Rehabilitation Practice and Science

Volume 21
Issue 1 *Taiwan Journal of Physical Medicine and Rehabilitation (TJPMR)*

Article 33

12-1-1993

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Recommended Citation

Wong, Chui-Lee and Hsu, Mei-Hue (1993) "Lumbosacral Perineurial Cysts Caused Cauda Equina Syndrome Which Temporarily Relieved by Pelivic Traction: casereport," *Rehabilitation Practice and Science*: Vol. 21: Iss. 1, Article 33.
DOI: https://doi.org/10.6315/3005-3846.1901
Available at: https://rps.researchcommons.org/journal/vol21/iss1/33

Lumbosacral Perineurial Cysts Caused Cauda Equina Syndrome Which Temporarily Relieved by Pelvic Traction — Case Report

Chui-Lee Wong, Mei-Hue Hsu

Sacral perineurial cyst is an uncommon entity. It can be the cause of a sciatica or cauda equina syndrome. Reportd here is a case of multiple lumbosacral perineurial cysts with cauda equina syndrome, who experienced remarkable improvement of symptoms after each course of pelvic traction which was initially prescribed under the impression of lumbar spondylosis. Pelvic traction may probably serve as a palliative treatment temporarily for some patients with only mild symptoms or patients whose general condition is not suitable for surgery.

Key words: perineurial cysts, cauda equina syndrome, pelvic traction

INTRODUCTION

Sacral perineurial cyst can be the cause of a sciatica or cauda equina syndrome. For patients who have symptoms, surgical treatment allows complete or partial recovery [1]. Pelvic traction has not been recommended as a conservative treatment for these patients in the literature. This report describes the good result of pelvic traction experienced by a case of multiple lumbosacral perineurial cysts with cauda equina syndrome.

CASE REPORT

A 65 year-old female, who had constipation for half a year, sustained severe pain over buttocks and weakness of legs, which made her unable to walk independently, after a trivial twisting of her waist, and admitted to a hospital for continuous pelvic traction under the impression of lumbar spondylosis. Besides, the patient felt anorectal discomfort, similar to rectal tenesmus. She obtained improvement gradually with pelvic traction. One month later, she was discharged, but visited our clinic and requested for pelvic traction with the complaints of residual mild to moderate degree of pain over buttocks with radiation to legs, anorectal and perineal discomfort and constipation. The pain over buttocks became worse on sitting. Straight leg raising to 90 degrees on each side aggravated pain over the corresponding buttock. Ankle jerk was absent bilaterally. The clinical manifestation suggested cauda equina syndrome, which is unusual in uncomplicated lummbar spondylosis. Plain films of lumbosacral spine showed localized enlargement of the sacral canal with pressure erosion of the adjacent bone, and mild degenerative bony change (Fig. 1). Spinal CT revealed hypodense expansile cysts in the sacral canal as well as erosion of posterior sacral element

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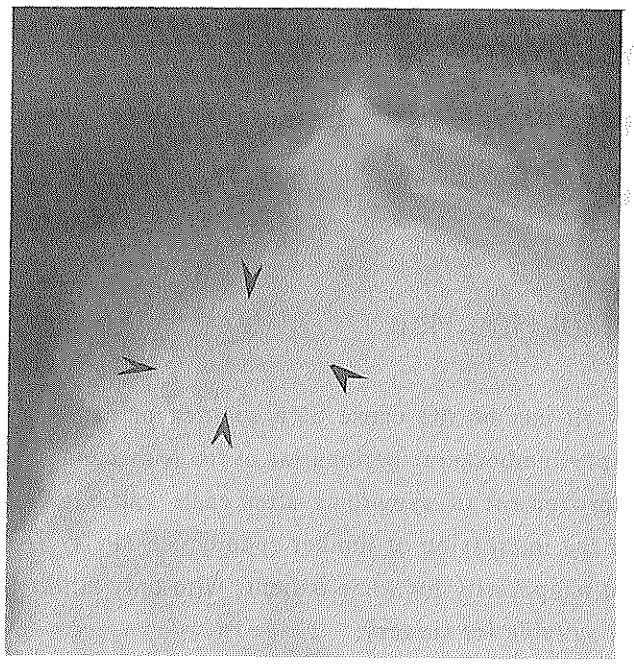

Fig. 1. Plain film of lumbosacral spine revealing pressure erosion (arrowheads) of the sacrum.

(Fig. 2). Although the patient has got improvement after pelvic traction, she was referred to the neurosurgical clinic for further management.

After admission to the neurosurgical ward, paresthesia over S2 dermatome was found in additional to the physical findings noted at OPD. Metrizamide-myelography demonstrated multiple lumbosacral perineurial cysts with bilateral S2 cysts being the largest (Fig. 3). MRI revealed a 2 cm and a 3 cm ovoid high signal cysts over the right and the left sides of sacrum at S2 level, respectively, and marked expansile widening of the sacral canal on T2*W images. They connected to the thecal sac with nerve root sheaths (Fig. 4). As the patient continued to improve, surgery was not performed. The patient was instructed to avoid prolonged sitting, standing and walking.

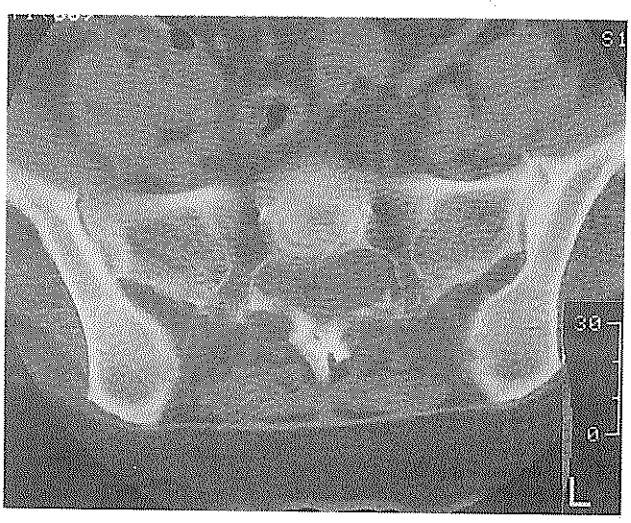

Fig. 2. Spinal CT showing hypodense expansile cysts in the sacral canal with marked erosion of posterior element of sacrum.

Three and a half months after discharge, the patient visited the clinic with the complaints of constipation and pain over buttocks with radiation to legs, and requested for pelvic traction again. It was thought that the remarkable improvement of symptoms noted before was mainly attributable to the effect of pelvic traction, so pelvic traction was prescribed, and she got improvement gradually.

Half a year later, the patient came back again with mild recurrence of symptoms. After intermittent pelvic traction for two and a half months, she could walk comfortably for half an hour. She got constipation improved and did not need Dulcolax.

DISCUSSION

In 1938, Tarlov described five cases of apparently asmptomatic perineurial cysts involving the sacrococcygeal roots during dissection of the film terminale at autopsy. However, in 1948, he reported a case who demonstrated the symptoms and signs of a ruptured lumbosacral disc, but was discovered at operation to have a typical perineurial cyst of the right S2 posterior nerve root. The cyst was excised and the patient experienced a rapid recovery. Sacral perineurial cyst can be the cause of a sciatica or cauda equina syndrome [1]. The dominant syndrome was referable to the caudal nerve roots either sciatica, sacral or buttock pain, rectal pain, urinary retention or incontinence, vaginal or penile paresthesia, sensory disturbance on buttock, perin-

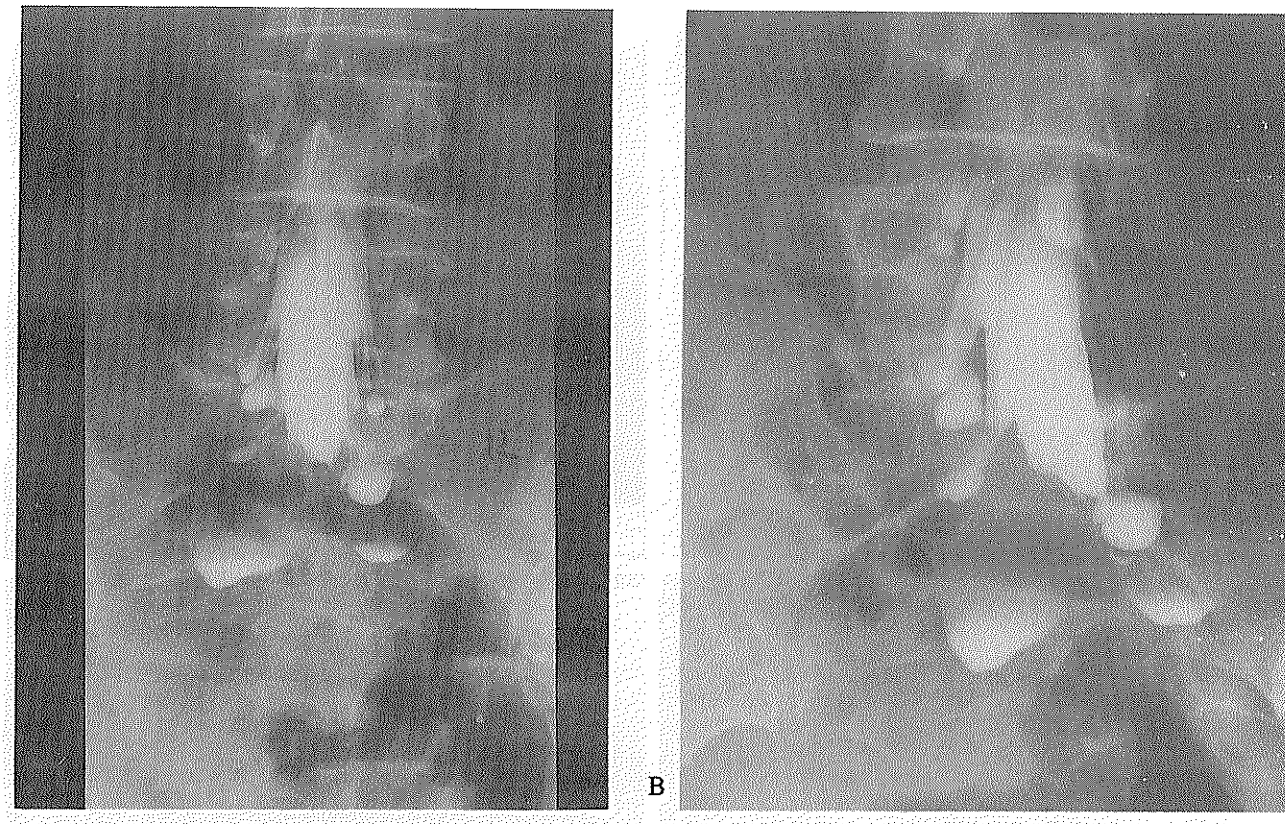

Fig. 3. Metrizamide-myelography revealing multiple lumbosacral perineurial cysts (A, anteroposterior, and B, right oblique views).

eal area and lower limbs, weakness of leg or absent ankle jerk. The symptoms were usually insidious in onset and then became progressive, but there was antecedent trauma in some cases [1,2].

Perineurial cysts occur along the nerve roots, at or distal to the junction of the posterior root and the dorsal ganglion. They arise between the perineurium and the endoneurium. The spinal nerve root fibers either lie within the cyst wall or exist freely, centrally, within the cyst bathed in CSF. By Tarlov's criteria, the cyst wall contains nerve fibers and, occasionally, ganglion cells. The cysts are usually seen on the sacral roots but they may occur at other levels. They may attain a diameter of 3 cm, severely compressing or invading nerve roots, or they may be small without pathological significance. They are often multiple [1,2]. The etiology of perineurial cysts is obscured. Degeneration, spontaneous or traumatic hemorrhage, proliferation of arachnoid, and congenital origin have been suggested [1,3].

Radiographs of lumbosacral spine in patients of perineurial cyst are frequently normal, but localized enlargement of the sacral canal with pressure erosion of the adjacent bone may be found in some instances [1].

On myelography using oily contrast material, perineurial cyst usually do not fill on initial examination, but they will be visualized several hours to more than 24 hours later on subsequent examination [4]. Nevertheless, Shapiro reported the pantopaque (oily contrast medium) can be visualized passing in and out of the cyst at fluoroscopy on myelography [5]. Since the introduction of water-soluble contrast medium for myelography, the cysts are usually visualized immediately. It is assumed that the low viscosity of the water-soluble contrast medium accounts for this finding [4]. Perineurial

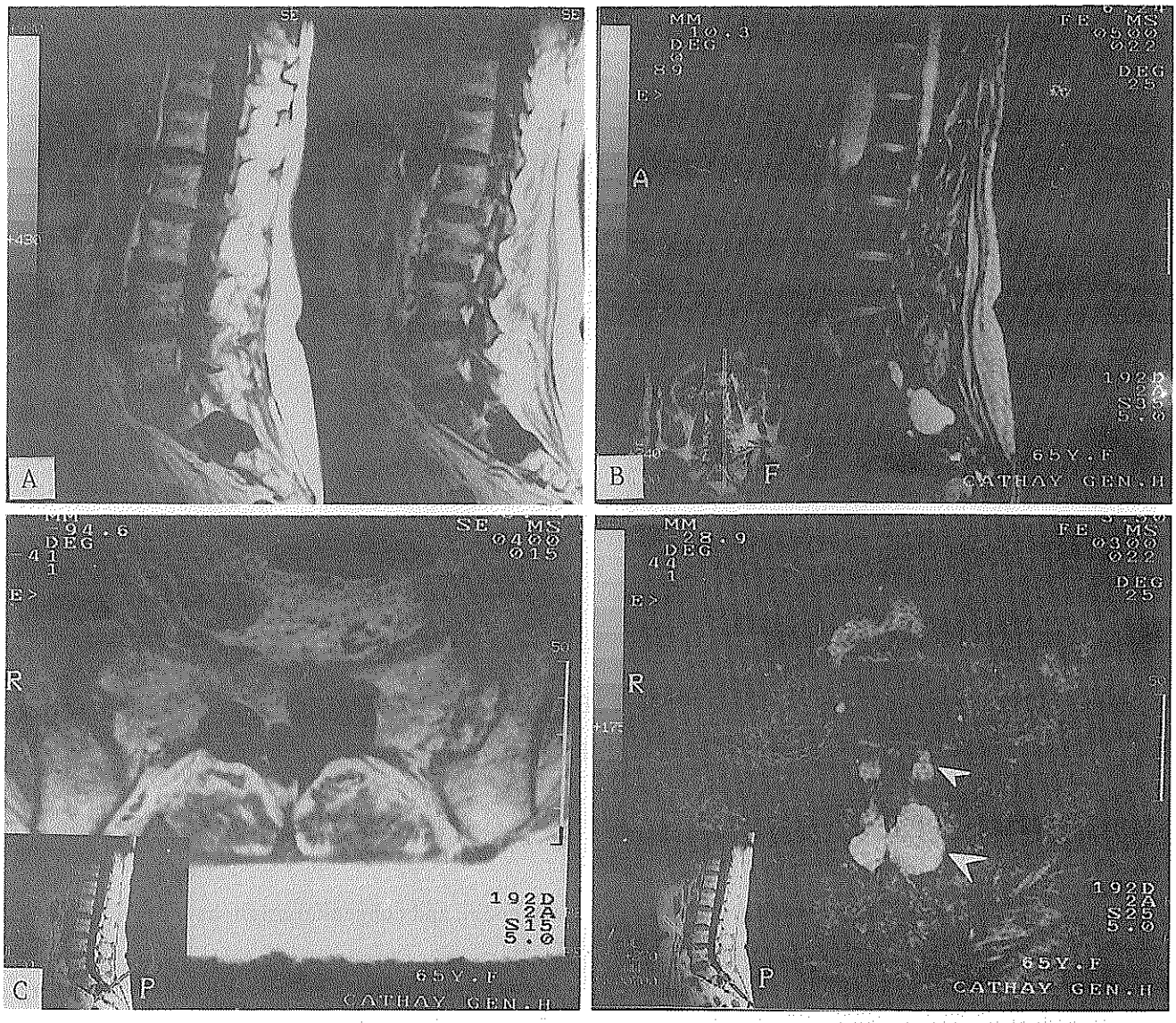

Fig. 4. MRI sagittal scans demonstrating a large cyst in sacral canal, low signal in TlW image (A), and high signal in T2*W image (B); cysts with marked excavation of sacrum on axial TlW image (C); bilateral Sl (small arrowhead) and S2 (large arrowhead) cysts on coronal T2*W image (D).

cysts usually communicate with the subarachnoid space. When routine water-soluble myelography is normal or demonstrates only an extradural defect, but no filling of the cyst itself, computerized tomographic myelography usually shows the extent of the cyst and the communication between the cyst and the subarachnoid space [3,6].

Siqueira described the CT characteristics of erosion of the posterior sacral element as well as enlargement of the sacral canal. Myelography will not be needed to confirm the diagnosis [7], especially in asymptomatic patients or patients for whom surgery is unnecessary or not suitable.

MRI has been used in the diagnosis of sacral perineurial cysts, later confirmed at surgery [8]. On MRI, the cysts have low signal on TlW images, and high signal on T2W images, similar to CSF [3].

When the cyst is large with significant mass effect, operative treatment is mandatory [4]. The aim of surgery is to obliterate the cyst by partial resection and oversewing the cyst wall or by total

excision of the cyst with nerve root [3]. Complete excision of a single or two cysts together with the nerve roots may leave no sequalae. When dealing with three or more perineurial cysts arising from major nerve roots, partial resection of the cyst wall will probably be preferable to complete excision in order to preserve as much function as possible [2,3]. Simple aspiration of the cysts is not recommended and has been disappointing, since under these circumstances the cysts probably reinflate postoperatively [2].

Conservative treatment instead of surgery was prescribed for elders, whose general condition was not suitable for operation [7,9], or patient with angina [9].

As sacral perineurial cyst can be a cause of a sciatica or cauda equina syndrome, CT examination of sacrum should be performed in patients with prolonged symptoms of a herniated disc or cauda eqina syndrome [9].

In the patient presented, the clinical manifestation, which was originally considered to be attributable to lumbar spondylosis, was unusual. It suggested cauda equina syndrome. The possibility of usually unexpected entity prompted additional investigation. Although there is no surgical and histological verification, the diagnosis of multiple symptomatic lumbosacral perineurial cysts is clear after myelographic, CT and MRI documentation.

The patient fortunately obtained marked improvement of symptoms after each course of pelvic traction which was initially prescribed under the impression of lumbar spondylosis. It is assumed that the pressure of the intralumbosacral canal decreases during pelvic traction, or the changing in pressure facilitates the release of a portion of fluid from the cyst to the subarachnoid space. The compression on the neural contents is relieved, and thus palliates the clinical symptoms.

After the symptoms were markedly relieved, MRI was not followed to see whether the size of the cysts was decreased because it is difficult to expect the cysts to be decreased significantly by the imaging study. Firstly, the MRI, which was already done nearly one and a half months after the onset of symptoms, might not really present the size of the cysts while the symptoms were the worst. Secondly, MRI could show only the size but not the tugor or tension of the cysts. However, the latter might be related to the severity of irritation or compression on the nervous tissue as well as the former.

With the experience of this patient, pelvic traction may probably serve as a palliative treatment temporarily for some patients with only mild symptoms or patients whose general condition is not suitable for surgery.

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腰薦神經束膜囊導致馬尾症候群——腰椎牽引之療效～病例報告

黃翠莉　許美慧

本文報告一位65歲女性的馬尾症候群患者，其於某院診斷為腰椎骨性關節炎，住院接受為期一個月的全日腰椎牽引而獲得顯著改善。後來在本院就診，由脊髓攝影及磁振影像掃描證實為多發性腰薦神經束膜囊。

因推測腰椎牽引時，腰薦脊髓腔內的壓力減低，抑或壓力之改變促使囊內少量液體釋回蜘蛛膜腔，減輕神經組織所受的壓迫，進而使症狀改善，故先後曾三度給予門診間歇性腰椎牽引。經過最後一次療程，患者可輕鬆的走半小時路程，便秘改善，且不需服用輕瀉劑。

對於症狀較輕或伴有內科疾病不宜接受手術的腰薦神經束膜囊患者，腰椎牽引應可暫緩其症狀。

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