Double Surgical Approach For Extrapelvic Pseudoaneurysm Of Inferior Gluteal Artery
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Citation

Abstract
The case report presents a large inferior gluteal pseudoaneurysm with long medical history and classic symptoms, developed in relation to a stab wound into the right buttock. The diagnostic imaging studies are based on arteriography, from far the best imaging exploration which can be done for the aneurysmal pathology. In the era of endovascular treatment this case report proves that a good alternative to percutaneous embolisation is the classical surgical operation. The most simple and sure method to treat a large extrapelvic false aneurism fed by a dilated inferior gluteal artery is the two step surgical excision. First, the ligation of the feeding artery was performed by extraperitoneal surgical approach of the corresponding hypogastric branch. Secondly, the resection of the aneurysm by direct approach into the deepness of the gluteal region. The advantages of this technique are: minimal blood loss, no pelvic ischemia and rapid healing.

INTRODUCTION
The gluteal arteries is a rarely involved by aneurysmal pathology. We are presenting the case of a patient with a large inferior gluteal pseudoaneurysm, developed extrapelvically by dissecting the gluteal muscles mass. This pseudoaneurysm results from a stab wound. The pseudoaneurism was successfully treated in two surgical sequences. The case report is presented with a review of literature.

CASE REPORT
A 49 years old man, unemployed and homeless, was admitted in a general surgery unit with a right buttock pain radiating down to posterior thigh and buttock enlargement. The patient relate a history of stab wound in the right gluteal region, eight years before. The wound was conservatory treated at that time in a regional hospital. Progressively, the right buttock becomes larger and three years after the trauma, the patient complains of pain and partial function loss. He has neglected the symptoms for more five years, but in time the patient couldn't hide the buttock tumor and he decided to ask for a medical examination.

At the admission the physical examination revealed a tender pulsatile mass in the right gluteal region centered by a prominence with necrotic skin and fluctuency (Fig 1).

The auscultation revealed a mild associated overlying bruit. From clinical point of view the clinical aspect highly suggested an aneurism. The laboratory evaluation shows subnormal hematologic and biochemical values.

Figure 1
Figure 1: Clinical aspect of the inferior gluteal artery pseudoaneurysm.
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(hemoglobin 12.7 g/dl, hematocrite 38 %). The first
imaging study was doppler ultrasound. This revealed an
arteriovenous pseudoaneurysm, most probably emerged
from inferior gluteal artery which dilacerates the small,
middle and great gluteal muscle to the superficial fascia. The
aneurismal cavity is filled by cloths partially repermeabilised
with intense arterial signal at pulsed doppler. Deepely into
the buttock some large veins were observed. The patient was
submitted to aortoiliac arteriography: this has showed the
vascular anatomy of the right gluteal region. It was clearly
visible the large aneurismal pouch (14/12 cm of diameter)
developed in extrapelvic location, seeded by inferior gluteal
artery after the emergency from pelvic cavity (Fig 2).

Figure 2
Figure 2: Aortoiliac arteriography reveals a large inferior
gluteal artery extrapelvic pseudoaneurysm.

The surgical treatment was designed in two sessions: firstly
we decided a ligation of inferior gluteal artery at the origin
from internal iliac artrey and secondarily the resection of the
aneurysmal pouch. The ligation of right inferior gluteal
artery was realised by disecting the homolateral hypogastric
artery through a “J” shaped right iliac incision followed by
extraperitoneal dissection of right iliac vessels. The right
internal iliac artery was founded double sized comparing to
external trunk. The dissection of the branches of right
hypogastric artery allowed identification of inferior gluteal
artery, emerged separately from internal iliac artery. The
inferior gluteal artery has also a large diameter, about 5 mm.
The inferior gluteal artery was carefully ligated and divided.

The followings were favorable: three days after surgery, the
buttock was half decreased of size. The doppler ultrasound
evaluation revealed lowered blood flow and decreased
pressure into the aneurismal pouch. Seven days after we
have performed the resection of the aneurismal pouch. A
vertical incision was performed on the midline of the right
buttock, with excision of the necrotic skin, which
corresponds to the scar of the stab wound. The aneurysmal
sac was opened and cloths removed. During the emptying of
the aneurismal sac the continuous succion was necessary to
evacuate the blood until the visualisation of the arterial fistula
into the deepnes of the gluteal muscles. The arterial flow
was furnished by colaterals of the aneurismal pouch, well
developped during eight years of evolution. The aneurysmal
pouch has a thin and irregular fibrotic wall. The suture of the
arterial fistula and emerging veins was realised separately
with Prolene 3.0. The hemostasis was checked and
completed by ligation of some muscle branches (Fig 3).

Figure 3
Figure 3: Suture of the muscular collaterals after the ablation
of the false aneurysm

The aneurismal pouch was drained with two Redon tubes.
The muscle dilaceration has required some resorbable
sutures in order to do away with the remnant cavity of the
pseudoaneurysm. The followings were simple; the drainage
tube was suppressed in 2nd postoperative day. The cultures
of the cloths removed from the cavity of the false aneurism
were negative. The patient was free of neurological
complications. At the twelvth postoperative day the patient
went home. He was followed by general practitioner and
four weeks later the scar was completely healed with
restitutio ad integrum.
DISCUSSION

The gluteal artery pseudoaneurism is rarely reported in the literature \( (1) \). In our general surgical unit this is the single case for the last fifteen years.

The symptoms and signs are specific: pains, pulsatile buttock mass with local bruit have suggested the diagnosis. No signs of neurological deficiency, due to sciatic nerve compression, were observed \( (2,3) \). The etiology of the pseudoaneurysm was a stab wound with injury of the inferior gluteal artery as rarely mentioned into the literature \( (2,3) \). A micotic infection \( (4) \) was theoretically possible but not confirmed. The atherosclerotic etiology \( (5) \) was less probably in a young man. The gluteal abscess was easy to exclude from differential diagnostic despite the fluctuency of the buttock mass and signs of inflammation (congestion and skin edema), centered by necrotic skin.

Arteriography was the most sensitive and specific investigation of the false aneurysm \( (6) \). Because of large diameter of the gluteal artery, the therapeutic coil embolisation or other interventional radiology procedures as percutaneous balloon catheter occlusion \( (7,8) \) after the diagnostic phase, was considered not feasible.

The standard surgical treatment of gluteal artery pseudoaneurysms suggested in the literature \( (9) \) consists of binding of the trunk of gluteal artery (using transperitoneal or extraperitoneal approach) and secondarily, pseudoaneurysmal resection and of collateral vessels ligation by gluteal approach. In this patient, the inferior gluteal artery has had a rare anatomical situation originating separately from internal iliac artery (pudendal artery, inferior gluteal artery and superior gluteal artery arises separately from internal iliac artery) according to the type 3 of Bergman classification \( (10) \).

At the resection of the false aneurysm there was a low hemorrhage risk because of decreased blood flow after the binding of the main feeding artery. Endoaneurysmal suture of the inferior gluteal artery was followed by suture of all muscular arterial collaterals. Total volume of blood loosed was 900 ml including 700 ml average of curdled blood from the aneurisimal pouch.

An alternative to this technique could be the temporary clamping of the internal iliac artery and transgluteal ligation of the nutrient vessels.

The microcatheter embolization of the nutrient vessels using standard invasive radiologic approaches via femoral artery as alternative method in the treatment of gluteal artery pseudoaneurysms \( (11,12) \) was not feasible because the large size of inferior feeding artery.

CONCLUSION

The diagnosis of a false gluteal aneurism is relatively simple face to a pulsatile buttock mass and underlying bruit. The conventional or digitalized angiography gives details about the aneurysm feeding artery and vascular anatomic variations of the region. A large aneurysm may not benefit from endovascular coil embolisation. The two session surgical treatment, firstly the ligation of the main nutrient artery and secondarily the resection of the aneurisimal pouch, is the safest way to do away with a large arterial false aneurysm.

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References

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