

# Overview of Right Hepatic Artery Pseudoaneurysm due to Cholecystitis: Causes, Clinical Presentation, Diagnosis, and Treatment Options

Taylor Stewart\*

Department of Medicine, George Washington University School of Medicine, Washington, USA

## DESCRIPTION

Cholecystitis is a common inflammatory condition affecting the gallbladder, usually caused by gallstones. While cholecystitis itself can lead to various complications, one rare but potentially life-threatening complication is the development of a pseudoaneurysm in the right hepatic artery. This article provides an overview of right hepatic artery pseudoaneurysm due to cholecystitis, including its causes, clinical presentation, diagnosis, and treatment options.

### Causes and pathophysiology

Cholecystitis is typically caused by the obstruction of the cystic duct by gallstones, leading to inflammation of the gallbladder. The inflammatory process can extend beyond the gallbladder, affecting the surrounding structures such as the hepatic artery. Pseudoaneurysm formation in the right hepatic artery occurs when the inflammatory process erodes the arterial wall, resulting in a weakened area that can balloon out and form a false aneurysm. This erosion may be due to the direct effect of inflammation or pressure from adjacent structures, including gallstones or abscesses [1,2].

### Clinical presentation

The clinical presentation of a right hepatic artery pseudoaneurysm can vary depending on its size and the presence of associated complications. In some cases, patients may remain asymptomatic until the pseudoaneurysm ruptures, leading to severe internal bleeding. However, when symptoms do occur, they can include right upper quadrant abdominal pain, jaundice, fever, and signs of peritonitis. If the pseudoaneurysm compresses nearby structures, patients may also present with biliary obstruction or hepatic infarction [3,4].

### Diagnosis

The diagnosis of a right hepatic artery pseudoaneurysm due to cholecystitis requires a high index of suspicion and a combination of imaging modalities. Ultrasonography is often the initial imaging modality used to evaluate patients with suspected complications of

cholecystitis. It can reveal gallstones, gallbladder wall thickening, pericholecystic fluid, or signs of biliary obstruction. However, it may not always identify the pseudoaneurysm itself [5].

In cases where the diagnosis remains uncertain, further imaging with Computed Tomography (CT) or Magnetic Resonance Imaging (MRI) may be warranted. These imaging techniques can provide more detailed information about the hepatic artery and its branches, as well as identify the pseudoaneurysm and assess its size, location, and relationship with adjacent structures [6].

### Treatment options

The management of right hepatic artery pseudoaneurysm due to cholecystitis depends on various factors, including the patient's clinical condition, the size and location of the pseudoaneurysm, and the presence of associated complications.

In stable patients without evidence of rupture or significant bleeding, a conservative approach may be considered. This involves close monitoring of the patient's condition with repeat imaging studies to assess the pseudoaneurysm's stability over time. However, given the potential risk of rupture, conservative management is generally reserved for selected cases and requires regular follow-up [7].

In cases where the pseudoaneurysm is large, rapidly expanding, or associated with signs of impending rupture, prompt intervention is necessary. The treatment options include endovascular techniques and open surgical repair. Endovascular techniques involve the placement of coils, stents, or embolization agents to exclude the pseudoaneurysm from the arterial circulation. This minimally invasive approach can be effective in achieving pseudoaneurysm occlusion and reducing the risk of rupture.

Open surgical repair may be required in complex cases or when endovascular techniques are not feasible or contraindicated. This involves direct surgical access to the pseudoaneurysm, ligation or excision of the pseudoaneurysm, and repair of the arterial defect. Surgical intervention may be associated with a higher risk of complications compared to endovascular techniques but can be necessary in certain situations [8].

**Correspondence to:** Taylor Stewart, Department of Medicine, George Washington University School of Medicine, Washington, USA, E-mail: taylorstewart@gmail.com

**Received:** 28-Apr-2023, Manuscript No. APCR-23-24683; **Editor assigned:** 02-May-2023, Pre QC No. APCR-23-24683(PQ); **Reviewed:** 16-May-2023, QC No. APCR-23-24683; **Revised:** 23-May-2023, Manuscript No. APCR-23-24683(R); **Published:** 30-May-2023, DOI:10.35248/2161-0940.23.13.427

**Citation:** Stewart T (2023) Overview of Right Hepatic Artery Pseudoaneurysm due to Cholecystitis: Causes, Clinical Presentation, Diagnosis, and Treatment Options. *Anat Physiol.* 13:427.

**Copyright:** © 2023 Stewart T. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

## Complications and prognosis

Right hepatic artery pseudoaneurysm due to cholecystitis can lead to various complications, the most concerning of which is rupture. If the pseudoaneurysm ruptures, it can result in severe intra-abdominal bleeding, leading to hemorrhagic shock and potentially requiring emergency intervention. Other complications may include biliary obstruction, hepatic infarction, or abscess formation if the pseudoaneurysm compresses adjacent structures or causes vascular compromise [9].

The prognosis of patients with a right hepatic artery pseudoaneurysm depends on various factors, including the promptness of diagnosis and intervention, the patient's overall health status, and the presence of associated complications. Early recognition and appropriate management are crucial to prevent rupture and its associated morbidity and mortality. With timely intervention, the prognosis can be favorable, but delayed diagnosis or treatment can lead to life-threatening consequences [10].

## CONCLUSION

Right hepatic artery pseudoaneurysm due to cholecystitis is a rare but potentially life-threatening complication. It occurs when the inflammatory process associated with cholecystitis erodes the arterial wall, resulting in the formation of a false aneurysm. The clinical presentation can vary, and diagnosis often requires a combination of imaging modalities. Treatment options include conservative management, endovascular techniques, or open surgical repair, depending on the patient's clinical condition and the characteristics of the pseudoaneurysm. Prompt intervention is necessary in cases of impending rupture or significant bleeding. The prognosis can be favorable with early recognition and appropriate management. Awareness of this complication is crucial to ensure timely diagnosis and treatment, thereby reducing the risk of complications and improving patient outcomes.

## REFERENCES

1. Yeh DD, Chang Y, Tabrizi MB, Yu L, Cropano C, Fagenholz P, et al. Derivation and validation of a practical Bedside Score for the diagnosis of cholecystitis. *Am J Emerg Med.* 2019;37(1):61-66.
2. Kalimi R, Gecelter GR, Caplin D, Brickman M, Tronco GT, Love C, et al. Diagnosis of acute cholecystitis: sensitivity of sonography, cholescintigraphy, and combined sonography-cholescintigraphy. *J Am Coll Surg.* 2001;193(6):609-613.
3. Charalel RA, Jeffrey RB, Shin LK. Complicated cholecystitis: the complementary roles of sonography and computed tomography. *Ultrasound Q.* 2011;27(3):161-170.
4. Hermann RE. Surgery for acute and chronic cholecystitis. *Surg Clin North Am.* 1990;70(6):1263-1275.
5. Yokoe M, Hata J, Takada T, Strasberg SM, Asbun HJ, Wakabayashi G, et al. Tokyo Guidelines 2018: diagnostic criteria and severity grading of acute cholecystitis (with videos). *J Hepatobiliary Pancreat Sci.* 2018;25(1):41-54.
6. Bingener J, Thomsen KM, McConico A, Hess EP, Habermann EB. Success of elective cholecystectomy treatment plans after emergency department visit. *J Surg Res.* 2015;193(1):95-101.
7. Yang CB, Zhang S, Jia YJ, Duan HF, Ma GM, Zhang XR, et al. Clinical application of dual-energy spectral computed tomography in detecting cholesterol gallstones from surrounding bile. *Acad Radiol.* 2017;24(4):478-482.
8. Cafasso DE, Smith RR. Symptomatic cholelithiasis and functional disorders of the biliary tract. *Surg Clin North Am.* 2014;94(2):233-256.
9. Dong C, Condat B, Picon-Coste M, Chrétien Y, Potier P, Noblinski B, et al. Low-phospholipid-associated cholelithiasis syndrome: Prevalence, clinical features, and comorbidities. *JHEP Rep.* 2021;3(2):100201.
10. Rosmorduc O, Hermelin B, Boelle PY, Parc R, Taboury J, Poupon R. ABCB4 gene mutation—associated cholelithiasis in adults. *Gastroenterology.* 2003;125(2):452-459.