Scholars Journal of Medical Case Reports **ISSN 2347-6559 (Online)**
Sch J Med Case Rep 2015; 3(12):1154-1159 **ISSN 2347-9507 (Print)**

(An International Publisher for Academic and Scientific Resources) DOI: 10.36347/sjmcr.2015.v03i12.004

Multiple peripheral arteries aneurysms: clinical aspects and surgery

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Abstract: Multiple arteries aneurysms in the forearm, wrist and thigh are relatively uncommon but is a reality. It's wy we propose to do systematiquely a CT scan or MRI angiographie to look for another asymptomatique aneurysm. Successful preservation of life and limb is possible with early recognition and surgical reconstruction. In the first case of 79-year-old man the surgical care was done with resection of aneurysm sac and direct closure of three vessels by running stitches. In the second case of 62 old woman the surgical care was a resection of radial aneurysm followed by end to end anastomosis with running stitches ; resction of the ulnary aneurym followed by the reconstruction using cephalique vein conduit in the forearm. In the third case of 57 years old gentleman both aneurysm was totally resected and the reconstruction using great saphenous vein conduit was performed. Surgery is still a good and safe option for the care of multiple peripheral arterial aneurysms, with good outcomes.
Keywords: multiple arteries aneurysms, surgery.

INTRODUCTION

'True' aneurysms of radial artery are extremely rare, with no documented prevalence in the medical literature [1]. Distal ulnar artery aneurysms, although uncommon, have been well described in adults as a clinical finding as a part of the hypothenar hammer syndrome [2]. the natural history and the frequency of the association beetween superficial femoral Arteriosclerotic artery aneurysm with aortoiliac and other peripheral aneurysms are not known or understood [3]. Authors described 3 cases of multiple peripheral arteries aneurysms, which underwent open surgery, and assess their early results.

CASE REPORTS

Case 1

A 79-year-old man presented to the outpatient clinic with a Pain and pulsatile mass at his left thigh. The mass had appeared 2 months earlier and had enlarged gradually. The patient denied history of trauma, surgeries or recurrent punctures, and there was no family history of aneurysms. Upon physical examination, a mass of 3-by-3 cm found at the thigh, with no visible scars. The mass was pulsatile, and systolic murmur associeted with varicoses veins in popliteal region. Pulses distaly of the mass were not palpable. Right and left ankle brachial index were respectively 0,5 and 0,5. Duplex ultrasonography revealed a left superficial femoral artery aneurysm. A computed tomography (CT) angiogram showed a succular aneurysm of the distal commune fémorale artery and maximum diameter was 22 mm ; a bulky saccular ruptured aneurysm of the left superficiel artery (SFA) of 10 cm at the largest transverse diameter with 40 mm of parietal thrombosis. At the right lower limb, CT angiogram showed à saccular anerysm of the superficiel femoral artery with 37 mm in diameter (figures 1,2). The surgical care was done with resection of aneurysm sac and direct closure of three vessels by running stitches. In the ruptured aneurysm of left SFA, evacuation of bulky hematoma was also done. In the post-operative period an hematoma of the operative wound occurred in the left thigh. Drainage allow a good evolution.

Fig-1: Succular aneurysm of the distal common femorale artery; a bulky saccular ruptured aneurysm of the left superficiel artery (arrows)

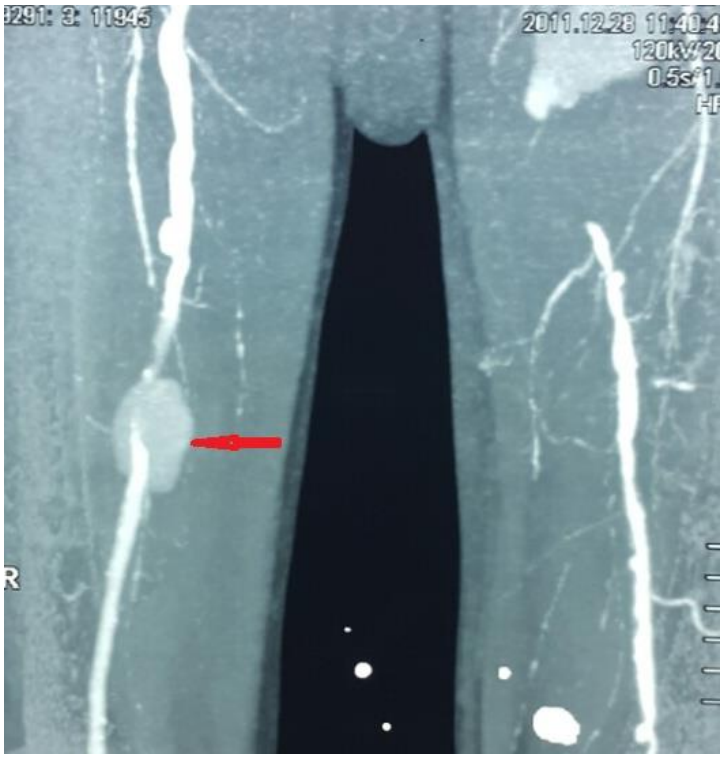

Fig-2: Saccular aneurysm of the superficiel femoral artery (arrow)

Cas no 2

A 62 old woman was admitted with a right forearm pulsatile mass. The mass had appeared 10 years earlier and had enlarged gradually with pain since 2 months. She had no trauma history The clinical examination found a 3 x 2 cm forearm pulsatile mass, with systolic murmur without scare on the top of the mass. Distal pulses was present. Duplex ultrasound showed a dissected aneurysm of the bachial artery. CT scan showed two aneurysms. The first was fusiform in the first part of the ulnar artery mesured 32x31mm tranversally and 63 cm in lenght. The second was a saccular aneurysm, much greater, of the first part of the radial artery (figures 3,4). The surgical care was a resection of radial aneurysm followed by end to end anastomosis with running stitches ; resction of the ulnary aneurym followed by the reconstruction using cephalique vein conduit in the forearm. Postoperatively, she had no ischemic or infectious complications.

Fig-3: Aneurysm in the first part of the ulnar artery; aneurysm of the first part of the radial artery (arrows)

Fig- 4: Fusiform aneurysm in the first part of the ulnar artery; saccular aneurysm of the first part of the radial artery

Cas no 3

A 57 years old gentleman admitted for a swollen left lower limb evolving since 1 year, without pain but à mass on the left thigh, with significant limitation of the movements. He had no trauma history. Clinical examination found a significant mass of the left thigh with pulsatile mass and systolic murmur, without thrill. A scare was not found over the tumefaction. The distal pulse was not present. No ischemic signs was found. Magnetic resonance imaging (MRI) showed a fusiform aneurysm of the left superficial artery with 9cm in diameter associed with another fusiform aneurysm proximal in the same vessel mesured 5cm in diameter (figures 5,6). Syphilis test was negative. The surgical access exposed two close aneurysm. Both aneurysm was totally resected and the reconstruction using great saphenous vein conduit was performed (figure 7, 8, 9). The post-operative period was free of events.

Fig-5: A fusiform aneurysm of the left superficial artery

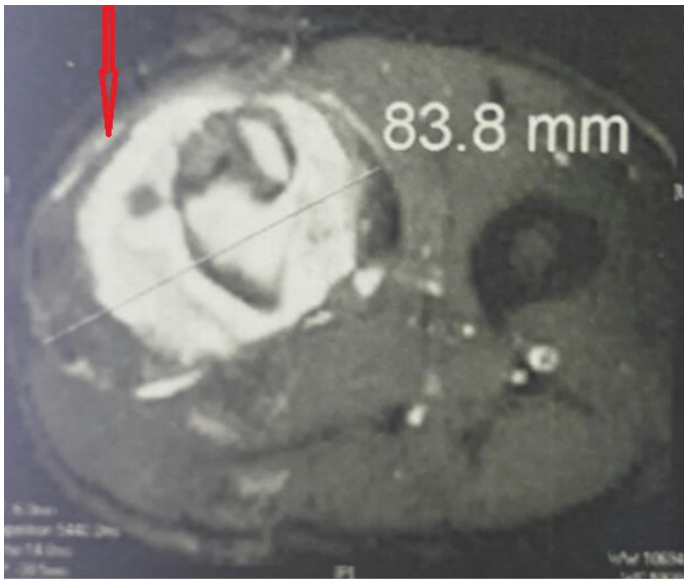

Fig-6: Great fusiform aneurysm of the left superficial artery

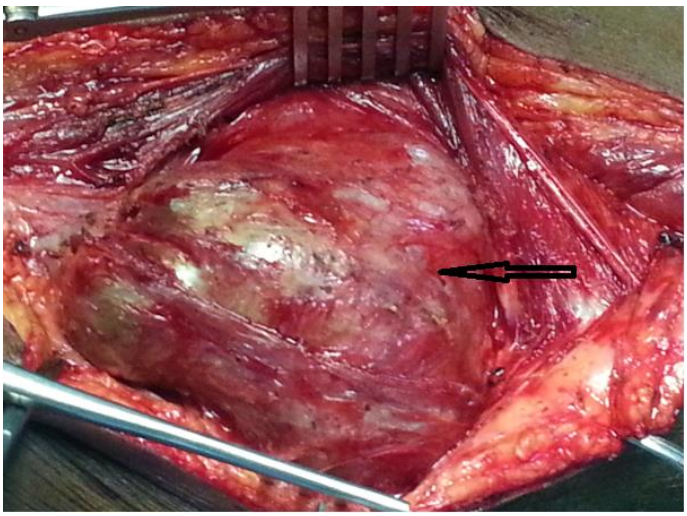

Fig-7: Operative view of aneurysmal femoral artery

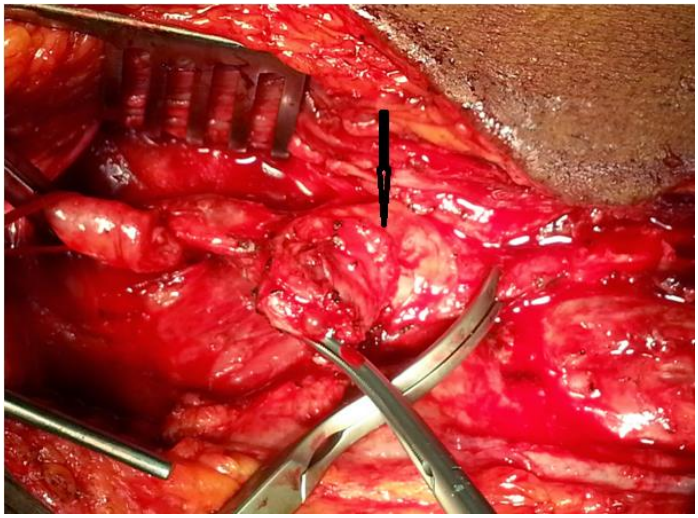

Fig-8: Operative view of another smaller aneurysm below the first in figure 7

Fig- 9: Great saphenous vein conduit preparation

DISCUSSION

Forearm and hand arteries' aneurysms are relatively uncommon. The majority of these should be considered pseudo-aneurysms following penetrating injuries or blunt arterial traumas, infections and repetitive microtraumas [4]. Our patient had a real radial and ulnar aneurysm. Aneurysms located in the SFA have always been thought to be most unusual entities[3]. Multiple peripheral aneurysm is much rare. A report by Rigdon and Monajjem of two SFA aneurysms included a literature review of 17 SFA aneurysms in 14 patients. Forty percent were associated

with abdominal aortic aneurysms, 27% only were associated with other peripheral aneurysms, and 35% had ruptured [5, 6]. But the overall incidence of multiple aneurysms in patients with peripheral aneurysms that reported by Thomas L was 83% [7]. Aneurysms in peripheral arteries may be associated with such etiologic factors as syphilitic or other infectious arteritis[8], non infectious immunologic or inflammatory arteritis, and connective tissue diseases such as Ehlers-Danlos syndrome [9]. Aneurysms associated with such conditions are frequently multiple, and affected individuals commonly exhibit other manifestations of the underlying process. In the absence of such clear etiologic factors, most aneurysms have been attributed to "arteriosclerotic" degeneration. It's the case of our patients[6]. Clinically, patients usually present with pulsatile swelling with or without pain which is usually due to the compression of the surrounding structures[1]. As indicated, ultrasound scanning is a safe and painless procedure and arterial or aneurysmal size can be ascertained and followed by this technique[10]. CT scann give a good description of the aneurysm and can find another asymptomatic aneurysm in the same or in other arteries. It's our habits to do systematiquely Ct scann or MRI angiography. These aneurysms clearly may produce limb and life threatening complications even when relatively small in size, and the risks of mortality and complications after surgical repair are quite low. It has been suggested that common femoral and popliteal aneurysms be repaired if the maximum diameter is greater than 2 to 2.5 cm[6]. The operative or conservative management of peripheral upper extremities aneurysms should always consider the size of the aneurysm (more or less than 1.5 cm), the clinical presentation and the risk of peripheral embolism in the vessels feeding the fingers[4]. Our patient on case 2, radial and ulnar aneurysm mesured more than 1,5cm. The surgical procedures for the aneurysms in the upper limbs depend on the presence of adequate perfusion in the hand after the aneurysm is excluded from the hand circulation. Simple resection is the surgical option if the hand is adequately perfused. If the patients with inadequate hand perfusion can undergo arterial reconstruction by primary end-to-end anastomosis, there is no tension or with the use of an interposition vein graft if the defect is large[11]. Our opinion is to proposed revascularization whenever possible and the post-operative period was free of events.

CONCLUSION

Multiple arterial aneurysms in the forearm, wrist and thigh are relatively uncommon but is a reality. It's wy we propose to do systematiquely a CT scan or MRI angiography to look for another asymptomatic aneurysm. Successful preservation of life and limb is possible with early recognition and surgical reconstruction. Follow-up anatomic evaluation is recommended to identify enlarging or new aneurysms to avoid associated complications.

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