CASE REPORT

Transarterial embolisation of cystic artery pseudo aneurysm: a rare complication of acute cholecystitis

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Abstract

Pseudo aneurysm of cystic artery is an extremely rare complication which may occur in association with cholecystitis, liver biopsy, biliary interventions, pancreatitis and laparoscopic cholecystectomy. We report the case of a 55 years old male patient who presented with complaint of right upper quadrant pain, haematemesis and melena, he underwent CT scan abdomen that revealed perforated gall bladder with cystic artery pseudo aneurysm secondary to acute cholecystitis. An angiogram was performed that confirmed small cystic artery pseudo aneurysm. Selective embolisation of cystic artery was done, resulting in complete exclusion of pseudo aneurysm. The patient recovered completely.

Keywords: Cystic artery, Pseudo aneurysm, embolization.

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Introduction

Cystic artery pseudo aneurysm is a rare pathology therefore its exact incidence is still not known[1]. Various cases have been reported to date, which include patients who underwent laparoscopic cholecystectomy, ERCP, liver biopsy, and transplant. Trauma, arteriovenous malformations, inflammation and tumours of hepatobiliary and pancreatic system have also emerged as leading causes in recent studies.[2,3]. Common clinical manifestations include right hypochondriac pain, jaundice, gastrointestinal haemorrhage and haemobilia but can also be asymptomatic.[3]

Rupture of cystic artery pseudo aneurysm can result into severe intraperitoneal bleed[2] and hypovolaemic shock and therefore immediate cholecystectomy and urgent embolization is warranted.

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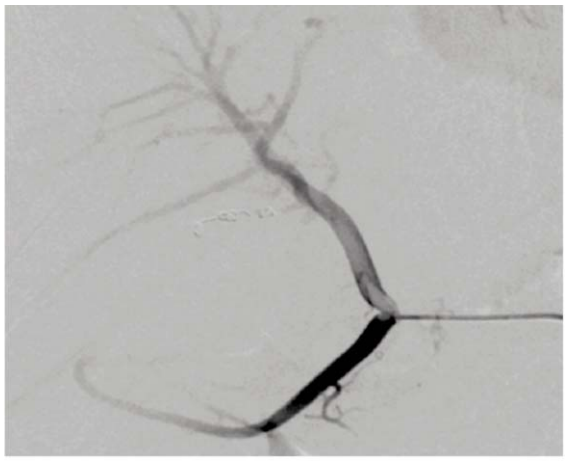
Case Report

A 55 years old male with previous history of acute calculus cholecystitis presented to the Emergency department of Liaquat National Hospital, Karachi on April 24th 2021 with complaints of right upper quadrant pain, haematemesis and melena since one day. Laboratory investigations showed low Hb (11.5g/dl). Leucocyte count and liver function tests were in normal range. His Blood pressures and oxygen saturation were normal. The patient had tachycardia with a heart rate of 120bpm. Ultrasound of upper abdomen showed thickened gall bladder having wall thickness of 6mm with peri-cholecystic fluid, cholelithiasis and focal walled off gall bladder perforation. The patient then underwent enhanced CT scan abdomen with oral and IV contrast on 24-04-2021 that revealed thick walled gall bladder with focal gall bladder perforation, pericholecystic fluid and pseudo aneurysm arising from cystic artery. Intraluminal high density CT suggested sludge and haemorrhage along with cholelithiasis. Common bile duct was dilated measuring 1.2cm. However intrahepatic bile ducts were not dilated. Portal vein and pancreas were normal. After initial resuscitation, patient was shifted to angiography lab. Through right femoral artery approach, using 5 fr C1 catheter (Terumo) right hepatic artery was cannulated and angiogram was obtained. Angiogram showed a small saccular pseudo aneurysm arising from cystic artery (Figure 1A). Using micro catheter (Progreat, Terumo)

Figure-1 (A): Pre-embolisation angiogram obtained from common hepatic artery shows a contrast filled out pouching (pseudo aneurysm) arising from the cystic artery.



B.

Figure-1 (B): Post embolization angiogram shows complete exclusion of pseudo aneurysm.

selective cannulation of cystic artery was done and embolisation performed using coils. Complete exclusion of cystic artery pseudoaneurysm was seen on post embolisation angiogram[1] (Figure 1B). No further episode of bleeding occurred. On 24 hour follow up patient was vitally stable with static haemoglobin.

The patient remained in the hospital for four days and then was discharged. At 4-months follow-up, patient remained stable and asymptomatic.

Discussion

Cystic artery pseudo aneurysm usually occurs as a complication of cholecystectomy but some authors have reported cases that occurred secondary to acute cholecystitis as seen in our case. The inflammation and fibrosis occurring secondary to cholecystitis causes weakness within arterial wall that leads to pseudo aneurysm formation[4]. Contrast enhanced CT scan with triphasic protocol have proved to be sensitive in detecting pseudo aneurysms. It also helps in detecting the underlying cause and in planning percutaneous interventions. Initially, open surgical approach was used to treat patients with cystic artery pseudo aneurysm, however now endovascular approach has emerged as safe, less invasive and effective treatment. It reduces complications and fastens patient's recovery with decreased hospital stay.

Ahmed and Tanveer[5] reported a case of cystic artery pseudo aneurysm associated with xanthogranulomatous cholecystitis in March 2014. In 2020 Frank Carey and colleagues reported a case of CAP presenting with massive per rectal bleed.[2] In either cases mode of treatment was endovascular catheterization. In this case timely diagnosis and minimally invasive endovascular embolization resulted in an effective and rapid treatment of CAP lead to quick recovery

Conclusion

Cystic artery pseudo aneurysm is an unusual complication of acute cholecystitis which usually presents with gastrointestinal bleed, upper abdominal pain and haemobilia. Timely diagnosis combined with endovascular embolisation is an efficient and safe treatment approach as demonstrated in our case.

Consent: Verbal consent was taken from the patient for publishing the case.

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Conflict of Interest: None.

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Abbreviations:

CAP: cystic artery pseudoaneurysm
CT: computed tomography
ERCP: endoscopic retrograde cholangiopancreatography
PVA: polyvinyl Alcohol.

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