Aneurysm of the inferior gluteal artery causing sciatic pain

Case report

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Newport News, Virginia

The authors describe a case with sciatic pain caused by a large extrapelvic aneurysm of the inferior gluteal artery. Differential diagnosis and treatment are discussed.

Key Words • pseudoaneurysm • inferior gluteal artery • sciatica

Pain in the distribution of the sciatic nerve (“sciatica”), overwhelmingly, is the result of intraspinal compression of one of the lower lumbar or the first sacral roots by a protruding or ruptured intervertebral disc. Detailed musculoskeletal and neurological examination, with myelography, will usually reveal the exact etiology of the pain and allow definitive therapy. However, severe sciatic pain can result from pathology outside the spinal canal.

The present report describes a large pseudoaneurysm of the inferior gluteal artery causing chronic sciatic pain. This case also emphasizes the role of careful palpation and auscultation of the gluteal regions in a comprehensive examination of patients with sciatica.

Case Report

This 61-year-old, obese, woman was seen for the first time in 1971 because of sudden onset of severe pain in the right gluteal region while bending over to make her bed. The pain radiated into the right calf. Shortly thereafter, the patient had become aware of a sensation of coolness and numbness of the second, third, and fourth toes of the right foot. She had also noted questionable blanching of these toes. Past history included intermittent episodes of low back discomfort for several years, with occasional cramping of the right posterior thigh and calf. No sphincteric difficulties were noted. Musculoskeletal and neurological examinations were entirely normal, except for minimal weakness of the right extensor hallucis longus and for absent ankle jerks. No gluteal masses were noted. There was no sciatic tenderness at the level of the sciatic notches. No vasomotor changes were present in the lower extremities. Conservative therapy, with bed rest and heat to the lower back, was instituted; and, in several days, the patient became asymptomatic and was discharged.
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First Admission. She was seen again in January, 1973, complaining of transient dysesthesias of the right big toe with some discomfort in the posterior aspect of the right thigh and calf, occasionally associated with numbness of the little toe as well. These symptoms had gradually increased. At this time, the pain was described as a throbbing, constant ache, especially involving the posterior thigh and buttock and very definitely aggravated by sitting. Occasionally, especially when lying down on the right side, a throbbing sensation was very noticeable. In fact, even her husband had begun to notice it. The patient’s pain was lessened by walking; coughing or straining did not aggravate it.

On physical examination, a jugular compression test was negative. With forceful sciatic stretch on the right side, the patient described some discomfort in the posterior thigh. The neurological findings were unchanged. For 10 days bed rest and pelvic traction was tried with no improvement. Lumbar myelography revealed bilateral extradural narrowing of the Pantopaque column at the L4-5 and, minimally, at the L5-S1 interspaces. The right L-5 root pouch was elevated. A total laminectomy of L-4 and L-5 was carried out, with bilateral foramotomies, to remove bone overgrowth arising from the articulating facets and pedicles.

Postoperatively, the pain and the numbness of the right foot gradually improved.

In May, 1973, she again suffered a severe, throbbing pain in the right buttock, radiating into the posterolateral aspect of the right thigh and calf. She stressed the throbbing quality of her pain and severe aggravation with sitting. By this time, her husband could no longer tolerate the throbbing of her buttock and had commenced sleeping in a separate bed.

Second Admission. The patient was readmitted to the hospital in September, 1973, because of persistent and severe pain. While preparations were being made for an exploratory laminectomy and posterior rhizotomies, the patient was noted to have a pulsatile mass in the right midgluteal region. The mass measured roughly 12 × 15 cm and could be best seen when the patient assumed the prone position. The mass was clearly pulsatile, and a very harsh, loud, systolic bruit could be heard over the entire mass.

Intravenous radionuclide angiography was carried out, and a localized focus of increased activity could be seen in the right buttock (Fig. 1). A right common iliac arteriogram was then performed through the left femoral artery. There was marked dilatation of the right internal iliac (hypogastric) artery with the superior gluteal branch being quite normal (Fig. 2). This dilated internal iliac artery terminated at the level of the origin of the inferior gluteal branch into a large pseudoaneurysmal sac. Oblique views clearly showed that the pseudoaneurysm had no distinguishable neck and that the aneurysm itself was entirely extrapelvic (Fig. 3). No drainage into the leg from the right internal iliac artery or from the pseudoaneurysm was demonstrated.

Transperitoneal ligation of the right internal iliac artery was performed without difficulty. This vessel was twice the size of the external iliac artery. Immediately after surgery, no pulsations were palpable over the right buttock, and the bruit was no longer audible. There was prompt relief of the sciatic pain. When the patient was last seen in March, 1974, she complained only of a very mild, dull ache in the posterior aspect of the right thigh. Throbbing in the right buttock was no longer noted.
Discussion

In the differential diagnosis of "sciatica," if intraspinal space-occupying lesions and inflammatory conditions are excluded by myelography, one must "seek a cause distal to the spinal roots, in addition to examining the spine." This is particularly true if there is no significant history of previous or current backache. Causes of proximal, extraspinal sciatic nerve involvement which lead to neurological symptoms and signs are briefly summarized below:

1. **Intrapelvic pathology**
   A. Tumors
   B. Endometriosis (catamenial or cyclic sciatica)\(^5,8^\)
   C. Pelvic trauma (fractures and hematomas)
   D. Aneurysms of the pelvic arteries, generally atherosclerotic, involving the hypogastric and common iliac arteries,\(^2,10,14,19^\) as well as traumatic aneurysms which can be both intra- and extrapelvic.\(^16^\)

2. **Extrapelvic pathology**
   A. Trauma (fractures, dislocations of the head of the femur, gluteal wounds, infections or hematomas).
   B. Tumors of the trunk of the sciatic nerve.\(^3,17^\)
   C. Infections (cold abscess)
   D. Sciatic hernias, echinococcal cysts,\(^2^\) the pyriformis syndrome\(^1^\)
   E. Aneurysms of the gluteal arteries\(^1,9,16,19^\) and of the persistent, primitive sciatic artery.\(^10^\)

Aneurysms of the gluteal arteries are rare. Ninety-six cases have been gathered from the available literature.\(^4,9,16,18^\) The aneurysm reported by Gimenez\(^6^\) is not a gluteal aneurysm and should not be included.

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Fig. 2. Right common iliac arteriogram (subtracted film). Note the significant dilatation of the right internal iliac artery and its normal superior gluteal branch. Early filling of the aneurysmal sac on the left with much better filling in a delayed film on the right. Also note the abrupt termination of the dilated internal iliac artery on the superior pole of the aneurysm. No run-off into the right leg is seen.
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Most of these aneurysms are pseudoaneurysms caused by penetrating or blunt trauma to the buttock. In blunt trauma, the onset of symptoms may be delayed for several years during which the gluteal mass will slowly expand. The patient will become aware of a pulsatile sensation in the buttock. Eventually there will be gluteal and sciatic pain, with typical sensory, motor, trophic and vasomotor involvement, as well as total absence of lumbago and radicular compression signs.

While radionuclide angiography may be used as a diagnostic screening procedure, arteriography will definitely show the site of origin of the aneurysm, as well as its intra- or extrapelvic location. Arteriography will also reveal aneurysms originating from the primitive sciatic artery, in which cases visualization of the drainage into the leg is necessary. Indeed, if the primitive sciatic artery is also the chief arterial supply to the leg, the successful surgical management of the aneurysm will require simultaneous restoration of the distal arterial flow.

The ideal treatment of aneurysms of the gluteal arteries is direct excision of the sac with ligature of the parent artery or arteries. However, this approach is extremely hazardous and frequently fatal, because of uncontrollable hemorrhage. The more logical procedure would consist in temporarily or permanently occluding the internal iliac artery followed by endoaneurysmorrhaphy, as advocated by Battle and others. This, however, is not an innocuous procedure; damage to the sciatic nerve, at times forming a portion of the aneurysmal wall itself, may occur. Transperitoneal ligation of the internal iliac artery is a safe procedure and will cure a large number of aneurysms. We believe that this approach should be attempted first, and only if it fails should the more difficult and hazardous endoaneurysmorrhaphy be carried out.

While sciatic type pain is usually caused by radicular compression secondary to a herniated or ruptured intervertebral disc, other more rare etiological factors should be considered in the differential diagnosis. This report describes a patient with traumatic extrapelvic pseudoaneurysm of the inferior gluteal artery causing symptoms of compression of the trunk of the sciatic nerve. The diagnosis may be made clinically by palpation of a pulsatile mass in the buttock and by auscultation of a loud systolic bruit over this mass. Radionuclide angiography may easily demonstrate the aneurysm, although contrast angiography is the definitive diagnostic procedure. Ligation of the internal iliac artery is generally satisfactory.

Observation, palpation and auscultation of the gluteal regions should be included in the detailed musculoskeletal and neurological evaluation of patients with sciatic pain, especially if the myelogram is negative.

References


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