Medial Superior Cluneal Nerve Entrapment Neuropathy in Teenagers: A Report of Two Cases

TAREK A. ALY, YASUHISA TANAKA,¹ TOSHIMI AIZAWA,¹ HIROSHI OZAWA¹
and SHOICHI KOKUBUN¹

Department of Orthopedic Surgery, Tanta University, Tanta, Egypt and

*¹Department of Orthopedic Surgery, Tohoku University School of Medicine,
Sendai 980–8574*

ALY, T.A., TANAKA, Y., AIZAWA, T., OZAWA, H. and KOKUBUN, S. *Medial Superior Cluneal Nerve Entrapment Neuropathy In Teenagers: A Report Of Two Cases.* Tohoku J. Exp. Med., 2002, 197 (4), 229–231 — Medial superior cluneal nerve entrapment neuropathy causes pain radiating from the low back down to the posterior thigh. It tends to be misdiagnosed as a lumbar spine disorder. Patients in previous reports were in the middle or old age at the onset. Proposing simultaneous full flexion of the ipsilateral hip and knee joints as a provocation test, we present two cases of teenager females who spent long before diagnosis of their condition. Both of them had engaged in vigorous sports activities and completely recovered from the disability following local anaesthetic and corticosteroid injection at the trigger point. ——— medial superior cluneal nerve; entrapment neuropathy; teenager; provocation test
© 2002 Tohoku University Medical Press

Medial superior cluneal nerve entrapment neuropathy induced over the iliac crest causes pain radiating from the low back down to the posterior thigh. It tends to be misdiagnosed as a lumbar spine disorder. Few clinical reports on it have been published in the literature (Maigne et al. 1989; Li and Mu 1992; Maigne and Dousounian 1997; Talu et al. 2000). The patients in those reports were in the middle or old age at the onset. None of them, however, described having an occurrence during adolescence. Proposing simultaneous full flexion of

the ipsilateral hip and knee joints as a provocation test, we present two cases of young females with disability resulting from this syndrome.

CASE REPORTS

Case 1

A 17-year-old girl who was a tennis player had a three-month history of pain radiating from the left buttock to the posterior thigh, and an inability to sit for more than 10 minutes or run for short distances. At the hospital she first visited, the condition was diagnosed as

Received December 17, 2001; revision accepted for publication August 14, 2002.

Address for reprints: Shoichi Kokubun, Department of Orthopedic Surgery, Tohoku University School of Medicine, 1-1 Seiryomachi, Aoba-ku, Sendai 980–8574, Japan.

e-mail: kokubun@mail.cc.tohoku.ac.jp

lumbar disc derangement and she was prescribed rest for three weeks but showed no improvement. Subsequent investigations including x-ray films, lumbar myelography, CT, and MR imaging could not detect any abnormality. She was suspected of having facetogenic pain and was treated with facet block and continuous epidural block for a month without noticeable effects. She was referred to Tohoku University Hospital in August 1997.

Physical examination revealed an inability to sit for a long time, and a limitation of back extension with pain radiating to the left buttock. A trigger point was found 6 cm to the left of the midline over the iliac crest, manifesting itself as a mobile tender mass tactile stimulation of which caused pain radiating from the low back down to the posterior thigh consistent with the distribution of the medial superior cluneal nerve. Her neurological examination was normal except for slight weakness of the left iliopsoas muscle (N-). The left straight-leg-raising test was positive at 90 degrees with tight hamstring muscles. Full flexion of the left hip with the knee fully flexed provoked left gluteal pain that was the same as her chief complaint.

Local anesthetic injection in combination with corticosteroid was given at the trigger point over the left iliac crest. It was effective in minimizing the pain. In the following two weeks, the pain decreased gradually. She became able to sit for periods of up to one hour and run for longer distances. After three injections of the previous combination at weekly intervals, she was completely relieved of the pain. During her last visit (for the following 4 years and 7 months) in April 2002, she had no physical complaint.

Case 2

A 16-year-old girl who was a volleyball player presented with a two-month history of low back pain and difficulty in sitting long

because of right buttock pain. She was diagnosed as lumbar radiculopathy. She underwent plain x-ray, myelography and MRI but no pathologies were found. She was treated with painkillers and muscle relaxants (for a month) without effect. Then, she was treated with pelvic traction and epidural block (for another month). The pain decreased slightly but sitting for about 20 minutes intensified the pain. One of the authors (S. K.) was asked to see the patient on September 1997. On physical examination, a trigger point was found 7 cm to the right of the midline over the iliac crest though no mass was found because of obesity. The straight-leg-raising test was positive bilaterally at 80 degrees with tight hamstrings. Full flexion of the right hip joint with the right knee fully flexed lead to right gluteal pain. Neurological examination and radiographic investigations revealed no abnormalities.

A local block test was conducted to confirm the diagnosis and a combination of local anesthetic and corticosteroid was injected. After three injections at two-week intervals, the pain had disappeared. During her last visit to our hospital (for the following 4 years and 6 months) in May 2002, she was completely free of pain.

DISCUSSION

Certain peripheral nerves course through specific anatomic regions where they are easily compressed. A previous anatomical study (Maigne et al. 1989) described that the medial superior cluneal nerve crosses the iliac crest through the thoracolumbar fascia from a rigid osseo-aponeurotic orifice located 7 to 8 cm from the midline.

An extensive literature search revealed only a few reports concerning entrapment of the medial superior cluneal nerve (Zhong 1991; Berthelot et al. 1996; Maigne and Doursonian 1997; Talu et al. 2000). All patients in those reports were in the middle or old age at the onset. The two cases in the present report were

teenager female athletes. It is suggested that this condition needs to be suspected when seeing young patients who engage in vigorous sports activities and are suffering from persistent pain.

Nerve compression lesions usually result from the combination of several types of trauma on the nerve including traction, friction and repetitive compression, which lead to local edema in the surrounding tissue and interference with the normal sliding movement of the nerve. In superior cluneal nerve entrapment neuropathy, the anatomic and functional bases for the development of the lesion are a rigid fascial edge and stretch of the gluteus maximus and skin over a large range by flexion of the hip joint, especially during sports activities. The nerve becomes subjected to stretching forces that cause tissue irritation, edema, inflammatory cell infiltration and scarring, which leads to the subsequent entrapment.

Once suspected, entrapment of the medial superior cluneal nerve is easily diagnosed by locating the trigger point and by the hip-knee flexion test that was never described in the previous reports. The test is performed by full flexion of the ipsilateral hip and knee joints while the patient is in the supine position. Provocation of pain in the distribution of the nerve is evaluated as positive. The mechanism

of this test depends on the stretching effect on the entrapped nerve. This test can easily differentiate medial superior cluneal nerve neuralgia from sciatica because it does not stretch the sciatic nerve unlike the straight-leg-raising test.

References

- Berthelot, J.M., Delecrin, J., Maugars, Y., Caillon, F. & Prost, A. (1996) A potentially under-recognized and treatable cause of chronic entrapment neuropathy of the cluneal nerve. *J. Rheumatol.*, **23**, 2179-2181.
- Li, X. & Mu, D. (1992) Massage and acupuncture in 58 cases of superior cluneal neuralgia. *J. Tradit. Chinese Med.*, **12**, 288-289.
- Maigne, J.Y., Lazareth, J.P., Guerin Surville, H. & Maigne, R. (1989) The lateral cutaneous branches of the dorsal rami of the thoracolumbar junction. An anatomical study on 37 dissections. *Surg. Radiol. Anat.*, **11**, 289-293.
- Maigne, J.Y. & Doursounian, L. (1997) Entrapment neuropathy of the medial superior cluneal nerve: nineteen cases surgically treated, with a minimum of 2 years follow-up. *Spine*, **22**, 1156-1159.
- Talu, G.K., Ozyalcin, S. & Talu, U. (2000) Superior cluneal nerve entrapment. *Reg. Anaesth. Pain Med.*, **25**, 648-650.
- Zhong, J. (1991) Acupuncture treatment in 96 cases of superior cluneal nerve injury. *J. Tradit. Chinese Med.*, **11**, 259-260.