

The Methods Employed in Diagnosis and Treatment of a Rare Cholecystoduodenal Cutaneous Fistula

ALAA ISSA TAYEH MUSTAFA, ABDUL MAJEED CHAUDHRY

ABSTRACT

The objective of this study is to create awareness of cholecystoduodenal cutaneous fistula and ensure that it is not overlooked in cases relating to subcutaneous abscess, as did happen in this case. The study outlines the possible causes of the disease, the efficiency of surgery in the management and the importance of radiology in this case. We shall explore the treatment and diagnosis of rare cholecystoduodenal cutaneous fistula, in an elderly patient in Ireland.

Keywords: Cholecystoduodenal cutaneous fistula

INTRODUCTION

A cutaneous fistula is an abnormal passage leading from an internal organ to the surface of the body, for example renocutaneous or vesicocutaneous. It is usually, the result of trauma, surgery or occasionally, inflammation. A cholecystoduodenocutaneous fistula is extremely rare and perhaps not something the surgical team would be on the lookout for, when confronted with what might appear to be an uncomplicated abscess. but as in cholecystoduodenal fistula an abnormal communication between gallbladder and duodenum, often secondary to severe cholecystitis with perforation and abscess formation; when stones are present in the gallbladder they may erode through the adjacent duodenal wall. In this case report the fistula developed a cutaneous aspect, which is rare, but how did the fistula develop this tract to the surface of the body?

CASE REPORT

An 83 year old white Caucasian female was admitted to our hospital on the 10/04/2011 complaining of a subcutaneous abscess, circular in shape with regular borders 10x 7 cm, on the right upper quadrant as well the abscess was oozing blood stained fluid and very tender. On admission her vitals were: temp 36.8°, pulse 72, BP 208/104 and RR 20, LFTs normal. There was no temperature, shivering or cough or complaint of epigastric pain. Several weeks prior to hospitalization the skin of the affected area was red and swollen until the problem area burst preceding the patient's admission. She presented herself through Accident & Emergency and was admitted by the surgical team on call as there was the possibility that this woman would require surgical drainage,

*Consultant Surgeon, Wexford General Hospital, Ireland
Correspondence to Dr. Alaa Issa Mustafa Tayeh Email
dralaaissa@yahoo.com*

which is carried out by general anesthetist at our hospital. The incision and drainage (unroofing of subcutaneous abscess) was carried out at our hospital on 11/04/2011, and the patient received a circular incision over alleged abscess. A Kaltostat dressing every other day was recommended and oral anti-biotics of amoxicillin/clavulanic were discontinued after 5 day.

Findings were multi-loculated subcutaneous, in part phlegmonous, in part abscess, and forming inflammation surrounding the affected area. The skin covering the abscess was sent to histology. These findings were reported as "sections of skin showing abscess formation. There is no evidence of either primary or secondary malignancy".

This was initially thought to be a skin abscess and treated with coamoxyclav and later ciproflox. She did not tolerate the penicillin based antibiotic very well. Abscess swab from 10/04/11 grew E.coli, CNS and pantoea; all-sensitive to amoxicillin. Pus specimen from 11/04/11 grew E.coli, sensitive to amoxicillin. She was presented again on 16/04/11 with the wound oozing green pus.

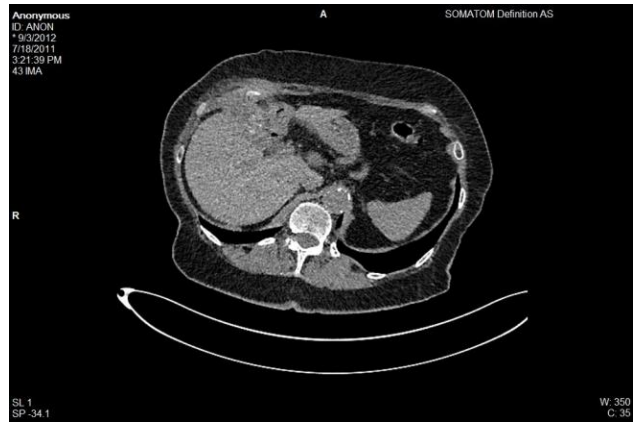
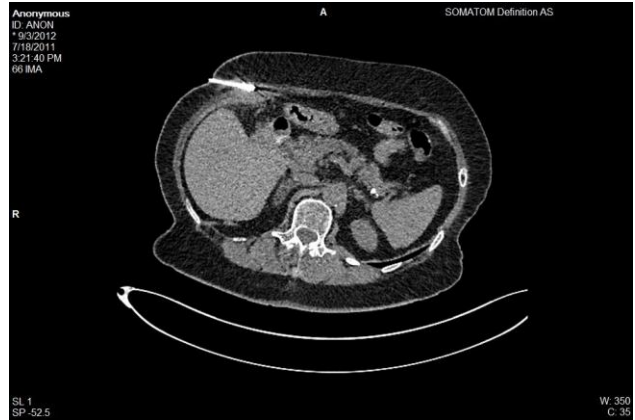
Swabs from the abscess grew E.coli and enterobacter cloacae that were resistant to coamoxiclav, piperacillin/tazobactam. She attended the wound management clinic on 26/04/11 and 10/05/11. It was noted on the first date wound bed was clean and granulating. On the next occasion pus exudate was recorded. The wound was flushed and packed. Swab was sent for C and S, result 10/05/11 Staph aur sensitive to fluroxacillin. E coli was present as a light growth with moderate growth of coagulase negative staphylococcus.

The patient was readmitted on 01/06/ 2011 and it was decided to investigate the source of the skin abscess and discussed the results of the previously ordered fistulography dated July 01/05/11 on account of the huge amount of bile stained fluid following the

unroofing of the abscess carried out in April. This fistulography demonstrated a fistulous tract involving her gallbladder duodenum and common bile duct. The fluroscopy revealed a filling defect in the gallbladder in keeping with a solitary gallstone. An ultrasound was performed on 04/05/11 and reported by consultant radiologist. Based on the finding of the fistulogram and the ultrasound findings the suggestion was that the underlying pathology was in keeping with the presence of an acute cholecystitis and that the inflamed gallbladder had become adherent to adjacent segments of small bowel with fistula or fistulas connecting between the gallbladder and small bowel/duodenum. The consultant radiologist suggested a ct to follow on further to the result of fistulogram. A CT was carried out on the abdomen on 18/05/11. Since the fistulogram had been carried out, output from the percutaneous fistula had ceased.

Consultant radiologist reported that there was difficulty in passing the angiographic catheter beyond the level of the abdominal wall. Some contrast eventually did enter the gall bladder and the duodenum but this tract was not easy to identify. However there were large calcified gallstones in the thick walled gallbladder. This was taken as secondary evidence of communication and air was present in the gallbladder. None of the injected contrast appeared in the common bile duct, as visible to the examiner. The presence of air in the gallbladder and the contrast visible in the duodenum was seen as secondary evidence of communication between the gallbladder and duodenum. The fistula allows decompression of the gallbladder and passage of the gallstones from the gallbladder into the bowel, and also allows gas to enter the biliary tree. Axial CT series shows fistulous track from duodenum thro gallbladder to the anterior abdominal wall with pigtail drain in the tract, gallstones and gas noted in the gallbladder lumen.

Axial CT series shows fistulous track from duodenum through gallbladder to the anterior abdominal wall with pigtail drain in the tract, gallstones and gas noted in the gallbladder lumen.



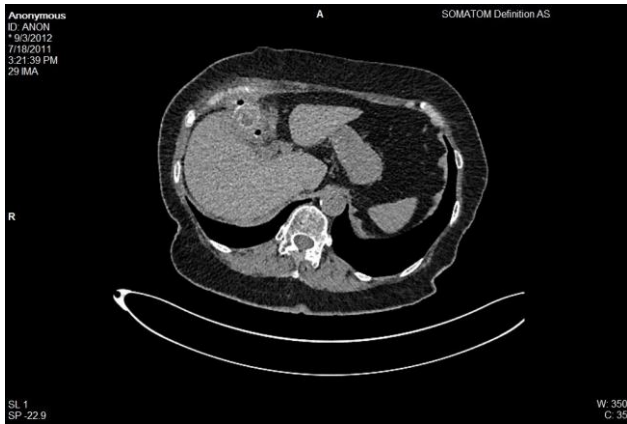
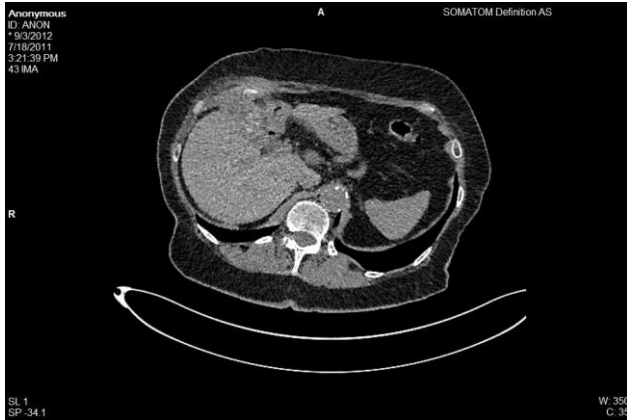


Fig. 1: Computed tomography findings (a) a gallstone measuring 0 cm in the terminal ileum (arrow), (b) pneumobilia (arrow head) and cholecystoduodenal fistula (arrow).

A sequential non-contrast /contrast ct was ordered as was an upper GI endoscopy to access the anatomy on the 29/05/11 an OGD was performed with an olympus, which identified a small hiatis hernia, less than 2cm.

On the 16/07/12, the patient was admitted for an open repair of a cholecystoduodenocutaneous fistula.

An elective admission on 16th July 2012 to carry out a cholecystoduodenocutaneous fistula repair and cholecystectomy (cholecystoduodenostomy). The surgery was carried out by the consultant, an operative choleingiophe as well carried out.

Fig. 2: Endoscopic view



Findings of the surgery concurred with evidence gathered by diagnostics, i.e., CT scan and fistulagram, Fistulous tract, fibrotic adhesions of gallbladder and duodenum to anterior abdominal wall, barrel gallstones, fistula from gallbladder into d1.

The admission complicated by seroma oozing from the wound. Hb was 7.6mg/dl post operatively and 2 x RCC administered. Postoperatively she was admitted into ICU. She was put on antibiotic treatment and supportive nutrition. She developed enterobacter cloacae in the hospital as a surgical wound infection. She was discharged on the 26th of July.

DISCUSSION

My interest in this case as a surgeon and a nonconsultant hospital doctor is three fold, firstly to make sure that the patient has a good outcome postoperatively, secondly to find reasons why this patient developed such a rare condition and thirdly why the patient did not develop jaundice with the presence of stone in the CBD obstructing the bile flow.

There are articles from all over the world, from Africa, Asia, America and Europe but there is not any direct mention that I could find of the occurrence of a cholecystoduodenocutaneous fistula without the patient having previously had gall bladder exploratory treatment or surgery.

The patient confirmed while I was taking her notes that she had TB in 1948. She also took

NSAIDs for many years. She did suffer occasionally from acid reflux but never had any treatment for a peptic or duodenal ulcer. She also suffers from irritable bowel syndrome. Perhaps the long term use of Diclofenic Acid may have been masking the symptoms of the calcified gallstone and these stones ultimately eroded her bile duct or duodenum, which resulted in the fistula. There is also suggestion in the literature that TB may predispose a patient to gallbladder injury.

The cutaneous aspect of the fistula might have developed as a result of the build up of pressure in the CBD and gallbladder, as the bile was unable to take its correct course. Consequently any weakness in the body would be exploited and the previous illness of TB might have left just such an ischemic area in this region.

The role of pancreatic enzyme is not clear. Some research suggests that acid erosion is a major contributor to fistulas and that medical treatment with H₂ antagonists together with good nutrition and antibiotics should first be tried to aid the healing process.

At this point in time the surgical wound at its lower end is discharging yellow pus and the fistula is clean and clear but intact. This could now be the right time to introduce a tetracycline wash through the fistula/sinus, in order to irritate it sufficiently to close. The use of tetracycline is well documented, with great success, in other similar situations.

The difference between a cholecystoduodenocutaneous fistula and choleodochoduodenal cutaneous fistula is that LFTs would always be normal in a cholecystoduodenocutaneous fistula. The differential diagnosis in case reports of cholecystocutaneous fistula in the past 50 years from 1961 to 2011:

- Infected epidermal inclusion cyst
- Discharging tuberculoma
- Chronic osteomyelitis of ribs with sequestrum
- Metastatic carcinoma

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