Dangers of a Dislodged Percutaneous Cholecystostomy Tube: Common Femoral Artery Mycotic Aneurysm

Matthew J Billy, DO; Eugene Cullen Roe, DO; Melissa Obmann, DO
Geisinger Wyoming Valley, Wilkes-Barre PA

Background

- Percutaneous cholecystostomy tube (PCT) placement is frequently employed for patients with acute cholecystitis in the setting of poor operative candidacy to obtain source control.
- PCT has a low mortality rate, is minimally invasive, and provides relief in over 90% of cases. This, however, is not without risk including: bleeding, dislodgement, visceral injury, and nidus for ongoing infection.
- Mycotic aneurysms are a rare clinical entity, with rupture being the main cause of their high morbidity and mortality if left untreated. Staphylococcus aureus followed by E. Coli and Salmonella species being the most common isolates.
- In most clinical scenarios, the etiology of the bacterial isolate is unknown or unable to be determined

Case Description

We present a 68-year-old-male with a history of chronic kidney disease, CVA, CAD, who initially presented to the hospital in septic shock with altered mental status. Initial CT, US, and HIDA were consistent with acute calculous cholecystitis. Given the patient's poor operative candidacy, a PCT was placed by interventional radiology. Blood cultures were positive for Salmonella species by DNA PCR as were biliary fluid samples. The patient was discharged to a skilled nursing facility, where several week later the PCT was dislodged entirely. He represented two months later with recurrence of his initial symptoms. In additional, he was found to have a new pulsatile mass in his left groin. A new limited abdominal ultrasound demonstrated a contracted gallbladder, not amenable to PCT replacement. CTA demonstrated a 4cm left common femoral aneurysm with inflammatory stranding consistent with mycotic aneurysm. Vein mapping was performed, and he was without an adequate autologous conduit.

The patient underwent an uncomplicated laparoscopic cholecystectomy for source control first. This was followed by left common femoral artery aneurysm resection, external iliac to superficial femoral artery interposition graft with cryopreserved femoral vein, profunda femoral artery reimplantation and sartorius muscle flap. Final tissue pathology from the mycotic aneurysm was Salmonella *enterica*.



Figure 1. Limited abdominal ultrasound on re-admission, contracted gallbladder with a thickened wall

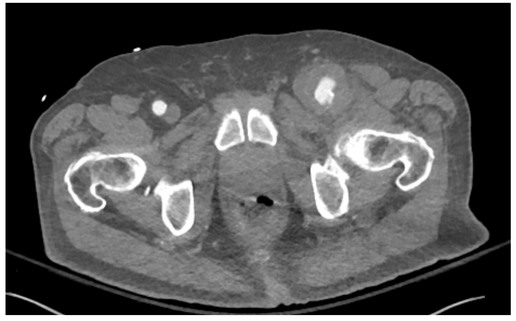


Figure 2. Axial CT. Left common femoral artery with a 4cm aneurysm with peripheral thrombosis



Figure 3. Processed and reconstructed CT images from CTA abdomen with run-off. Left common femoral artery aneurysm.

Discussion and Conclusions

- Cholecystectomy remains the mainstay of treatment for patients with acute cholecystitis that can tolerate the procedure. PCT is a viable alternative in high-risk patient populations. Interval cholecystectomy can be pursued if their condition or risk factors resolve.
- PCT is a lower risk alternative for temporary source control in high-risk patients, however, is not necessarily a permanent or no-risk solution.
- This case highlights one of the dangers of percutaneous cholecystostomy. Dislodgement can lead to a recurrence of the infection, and if this is not identified immediately, can lead to fulminant systemic infection.
- In this case, a life-threatening mycotic aneurysm was the resultant complication of PCT. Although a rare clinical entity, the cause of it, as demonstrated in this case, was a common complication of PCT that we see in clinical practice.
- Clinicians should strongly consider this danger when discussing PCT with patients and should have a high index of suspicion when patients are representing with signs of recurrent infection.

References

- Vogelzang RL, Nemcek AA., Jr Percutaneous cholecystostomy: diagnostic and therapeutic efficacy. Radiology. 1988;168:29–34.
- Sugiyama M, Tokuhara M, Atomi Y. Is percutaneous cholecystostomy the optimal treatment for acute cholecystitis in the very elderly? World J Surg. 1998;22:459–463.
- Brown, S L et al. Bacteriologic and surgical determinants of survival in patients with mycotic aneurysms. Journal of vascular surgery vol. 1,4 (1984): 541-7.
- Winbladh A, Gullstrand P, Svanvik J, Sandstrom P. Systematic review of cholecystostomy as a treatment option in acute cholecystitis. HPB (Oxford). 2009;11: 183–193.
- Hsieh YC, Chen CK, Su CW, Chan CC, Huo TI, Liu CJ, et al. Outcome after percutaneous cholecystostomy for acute cholecystitis: a single-center experience. J Gastrointest Surg. 2012;16: 1860–1868. pmid:22829241
- Wang, Chih-Hung et al. "Long-Term Outcomes of Patients with Acute Cholecystitis after Successful Percutaneous Cholecystostomy Treatment and the Risk Factors for Recurrence: A Decade Experience at a Single Center." *PloS one* vol. 11,1 e0148017. 28 Jan. 2016, doi:10.1371/journal.pone.0148017

Geisinger