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CASE REPORT

A rare case of recurrence of primary spinal neurocysticercosis mimicking an arachnoid cyst

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ABSTRACT

Neurocysticercosis (NCC) is a common parasitic infection of the central nervous system but isolated primary spinal NCC is of very rare occurrence. The authors report a case of 44-year-old male, a postoperative case of multiple spinal NCC lesion excision 2 years ago, who presented with cauda equina syndrome and magnetic resonance imaging revealed a lesion mimicking an arachnoid cyst in the D1-9 region of the spinal cord. On intraoperative surgical exposure multiple cysts were found and excised. The suspicion of recurrence of NCC was confirmed by histopathology. Postoperatively there was significant improvement in neurological symptoms of the patient. Recurrence of primary spinal NCC should be considered in differential diagnosis of an arachnoid cyst if there is a definitive past history.

Key words: Arachnoid cyst, cauda equina syndrome, spinal neurocysticercosis

Introduction

Neurocysticercosis (NCC) is characterized by involvement of the central nervous system by Taenia solium and the incidence of the disease may be up to 4% in the general population in the endemic region.[1] NCC typically involves the brain parenchyma, intracranial subarachnoid space, and ventricular system. But isolated spinal NCC is a rare disease, even in endemic regions, representing 1.2--5.8% of all cases of NCC.[2-4] A total of 80% of spinal NCC are located in the subarachnoid space where the mass effect can cause spinal cord compression or cauda equina syndrome. If not appropriately treated spinal NCC may have recurrence and severe neurologic morbidity.

Case Report

A 44-year-old male, weighing 56 kg, 156 cm in height, a known type II diabetic for 3 years, was posted for excision of arachnoid cyst at D_{1-9} level in prone position.

His past history revealed a gradual onset severe back pain 2 years back, which radiated to both the lower extremities and was continuous, gripping in character, relieved to some extent on lying down but not with medications. The pain was followed by weakness and loss of motor power in the both lower limbs and bladder and bowel incontinence. The magnetic resonance imaging (MRI) showed multiple cystic lesions suggestive of cysticercosis in dorsi-lumbar spine [Figure 1]. Excision of the cystic lesions along with bilateral hemilaminectomy was done at $D_{12,}$ L_{1-3} level and medical therapy with albendazole and steroids was given for 8 weeks postoperatively. Histopathology confirmed the diagnosis. Postoperatively there was relief from backache along with significant improvement in motor power of both lower limbs (power increased from 1/5 to 4/5) and bladder and bowel control. Follow-up MRIs done at regular intervals postoperatively showed no definitive pathology postlaminectomy.

After uneventful 2 years, the patient again noticed a gradual deterioration in bladder and bowel control with progressive weakness in lower limbs within last 7 days. An MRI done immediately showed well-defined nonenhancing elongated cystic lesion/collection suggestive of an arachnoid cyst within

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spinal cord extending from D_{1-9} with resultant posterior displacement and compression of adjacent cord [Figure 2]. Preoperative general survey and examination of different organ systems except central nervous system (CNS) were normal. CNS examination revealed a conscious, oriented patient with normal higher function. Power in both the lower limbs was 0/5 as per Medical Research Council (MRC) rating.[5] His sensory system, other cranial nerves, brain-stem function appeared normal. Spine examination was also within normal limit except the scar of previous laminectomy. He was already catheterized due do urinary retention. Laboratory investigations were normal.

The patient was posted for excision of arachnoid cyst and informed consent was taken. The operation was conducted under general anesthesia with endotracheal intubation in prone position. Laminectomy was done from T3 to T5 during surgery for recurrence and laminectomy of D12 and L1-3 was already done in the previous surgery. Midline durotomy revealed multiple distinct cysts suggestive of NCC [Figure 3]. During surgery, the spinal cord was found to be swollen and the cystic walls were found lightly stuck to the surrounding spinal cord. Near total excision of the cysts was done [Figure 4]. Hemostasis followed by dural closure was done. The intraoperative period was uneventful and vitals were stable. Immediate postoperative recovery of the patient was satisfactory. The cysts sent to histopathology confirmed the recurrence of NCC. The patient experienced significant neurological improvement (power of lower limbs 3/5, better control of bowel and bladder) and medical therapy with albendazole and steroids was given for 8 weeks.

Discussion

Most of the cases of spinal NCC described in the world literature have a concomitant cranial involvement and less than 200 isolated cases of spinal NCC are reported till date.[6] The infrequency of spinal NCC lesions may be related to the fact that the blood flow to the brain is approximately 100-fold greater than to the spine [7,8] or CSF reflux at the craniovertebral

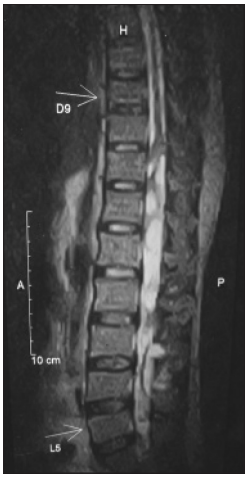

Figure 1: A T2W sagittal image of dorso lumbar spine showing multiple neuro cysticercosis lesions between the D9 to L5 region

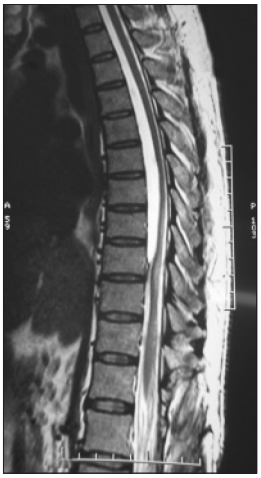

Figure 2: A T2W sagittal image of dorso lumbar spine showing a cystic lesion/collection in D1-9

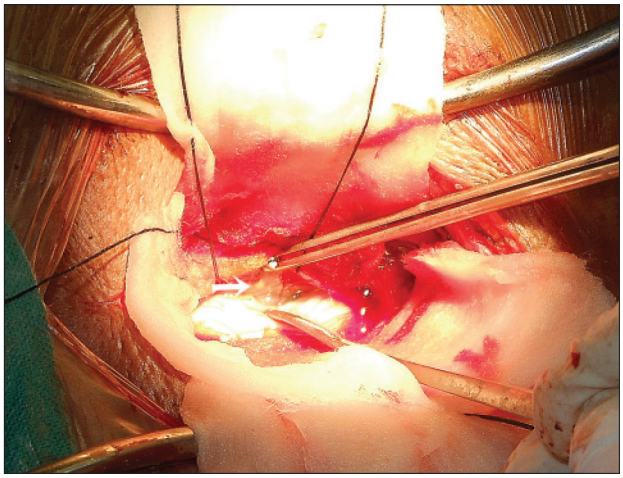

Figure 3: A white arrow pointing to a distinct cyst on surgical exposure

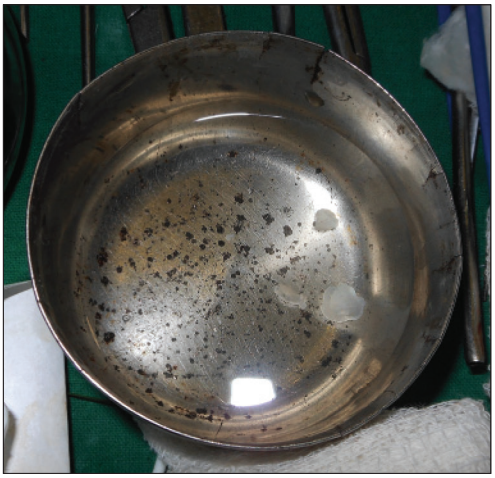

Figure 4: Multiple cysts displayed in a container

junction which propels floating cysts back into the intracranial space rather than the spinal canal.[9] or due to retrograde flow of cysticercus larvae through valveless epidural venous plexus, which may conduct blood in any direction under the influence of intraabdominal and intrathoracic pressure.[10] Subarachnoid spinal NCC occurs in 80% of cases, and 20% are intramedullary lesions. It can result in recurrence and severe neurologic morbidity if not treated in an appropriate manner.[11]

The adult spinal cord terminates at the level of vertebra L_1 and L_2 with the terminal bundle of lumbar and sacral nerve roots forming the cauda equina within the spinal canal. Spinal NCC can cause compression of spinal cord or cauda equina depending on the location. Compression of the cauda equina causes low back pain, sciatica, lower limb motor weakness and sensory deficits, saddle anesthesia, bowel and bladder dysfunction, and occasional paraplegia. Medical therapy with praziquantel or albendazole[12] may be considered but progressive symptoms need surgical intervention. In spinal NCC medical treatment appears to be a less viable option as the patients often present with progressive neurological deficits requiring prompt surgical treatment.

Park *et al*. reported a case of a 72-year-old man with lower extremity weakness whose MRI revealed a large eccentric mass lesion at lumbar subarachnoid space and on surgical excision cysticercosis was found to be the etiological factor.[13] Jang *et al*. reported a case in a 50-year-old woman, with history of spinal NCC who presented with back pain and MRI revealed a cystic lesion with septation and on surgical removal and histopathology it was diagnosed to be a cysticercal cyst.[14] In our case MRI revealed a cystic lesion which was misdiagnosed as arachnoid cyst and surgical excision revealed multiple cysts, which after histopathology was confirmed to be NCC.

The unique features of our case are as follows: (1) Primary spinal NCC is very rare with less than 200 cases reported till date (2) Recurrence of spinal NCC is even rarer. (3) Recurrence of spinal NCC mimicked an arachnoid cyst in MRI scan which led to mis-diagnosis. Our literature search has revealed only one such near similar case reported by Jang *et al*.[14] previously. Thus we conclude that recurrence of primary spinal NCC can occur even after medical and surgical treatment, so spinal NCC should be considered in differential diagnoses of patient presenting with arachnoid cyst, especially if there is a definitive past history of spinal NCC.

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Conflicts of interest

There are no conflicts of interest.

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