Pediatric intramedullary spinal cord tumors are rare and make up only 35 to 40% of all intraspinal tumors in children. Clinical presentations of these tumors have been well described in previous literature. We report a case of intramedullary ganglioglioma in a 6-year-old girl with an unusual presentation of “belly dance.”

**CASE REPORT**

**History.** We present a case of intramedullary ganglioglioma in a 6-year-old girl. Since the age of 4 months the patient had experienced a spontaneous wavy undulating movement of her anterior abdominal wall resembling a severe peristalsis. The movement was continuous even during sleep, and this symptom was named “belly dance.” Magnetic resonance images revealed an intramedullary tumor with ill-defined borders, and the lesion was partially resected. The patient made a good recovery, although 4 years postsurgery her scoliosis had progressed.

**Video Clip 1.** Spontaneous continuous wavy movement of the abdominal wall of the patient is shown in different positions (lying down, sitting, and standing). Click on the link that corresponds to your Internet speed:

- Real Dialup and Broadband
- Windows Media Broadband (300K)
- Windows Media Dialup (56K)

The movement was continuous even during sleep, and we called this symptom “belly dance.” The patient was otherwise perfectly well and growing normally.

**Examination.** Results were normal for all detailed clinical evaluations, including the neurological examination. Biochemical and hematological tests, electroencephalography (to rule out epilepsy), diaphragmatic sonography and fluoroscopy, and abdominal computerized tomography scanning yielded normal results, as did electromyography of the rectus abdominis, internal oblique, and external oblique muscles. Approximately 2 years later, spinal cord lesions were suspected to be the cause when scoliosis was added to her clinical findings. On MR imaging a large, diffuse intramedullary lesion was found stretching from T2–10. This tumor was isointense on T1-weighted and hyperintense on T2-weighted images, and it exhibited heterogeneous enhancement (Fig. 1). The patient was still totally ambulatory with no new neurological deficit.

**Operation.** Surgery was performed via a posterior approach. Laminectomy was performed from T3–5 to evaluate the resectability of the tumor. After midline cordotomy was completed, a red tumor with ill-defined borders was identified. Total resection of the tumor was found to be impossible, so a biopsy procedure and subtotal resection were performed at the site of the laminectomy. Ganglioglioma was diagnosed and histopathological examination revealed pleomorphic ganglion cells that were scattered in a glial background of astrocytic stroma (Fig. 2).

**Postoperative Course.** Four years postsurgery the patient’s scoliosis has slowly progressed. Nevertheless, she is able to walk alone with the aid of a brace, and no other new neurological deficit has occurred. Follow-up MR images demonstrate almost no obvious growth of the tumor (Fig. 3).
DISCUSSION

Ganglioglioma is the second most common intramedullary tumor in children.\(^1,2\) Scoliosis is a common sign of this and other intramedullary lesions, but to our knowledge this is the first report of abnormal abdominal wall movement, (which we have named “belly dance”) as a presentation of intramedullary ganglioglioma. This sign has not been reported in relation to any other disorder and the mechanism has not been discussed previously. Abnormal spinal discharges from motor neurons of the thoracic spinal cord due to the presence of the tumor are probably the cause of the “belly dance” symptom. This phenomenon should be considered an early sign of intramedullary tumors.

References


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Fig. 1. Upper: Sagittal T₁-weighted thoracic MR images revealing a diffuse intramedullary tumor. Lower: Axial view obtained at the site of the tumor demonstrating expansion of the spinal cord.

Fig. 2. Photomicrograph of a section of the tumor. A ganglion cell with prominent nuclei is seen in the center of the section on a highly fibrillary background with astrocytic stroma. H & E, original magnification × 400.

Fig. 3. Upper: Coronal T₁-weighted MR images demonstrating increased scoliosis and a section of the tumor. Lower: Sagittal T₁-weighted thoracic MR image obtained 4 years postsurgery demonstrating the tumor with the size unchanged and no obvious growth.