

Ruptured femoral artery pseudoaneurysm: A life-threatening, iatrogenic catastrophe!

Sir,

Iatrogenic pseudoaneurysm (PSN) of the femoral artery is a complication reported after transfemoral catheterisations with the incidence of 3.42% in interventional cardiology and haemodialysis units.^[1,2] Rupture of a PSN is rare and often fatal;^[3] nevertheless, only unruptured PSNs have been reported in the anaesthetic literature so far.^[4]

A 75-year-old woman presented to us in a state of shock with severe pallor and a systolic blood pressure (BP) of 60 mmHg. She was a known case of diabetes mellitus, hypertension, bilateral hydronephrosis, renal and vesical calculi. She had undergone emergency haemodialysis and ureteric stenting during management for acute renal failure (ARF) in a sub-speciality institute. She developed a painful swelling in the right groin a week following the removal of her femoral venous catheter and hospital discharge. A colour Doppler examination revealed a right femoral artery pseudoaneurysm measuring 8.7 cm × 4.8 cm. However, she could not undergo treatment from a vascular surgeon and remained confined to bed at home for 10 days. Eventually, when she was made ambulatory, she collapsed and was brought to our

emergency department in a state of shock. Laboratory investigations revealed haemoglobin (Hb) of 5.6 g/dl, random blood sugar - 216 mg/dl, blood urea 45 mg/dl, serum creatinine 2.4 mg/dl, normal serum electrolytes and coagulation profile. Her chest radiograph showed minimal bilateral pleural effusion. A colour Doppler examination of the right femoral vessels showed evidence of a ruptured pseudoaneurysm of the common femoral artery (11.5 cm × 7.5 cm) [Figure 1].

She was stabilised with intravenous (IV) fluids, blood transfusion, respiratory therapy and plain insulin by 36 h following admission and surgery was planned. Pre-anaesthetic examination revealed BP of 109/70 mmHg; pulse rate 92/min and Hb - 6.9 g/dl with bilateral basal crepitations. There was a tender, non-pulsatile cystic swelling of about 11.5 cm × 7.5 cm over her right groin, with bluish-red discoloration of overlying skin [Figure 2]. She was accepted with American Society of Anesthesiologists physical status grade III.

In the operating room, along with the routine monitoring, her right IJV was cannulated for central venous pressure (CVP) which showed 5 cm H₂O. A volume of 8 ml of 0.25% bupivacaine with buprenorphine 120 µg (2 ml test dose + 6 ml) was administered in a lateral position to achieve continuous lumbar epidural differential blockade (modified Bromage II). The surgery lasted for about an hour. Intraoperatively, fall in systolic BP to 80 mmHg (CVP - 3 cm H₂O) was treated successfully with IV dopamine (5 µg/kg/min), crystalloids, hetastarch and blood transfusion. Unfractionated heparin, 2500 units was administered just before closure (1 h, 15' after

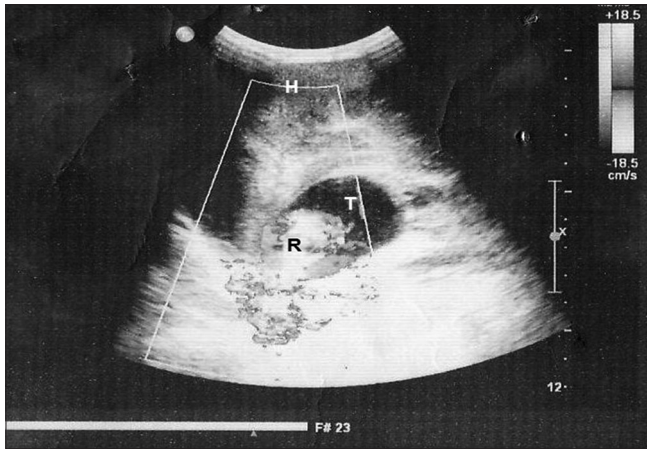


Figure 1: Axial section at the level of inguinal region showing common femoral artery with thrombus in the anterolateral wall (t), residual blood flow in the posteromedial wall (r) of the artery and haematoma (h) superficial to the artery

epidural placement) and repeated in two doses, 4 hourly postoperatively.

Oozing was observed from the groin wound following third heparin dosage. It was reversed with IV protamine sulphate along with aPTT monitored anti-coagulation. Post-operative epidural analgesia with 8 ml 0.125% bupivacaine and 100 µg buprenorphine lasted for 24 h and was continued for 2 days. The recovery was uneventful following epidural catheter removal after 5 days.

PSN of an artery develops after either arterial or venous catheterisation due to inadvertent injury to the arterial wall with continuous leakage of blood forming a pulsatile haematoma. It can result in slow expansion, rupture, distal embolisation, local pain, neuropathy and local skin ischaemia.^[5] For emergency haemodialysis, central venous catheterisation with femoral access is chosen for bed-ridden ARF patients having co-morbidities such as pulmonary oedema, severe hyperkalaemia or with inaccessible/thrombosed IJVs.^[6] However, femoral route is most vulnerable for arterial puncture with the highest incidence (9–15%) followed by internal jugular (6.6–9.4%) and subclavian (3.1–4.9%). Hence, ultrasound-guided placement and removal is recommended.^[6]

The risk factors for iatrogenic PSN formation are large-sized catheters, simultaneous artery and vein catheterisation, faulty technique, anticoagulation, obesity, advanced age, hypertension, and haemodialysis.^[7]



Figure 2: Ruptured pseudoaneurysm of right femoral artery in the right groin

Non-surgical management is usually preferred in view of the co-morbidities and significant anaesthetic risk. Surgery is reserved for patients with large PSNs and impending rupture.^[7] In our elderly patient, prolonged confinement to bed resulted in the slow expansion of the PSN and rupture after sudden ambulation. We preferred differential epidural blockade to obviate hypotension accompanying complete motor blockade.

With an increasing number of percutaneous vascular interventions in recent years, the risk and incidence of PSN formation is increasing. This case is reported to highlight this iatrogenic complication with its fatal potential when the patient remains unattended.

Acknowledgements

We would like to thank surgeon, Dr. Shankar Malpure for clinical photograph and Radiologist Dr. Irranna Palled for his help regarding radiology image.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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Access this article online	
Quick response code	Website: www.ijaweb.org
	DOI: 10.4103/0019-5049.183393

How to cite this article: Kulkarni LM, Sirsat SM. Ruptured femoral artery pseudoaneurysm: A life-threatening, iatrogenic catastrophe!. *Indian J Anaesth* 2016;60:437-9.