CASE REPORT

Spinal cysticercosis: an unusual presentation

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SUMMARY

Spinal intramedullary cysticercosis is an uncommon clinical condition that may mimic an intramedullary tumour and can lead to irreversible neurological deficits if untreated. We report a case of a 35-year-old man who clinically presented as Brown-Sequard syndrome, having thoracic cord cysticercosis at T11 level. MRI of the spine revealed a well-defined round intramedullary inflammatory lesion with scolex and perilesional oedema at D11 level.

BACKGROUND

In India, involvement of the central nervous system (CNS) by *Taenia solium* is one of the most common parasitic diseases of the CNS. According to the location of the cysticercus in the spine, cysticercosis has been classified anatomically as extraspinal (vertebral) or intraspinal (epidural, subdural, arachnoid or intramedullary), of which the intramedullary type is quite rare with only 55 cases reported until April 2014.¹ We report a rare case of a patient who developed subacute onset sensory motor monoparesis secondary to spinal cysticercosis.

CASE PRESENTATION

A 35-year-old man presented with pain, localised to mid dorsal spine, of 12 weeks duration followed by weakness of right lower limb, hesitancy in passing urine and constipation for the past 2 weeks. On examination, he had 4-/5 (Medical Research Council Scale) power in the right lower limb; the deep tendon reflexes were brisk in the right lower limb, and the cremasteric reflex was absent on the right side. The plantar responses were extensor on the right and withdrawal on the left side. There was impairment of pain and temperature sensation on the left and joint position and vibration on the right side from T11 dermatome level down and clinical condition defined as Brown-Sequard syndrome (BSS).²⁻³ Examination of the spine did not reveal any tenderness or deformity.

INVESTIGATIONS

Serum biochemical, haematological parameters and urinalysis were normal. Plain X-rays of the thoracic spine were normal. Cerebrospinal fluid (CSF) examination revealed 58 mg% proteins, 11 cells/cumm³ (all mononuclear) and sugar 62 mg%. ELISA examinations of the CSF and serum were negative for tuberculosis, but were positive for cysticercosis. T2-weighted (T2W) sagittal and axial MRI study of the spine showed a ring shaped, cysticercus lesion with an eccentric dot representing the scolex of larvae at the T11 level (figures 1 and 2).⁴ MRI of the brain was normal.

TREATMENT

The patient was started on a combination of albendazole (15 mg/kg for 4 weeks) and prednisolone (1 mg/kg for 2 weeks, which was then tapered off over the next 2 weeks) along with other symptomatic treatment.

OUTCOME AND FOLLOW-UP

At 6 weeks of follow-up the patient's symptoms resolved up to 95%. Repeat MR study after 6 months revealed disappearance of the lesion.

DISCUSSION

BSS is defined as a lesion that produces ipsilateral proprioceptive and motor loss, and contra lateral loss of sensitivity to pain and temperature below the level of the lesion.²⁻³ BSS may be caused by spinal cord trauma (such as a gunshot wound or puncture wound to the cervical (neck) or thoracic (back) spine), tumour, ischaemia (obstruction of a blood vessel), or infectious or inflammatory diseases such as tuberculosis, or multiple sclerosis. It is rarely seen in its pure form. The most common cause is penetrating trauma such as a gunshot wound or stab wound to the spinal cord.

Figure 1 Sagittal T2-weighted (T2W) MRI of thoracic spine showing a relatively well-defined cystic intramedullary lesion hyperintense on T2W image with eccentric dot sign and perilesional oedema at T11 level.

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Figure 2 Axial T2-weighted (T2W) MRI of thoracic spine showing a relatively well-defined cystic intramedullary lesion hyperintense on T2W image with eccentric dot sign and perilesional oedema at T11 level.

Intramedullary cysticercosis often presents in patients aged between 20 and 45 years, with the youngest case reported being a 5-year-old and the oldest 45 years old.⁵ Intramedullary cysticercosis is an extremely uncommon entity (1.2–5.8% of all cases of neurocysticercosis).^{6,7} On MRI, intramedullary cysticercosis usually shows a cystic lesion within the spinal cord, which appears hypointense on a T1W image (T1WI) with hyperintense scolex inside the cyst cavity, and hyperintense on T2WI in vesicular stage; a subtle hypointense rim may surround the intramedullary cyst on T2WI. In the colloidal stage the thickened cyst capsule is hyperintense on T1WI and hypointense on the T2WI. This is an absolute criterion for diagnosis of neurocysticercosis.⁴ If cyst degeneration is present, peripheral ring enhancement may be present. The differential diagnosis of an intramedullary cystic lesion is extensive, including some other cysts such as arachnoid cyst, ependymal cyst, neurenteric cyst, sarcoidosis, ependymoma and infections such as an abscess.^{8–12} If a patient has a history of cysticercosis and/or hails from an endemic region and MRI reveals a cystic/ring enhancement without scolex in the spinal cord, the diagnosis of intramedullary cysticercosis should be suspected and further verified by serological alterations, subcutaneous nodules and/or changes in the CSF. The common clinical manifestations include pain, paraparesis, spasticity, bowel and bladder incontinence, and sexual dysfunction.^{7,13} Most patients experience a progressively worsened course from 1 week to 10 years. In our case, primary intramedullary cysticercosis presented typically as BSS, which has, to the best of our knowledge, not been reported to date. Inflammatory reaction against the dead parasite is associated with perilesional oedema, which can damage medullary parenchyma and, thereby, worsen symptoms.¹⁴ The reason for BSS presentation in our case might be due to a small lesion compressing on one side with minimal perilesional oedema. If we leave the condition untreated, the inflammatory reaction will lead to worsening of symptoms and the condition may become irreversible. Advantages of medical therapy include avoidance of surgery, and treatment of surgically unreachable and multifocal cysticercosis.^{14–17} Surgery is considered the procedure of choice only when diagnosis is in doubt or clinically progressive, otherwise medical treatment is advantageous. Albendazole has proved to be effective in patients with intramedullary cysticercosis since 1996.¹⁸ Albendazole is normally used as a regular treatment (15 mg/kg/day) for 4–6 weeks, following the idea that

cysticercosis is a generalised disease with focal manifestation. Moreover, albendazole is often used with corticosteroids, because its blood level can be synergistically increased by the latter.¹⁹

Learning points

- ▶ The presentation of intramedullary cysticercosis can advance from a typical Brown-Sequard syndrome to complete paralysis.
- ▶ It is not always permanent and progression or resolution depends on the severity of the original spinal cord injury and the underlying pathology that caused it in the first place.
- ▶ Intramedullary cysticercosis represents a diagnostic challenge and we should keep a high index of suspicion for such types of lesions, so that early diagnosis and conservative treatment can cure the disease and prevent irreversible complications.

Competing interests None.

Patient consent Obtained.

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