were retrieved from the CBD. A 12-mm sphincterotomy was also performed. The patient improved and was discharged a few days later, with a plan to review him in clinic and arrange for an elective cholecystectomy. The patient was not keen on surgery at that stage and a decision was taken to manage him conservatively.

He remained well until one year later, when he developed further episodes of right upper quadrant abdominal pain. Gradually, he started to develop a swelling over his right lower ribs that became more localized over his thoracotomy scar. On admission to our department, he had a 15 × 12-cm abscess that was incised and drained under general anaesthesia. On exploration of the abscess cavity no communication was found with the obliterated right pleural space or with the abdomen. CT-scan of the chest and abdomen showed no pleural communication; however, it showed air within the biliary tree that was attributed to the previous sphincterotomy. Histopathology of the abscess cavity showed no evidence of malignancy, while culture grew Streptococcus milleri that was treated with a two-week course of Amoxicillin and Erythromycin. Eight months later, the patient presented with another swelling and two discharging sinuses in the thoracotomy scar. He underwent a rigid bronchoscopy which showed an intact bronchial stump. Exploration of the sinuses showed a few beads of pus accumulation and again no intra-thoracic or intra-abdominal connection was found and a conservative approach was taken with regular wound dressing. Six years after his pneumonectomy, however, 2–5 mm gallstones were discharged from the sinuses within the old wound scar (Fig. 1).

A fistulogram confirmed communication with the gallbladder, the cystic duct and even the second part of the duodenum (Fig. 2). He was referred for definitive cholecystectomy with excision of the fistulous tracts; however, the patient declined surgery and requested conservative management.

2. Discussion

External spontaneous cholecystocutaneous fistula is a very rare complication of gallbladder disease and over the last 50 years <20 cases have been reported in the literature. The first description was in 1670 by Thilesus [1]. The pathophysiology usually involves obstruction of the cystic duct by calculi or tumour, which results in increased pressure within the gallbladder and eventually decreased blood supply with mural necrosis and perforation. This usually results in acute peritonitis, however, subacute perforation...
with abscess formation can occur and rarely chronic perforation can happen with the formation of internal or external biliary fistulae [2, 3].

Boyd described that the volume and pressure of bile accumulation can cause erosion through the diaphragm, followed by perforation into the pleural cavity, or into the bronchial tree if the lung is adherent to the diaphragm. This can cause empyema, bilioptysis and rarely cholelithoptysis. The empyema can further decompress via fistulization into the chest wall [4].

In our patient, the initial abdominal pain he had most likely reflected a subacute localized perforation of his gallbladder with gallstones spillage. These migrated via the formed fistulae into the diaphragm and then into the obliterated postpneumonectomy space to exit at the thoracotomy scar. They did not result in empyema, instead a large chest wall abscess developed which, despite drainage, persisted and continued to drain some bile slowly and eventually the stones were expelled.

CT-scan and abdominal ultrasound can be helpful in showing a fistulous tract or sometimes adhesion of the gallbladder to an abdominal wall, as well as abscess formation, but fistulogram is the investigation of choice especially in persistent cases. Exploration with cholecystectomy and excision of the fistulous tracts remains the treatment of choice [5].

References