

Pseudoaneurysm Of The Inferior Epigastric Artery: A Rare Complication Of Abdominal Wall Suturing

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Citation

S Rege, V Hanchate, O Rohondia. *Pseudoaneurysm Of The Inferior Epigastric Artery: A Rare Complication Of Abdominal Wall Suturing*. The Internet Journal of Surgery. 2004 Volume 6 Number 1.

Abstract

Pseudoaneurysm is known complication of trauma and surgery is rarely seen in the inferior epigastric artery though anatomically highly susceptible for trauma during abdominal wall suturing. We report a case of inferior epigastric aneurysm following abdominal wall suturing diagnosed on high-resolution color Doppler imaging.

Key messages:

1. Accidental trauma to the inferior epigastric artery can be caused while suturing the abdominal wall.
 2. Partial tear can lead to a pseudoaneurysm of the artery.
 3. High resolution Color Doppler can be used to confirm the diagnosis.
- Surgical extirpation of the pseudoaneurysm is the treatment of choice for large lesions.

INTRODUCTION

Pseudoaneurysm are well documented complication after surgery, arterial puncture, and trauma.¹ However, pseudoaneurysm of the inferior epigastric artery are rare.² We report a case of pseudoaneurysm of the inferior epigastric artery due to abdominal wall sutures diagnosed on high resolution color Doppler imaging and treated successfully with surgical extirpation.

CASE REPORT

A 28-year-old male presented to us with blunt abdominal trauma following a vehicular accident. There were no associated injuries. On examination, he had tachycardia with pulse of 110/min, and blood pressure recorded was 80 mmHg systolic. Abdominal examination revealed guarding and rigidity with bruising over left hypochondrium. Plain radiograph of chest and abdomen were normal while ultrasonography revealed laceration of spleen with perisplenic hematoma.

After resuscitation, the patient was explored through midline incision and splenectomy was done. Rest of the solid viscera and the bowel were normal. Monolayer closure of the anterior abdominal wall was done with number 1 monofilament polyamide suture. Considerable bleeding was noted at the puncture site of one of the suture, which

appeared to cease after the sutured was tied. The skin was sutured with number 3.0-monofilament polyamide suture.

The patient received pneumococcal vaccine postoperatively and was discharged on the 7th day. He was asymptomatic later and presented one month later with diffuse painful swelling over the left paraumbilical region. He gave no history of repeat trauma or reducibility. On palpation, diffuse tender swelling could be palpated measuring 4x5 centimeters. The swelling was firm, noncompressible without any palpable thrill.

Ultrasonography (USG) revealed ill-defined hypoechoic collection with anechoic areas within the parietal wall as shown in Figure 1. High-resolution color Doppler imaging demonstrated pulsatile flow within the anechoic area as seen in Figure 2, while spectral waveform obtained showed monophasic arterial flow confirming pseudoaneurysm as seen in Figure 3.

Figure 1

Figure 1: Sagittal Ultrasonography of the abdominal wall along the left paraumbilical region shows an illdefined hypochoic collection with relatively anechoic area within.

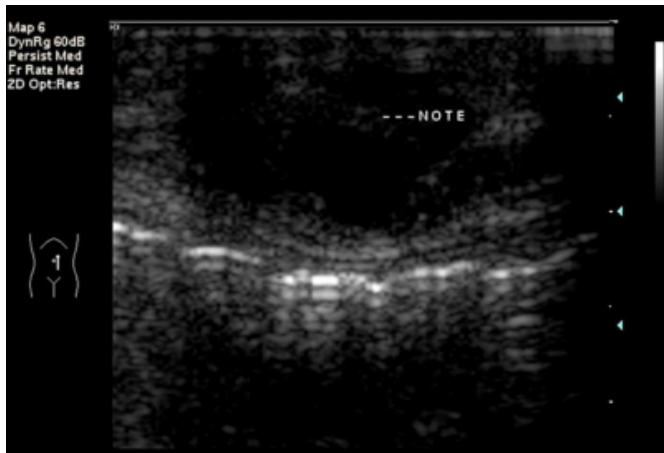


Figure 3

Figure 3: The spectral waveform obtained being pulsatile and monophasic confirms the presence of arterial pseudoaneurysm within the collection.

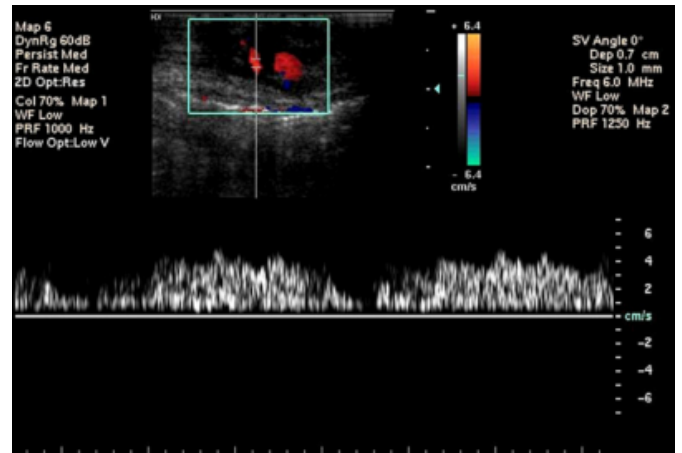


Figure 2

Figure 2: High-resolution color Doppler reveals the vascular nature of the anechoic area by demonstrating pulsatile flow in it.

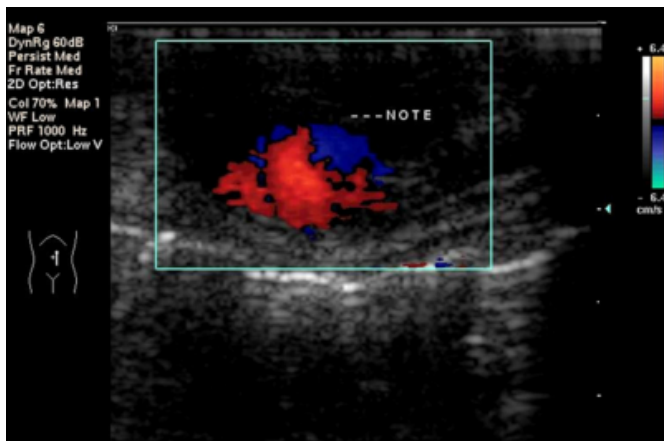
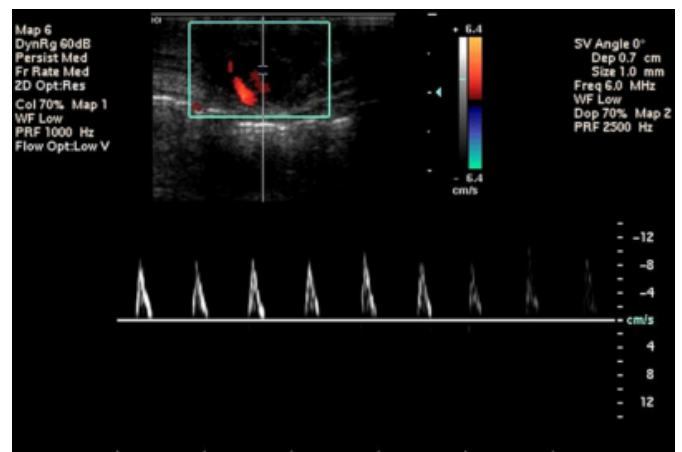


Figure 4



The patient was subjected to ligation of the inferior epigastric artery with extirpation of pseudoaneurysm along with fragment of artery. The abdominal wall was repaired with polypropylene mesh to cover the deficit of muscles. The patient is totally asymptomatic at 6 months follow-up.

DISCUSSION

Pseudoaneurysm develops after any procedure that causes partial disruption of vessel wall.³ Pseudoaneurysms have been documented following surgery, arterial puncture, and trauma.¹

The inferior epigastric artery lies within the rectus sheath just anterior to its posterior layer and hence is susceptible to injury during abdominal wall procedures.² Only 8 cases of inferior epigastric artery pseudoaneurysm have been reported, five following extraction of retention suture, two

following paracentesis, and one following tenckhoff catheter removal.²

Direct puncture of artery, partial rupture of artery, decubitus have been documented as the etiological reasons for its formation.⁴ If accidentally bleeding is noted while taking sutures, it is probably best to remove the suture and apply pressure as it might continue to bleed through the penetrated suture.⁵

Clinically, inferior epigastric artery pseudoaneurysm simulates abdominal wall abscess and hematoma and high index of suspicion is necessary to diagnose this condition.³ An audible bruit over this swelling is usually an exception than a rule.⁶ Contrast enhanced computerized tomography, angiography and high-resolution duplex color Doppler are useful to confirm the diagnosis. Duplex color Doppler has been the only noninvasive investigation of choice with a sensitivity and specificity of 100% in differentiating pseudoaneurysm from periarterial hematoma.⁷

Pseudoaneurysms exhibit a characteristic extraluminal pattern of blood flow, which is not demonstrated in hematoma, which shows variable echogenicity and interval complexity on Doppler as was demonstrated in our patient.⁷

Surgical excision of the pseudoaneurysm is treatment of choice to abolish pain and possibility of rupture with haemorrhage.⁵ Angiographic coil embolisation is beneficial in management of small sized lesions.⁸ Percutaneous embolisation has also been beneficial for small lesions but usually reserved for patients who are surgically unfit.⁹

CONCLUSION

Pseudoaneurysm of the inferior epigastric artery can occur as

a complication of abdominal wall suturing. Diagnosis can be confirmed with color Doppler imaging and surgical intervention may be required to prevent complications.

ACKNOWLEDGEMENT

We are thankful to the Dean, Dr Kshirsagar for allowing us to publish the hospital data.

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References

1. Mitchell DG, Needleman L, Bezzi M et al. Femoral artery Pseudoaneurysm diagnosis with conventional duplex and color Doppler US. *Radiology*. 1987; 165: 687 -90.
2. Werner M, Berheim J, Witz M, Gritton Y, Savin H, Korzets Z. *Nephrol. Dial Transplant* 1999, 14: 1297 -99.
3. Gage TS, Sussman SK, Conard FV, Hull D, Bartas SA. Pseudoaneurysm of inferior epigastric artery: diagnosis and percutaneous treatment. *AJR* 1990; 155: 529 -30.
4. Ferrer JV, Soriano P, Zazpe C, Vincente F, Herrera J, Lera JM. Pseudoaneurysm of inferior epigastric artery. Pathogenesis diagnosis and treatment. *Arch Surg*. 1996; 131: 102 - 103.
5. Ello FV, Nunn DB. False aneurysm of inferior epigastric artery as a complication of abdominal retention sutures. *Surgery*. 1973; 74: 460 -61.
6. Lam EY, McLafferty RB, Taylor LM, et al. Inferior epigastric artery pseudoaneurysm: A complication of paracentesis. *J Vasc Surg*. 1988; 28: 566-69.
7. Schwartz RA, Kerns DB, Mitchell DG. Colour Doppler ultrasound imaging in iatrogenic arterial injuries. *Am J Surg*. 1991; 162: 4-8.
8. Gaudino J, Balsano NA, Reynolds BM. Closure of abdominal wounds with through and through safe retenti sutures. *Am J Surg*. 1970; 120: 124.
9. Glanz S, Gordon D, Sclafani SJA. Percutaneous coil embolisation in the management of peripheral mycotic aneurysm. *Cardiovasc Intervent Radiol*. 1987; 10: 198-201.

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