



Clinical Study

Treatment of spinal hydatid disease: A single center experience

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Abstract

In Turkey, spinal hydatidosis remains a serious health problem that is associated with high morbidity and mortality. This study was undertaken to analyze the clinical, radiological, and surgical aspects and outcomes for five patients with spinal hydatidosis who were treated surgically at the Department of Neurosurgery of Ataturk University, Turkey. Despite the introduction of modern surgical and pharmacological therapy the disease remains difficult to cure, and patient outcomes are not satisfactory because of the high incidence of recurrence.

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1. Introduction

Vertebral hydatidosis is a relatively silent and progressive disease with a latent period of many years. The infestation persistently erodes the spinal column, eventually leading to its destruction and neurological deterioration. The prognosis for neurologic recovery in hydatid disease of the spine generally is regarded as poor.¹

This paper evaluates the long-term outcomes for patients with spinal hydatid disease who were treated at our center (Department of Neurology, Ataturk University, Turkey).

2. Patients and methods

The records of five patients with hydatid disease of the spine who had been treated at our center between 1987 and 2001 were reviewed. Informed consent was obtained from the patients.

The patients' complaints were characterized by unremitting back pain, urinary incontinence and progressive leg weakness due to medullary or root compression. All patients underwent neurological and radiological evaluation in the pre-operative period. MRI was used for radiological assessment. Once the cyst had been detected radiologically, serological tests or indirect hemagglutination were applied for confirmation of the diagnosis. Abdominal ultrasonography and CT of the thorax were the methods used after the diagnosis of hydatid disease, either in the pre-operative or the post-operative period.

All patients underwent surgery. Care was taken to avoid spillage when removing the cysts at surgery, and a chemical sterilizing agent (hypertonic saline) was used to prevent recurrence. Albendazole was administered for 6 months after surgery and this was repeated for patients in whom the disease recurred. Histopathological verification of the diagnosis was performed in all cases.

3. Results

Five patients with spinal hydatidosis underwent surgical treatment at the Department of Neurosurgery over a period of 14 years, with a mean post-operative follow-up of

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13.6 years (range 6–21). The cases are summarized in Table 1. There were three women and two men, with a mean age of 40.1 years (range 28–58). Four patients presented with unremitting back pain persisting for an average of 3 months. Additionally, urinary incontinence for 1 month was present in patient 4, and patient 2 presented with acute bilateral leg weakness and urinary incontinence. The infected area was the thoracic spine in three patients, lumbar spine in one, and the sacrum in one (Fig. 1). Two patients had additional organ involvement. The results of

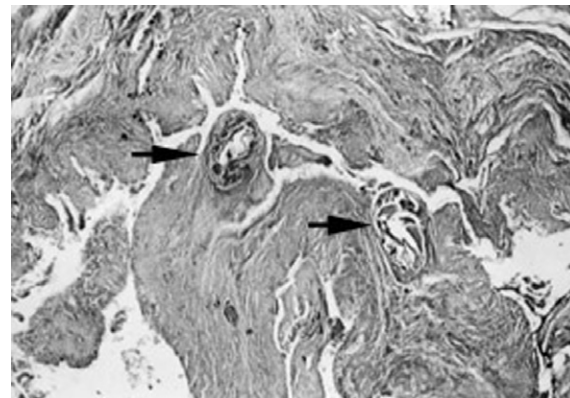


Fig. 2. Periodic-acid-Schiff positive folded lamellae of *Echinococcus multilocularis* ($\times 100$).

Table 1
Clinical details of patients

Patient no.	Age (years)	Sex	First symptom	Location	Operative technique	Pathogenic species
1	38	M	BP	Lu 1	La + AC + PF	<i>E. granulosus</i>
2	28	F	BP + BLW	Th 11-12	La	<i>E. granulosus</i>
3	58	M	BP	Th 12	La	<i>E. granulosus</i>
4	25	F	BP + UI	S 1-2-3	La	<i>E. granulosus</i>
5	36	F	BP	Th 11-12	La	<i>E. multilocularis</i>

M, male; F, female; BP, back pain; UI, urinary incontinence; BLW, bilateral leg weakness; L, lumbar; Th, thoracic; La, laminectomy; S, sacrum; AC, anterior corpectomy; PF, posterior fixation.



Fig. 1. T₂-weighted sagittal MRI scan showing sacral spinal cysts with a lesion with a “bunch of grapes” appearance in the spinal canal.

Casoni-Weinberg and indirect hemagglutination tests were negative in all patients. All patients underwent laminectomy at the first operation. Intraoperative cyst rupture occurred in all patients and the surgical field was irrigated with 3% hypertonic saline. No anaphylactic reaction developed. The diagnoses of hydatid disease caused by *Echinococcus granulosus* in four patients, and *Echinococcus multilocularis* in one patient were confirmed after surgery, by gross and histological examination (Fig. 2). Neurological status improved in all patients after the operation. However, over time, recurrence and residual disease were observed. The average time to the first recurrence after surgery was 2.8 years. In patient 1, an anterior approach (decompression plus corpectomy with anterior plating) was used and posterior fixation was performed at the second and third operation after removal of the involved vertebral body and posterior elements (Fig. 3a–c). All patients refused further surgery for recurrences. At the last follow-up, two patients had developed paraplegia, one still has no bladder control, and two live independently with mild paresis.

4. Discussion

Human echinococcosis is a zoonotic infection caused by larval forms of small tapeworms of the genus *Echinococcus*. Although four different organisms can cause echinococcosis in humans, namely *E. granulosus* (hydatid disease), *E. multilocularis* (alveolar hydatid disease), *E. vogeli* and *E. oligarthus*, only the first two types are clinically important in humans, while the latter two are extremely rare.^{2,3} In our series, the pathogenic species were *E. granulosus* in four patients and *E. multilocularis* in one. Spinal involvement of alveolar hydatid disease caused by *E. multilocularis* is quite exceptional and has only been reported in a limited number of cases.^{3–5} To the best of our knowledge, our patient (patient 5) is one of just a few cases reported to date.

Most patients present with unremitting back pain or neurologic deficit when the cysts reach bone and enter

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