FALSE ARTERIAL ANEURYSMS

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As the majority of false arterial aneurysms are traumatic in origin they occur most commonly in war casualties. However occasional cases are encountered in civilian practice, a fact to be remembered when dealing with swellings in the neighbourhood of major arterial trunks. This is especially so when the clinical picture is masked by complications, in particular, infection. Failure to recognize this may result in unpleasant or even disastrous consequences. This report presents two unusual cases of false arterial aneurysm, in one of which this diagnostic difficulty is well exemplified.

CASE 1

An 11-year-old boy presented with a two-day history of a painful and gradually increasing swelling on the front of his left thigh. A month previously he had been accidentally stabbed with a scissor-blade on the outer side of the thigh and was treated in the casualty department with simple toilet and suture. Healing had taken place uneventfully.

Physical findings: He was found to be a healthy, well nourished boy with a pulse rate of 96 per minute and a blood pressure of 120/100 mm. Hg. A systolic thrill was palpable in the second and third left intercostal spaces accompanied by a loud systolic bruit audible down the left sternal border, maximal in the second left interspace. Left thigh: A large bilocular non-mobile pulsatile mass was seen and palpable on the front of his left thigh just below the inguinal ligament. A loud systolic murmur was audible over the mass. All pulses were present in the left lower limb and there were no signs of venous congestion. Blood pressure in the left leg: 120/100 mm. Hg., right left 140/90 mm. Hg. Branham's bradycardiac reaction and the Henle-Coenen sign both negative. Moderate limitation of flexion, extension and abduction of the left hip were noted. Laboratory data: Blood counts and urinalysis were normal. Electrocardiogram showed right ventricular preponderance.

The diagnosis of traumatic arterial aneurysm with associated pulmonary stenosis was made.

Operative findings: A large dumb-bell shaped pulsatile mass was found beneath the deep fascia, straddling the upper third of the left superficial femoral artery and composed of a multiloculated sac on either side of the artery. Following proximal and distal clamping of the femoral artery, the medial sac was incised and blood and laminated thrombus evacuated. At the bottom of the sac a longitudinal slit in the medial wall of the artery was identified as the origin of the false aneurysm and was closed with a continuous suture of arterial silk. The lateral sac was incised and evacuated and a similar one centimeter slit found in the exposed lateral wall of the artery directly opposite the first slit was closed in like manner. Postoperative recovery was uneventful and when seen two months later the popliteal and pedal pulses were palpable in the left leg.

Comments: This case was a typical example of a traumatic aneurysm. Differentiation from a traumatic arterio-venous aneurysm was made without difficulty from the absence of a continuous murmur and the systemic manifestations characteristic of the latter. Traumatic aneurysms are usually of the saccular type but may assume bizarre shapes. In this case the unusual dumb-bell shape was the result of two separate aneurysms which had resulted from a stab wound which had penetrated both walls of the femoral artery. This fact was only apparent when operative examination of the medial sac failed to reveal any communication with the lateral sac.

CASE 2

A 22-year-old male with no previous history of trauma presented with a painful mass in his right thigh which had begun three months earlier and had been rapidly increasing in size. Initially painless, it had in the last month become very painful and this was associated with numbness below the knee and a sensation of great warmth in the calf. Immediately preceding the development of this swelling, he had noticed the sudden eruption of some red patches on the skin of his right leg and foot which disappeared spontaneously.

Physical findings: A healthy young adult male, blood pressure 140/85 mm. mercury. Right thigh: A large very tender, non-pulsatile mass, measuring four inches by three inches was seen on the lateral part of the front of the middle of his thigh and found to be attached to deep structures. There was hyperaemia and increased warmth of the overlying skin. Both femoral pulses were palpable and equal but on the affected side no pulses were palpable distally.

In the absence of a history of trauma, and the presence of signs of inflammation, a diagnosis of suppurative myositis with abscess formation was made and drainage was decided upon. Precautionary aspiration of the mass before incision produced a small quantity of dark, turbid brown fluid but no frank blood. Incision was then made but initial evacuation of some clots was followed by frank hemorrhage which revealed the true nature of the mass. The wound was packed and after a few days of antibiotic treatment, definitive surgery was carried out.

Operative findings: A large false aneurysm, deep to the sartorious muscle, was found arising from a longitudinal wound 1.5 centimeters long in the femoral artery. No arterio-venous communication was found. The artery was repaired by a continuous suture (Fig. 1) and postoperative recovery was uneventful. The numbness below the knee and increased warmth which had been present preoperatively disappeared but pedal pulses were however, not palpable although the vascular supply to the right leg was found normal.

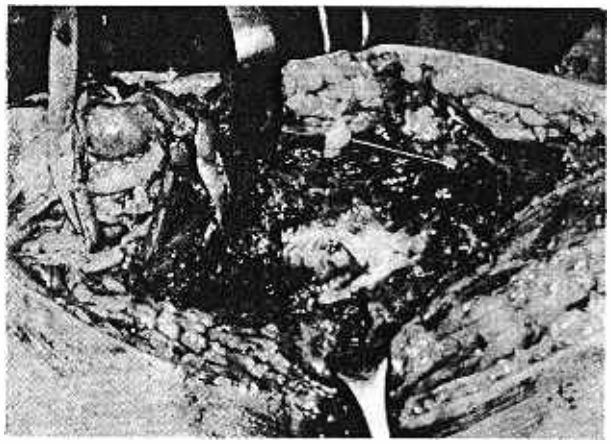

Fig. 1. Case 2. The evacuated cavity of the false aneurysm is shown, with the artery lying at the bottom. The vertical arterial opening has been closed with a continuous suture of 5-0 arterial silk.

Comments: Despite acute awareness of the diagnostic difficulties arising from infection of an aneurysm, the aneurysmal nature of the swelling was only revealed at the first operation. The positive absence of trauma and the history of discrete red spots in the skin of the right leg and foot which immediately preceded the thigh swelling were strong indications that we were dealing with a mycotic aneurysm following septic embolization but a careful examination failed to pinpoint the source of the emboli. Blood cultures unfortunately were not done.

DISCUSSION

Re-establishment of arterial continuity constitutes the guiding principle in the present-day management of traumatic aneurysms involving major arterial trunks. Surgical experiences with arterial injuries and their sequelae in World War II and the Korean campaign and follow-up studies showed that the early and late incidence of ischaemic disability following arterial reconstruction were much less than those following obliterative procedures (Hughes & Jahnke, 1958, Hughes, 1959, Hughes & Bowers, 1961). The incidence of early ischaemic disability following the latter was 30% increasing to a late incidence of 50%. Advances in vascular surgery have made possible several methods of arterial reconstruction. Excision of the damaged segment and end-to-end anastomosis, the use of autologous venous grafts or the more recently available plastic arterial grafts may be employed, the choice of technique varying with the situation encountered.

The operation of obliterative endoaneurysmorrhaphy, first practised by Matas in 1888 (Elkin, 1946), however still retains a place in the treatment of false aneurysms of lesser arterial trunks. An older operation for restoration of arterial continuity, restorative endoaneurysmorrhaphy (Matas, 1902) has been replaced by the more effective methods of arterial repair mentioned above, but is occasionally applicable, especially when the defect in the arterial wall is a longitudinal tear. Although a less satisfactory procedure (Hughes & Bowers, 1961), it proved adequate in these two cases.

SUMMARY

1. This report emphasizes the facility with which a false aneurysm may be mistaken for an acute abscess.
2. Two cases are presented, the first of which had the characteristic clinical features of a false aneurysm while the second case presented initially as an abscess and its true nature was only recognized at operation.
3. The treatment of false aneurysms is briefly discussed.

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