

Cystic Artery Pseudoaneurysm Secondary to Acute Cholecystitis

ABSTRACT

Aim: The aim of this study was to identify the clinical presentation, complication, and treatment options of cystic artery pseudoaneurysm. **Background:** Cystic artery pseudoaneurysm is rare. It often arises postoperatively, following endoscopic retrograde cholangiopancreatography, and is rarely caused by acute cholecystitis. Clinical presentation is often followed by rupture of a pseudoaneurysm. Asymptomatic cystic artery pseudoaneurysm may be discovered incidentally on computed tomography. Ultrasound and computed tomography are useful noninvasive diagnostic methods. However, angiography is confirmatory. Selective transcatheter coil embolization can be successfully performed in most cases. **Case Description:** We report the case of a 32-year-old woman who has complained of abdominal pain, fever, and jaundice for 15 days. On evaluation, she had acute cholecystitis with choledocholithiasis and a cystic artery pseudoaneurysm. This was managed with percutaneous transcatheter embolization. **Conclusion:** Incidentally detected cystic artery pseudoaneurysm following acute cholecystitis is rare. Computed tomography with angiography is the ideal modality of investigation. Selective transcatheter coil embolization can be successfully performed in most cases with subsequent definitive treatment for the underlying pathology.

Key words: Cholecystitis, Cystic artery, Pseudoaneurysm

INTRODUCTION

Cystic artery pseudoaneurysm following acute cholecystitis is rare. In most cases, it was following cholecystectomy or endoscopic retrograde cholangiography (ERCP). Rupture of a pseudoaneurysm leads to bleeding that can be life-threatening. Patients may present with hemobilia. Most hemobilia are minor and self-limiting and present as hematemesis or melaena. Due to availability, ultrasonography (USG) seems to be the first line of investigation. However, due to its subjective nature and low sensitivity, it is often difficult to localize the exact site of the pseudoaneurysm with USG. Computed tomography (CT) angiography aids in the identification of a pseudoaneurysm of more than 1 cm in size. Due to the risk of rupture, ligation of the cystic artery pseudoaneurysm followed by cholecystectomy is the treatment of choice. Percutaneous selective cystic artery embolization is minimally invasive, safe, and superior to achieving hemorrhagic control.

CASE REPORT

A 32-year-old woman presented with complaints of abdominal pain, fever, and jaundice for 15 days. She was icteric with tenderness in the right upper quadrant. Her biochemical parameters revealed, total bilirubin of 7 mg/dl, with a direct fraction of 2.7 mg/dl, and alkaline phosphatase of 778 IU. Ultrasonography (USG) abdomen revealed gallbladder wall thickness of more than 7 mm, with the presence of multiple gallstones suggestive of acute cholecystitis and choledocholithiasis. Computed tomography (CT) scan

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abdomen revealed acute cholecystitis with choledocholithiasis. Subsequent magnetic resonance cholangiopancreatography revealed similar findings. In view of the above findings, she was managed conservatively with intravenous fluids and antibiotics. Successively, she was posted for endoscopic ERCP with ductal clearance and stenting. However, on the 2nd day following ERCP, she had an episode of hematemesis, and her hemoglobin and hematocrit level dropped to more than 10%. After resuscitation, upper gastrointestinal scopy (UGI scopy) was performed, which was unremarkable. CT scan revealed, blush near gallbladder with suspected rupture of cystic artery pseudoaneurysm [Figure 1a].

In view of these findings, the patient underwent selective cystic artery coil embolization and had an uneventful post-procedure recovery [Figure 1b]. She subsequently underwent an interval laparoscopic cholecystectomy after 4 weeks.

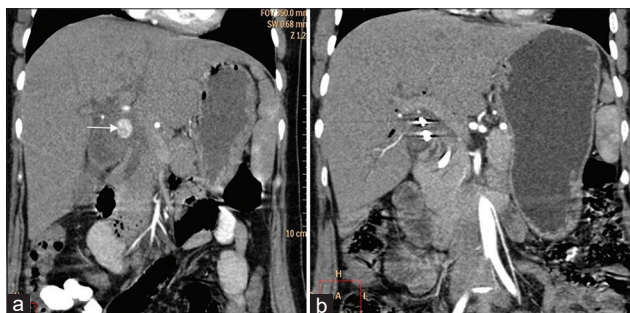


Figure 1: (a) Computed tomography (CT) scans showing cystic artery pseudoaneurysm (arrow). (b) CT scan showing resolution of cystic artery pseudoaneurysm after embolization

DISCUSSION

The majority of cystic artery pseudoaneurysm was reported following biliary procedures, such as cholecystectomy or ERCP.^[1] Cystic artery pseudoaneurysm following cholecystitis is rare. Inflammatory changes surrounding the gallbladder are responsible for the occurrence of pseudoaneurysm in the adjacent cystic artery.^[2] Similar inflammatory changes in the gallbladder could be the cause in the presented case. Rupture of a pseudoaneurysm leads to bleeding in the biliary system or peritoneal cavity. Patients may present with hemobilia. Most hemobilia are minor and self-limiting and present as hematemesis or melaena. In patients with a ruptured hepatic artery aneurysm, Heinrich Quincke described a triad of gastrointestinal bleeding, biliary colic, and jaundice. However, this triad is present in only 22% of patients.^[3] USG seems to be the most preferred initial modality of investigation. However, it is difficult to localize the exact site of the pseudoaneurysm.^[4] CT angiography detects a pseudoaneurysm of more than 1 cm in size and is the standard investigation of choice.^[5,6] UGI scopy will identify active bleeding from the papilla; however, it may miss the intermittent bleeding. Due to the risk of rupture and bleeding, ligation of the cystic artery pseudoaneurysm followed by cholecystectomy is the treatment of choice. In hemodynamically unstable patients, percutaneous selective cystic artery embolization is safe and superior to achieving hemorrhagic control. It shows less morbidity and mortality as compared to open surgical procedures.^[7] In our case, the

patient revealed complete resolution of symptoms following embolization of a pseudoaneurysm and was posted for interval cholecystectomy after 4 weeks.

CONCLUSION

Incidentally detected cystic artery Pseudoaneurysm is rare. A high index of suspicion is crucial for the early detection of asymptomatic cystic artery pseudoaneurysm to have a favorable outcome. Computed tomography with angiography is the ideal modality of investigation. Selective transcatheter coil embolization can be successfully performed in most cases with subsequent definitive treatment for the underlying pathology.

REFERENCES

1. Saldinger PF, Wang JY, Boyd C, Lang E. Cystic artery stump pseudoaneurysm following laparoscopic cholecystectomy. *Surgery* 2002;131:585-6.
2. Alis D, Ferahman S, Demiryas S, Samanci C, Ustabasioglu FE. Laparoscopic management of a very rare case: Cystic artery pseudoaneurysm secondary to acute cholecystitis. *Case Rep Surg* 2016;2016:1489013.
3. Belfonte C, Sanderson A, Dejenie F. Quincke's triad: A rare complication of a common outpatient procedure. *Am J Gastroenterol* 2011;106:S277.
4. Babra CA, Bret PM, Hinchey EJ. Pseudoaneurysm of the cystic artery; A rare cause for hemobilia. *Can J Surg* 1994;37:64-6.
5. Kaman L, Kumar S, Behra A, Kateriya RN. Pseudoaneurysm of the cystic artery: A rare cause of hemobilia. *Am J Gastroenterol* 1998;93:1535-7.
6. Nakajima M, Hoshino H, Hayashi E, Nagano K, Nishimura D, Katada N, *et al.* Pseudoaneurysm of the cystic artery associated with upper gastrointestinal bleeding. *J Gastroenterol* 1996;31:750-4.
7. Desai AU, Saunders MP, Anderson HJ, Howlett DC. Successful transcatheter arterial embolization of a cystic artery pseudoaneurysm secondary to calculus cholecystitis: A case report. *J Radiol Case Rep* 2010;4:18-22.

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