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SURGICAL TREATMENT OF SACRAL PERINEURAL CYSTS A CASE REPORT

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INDEXING WORDS

perineural cyst; surgical treatment; Tarlov's cyst

SYNOPSIS

Most of the perineural cysts (Tarlov's cysts) are asymptomatic. They are usually diagnosed incidentally, and a specific treatment is not necessary. They should be operated on, only if they produce progressive or disabling symptoms and/or sign clearly attributable to them. Several reports have been made regarding their sign and symptom, neurological and radiological features. This is a report emphasizing on their surgical indication and surgical treatment. We reported a 48 year-old woman who underwent surgery because of the symptomatic perineural cyst. It is concluded that the total excision of the perineural cyst is not necessary and a partial resection with a resultant reduction in the cyst size results in a favourable outcome.

INTRODUCTION

Spinal perineural cyst was first described by Tarlov (8). This occurs on the extradural compartments of sacral or coccygeal nerve roots (1-8). This cyst arises between the arachnoid (perineurium) and the other surface of the pia mater

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(endoneurium) and the cyst wall is formed by these elements (3,4,8). The possible causes of these cysts include congenital factors, ischaemic degeneration of spinal ganglia, traumatic root avulsion, and dural laceration during spinal surgery (4). Meningeal cysts, meningeal diverticula and arachnoidal proliferation are confused with perineural cysts and myelogram, computerised tomography (CT), CT-myelogram and/or magnetic resonance imaging (MRI) are used for differentiation of these lesion (1,6-8). Symptomatology includes low back pain, sciatica, or perineal chronic pain, bladder and bowel dysfunction. Some of patients may require surgical treatment (1,2,5-8). We report a case of perineural cyst with progressive neurological deficit that was operated on by a partial resection.

CASE REPORT

Forty-eight year-old woman was attended to the orthopaedic clinic due to right hip pain. The pain progressively worsened until she required various oral analgesics 6 or 7 times daily for pain relief. CT scan of the lower lumbar vertebrae and sacrum showed considerable erosion of the right S1 foramen (Fig. 1 a and b). She was referred to our clinic. She complained of bladder dysfunction. Her medical history was uneventful. On neurological examination, right foot plantar flexion strength was 4/5 and S1 sensory area was hypaesthesic. Denervation of the S1 nerve was detected on electromyography examination. MRI disclosed two cysts at the level of right L5 and S1 nerve roots, (Fig. 2a). A right L4 hemipartial and a right L5 hemilaminectomy were performed. The sacral bone was found to be thin. To reveal the cyst wall at this level, a limited right S1 hemilaminectomy was performed and the entire of the posterior aspect of perineural cysts were visualised (Fig. 3). The cyst walls were opened with gentle manipulation using dural hooks and the content of the cysts was drained under microscope. The nerve roots were seen at the base of cysts. There was continuity between cyst wall and the nerve roots. Therefore, it was decided not to resect whole the cyst. A partial cyst wall excision was performed and the defect was sutured so that the cyst wall covered the nerve root with a minimal rest cavity.

The cyst wall was fixed for the histopathological examination. Her pain was relieved completely and she was mobilised next day. No cerebrospinal fluid leakage was seen after operation and she was discharged on fifth day postoperatively without any problem. Postoperative control MRI showed no pathology except for normal postoperative changes (Figure 2b). The patient was symptom-free on neurological examination six months after operation. Histopathological examination revealed a peripheral nerve fibers, meningeal epithelial and ganglionic cells.

DISCUSSION

Tarlov's cysts have been confused with meningeal cysts and diverticula and with unusually long arachnoidal prolongation over nerve roots (3,8). By radiological, operative and histological examination, spinal meningeal cysts can be classified into three major categories: 1) extradural cysts without spinal nerve root fibers (type 1, extradural arachnoid cyst, sacral meningocele); 2) extradural cysts with spinal nerve fibers (type 2, Tarlov's perineural cyst), and 3) intradural cysts (type 3, intradural arachnoid cyst). Perineural cysts are sometimes space occupying cystic dilation of the lumbosacral or coccygeal nerve roots at or distal to junction of the posterior root and the dorsal ganglion (4,5,8). The posterior root fibers and/or ganglion are involved in the cyst wall (8). Nerve fibers, meningeal epithelial and ganglionic cells were seen in our case's specimen and this cyst was accepted to be a perineural cyst.

Although most of cases are asymptomatic, these occasionally cause low back pain, sciatic and sacrococcygeal pain, sensory and motor disturbance in lower extremities, and urinary dysfunction. The symptoms are similar to those of lumbar disc herniation (1,2,4,6,7,9). The symptoms are usually progressive and occur because of adjacent nerve root impingement by cyst that grossly continues with the dura mater and the arachnoid covering their respective roots (6,8). The continuity of the cyst wall and the nerve root prevents a total cyst excision or drainage alone, with a resultant cerebrospinal fluid fistula. The operative exposure of our case showed the continuity of the cyst wall with the dorsal aspect of the nerve root. Because of this relationship, we did not try to excise the cyst wall totally. We resected cyst wall partially and sutured it again. Post operative images showed an irregular cyst remnant with a reduction of its size. Patient had no additional neurological deficit. Her pain was totally relieved by this procedure.

The choice of surgical treatment for Tarlov's cyst is still controversy (1,2,5-8). Tarlov (8) treated seven patients surgically because of pain in five patients, and paraesthesia and genitourinary disturbances in two patients. He performed a variety of different surgical procedures, including total or partial excision of the cyst, incision and the drainage of the cyst. He reported the best outcome following total cyst excision. Similarly, Bourgeois et al. (1), reported four symptomatic cases of perineural cysts treated with total excision. Sequeira et al. (7), reported two cases with perineural cysts treated with decompressive laminectomy alone. Rodziewics et al. (6), diagnosed multiple perineural cysts in sacral region with MRI, and treated with persistent bipolar coagulation and no cerebrospinal fluid drainage.

Despite a variety of surgical options with different surgical outcome, the choice of surgical treatment remains to be challenging. The partial resection and suturing of the cyst wall in our case resulted in reduction in the size of the cyst, and in turn, relief of the symptoms. The short-term follow-up of our case seems to

be favourable. However, to reach to an exact conclusion, the large number of patients with a longer follow-up period is mandatory.

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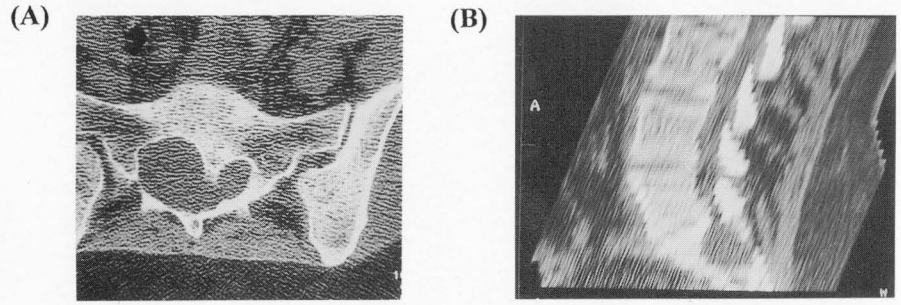


Figure 1 : The axial CT scan **(A)** and sagittal CT reconstruction.**(B)** show the erosion of the right S1 foramen.

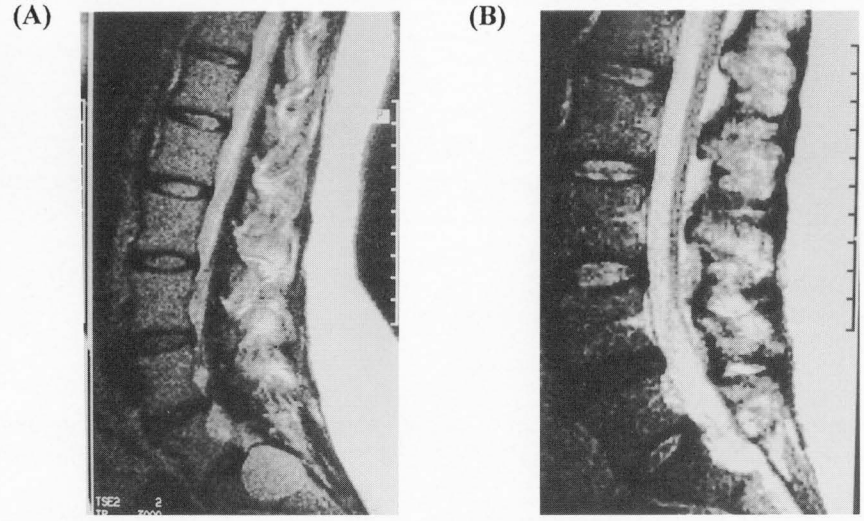
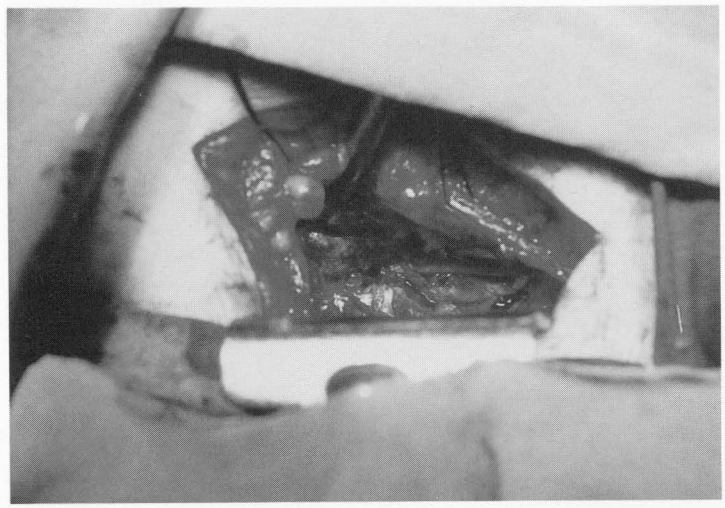


Figure 2 : **(A)** The preoperative sagittal T2 weighted MR image shows the presence of two perineural cysts.**(B)** Postoperative sagittal T2 weighted MR image shows the postoperative changes at L5-S1 level, and a reduction the cyst size.



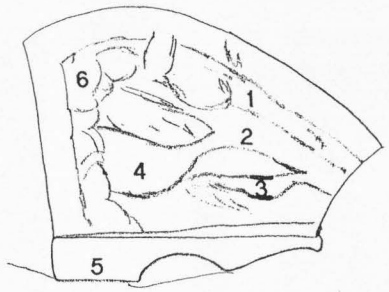


Figure 3 : Intraoperative view of the perineural cyst and its diagram (1. interspinous ligament, 2. dural sac, 3 and 4. perineural cysts, 5. retractor, 6. adipous tissue).