Chronic Back Pain: Clinical Quiz

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Abstract

CLINICAL QUIZ

A 51-year-old lady presented with severe back pain. She stated she has been suffering from back pain for long time. She woke up one morning 10 years ago with acute pain and numbness in her left leg. Since then the pain slowly worsened and at the time of presentation she had difficulty walking. She said pain now extended to both legs. In the past, she went through a course of physical therapy without any significant improvement. She complained it was especially difficult for her to walk up and down the stairs. Physical exam showed she had muscle strength 5/5 in the upper and lower extremities except for the iliopsoas 4/5. Muscle tone was within normal limits. The knee and ankle jerk reflexes were absent.

Plain X-ray images of the lumbar spine showed only degenerative changes with no acute abnormalities.

MRI of the lumbar spine with contrast revealed an intradural extramedullary contrast enhancing lesion at L5 level which measured 2.4×1.4×1.5 cm (Figure 1).

The patient had lumbar decompression and resection of the tumor with the help of operating microscope under electrophysiological monitoring.

Microscopic examination of the resected material revealed cuboidal to elongated tumor cells radially arranged in a papillary manner and around the vascularized stromal cores in a mucoid background (Figure 2). Nuclear pleomorphism and mitosis were virtually absent (Inset A). Areas of necrosis were not identified.

Immunoperoxidase stains revealed that the tumor cells were positive for glial fibrillary acidic protein (GFAP) (Inset B), S-100 (Inset C) and vimentin. They were negative for epithelial membrane antigen (EMA) and pancytokeratin (AE1/AE3). Immunoperoxidase stain for proliferation marker (Ki-67) showed a low proliferation index.

Figure 1

Figure 1: MRI of the lumbar spine with contrast

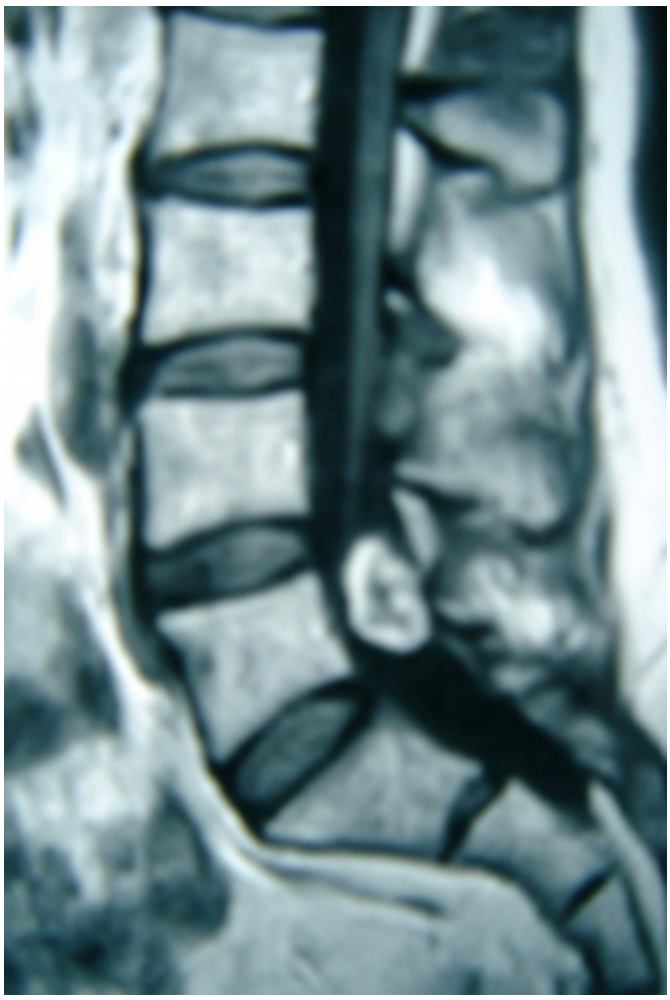
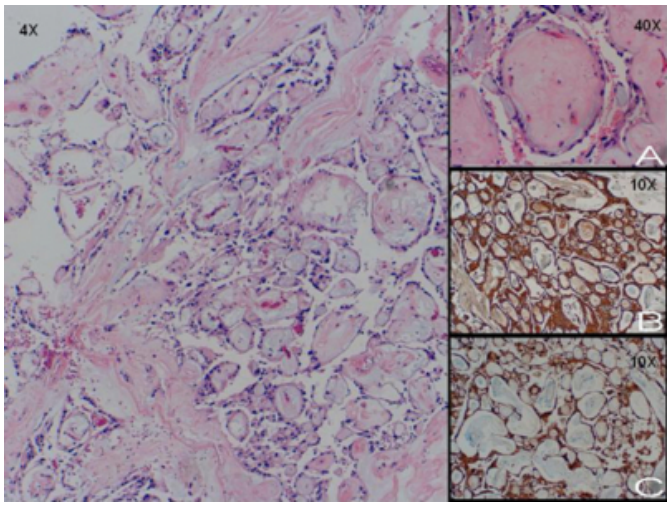


Figure 2

Figure 2: Pathologic View



What is the diagnosis?

1. Schwannoma of the Spinal Region
2. Paraganglioma of the Spinal Region
3. Metastatic tumor
4. Chordoma of the Spinal Region
5. Myxopapillary ependymoma

QUIZ ANSWER & LITERATURE REVIEW

The answer is myxopapillary ependymoma.

Ependymomas are glial tumors that arise from ependymal cells within the central nervous system. Myxopapillary ependymoma is an uncommon tumor that accounts for approximately 5% of all ependymal tumors[1]. However, these tumors are considered a biologically and morphologically distinct variant of ependymoma, occurring almost exclusively in the region of the cauda equina. They make up to 90% of tumors in the conus[2]. The recognition of these tumors as a distinct entity is of considerable clinical importance, since they are more amenable to radical surgical resection than most other variants of ependymoma.

Myxopapillary ependymomas may present in anyone from 6 to 82 years with tendency towards the fourth decade of life[3]. The most common clinical presentation of myxopapillary ependymomas of the filum terminale is low back pain. Given the slow growth and well-circumscribed quality of these tumors, symptoms generally progress slowly, and patients often have a long history of back, leg, or sacral pain, weakness or sphincter dysfunction prior to diagnosis.

Myxopapillary ependymomas are classified according to the World Health Organization (WHO) based on their histologic appearance[4]:

- WHO grade I: Myxopapillary ependymoma and subependymoma;
- WHO grade II: Ependymoma (with cellular, papillary and clear cell variants);
- WHO grade III: Anaplastic ependymoma (practically unknown).

In the great majority of cases, resection and even excision is possible with a reasonably small neurological risk. Myxopapillary ependymomas, in particular, can be surgically cured[3].

The success of surgery has been shown to correlate directly with the degree of neurological deficit on presentation and inversely with the duration of symptoms[5]. Of those patients with only pain on presentation, 86% had excellent outcomes, whereas only 67% of those with motor weakness and 33% of those with sphincter dysfunction on presentation had good outcomes[6]. The result is more than 10 years survival after partial or complete resection[4]. Late recurrence and distant metastasis are very uncommon[6].

CONCLUSION

Chronic back pain is a widespread and difficult medical and healthcare problem that is, in the vast majority of cases, due to degenerative changes related to aging. However, rare but readily treatable cases like above should not be missed. A long history of back pain with negative plain X-ray images of the lumbar spine should not exclude the possibility of a slow growing benign tumor in the spinal cord like myxopapillary ependymoma.

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