Sciatic entrapment neuropathy

Case report

TIMIR BANERJEE, M.D., M.S., AND COLIN D. HALL, M.B., Ch.B.
Divisions of Neurosurgery and Neurology, University of North Carolina, Chapel Hill, North Carolina

A case of sciatic entrapment neuropathy is discussed. When evaluating patients with unilateral leg pain and paresthesias, one should consider the possibility of entrapment of peripheral nerve. Electrodiagnostic studies are helpful in establishing the diagnosis.

KEY WORDS · entrapment · sciatic nerve · myofascial band · nerve entrapment · neuropathy, entrapment

Intrinsic lesions of the peripheral nerves with or without external compression may produce pain and paresthesias in the extremities.1-5,7 In approximately 25% of cases, a history of local trauma is reported. Most sites of compression are well recognized. We are presenting a case of entrapment neuropathy of the sciatic nerve in the thigh, a site not previously described.

Case Report

A 34-year-old woman was admitted with a history of right posterior thigh pain for approximately 1 year. The pain began insidiously and often radiated to the lateral aspect of the foot; it was punctuated by intermittent tingling and numbness and was relieved by flexing the knee. The patient had had occasional discomfort in her back for approximately 10 years not associated with leg pain. She was a diabetic and took 40 units of regular insulin daily. There was no history of trauma to the leg or back.

Examination. The pertinent physical findings were related to the site of complaint. There was a tender spot at the upper part of the right popliteal fossa; percussion of this area produced paresthesias on the lateral aspect of the foot. There was no evidence of gross motor weakness. The lateral aspect of the right foot was hypesthetic. Right ankle jerk was absent. The right calf measured 41 cm and the left 43.5 cm. Electromyography showed evidence of minimal denervation in the right gastrocnemius and soleus group with no evidence of denervation of the paraspinal muscles. A nerve-conduction test done with needle electrodes demonstrated a difference in the conduction velocity of 14.5 msec between the right and left sciatic nerve when measured from the buttock, with the delay occurring between the buttock and the popliteal fossa. The amplitude of the action potential on the right side was smaller than on the left by about 50%.

Operation. The sciatic nerve was exposed by dissecting the plane between the semimembranosus and long head of the biceps at the junction of the middle third and distal third of the thigh. The distal part of the nerve was traced until the common peroneal was seen to pass under the medial edge of the biceps femoris. The nerve was dissected prox-
Sciatic entrapment neuropathy

Fig. 1. Operative photograph showing the area of constriction on the nerve (arrow). Probe points to a vascular pedicle to the nerve.

imally above the bifurcation. The popliteal vessels were recognized on the medial aspect. Just proximal to the point where the popliteal vessels were visible, a distinct myofascial band was seen on the posterior aspect of the nerve. It extended from the area of attachment of the short head of the biceps femoris to the linea aspera laterally across the nerve to adhere to the adductor magnus on the anterior aspect of the nerve. This band was incised and the nerve was freed. An area of compression was recognized on the surface of the nerve (Fig. 1). Evoked nerve action potential was recorded. Supramaximal stimulus was applied to the nerve intraoperatively proximal to the band prior to incising it and was recorded from the ankle. It was noted that the stimulus required to initiate nerve action potential was much less and the amplitude was larger after the band was incised.

Postoperative Course. The patient's postoperative course was uneventful. She has been free of pain, but the area of hypesthesia on the lateral aspect of the right foot has persisted. We have not done postoperative percutaneous nerve conduction studies.

Discussion

This case demonstrates an apparently unusual cause of leg pain. Pain with local tenderness over the sciatic nerve in the area of the popliteal fossa has been described in the presence of cystic changes within the nerve, but there was no evidence of this in the present case. In an obese diabetic there may be a tendency to assume changes are due to metabolic or vascular derangement of the nerve, and, as in this case, diagnosis may be delayed. Nerve conduction measurements with needle stimulation of the sciatic nerve at the buttock proved helpful in localizing a delay in conduction in the upper leg. The intraoperative measurement helped to localize the lesion accurately as well as suggest that entrapment was the cause for delay in conduction.

The area of localized tenderness was seen at operation to be clearly related to entrapment of the nerve by a myofascial band between the biceps femoris and the adductor magnus. A search of the literature produced no similar cases, and indeed the statement has been made that this kind of entrapment of the sciatic nerve has not been reported. It is a matter of speculation why this band, presumably developmental, became symptomatic at this time.

References


This study was supported in part by funds from University Research Council, Grant 1-0-104-4264-VF478.

Address reprint requests to: Timir Banerjee, M.D., Department of Surgery, Neurosurgery, Division of Health Affairs, University of North Carolina, Chapel Hill, North Carolina 27514.

J. Neurosurg. / Volume 45 / August, 1976 217