

# Vertebral Hydatidosis

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## ABSTRACT

**Background:** More than 50% of cases of bone hydatidosis involve the spine. Although pharmacological treatment is well established, surgical management is challenging due to the complexity of the lesions and adjacent anatomical structures, and local recurrence rates remain high. **Objective:** To analyze a case series of patients with vertebral hydatidosis and to evaluate lesion distribution, clinical presentation, treatment, and complications. **Materials and Methods:** A multicenter study was conducted including patients with vertebral hydatidosis and a minimum follow-up of one year. Data collected included characteristics of cystic lesions, type of surgery performed, and postoperative outcomes. **Results:** Seven patients (mean age: 40.17 years) with a mean follow-up of 13 years were included. The most frequent involvement extended from the lumbar spine to the sacrum. Treatment consisting of surgical resection, spinal fixation, and albendazole therapy resulted in improvement of pain and neurological symptoms. The most frequent complication was recurrence. **Conclusions:** Lumbosacral and sacral involvement were the most common locations, and the liver was the most frequent extravertebral site. Pain responded well to treatment consisting of surgical resection and antiparasitic therapy. Local recurrence remains the most common complication.

**Keywords:** Hydatidosis; spine; antiparasitic therapy; recurrence; complications.

**Level of Evidence:** III

## Hidatidosis vertebral

## RESUMEN

**Introducción:** Más del 50% de los casos de hidatidosis ósea ocurren en la columna. El tratamiento farmacológico está bien establecido, pero su abordaje quirúrgico se ve dificultado por la complejidad de las lesiones y las estructuras adyacentes, y las tasas de recidiva local son altas. **Objetivo:** Analizar una serie de casos de hidatidosis vertebral y evaluar la distribución, el cuadro clínico, el tratamiento y las complicaciones. **Materiales y Métodos:** Estudio multicéntrico de pacientes con hidatidosis vertebral y un seguimiento mínimo de un año. Se registraron las características de las lesiones quísticas, el tipo de cirugía y los resultados posoperatorios. **Resultados:** Se incluyó a 7 pacientes (edad promedio 40.17 años) con un seguimiento medio de 13 años. La ubicación extendida desde la columna lumbar hasta el sacro fue la más frecuente. El tratamiento con resección quirúrgica, fijación y albendazol mejoró el cuadro doloroso y neurológico. La complicación más frecuente fue la recidiva. **Conclusiones:** Las localizaciones lumbosacra y sacra fueron las más frecuentes, y la localización extravertebral más común fue en el hígado. El dolor respondió bien al tratamiento que consistió en resección quirúrgica y un agente antiparasitario. La recidiva local es la complicación más frecuente.

**Palabras clave:** Hidatidosis; columna; antiparasitario; recidiva; complicaciones.

**Nivel de Evidencia:** III

## INTRODUCTION

Hydatid disease is a rare condition with slow progression that may lead to neurological complications.<sup>1,2</sup> It is a manifestation of the tropical disease caused by the parasite *Echinococcus granulosus*. According to the World Health Organization, it is one of the most neglected and geographically widespread parasitic diseases.<sup>3</sup> It is more prevalent in warm regions, such as South America, Mediterranean countries, the Middle East, New Zealand, central and southern Russia, Australia, China, North Africa, and East Africa.<sup>4</sup> Humans inadvertently become intermediate hosts through contact with or ingestion of water and food contaminated by domestic dogs.<sup>5</sup>

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Hydatid cysts are primarily located in the liver and lungs (90 to 99.5 percent). Skeletal involvement is very rare (0.5 to 4 percent),<sup>6</sup> with spinal involvement being the most frequent skeletal manifestation (50 percent). Of these cases, 49.9 percent involve the thoracic spine, followed by the lumbar region (21.2 percent).<sup>2,7</sup> The disease progresses slowly and may remain inactive for prolonged periods.<sup>6</sup> It has been demonstrated that cysts can grow between 1 and 5 cm per year.<sup>8</sup> Diagnosis is based on imaging studies combined with serological tests (arc 5).<sup>6</sup>

The objective of this study was to evaluate a series of cases of vertebral hydatid disease in order to analyze vertebral and extravertebral distribution, neurological involvement, administered treatment, and complications.

## MATERIALS AND METHODS

A multicenter study was conducted in patients with vertebral hydatid disease with a minimum follow up of one year. Demographic data, vertebral and extravertebral location, preoperative and postoperative symptoms, neurological status according to the Frankel scale, type of surgery performed, and postoperative outcomes were recorded.

## RESULTS

Five men and two women were evaluated. The mean age at the time of treatment was 44.71 years (range 20 to 64), with a mean follow up of 13 years (range 4 to 22).

In six patients, the disease involved multiple vertebral levels. The lumbosacral and sacral regions were the most frequently affected sites (four cases). The liver was the most common extravertebral location (Table).

**Table.** Vertebral distribution of hydatid cysts.

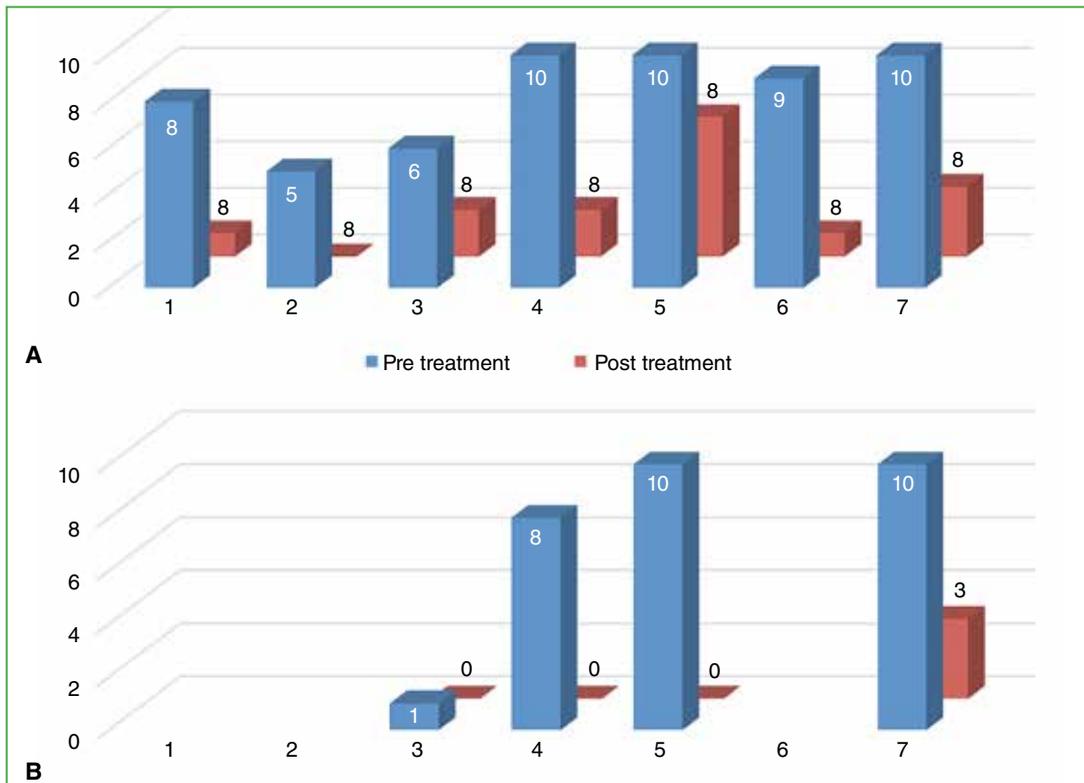
Patient	Affected vertebral sector	Extravertebral lesion
1	Thoracolumbar	Liver
2	Lumbosacral	Liver
3	Lumbosacral and sacral	Liver
4	Thoracic	Liver
5	Lumbar, lumbosacral, and sacral	Pelvis
6	Sacrum	Liver, pelvis
7	Lumbar, lumbosacral, and sacrum	Liver

The mean axial spinal pain score was 8.29 before treatment and decreased to 2.14 at the end of follow up. Radicular pain to the lower limb decreased from a mean value of 7.25 at baseline to 0.75 at the final evaluation (Figure 1).

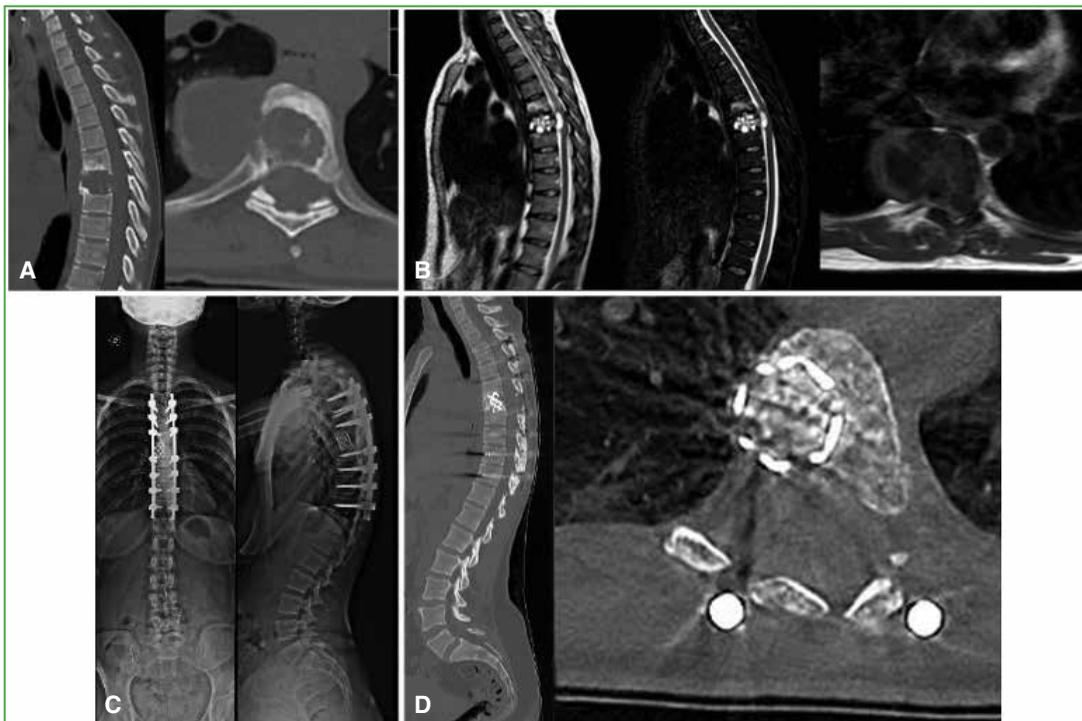
One patient improved from Frankel grade D to E, another from grade C to D, and the remaining patients had no neurological deficit.

All patients received antiparasitic treatment with albendazole under infectious disease supervision, along with surgical excision of the cystic vesicles. Two intraoperative cyst rupture events were recorded. Five patients required additional spinal fixation with osteosynthesis material due to more severe bone involvement (Figure 2). Two patients experienced recurrence without cyst rupture during the primary surgery. One of them required two additional surgical procedures, and the other required one.

One patient developed a surgical site infection. Two patients presented new spinal foci, and one developed extravertebral involvement.



**Figure 1.** Pain intensity at the beginning and at the end of the evaluation. **A.** Axial spinal pain. **B.** Radiating pain.



**Figure 2.** 37-year-old woman presenting with back pain and paraparesis. **A.** Computed tomography of the thoracic spine, sagittal and axial sections. **B.** Magnetic resonance imaging of the thoracic spine, sagittal section in T2 and STIR sequences and axial section in T1 sequence. **C.** Postoperative spinogram. **D.** Computed tomography of the thoracic region, sagittal and axial sections at two years of follow up.

## DISCUSSION

Vertebral hydatid disease is a rare condition with slow progression that may lead to neurological complications.<sup>1,2</sup>

Currently, there is no expert consensus regarding the management of bone hydatid disease. Radical surgery has been proposed as a curative option,<sup>7,9</sup> but complete removal of spinal cysts is difficult to achieve, in addition to the potential complications related to the proximity of neural structures.<sup>2</sup>

Pharmacological treatment includes albendazole, with a recommended dose of 10 to 15 mg/kg/day for at least six continuous months, which improves prognosis and reduces the recurrence rate.<sup>6,7</sup>

Local recurrence is the most frequent postoperative complication. The main predisposing factor is cyst rupture during surgery. To reduce this risk, irrigation with hypertonic saline solution has been recommended.<sup>2,7</sup>

The review article by Cinalli et al.<sup>2</sup> included 99 patients with vertebral hydatid disease. Of these, 68.7% had thoracic involvement, 25% lumbar involvement, 2% cervicothoracic involvement, 2% sacral involvement, 1% thoracolumbar involvement, and 1% cervical involvement. Seventy six patients required between one and five surgical procedures, and 76% experienced local recurrence. In the present series, the most frequent location was more distal, involving the lumbosacral region. Two of seven cases presented local recurrence, which was not related to vesicle rupture.

## CONCLUSIONS

In this series, vertebral hydatid disease predominantly affected men. The most common locations were the lumbosacral and sacral regions, and the most frequent extravertebral location was the liver.

At presentation, the pain scale indicated severe axial and radicular pain. Both types of pain responded very well to treatment. Neurological involvement was absent or minimal.

The usual treatment consisted of surgical resection with stabilization and administration of albendazole. Local recurrence remains the most frequent complication.

Conflict of interest: The authors declare no conflicts of interest.

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