



A Rare Case Report of Penetrating Trauma Induced Inferior Epigastric Artery Pseudo aneurysm and Laparoscopic Ligation of Feeder Vessel

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Abstract

Background: A 35-year-old male came to casualty with complain of swelling in the left infra-umbilical region. Upon enquiry he had sustained a stab wound of around 1*1 cm by metallic rod in the left infra-umbilical region. The swelling was painful on palpation and not associated with any cough impulse. The swelling was fluctuant, pulsatile, non reducible in nature. Thrill was present on palpation. USG showed a 3.2*1.1*1.4 cm sized anechoic region, with typical Yui-Yau type of flow within it on Doppler. The anechoic region was seen communication with the adjacent left inferior epigastric artery. CT Angiography of the lower limb revealed intensely enhanced focal out pouching of left inferior epigastric artery with leakage of contrast on subsequent delayed phase suggestive of actively bleeding pseudo aneurysm of Inferior epigastric artery.

Methods & Results: Intra-corporeal laparoscopic ligation of the feeder vessel at the junction of origin from the left external iliac artery. Two-point ligation was done for the feeder vessel, which was inferior epigastric artery, abdominal wall hematoma was evacuated, drain was put and the patient was discharged vitally stable.

Discussion: Pseudo-aneurysms may develop after any procedure that causes breach in a portion of the vessel wall. In this case the pseudo-aneurysm developed at the

site as a result of a penetrating stab injury, clinical manifestations initially suggested hematoma, however CECT aortography revealed to be an actively bleeding pseudo-aneurysm. Awareness among specialists and general medical practitioners is beneficial to avoid increased patient morbidity following an abdominal wall procedure or injury.

Keywords: Case report, pseudo aneurysm of inferior Epigastric artery, Intra-corporeal laparoscopic ligation, abdominal wall hematoma, Trauma Induced.

Introduction:

Pseudo-aneurysm arises when the arterial wall is injured and the blood is contained by the surrounding tissues with eventual formation of a fibrous sac communicating with the artery. The anatomical position of Inferior Epigastric Artery, within the rectus sheath, subjects patients to possible arterial injury during abdominal wall procedures close to the artery, such as insertion of drains, Tenckhoff catheters, laparoscopic trocars or paracentesis.[1] Inferior Epigastric Artery pseudo aneurysms remain a rare event, with researches done on scholarly articles on Google shows, 32 cases reported in the international literature over the last 40 years. Abdominal surgery resulted in 20 out of these 32 IEA pseudo aneurysms. Abdominal wound closure and laparoscopic procedures attributed to 65% of these cases. Sporadic cases of an IEA pseudo aneurysm

following therapeutic paracentesis of ascites, percutaneous vascular procedures, trauma or arising spontaneously continue to occur. [2] Inferior Epigastric Artery pseudo-aneurysm following an accidental stab trauma is extremely rare and only one such case has been recorded in history, that too by a blunt injury [1] Pseudo-aneurysm of inferior Epigastric artery due to penetrating trauma is first of kind presented in a government run tertiary care hospital.

Case Report

A 35-year-old male of Indian origin came to casualty with complain of swelling in the left infra-umbilical region. Upon enquiry he had sustained a stab wound of around 1*1 cm by metallic rod in the left infra-umbilical region. The swelling was painful on palpation, fluctuant, pulsatile, non-reducible in nature. There were no signs of peritonism and patient was vitally stable with oxygen saturation of 98 percent on room air. The swelling was initially small on presentation which then increased in size in the next few days while the patient was being investigated. However, during the course patient was clinically stable. Routine Biochemistry, blood indices, urine analysis were within normal limits. USG showed a 3.2*1.1*1.4 cm sized anechoic region, with typical Yui-Yau type of flow within it on Doppler. The anechoic region was seen communicating with the adjacent left inferior epigastric artery. CT Angiography of the lower limb revealed intensely enhanced focal out pouching of left inferior epigastric artery with leakage of contrast on subsequent delayed phase suggestive of actively bleeding pseudo aneurysm of IEA, which was in conjunction with the clinical findings (Fig 1).

The increase in size of swelling was attributed to the bleeding from the pseudo aneurysm of IEA into the intramuscular plane of left rectus muscle. Decision was taken to go for intra-corporeal laparoscopic ligation of the

feeder vessel at the junction of origin from the left external iliac artery. Ports were inserted as shown in the figure (Fig 2).

The peritoneum was opened just lateral to medial umbilical ligament and continued towards Ipsilateral ASIS. Inferior Epigastric artery and accompanying vein were identified along the lower and medial margins of abdominal inguinal ring.

Two-point ligation was done of the Inferior Epigastric Artery (Feeder Vessel). Subsequently local exploration was done for the hematoma, which was present in the left infra-umbilical region secondary to aneurysm rupture in the inter-muscular plane. Hematoma was evacuated and the rectus defect was closed with 1-0 prolene intermittent knots. Post-operative period was uneventful and patient was discharged in vitally stable condition.

Discussion & Conclusion:

The Inferior Epigastric Artery branch of external iliac artery, courses along the posterior wall of the rectus sheath between 4cm and 8cm from the midline.[3] Pseudoaneurysms may develop after any procedure that causes breach in a portion of the vessel wall, although wound closure with safety retention sutures are a recognised[4] complication of surgery, arterial puncture and trauma[5]. Patients with Inferior Epigastric Artery Pseudoaneurysms may or may not present In a circulatory shock state, depending on the tamponating force that the extravasating blood receives from the surrounding tissues [6]In our patient, the pseudoaneurysm developed at the site as a result of a stab injury (Penetrating Trauma), clinical manifestations initially suggested heamatoma, CECT revealed to be an actively bleeding pseudoaneurysm with bulky left rectus abdominis mucle with adjacent subcutaneous heamatoma.

Treatment options for pseudo-aneurysms include open surgical ligation & resection of the lacerated vessel [7]

nonsurgical methods include trans-catheter coil embolization, sonographic-guided thrombin injection with compression, and N-Butyl Cyano-acrylate injection [1,6,8]. In particular, poor compliance for follow-up, increased recovery period and rate of infection & complications following open repair; treatment failure cases were seen following compression or percutaneous thrombin injection. Non-availability of interventional radiology and increased morbidity following open repair; decision was made to perform laparoscopic ligation of the feeder vessel in such a setup.

Knowledge about the occurrence of Inferior Epigastric Artery pseudoaneurysm occurrence is pertinent in medical field. Furthermore, presentation may be delayed by a number of weeks and the diagnosis can easily be confused with a simple postoperative haematoma so awareness among surgeons and general medical practitioners is beneficial to avoid increased patient morbidity following an abdominal wall procedure or injury.

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Figure Captions

Fig 1

Blue Arrow depicts IEA Aneurysm

Red Arrow depicts hematoma in the inter-muscular plane

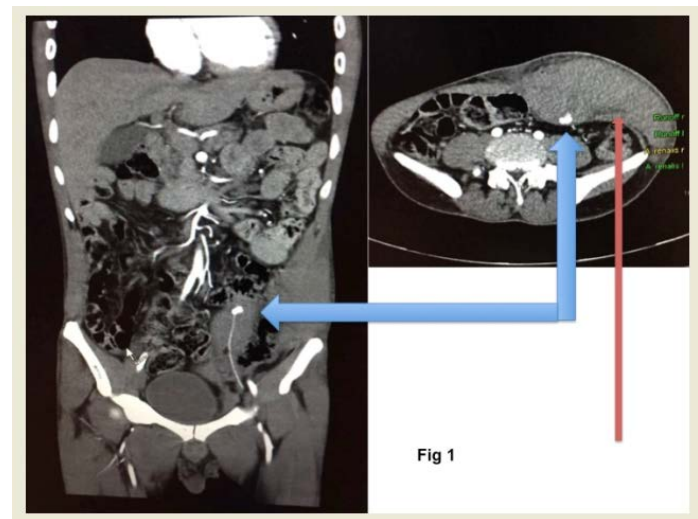


Fig 2

“a” depicts Mid-Clavicular Line

“b” depicts 7*4*9 Cm Swelling In Left Infra-umbilical Region

“c” depicts Ports Placement; Top Working Port 5mm, Camera Port 10mm, Bottom Working Port 5mm.

