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Peritoneo-Cutaneous Fistula Secondary to Pigtail Catheter Insertion in a Blunt Abdominal Trauma Patient: A Case Report

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Abstract **Case Report**

We hereby present the first case of iatrogenic peritoneal-cutaneous fistula (PCF) formed at the site of removal of the pigtail catheter. The patient was admitted and underwent local site fistulous tract excision under general anaesthesia. Patient was discharged after an uneventful post-op period. Our intervention led to closure of the fistula leading to improved quality of life of the patient. Our case demonstrates that PCF can be created due to epithelialization secondary to chronic inflammation in a previous pigtail catheter tract.

Keywords: Iatrogenic, peritoneal-cutaneous fistula, pigtail catheter.

INTRODUCTION

A fistula is an abnormal connection between two epithelized surfaces. Fistulas can form between any two hollow spaces including blood vessels, intestine, vagina, bladder, and skin. There may be several causes of fistula formation, some of them are; foreign body, radiation, inflammation or infection, neoplasm, distal obstruction etc [1].

A pigtail is a rubber catheter with curled tail which is used to drain different types of body fluids (eg: purulent collection, bile, blood) outside. The importance of pigtail drainage in modern medicine is immense and often the only life-saving tool available. In a blunt trauma abdomen pigtail guided extraperitoneal drainage is a common sought out option for large intraperitoneal collection.

A peritoneo-cutaneous fistula (PCF) is defined as an epithelized tract between skin and peritoneum connecting the peritoneal cavity to the external environment. There are only a handful of cases are mentioned in literature describing this unusual fistula tract formation. Moreover, to our best knowledge, no such case has yet been reported in a trauma patient. Hence, we are reporting the first case of PCF formation following pigtail guided drainage of hemoperitoneum in a blunt abdominal trauma patient.

CASE REPORT

A 19-year-old man presented to trauma OPD 6 months after a road traffic injury followed by blunt trauma abdomen. The patient's chief complaint was a non-healing discharging wound in the right hypochondrium for last 4.5 months. Patient gave history of irregular fever episodes without chills, however, patient was afebrile since last 2 weeks when he came to our OPD. There was no history of nausea, vomiting, abdominal pain, loss of appetite, weight loss or any other bowel/ bladder related complaints. On general examination, he looked distressed, but vitally stable. Abdominal examination revealed no significant findings with normal peristaltic sound. Further examination revealed that the wound site was actually a previous pigtail catheter insertion scar which was located in the right hypochondrium in the mid-axillary line. There was evidence of serous discharge from the wound on manual compression. The discharge was colourless and odourless. Patient also gave history of increase in discharge quantity on sitting posture. There was no tenderness on compression of surrounding skin. The pigtail scar site appeared otherwise normal with no evidence of acute inflammation in the surrounding tissue. Patient revealed that he had been visiting local doctors and hospitals with the same complaints since last 4.5 months but there was no relief.

Further history disclosed that the patient was previously admitted in the Trauma Surgery department of our institution with a diagnosis of Grade 5 liver injury

with Right hepatic artery injury with active contrast blush with Right posterior sectoral duct injury with gross hemoperitoneum. He was a victim of road traffic injury following two wheeler vs four wheeler head on collision. On arrival in Trauma Emergency, primary stabilization was done and He then underwent Right Hepatic artery angioembolization for active bleeding. Post procedure he developed abdominal distension which was on increasing trends causing severe respiratory discomfort. Decision was then taken for pigtail insertion in view of progressive respiratory discomfort and suspicion of biliary peritonitis. A pigtail drain was placed and around 1500 ml of blood mixed with bile drained. Over the next few days the abdominal distension gradually subsided and he made complete recovery. The pigtail was removed after 10days and then patient was discharged. He came to our OPD after 6months with the above mentioned complaints and was admitted for further management.

An X-ray fistulogram was done to understand the anatomy of the discharging tract and it revealed a PCF extending till the hepato-renal pouch of Morrison (Fig. 1). Decision was taken for surgical removal of the fistula tract. Intraoperatively it was found that the fistula tract was undergoing 'Y' shaped division after 3cm subcutaneous course (Fig. 2). One of the divisions was reaching the Foramen of Winslow measuring around 12cm and the other one was adhered to the posterior surface of the anterior abdominal wall measuring about 10cm (Fig. 2). Diameter of both the tracts were irregular along its course.

Post operatively patient was kept in ward and he made an uneventful recovery. Patient was discharged on POD-3 and was then followed up in OPD after 7days and 1 month. Patient did not have any complaints on further visits and operative site healed completely.

Figure 1

Figure 2

DISCUSSION

So far, very few cases of PCF have been reported. These include the following:

- Peritoneal-cutaneous fistula (PCF) within ovarian carcinoma neoplastic infiltrates located inside a large abdominal hernia [2]
- A PCF secondary to a perforated Dalkon shield [3]
- A delayed PCF post-bilateral nephrectomy [4]
- A delayed PCF from non-retrieved gallstones during laparoscopic cholecystectomy [5]
- A PCF from spilled gall bladder calculus following laparoscopic cholecystectomy [6]
- A PCF secondary to skin excoriation from a large chronic incisional hernia [7]
- A PCF secondary to gallstone dropped at laparoscopic cholecystectomy 20 years earlier [8]

Here we can see that the evidence of PCF formation itself is a very rare occasion. Very few cases have been described so far and none of them includes trauma. In our case the patient presented with PCF as a post-trauma management complication. The probable aetiology in our case might be recurrent infection leading to chronic inflammatory state and epithelization of the pigtail tract.

Diagnosis of a PCF might be difficult considering its rarity. Standard surgical textbooks don't contain much information in this topic. Previous literatures have suggested use of CT and MRI for the proper diagnosis [6]. However, in our case, an X-ray fistulogram was sufficient for the diagnosis as there was no other associated complications. Entero-cutaneous fistula (ECF) might be an important differential diagnosis in these type of patients. In this case, there was no abdominal symptoms and the discharge was odourless and colourless, thus ruling out the possibility of an ECF.

Surgical intervention is the most common method of management in these type of fistulae. However, there are reports on non-operative PCF management as well, particularly when the patient is not in a stable condition for surgery [2]. Our patient was vitally stable and young and hence surgical management was the best possible option here. The key point in the surgical intervention is to remove the entire fistula tract.

CONCLUSION

PCF in a post-traumatic condition is extremely rare and to our best of knowledge, this case is first of its kind. There are many indications of pigtail guided drainage of intraperitoneal collection after blunt abdominal trauma. This type of complication should be kept in mind while treating similar patients. Patient should be made aware of this complications and should be asked for prompt follow up. Surgical management

should be the preferred option for quick result and ultimate patient satisfaction.

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