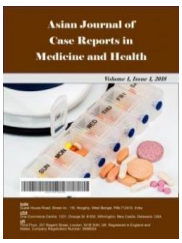

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Lumbar Extradural Synovial Cyst a Cause of Cauda Equina Syndrome: A Case Report

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Authors' contributions

This work was carried out in collaboration between all authors. Author GTC designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors MFBY and SALN managed the analyses of the study. Authors TKL and SXY managed the literature searches. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Synovial cysts (SC) of the spine are defined as cystic swelling of the synovial sheaths commonly occurs in the lumbar region. Most of the patients with lumbar synovial cysts (LSC) usually occur in their fifth to sixth decade of life with a female predominance. The aetiology of LSC is still unclear however strongly associated with spinal instability, facet joint arthropathy and degenerative spondylolisthesis. These can cause myeloradiculopathy due to compression to the spinal cord or the peripheral nerve roots. LSC which not response to conservative therapy should be treated surgically. Surgical excision and decompression with or without fusion and spinal instrumentation

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remains controversial. This fact collaborates with the aim of this report presentation of an elderly women with LSC complicated with progressive cauda equina syndrome with no history of trauma or associated symptoms. Urgent Magnetic resonance imaging (MRI) was done in our clinic and revealed a single extradural LSC at L4 level and causes L4/5 spinal canal stenosis. We performed complete excision biopsy and posterior instrumentation with decompression for this patient. The neurological status of the patient was immediately improved and no recurrence symptoms on follow-up after one year postoperatively.

Keywords: Lumbar synovial cyst; cauda equina syndrome; posterior instrumentation and fusion.

1. INTRODUCTION

Extradural cysts are arising from a diverticulum of arachnoid, which has herniated through a dural defect [1]. There appear to be two difference clinical pictures associated with spinal extradural cysts [2]. The first type was described by Elsberg, Dyke, and Brewer (1934), whereby the patient is an adolescent with the history and symptoms of progressive spastic paraplegia, while the second type occurs in adults, usually in the lumbosacral spine, whereby the cyst is not associated with dorsal kyphosis [3]. The most common presentation of a LSC is with intermittent low back pain with no motor or sensory impairment, however, classical radiculopathy can occur in acute exacerbation of symptoms due to haemorrhage. They rarely occur after the injury of the back [4]. The origin of extradural cysts may be spontaneous [4]. Intraspinal synovial or ganglion cysts are widely recognised. Extradural SC may be asymptomatic or may cause compression of neural structures and hence associated clinical symptoms [5,6]. SC formation is commonly associated with osteoarthritis, particularly in the knee and wrist but uncommon in hip joint [7]. Sometimes LSC occur after trauma and may cause femoral nerve palsy. They may be unilateral or bilateral and at one or multilevel [6]. MRI is good for the characterisation of synovial cysts and for preoperative planning.

2. CASE REPORT

73-year-old retired woman was referred from primary clinic to us with low dull aching back pain worsening upon coughing and prolonged standing, associated with bilateral painful radiculopathy which worsening for past two months. She also had weakness and neurogenic claudication of both legs. There were no urinary or bowel incontinence. The symptoms affected her much as she preferred to stay at home rather than doing outdoor activities. Initially primary physician thought it was a case of prolapsed intervertebral disc with spinal stenosis. On examination, there was right calf muscle wasting with spasticity. The power of right lower limb is 4 over 5. There was a diminished sensation in the distribution of the L3 and L4 dermatomes. The straight-leg-raise test shows positive at 50 degrees on the right side. An urgent MRI spine was done in our clinic and showed an obvious L4 intracanal synovial cyst with L1/2 to L4/5 posterior disc bulge with L3/4 & L4/5 bilateral exit foramina stenosis and L4/5 spinal canal stenosis (Fig. 1). Intraoperatively, posterior elements from L3 to L5 were exposed and a 3 cm x 3 cm synovial cyst was visualised at the right lateral aspect of the spinal cord (Fig. 2). Posterior instrumentation and decompression was done (Fig. 3). It was excised and subsequent histopathological examination is consistent with synovial cyst (Fig. 4). Post-operatively, her symptoms were greatly improved with regular physiotherapy. After one year of being followed up at our clinic, she was discharged without any complications.

3. DISCUSSION

The incidence of LSC is less than 0.5% of the general symptomatic population. They may be asymptomatic and found incidentally or the epidural growth of cysts into the spinal canal [8]. Most of the symptomatic LSC patients present with radicular pain and neurological deficits. Spinal SC are commonly found at L4-5 level which is the site of maximum mobility [5]. As the lower half of the thoracic column is involved frequently in extradural cyst more common than the upper half of the thoracic region, while the cervical and sacral regions are rare [7].

The symptom varies at a different level of pathology. The duration may be as short as a few weeks or as long as few years [9]. The differential diagnoses to be considered are prolapsed intervertebral disc, tumours and swelling such as Tarlov's perineurial cysts [10]. Patients with extradural cysts usually presented

with dull low backache, which may be aggravated by coughing, sneezing and bending as in this patient. Standing and sitting usually precipitates the pain but lying flat often relieves it [10]. Some patients may have presented with sharp root pain radiating in segmental distribution but relieved by bed rest [9]. Remissions and fluctuation of symptoms with varying positions of the body occur in about one-third of cases [11]. This can be due to free communication between the cyst and the subarachnoid space or by a valvular mechanism in the cyst allowing emptying or filling according to the strain placed upon the lower spine and the posture of the body [10]. Loss of libido and potency as well as bowel disturbance have been reported by Abbott 1956, Cloward 1968. It would seem that there is a tendency for LSC to manifest at a later age than dorsal cysts. A likely explanation is that the lumbar canal is spacious; and the cauda equina is readily displaced, so that cysts may grow without giving rise to symptoms for a longer period in the lumbar spine than is possible in the dorsal region [2]. Clinically it is difficult to distinguish between extradural lumbar cyst and prolapsed intervertebral disc as both conditions may present in the same complaints. In this patient a diagnosis of prolapsed intervertebral disc with spinal stenosis is considered as patient is more than 50 years old. Our other differential diagnosis such as arachnoid cyst, epidermal cyst, dermoid cyst and teratomatous cyst should be rule out.

Radiographs of the lumbo-sacral spine show erosion of the sacrum but this feature is common to most space-occupying lesions in this area (Camp and Good 1938). MRI appears useful as an initial modality to identify the cystic mass. Myelography and/or CT myelography are essential to reveal any connection between the cyst and the subarachnoid space [12]. The presence of contrast medium within a sac, in conjunction with erosion of bone or widening of the vertebral canal, is strong evidence in favour of an extradural cyst [1]. The definitive treatment available is posterior laminectomy as it giving a good exposure. Although numerous surgical treatment methods have been proposed, the results of surgery were variable [5]. The operative treatment most commonly advocated has been total excision of the cyst [6].

Fig. 1. Preoperative T2 weighted MRI showing L4 intracanal synovial cyst with L1/2 to L4/5 posterior disc bulge with L3/4 & L4/5 bilateral exit foramina stenosis and L4/5 spinal canal stenosis

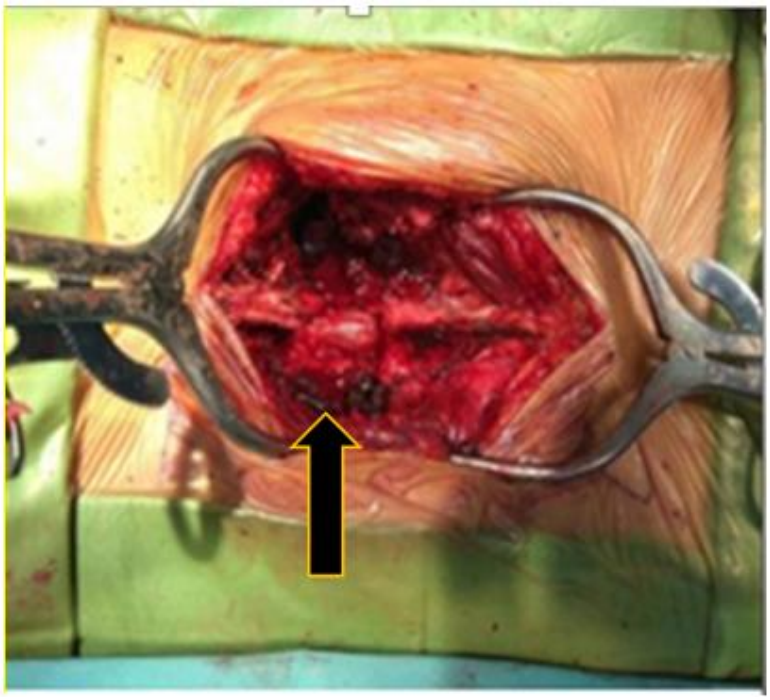

Fig. 2. Intraoperative photograph showing 3 cm x 3 cm synovial cyst at right lateral spinal cord of L4 level

Fig. 3. Post-operative x-ray showing decompression and posterior instrumentation of L4/5 was done

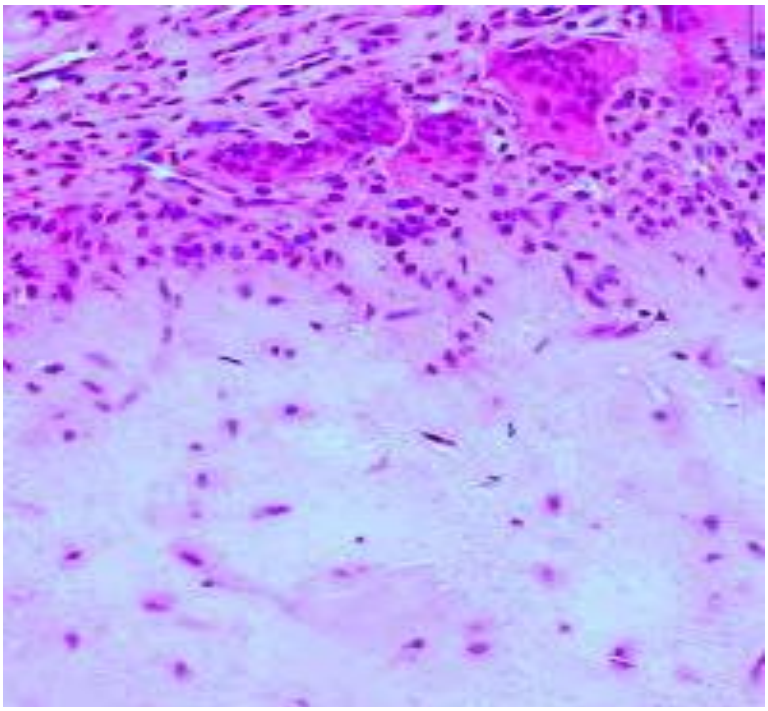

Fig. 4. Histopathological examination of synovial cyst showing a benign cystic structure lined by fibrous tissue with synovial lining

4. CONCLUSION

Most of the reported cases of extradural cyst have shown progressively increasing disability, despite remissions. There is conservative management such as bed rest, analgesic, physiotherapy, corset, steroid injection or direct cyst puncture. Operation should always be considered in synovial cysts, which are resistant to conservative. Surgical excision of extradural cyst often improves morbidity of patients as conservative treatment has limited role in improving their symptoms. As seen in this case, decompression and posterior instrumentation with fusion remains the best option for this patient. We conclude that removal of LSC with subsequent adequate fixation (with or without instrumentation) should be strongly considered to prevent recurrent symptoms and cysts at the site of removal especially if in unstable spine. Although LSC is an uncommon condition, it remains one of the cause of back pain and radiculopathy in patients and therefore we should be readily diagnosed on MRI.

CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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