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Case Report

Inferior epigastric artery aneurysm: a rarest complication of laparoscopic cholecystectomy

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ABSTRACT

Case is an uncommon rare incidental finding of an inferior epigastric artery aneurysm (IEAA) following a routine laparoscopic cholecystectomy performed for symptomatic gallstones. The vascular anomaly with idiopathic thrombocytopenic purpura (ITP) was identified postoperatively, underscoring the critical need for heightened vigilance during surgical procedures to prevent unintended vascular injuries. The case emphasizes the importance of meticulous surgical technique and the potential value of preoperative imaging in identifying such anomalies, particularly in patients considered high-risk.

Keywords: Inferior epigastric artery, Laparoscopic, Cholecystectomy, Aneurysm, ITP, Doppler ultrasound

INTRODUCTION

Laparoscopic cholecystectomy is a widely performed procedure for managing symptomatic gallstones and other gallbladder-related disorders. This procedure has a low incidence of complications. Nevertheless, challenges may arise due to unexpected anatomical variations or undetected vascular anomalies. The IEA, a branch of the external iliac artery, plays a crucial role in supplying blood to the anterior abdominal wall. While an aneurysm of the IEA is exceedingly rare and often asymptomatic. it poses a significant risk if left undetected. Such anomalies are occasionally discovered incidentally during abdominal surgeries so that a few clinical studies are available till now.[1-3]

This report highlights a case where an IEAA was identified post operatively after a laparoscopic cholecystectomy, emphasizing the importance of vigilance in recognizing and managing vascular anomalies.

CASE REPORT

A 49-year-old male with a history of intermittent right upper quadrant abdominal pain, nausea, and dyspepsia was diagnosed with symptomatic cholelithiasis. He also had recently diagnosed ITP and hypertension, with no prior surgical history or other notable medical risk factors. Preoperative investigations, including routine blood tests and abdominal ultrasound, confirmed the presence of gallstones without evidence of significant vascular abnormalities.

The patient underwent conventional laparoscopic cholecystectomy under general anesthesia using the standard four-trocar technique. The surgery proceeded uneventfully, with no intraoperative complications

observed. However, on postoperative day-1, fresh active bleeding in the range of about 600-700 cc was noted in the surgical drain. To manage this, the patient received transfusions of fresh frozen plasma (FFP) and random donor platelets (RDP), blood transfusion (PRBC) and medicines as well.

Due to persistent bleeding, further evaluation was conducted using Doppler ultrasound performed by the interventional radiology (IR) team, pseudoaneurysm was suspected and CT angiography abdomen was advised.

Angiography imaging revealed a 2 mm aneurysm of the branch of inferior epigastric artery, located just right lateral to the umbilical port and adjacent to the right rectus abdominis muscle (Figure 1).

The aneurysm was ruptured probably during blind insertion of umbilical port, resulting in active bleeding. The rupture had led to significant complications, including hematoma formation and ongoing hemorrhage, necessitating urgent medical intervention.

Management

The identification of aneurysm led to a multidisciplinary consultation with an interventional radiologist, who recommended endovascular embolization.

Catheter directed angiography was done and aneurysm was identified followed by embolization was performed successfully using N cyanoacrylate glue. The patient was closely monitored postoperatively for any signs of re-bleed or other complications.

A follow-up Doppler ultrasound was done before discharge to confirm any residual aneurysmal bleed and scheduled one month later to ensure the resolution of the aneurysm and to confirm the absence of residual or recurrent vascular abnormality.

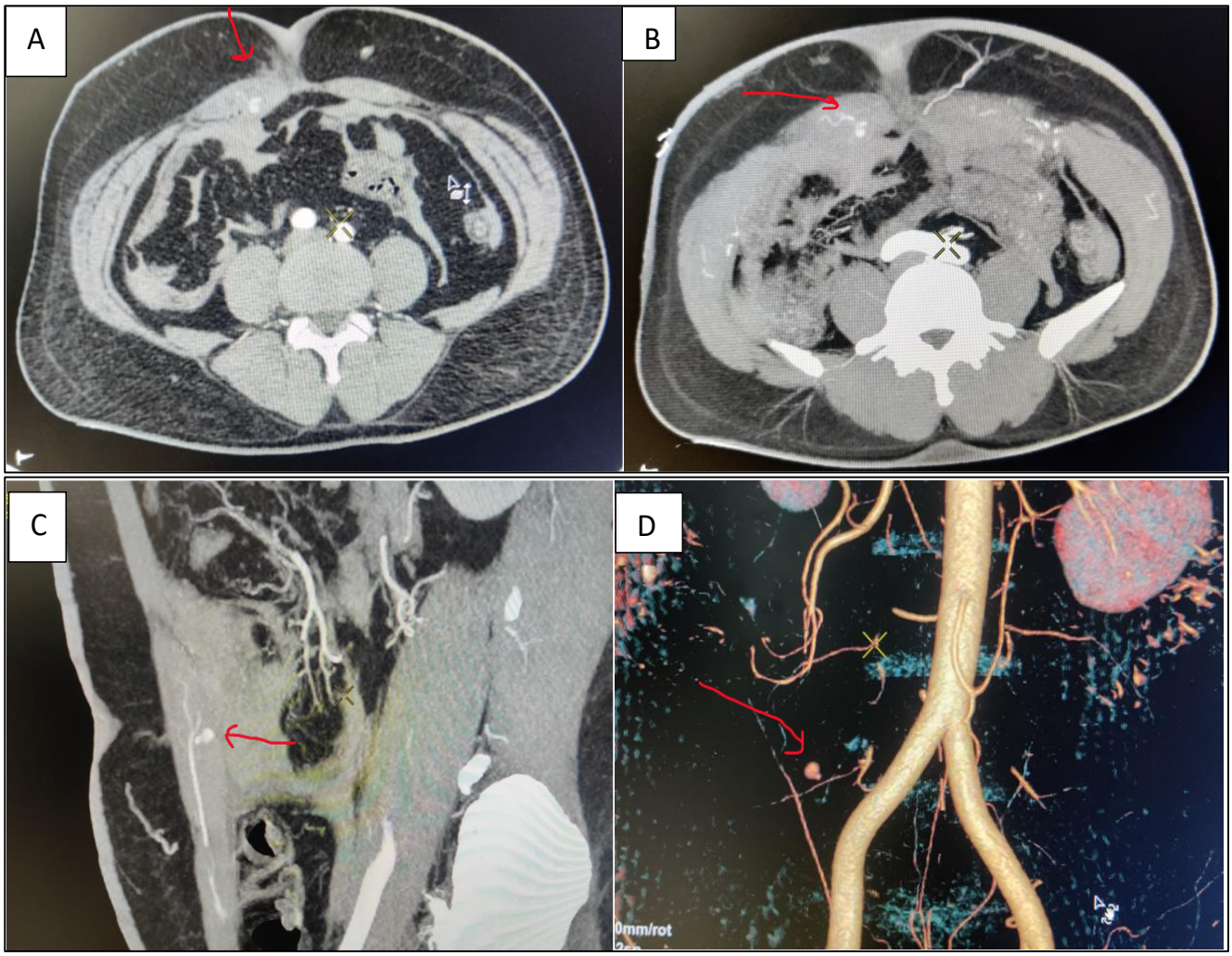

Figure 1 (A-D): CT Angiography (MIP and 3D reconstruction images): A and B axial, C sagittal and D-3D reconstruction images showing small pseudoaneurysm (red arrow) arising from small branch of the right inferior epigastric artery.

Figure 2: A and B images-catheter directed angiography images showing small pseudoaneurysm (yellow arrow) arising from small branch of the right inferior epigastric artery.

The patient was discharged in stable condition after removal of drain, with his recovery from the laparoscopic cholecystectomy progressing without incident. Upon discharge, the patient was advised to seek immediate medical attention if he experienced any unusual symptoms, such as sudden abdominal pain, swelling, or signs of internal bleeding.

DISCUSSION

Inferior epigastric artery (IEA) aneurysms are exceptionally rare that's why limited references related to IEAA are available.[1-5,7] Their incidental discovery during laparoscopic abdominal surgery is even more uncommon as mentioned in other available references.[1-5,7] The IEA originates from the external iliac artery and ascends along the anterior surface of the rectus abdominis muscle.[1-7] These aneurysms are often asymptomatic, frequently remain undiagnosed unless complications arise or they are incidentally identified during surgical procedures, as in this case. The majority are iatrogenic, following laparoscopic port insertion, open surgical incision, paracentesis, and Tenckhoff catheter removal, few spontaneous cases also have been reported.[4,5]

In this patient, the IEA aneurysm was an incidental finding, with rupture necessitating urgent intervention by IR.[2,5] The exact cause of IEA aneurysms is often uncertain but may be linked to factors such as trauma, atherosclerosis, connective tissue disorders, or congenital abnormalities.

While laparoscopic cholecystectomy is considered a safe and routine surgical procedure, it underscores the importance of being cognizant of potential anatomical variations, particularly vascular anomalies, that may increase surgical complexity.[1]

Employing imaging modalities like Doppler ultrasound during preoperative planning or intraoperatively can facilitate the identification of such anomalies, enabling timely and appropriate intervention and minimizing the risk of complications.

CONCLUSION

This case underscores the critical importance of vigilance during laparoscopic cholecystectomy, especially when encountering unexpected anatomical variations. The incidental finding of an IEAA, though exceedingly rare, highlights the need for thorough evaluation to prevent potentially serious complications.

While conservative management may be suitable for stable, asymptomatic aneurysms, careful monitoring and follow-up are essential to ensure patient safety. Surgeons should remain cognizant of the potential for vascular anomalies and consider preoperative imaging in patients with risk factors for such abnormalities. This proactive approach can help mitigate the risk of intraoperative challenges and improve surgical outcomes.

This case underscores the necessity for surgeons to maintain heightened awareness during laparoscopic cholecystectomy to identify and address unexpected findings and anatomical variations. Although uncommon, the detection of a vascular anomaly like a IEAA may necessitate a multidisciplinary approach, ranging from careful observation to timely interventional management.

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