Intraneural hematoma of the sciatic nerve

Case report

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A case of an encapsulated organizing hematoma of the sciatic nerve is reported. Hemorrhage-induced neuropathy as a complication of anticoagulant therapy, leukemia, hemophilia, and other bleeding diatheses has been frequently reported. While trauma is the most common etiology of a hemorrhagic neuropathy, actual hematoma formation beneath the epineurium is very rare.

KEY WORDS • sciatic nerve • intraneural hematoma • hemorrhagic neuropathy

HEMORRHAGIC neuropathy is a very rare and a poorly understood clinical entity. This entity refers to hemorrhage into or around a peripheral nerve, resulting in either an extraneural or an intraneural hematoma. It can occur spontaneously or be produced by a multitude of causally related disorders, including bleeding diathesis (natural or iatrogenic), trauma, and neoplasms. The most common presenting symptom is mild-to-severe pain of acute or subacute onset in the distribution of the involved nerve. This is followed by signs of motor weakness, atrophy, and variable loss of sensation and of the appropriate reflexes. If surgical evacuation occurs early, almost complete recovery of the neurological deficits can occur over a prolonged period of time. A case report of a hematoma formed beneath the epineurium of the sciatic nerve and mimicking a benign tumor is presented. The most probable etiology of the initial hemorrhage was trauma.

Case Report

This 57-year-old attorney was hospitalized on June 27, 1977, because of a progressive mass in the left gluteal region. He first became aware of his symptoms about 6 months before admission. About 6 years previously, he had developed “numbness” and “tightness” in his buttocks after falling, but this sensation subsided gradually. About 6 months before this admission, he suffered another fall on his buttocks, and he developed pain in the left buttock. The lesion of the left gluteal region was first noticed when he was having a massage. The patient noticed that deep pressure over this mass would elicit pain along the distribution of the left sciatic nerve. Sensory examination was entirely normal. He experienced tenderness on palpation of the mass in the lower left gluteal region. The Achilles reflex was decreased on the left.
Intraneural hematoma of the sciatic nerve

FIG. 1. Photomicrographs of the specimen. Left: Organizing intraneural hematoma of the sciatic nerve showing evidence of old hemorrhage, necrosis, and fibrosis. H & E, × 5. Right: Periphery of intraneural hematoma of the sciatic nerve showing fibrosis, capsule, and central lumen filled with hemorrhagic and necrotic materials. H & E, × 50.

Straight-leg raising was normal bilaterally. Radiological studies of the lumbosacral spine were within normal limits. Electromyography showed fibrillations and positive spike waves in the anterior and posterior tibialis, gastrocnemius, and lateral hamstrings on the left. The left sciatic nerve was compromised proximal to innervation of the hamstrings and distal to the innervation of the glutei.

Operation. On July 6, 1977, the patient had surgical exploration of the sciatic nerve in the left gluteal region under general anesthesia. A large, well organized and encapsulated hematoma was found within the sciatic nerve, measuring about 18 × 9 cm. After the lesion was opened, partially liquefied and partially organizing hematoma extruded, and the mass collapsed.

Postoperative Course. Postoperatively, the patient underwent extensive physical therapy, and the strength of dorsiflexion of his left foot almost completely returned to normal.

Pathological Examination. The cystic lesion of the left sciatic nerve was filled with necrotic hemorrhagic material. Sections through the cystic structure showed multiple fragments of blood clot and extensive formation of connective tissue (Fig. 1 left). Sections through the wall of the cyst, which measured from 1 to 5 mm in thickness, consisted of whitish, firm layers of connective tissue (Fig. 1 right). The pathological diagnosis was an organizing hematoma of the left sciatic nerve.

Discussion

The clinical conditions associated with hemorrhage-induced neuropathy include any congenital, acquired, or iatrogenic hemorrhagic disorder. The reported cases include hemophilia, leukemia, thrombocytopenia, and prolonged anticoagulant therapy (heparin, Coumadin (warfarin), and phenindione). The femoral nerve is most frequently affected in hemophilia. The most common etiology of hemorrhagic neuropathy is trauma from blunt injury, stretch injury, puncture wound, or gunshot wound. All of
these can result in hematoma formation in an unyielding fascial compartment from continuous internal bleeding. Rare causes include benign and malignant neoplasms and ruptured atherosclerotic aortic aneurysms.

The pathogenesis of the peripheral nerve damage caused by a hematoma is explained by either extraneural or intraneural mechanisms. In association with the extraneural hematoma formation from hemorrhage into an adjacent muscle, which frequently occurs in the hemorrhagic diatheses and trauma, the increased extraneural pressure causes compression either directly upon the nerve, or upon its peripheral vasa nervorum. In the formation of an "intraneural" hematoma, the blood fails to disperse and dissipate along the subepineurial space following the initial hemorrhage. This blood is never fully lysed and absorbed. The initial hematoma may increase in size with repeated episodes of trauma. The actual formation of the "subepineurial" or perineurial hematoma produces a subacute compressive or anoxic ischemia, and eventual infarction of the neural elements by occlusion of the vascular supply to the sciatic nerve.

Prompt surgical intervention not only establishes a definitive diagnosis, but the early removal of the hematoma may avoid permanent, severe neurological damage.

References


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