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Cerebellar Mutism After Posterior Fossa Surgery in Adults: Report of 2 Cases

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CASE REPORT

Abstract

Background. Cerebellar mutism occurring after posterior fossa surgery is a rare clinical status. It occurs with temporary or complete loss of speech ability in the early postoperative period. The etiopathogenesis of this clinical status is still not fully defined. In most cases, speech improves slowly in the first few weeks postoperatively. Significant impairment in speech articulation draws attention, and dysarthric speech is prominent. It is mainly diagnosed in the pediatric age group. ***Aim.*** This study aimed to discuss two adult cases diagnosed with cerebellar mutism after posterior fossa tumor surgery. ***Case presentation.*** The first case was a 21-year-old male patient. After the operation, he was diagnosed with pilocytic astrocytoma, and the cerebellar mutism finding lasted for nine days. The second case is a 56-year-old female patient diagnosed with cerebellar metastasis after the operation. Cerebellar mutism findings lasted for 15 days. ***Conclusion.*** Permanent dysarthria was detected in both cases. In cases with cerebellar mutism after cerebellar tumor operation, the finding of dysarthria is usually permanent. Speech therapies may help improve this finding.

Keywords: cerebellar mutism, posterior fossa surgery, dysarthria, cerebellar tumor

I. INTRODUCTION

Cerebellar mutism is a rare clinical status that can occur after posterior fossa surgery, mainly in the pediatric age group [1-4]. In the early postoperative period, aphasia is detected in cases even if the consciousness is fully open. There may be short-term delays in perceiving spoken words. It has also been reported that this clinical status may be permanent in some cases [5, 6]. It is known that the improvement in speech articulation will increase with therapy after the speech function is regained. Although cerebellar mutism is more common in the pediatric age group, it can also be seen in the adult age group after posterior fossa surgery. This study aimed to present two adult cases with cerebellar mutism after cerebellar tumor operation.

II. CASE PRESENTATION

Case 1. A 21-year-old male patient was evaluated for one week for progressive headache, dizziness, and ataxic gait. Cranial MRI revealed a cerebellar mass lesion of approximately 5x7 cm, consistent with pilocytic astrocytoma (Fig. 1a). It was decided to operate with the diagnosis of tumor recurrence. No abnormal findings were detected in preoperative blood tests. The patient was operated on with the suboccipital craniectomy method. Tumor tissue was removed grossly-totally. He was followed up in the intensive care unit during the postoperative period. On the 1st-day of cranial tomography, it was seen that the tumor tissue was almost completely resected (Fig. 1b). It was noted that the patient, who was aphasic from the first postoperative day, was conscious and fulfilled simple commands. It was noted that he started to speak dysarthric from the 9th day of the operation, but there were short-term delays in perceiving the spoken sentences. It was recorded that the patient, a citizen of another country whose mother tongue is different, gave answers in his native language for the first three days. It was noted that the patient, who had partial improvement

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in his dysarthria from the second postoperative week, had difficulty saying words that were difficult to articulate.

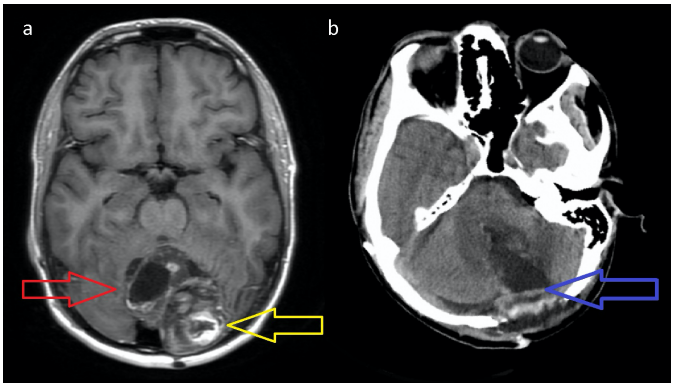

Figure 1. Cystic (red arrow) and solid (yellow arrow) components of the tumoral tissue are seen in the preoperative MRI examination of the patient who was diagnosed with pilocytic astrocytoma (a). Postoperative CT examination reveals superficial hemorrhage under suboccipital craniectomy and tumor resection extending from the midline to the brainstem (b).

Case 2. A 43-year-old female patient was evaluated for complaints of progressive headache and dizziness. Routine blood tests of the patient, who had an operation history due to bladder epithelial tumor, were evaluated within the normal range. Cranial MRI revealed a heterogeneous contrast-enhancing mass lesion (Fig. 2a). The patient with a prediagnosis of bladder carcinoma metastasis was operated. The patient was operated on with the suboccipital craniectomy method in the concorde position. Tumor tissue was removed (Fig. 2b). It was noted that the patient, who was followed up in the intensive care unit in the early postoperative period, was aphasic for 15 days. It was recorded that he could speak in short sentences, had a disorder in articulating words, and pronounced some words with abnormal accents during his control one week after discharge. Although there was a significant improvement in his speech at the follow-up after 12 months, it was noted that he had difficulty in saying words that were difficult to articulate.

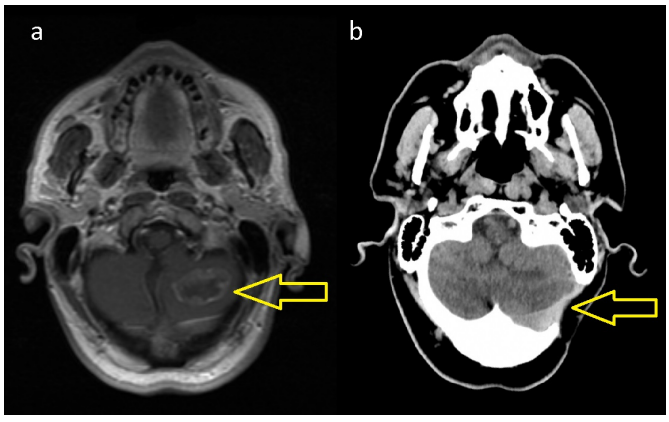

Figure 2. In the MRI examination of the case diagnosed with bladder carcinoma, tumoral tissue with a cystic appearance in the central part is seen with peripheral enhancement (yellow arrow) (a). Postoperative CT examination shows suboccipital craniectomy defect and encephalomalacia changes in the transverse sinus and surgical area (yellow arrow) (b).

III. DISCUSSIONS

Cerebellar mutism is a clinical status in which speech completely disappears after posterior fossa surgery. This finding is not associated with coma findings, and it is known that the cases are aphasic even if they are conscious [2, 3, 7]. Although it is known that it is primarily temporary, it is also reported that mutism can be permanent. It has been reported that speech function does not start suddenly and improves slowly in cases. It is known to occur most frequently after the surgery of midline tumors located in the posterior fossa [1, 2, 7].

In most cases described in the literature, accompanying behavioral anomalies and impairment in performing voluntary movements are described. It is reported that most cases are in the pediatric age group. Both cases described in our study are in the adult age group. This can be interpreted because tumors in the posterior fossa are detected more frequently in the pediatric age group than in adults.

The etiopathogenesis of cerebellar mutism cannot be fully explained [2, 3, 6, 8]. It is reported that it is more common in midline localized cerebellar tumors.

Considering the localization of the tumor, a complete correlation cannot be established between the lesions in this region and the clinical findings. It is emphasized that ischemic events may also play a role in etiopathogenesis. In etiopathogenesis, ischemic damage of the ventricular floor or the dentate nucleus is emphasized [4, 8]. The fact that these regions were not damaged in radiological examinations makes these theories open to discussion. No ischemia was detected in the postoperative radiological examinations of the 2 cases presented. In the diffusion MRI examination of the postoperative 1st day, no radiological finding that could support the diagnosis of ischemia was found.

The absence of a pathological finding radiologically may suggest that functional neurons associated with speech are damaged at the stage of neuropraxia secondary to surgical trauma. Even though cerebellar mutism is not seen very frequently after posterior fossa surgery in adults, it should be kept in mind that it is a clinical status that can be encountered. Although it occurs in the early postoperative period, a slow improvement in speech disorder can be seen in the following days. Rather than being an isolated neurological finding, accompanying psychogenic complaints, deficits related to cerebellar functions such as perceptual disorders, ataxia and dysarthria can be seen frequently [2, 3, 9]. Although there is no specific treatment protocol for cerebellar mutism, significant improvement in speech function can be seen with speech therapies.

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