Case Report / Olgu Sunumu

Cerebellar Medulloblastoma Metastasis to Sacrum: A Case Report

Sakruma Metastaz Yapmış Medulloblastoma: Bir Olgu Sunumu

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ABSTRACT:

Introduction: Medulloblastoma is a primitive-neuroectodermal (PNET) tumor, mostly localized infratentorially and mostly seen in childhood . It can be seen rarely in adults . Medulloblastoma metastasis is generally seen at bone marrow and bone, such as pelvis, femur, vertebra and costal bones.

Case Presentation: A 32-year-old male patient admitted to our clinic with complaints of headache, giddiness, and ataxia. Cystic tumoral lesion was seen in the cerebellum on magnetic resonance imaging (MRI) scans. The tumor was excised totally by a paramedian suboccipital craniectomy. Pathological examination results were consistent with medulloblastoma. One year after the operation, the patient was admitted to our clinic with back pain, weakness in his legs and urinary incontinence. A sacral tumor was seen on lumbosacral MRI.

Conclusion: This is the first report of a sacral medulloblastoma metastasis case successfully treated with a partial sacrectomy and total tumoral excision.

Key Words: Medulloblastoma, Metastasis, Sacrum, Sacrectomy

ÖZET:

Giriş: Medulloblastoma çoğunlukla inftratentoryal yerleşimli ve sıklıkla çocukluk çağında görülen bir primitive nöroektodermal tümördür. Nadiren erişkin çağda görülür. Medulloblastoma genellikle pelvis, femur, vertebra ve kaburgalar gibi kemikler ile kemik iliğine metastaz yapar.

Olgu: 32 yaşında erkek hasta kliniğimize başağrısı, baş dönmesi ve ataksi şikayetiyle başvurmuş. Hastanın manyetik rezonans görüntülerinde (MR) serebellumda kistik tümöral kitle görüldü. Tumor paramedian suboksipital kraniyektomi ile total olarak çıkartıldı. Patolojik değerlendirilmesinde medulloblastoma tanısı konuldu. Operasyondan bir yıl sonra, hasta kliniğimize bel ağrısı, bacaklarda kuvvetsizlik ve idrar kaçırma şikayetiyle başvurdu. Hastanın lumbosakral MR'ında sacral tümor tesbit edildi.

Yorum: Olgumuz, medulloblastomanın sakruma metastaz yaptığını ve parsiyel sakrektomi ve total eksizyon ile tedavi edildiğini gösteren ilk vakadır.

Anahtar Kelimeler: Medulloblastoma, Metastaz, Sakrum, Sakrektomi

INTRODUCTION:

Medulloblastoma is a primitive-neuroectodermal (PNET) tumor, mostly localized infratentorially and mostly seen in childhood (1,2). It can be seen rarely in adults (3,4). Spreading by cerebrospinal fluid (CSF) is seen in almost all cases. Systemic metastasis can be seen rarely as in other central nervous system (CNS) tumors (5,6). Bones are the most common metastasis area, while lymph node, visceral and bone marrow metastases are seen less frequently (3,7).

In this report, we present a case of cerebellar medulloblastoma that spread to the sacrum. According to literature, this is the first report of a medulloblastoma spreading to the sacrum.

CASE REPORT:

A 32-year-old male patient admitted to our clinic with complaints of headache, giddiness, and ataxia. Bilateral horizontal nystagmus and ataxia were determined in his neurological examination. Cystic tumoral lesion was seen in the cerebellum on magnetic resonance imaging (MRI) scans (Figure 1) . The tumor was excised totally by a paramedian suboccipital craniectomy. Pathological examination results were consistent with medulloblastoma (Figure 2). After an uneventful postoperative course, the patient received chemotherapy and concomitant radiotherapy. Three months after operation, no residual or recurrent lesion was observed on computerized brain tomography scans (Figure 3).

One year after the operation, the patient was admitted to our clinic with back pain, weakness in his legs and urinary incontinence. His neurological examination revealed bilateral plantar flexion loss of 20-30%. Bilateral patellar and achilles reflexes were absent, and hypoesthesia at S2-3-4 dermatomal zones was determined. A sacral tumoral lesion was seen on contrast enhanced lumbosacral MRI (Figure 4-5). By anterior-posterior approach, partial sacrectomy and total tumoral excision were done (Figure 6). In the operation bilateral half of sacroiliac joint were left so stabilisation was not applied. The patient was advised silicon wheel for sitting. Pathological examination results were consistent with medulloblastoma metastasis (Figure 7). Postoperatively, his neurological deficit and complaints partially improved after the operation and he was referred to oncology for a second chemotherapy course.

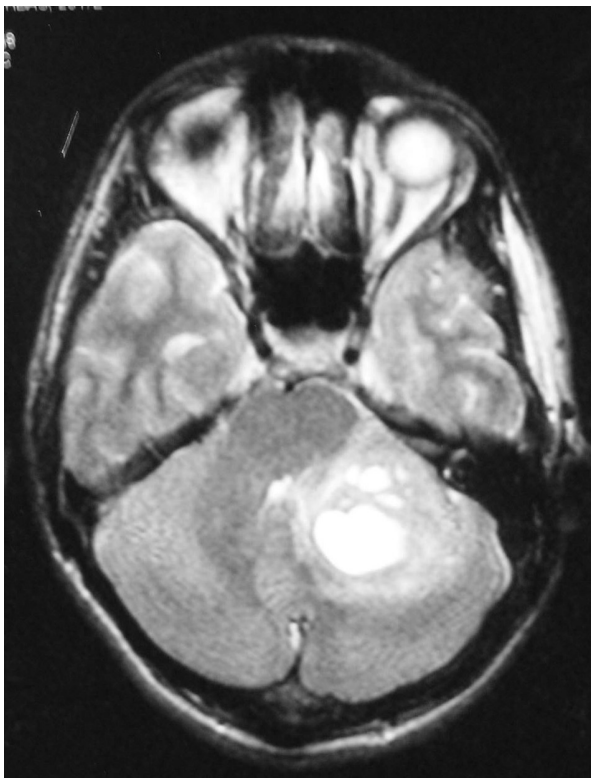

Figure 1: Hyperintense cystic lesion localized at the left cerebellum; the compressed fourth ventricle and edema near the lesion can be seen on T2-weighted magnetic resonance imaging.

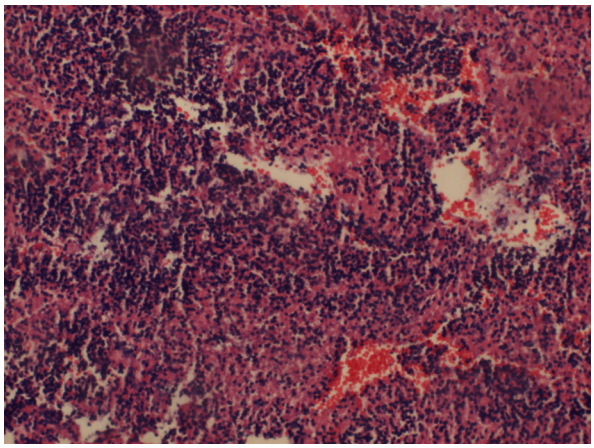

Figure 2: Histopathological examination showed diffuse cellular proliferation with hyperchromatic nucleus.(H&E, x100)

DISCUSSION:

Medulloblastoma is the most common childhood nervous system tumor (1,2). 50-66% of medulloblastoma occurs in the first decade of life, with the peak incidence seen between 5-9 years of age (8). It is rarely seen in adults, accounting for only 1% of all adult brain tumors (3,4,9).

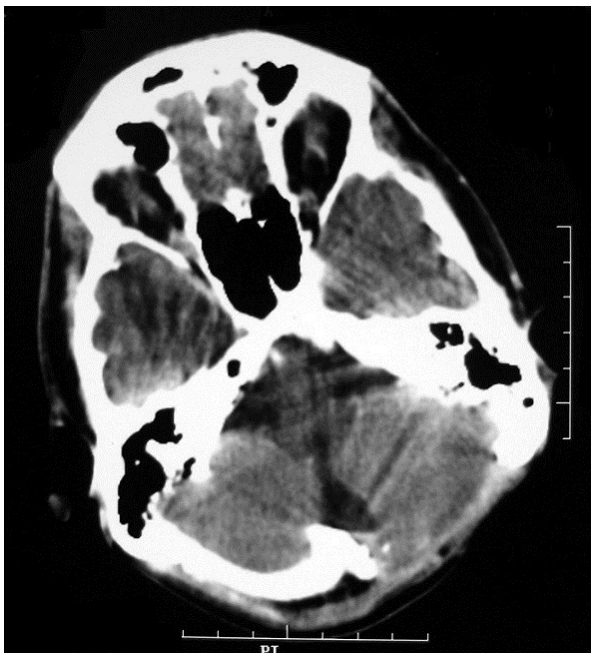

Figure 3: Left occipital craniectomy defect and postoperative gliosis in the left cerebellum can be seen in computerized tomography.

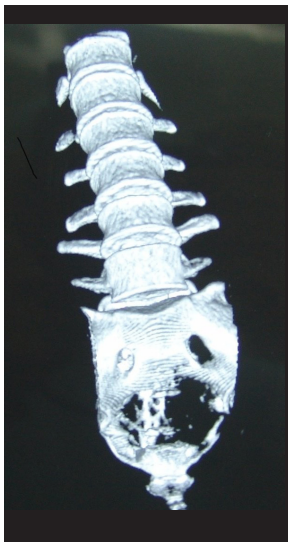

Figure 4:
Destruction at the sacrum can be seen in maximum intensity projection (MIP) images.

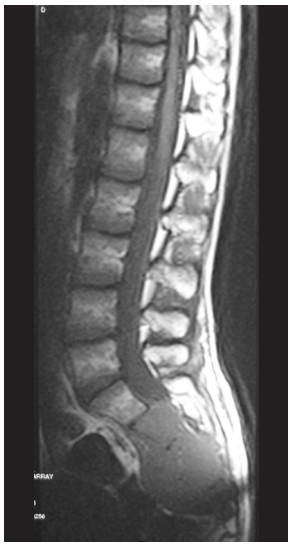

Figure5:
Sacral mass and bony destruction can be seen on sagittal T1-weighted MRI.

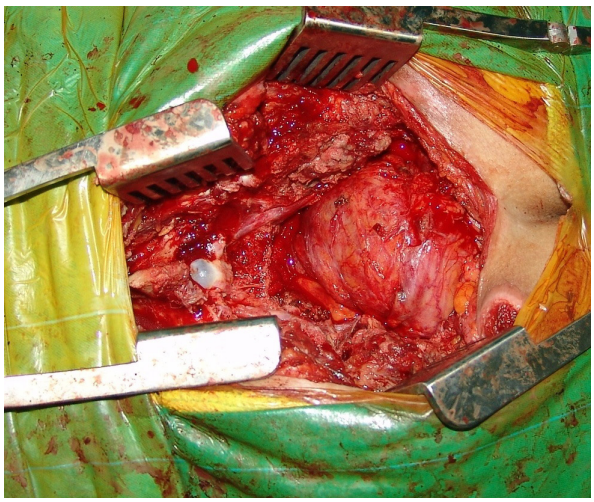

Figure 6:
Sacrectomy area and rectum can be seen.

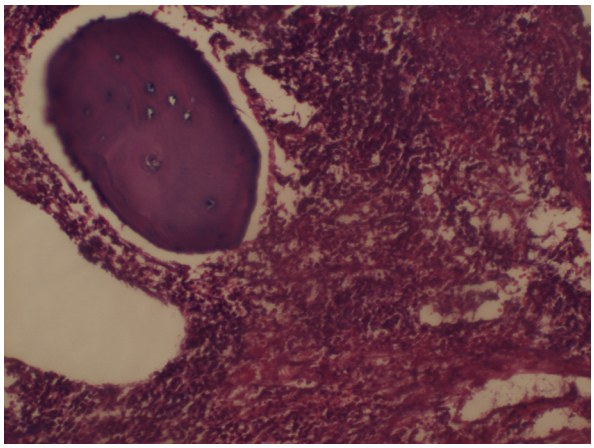

Figure 7:
Histopathological examination of the sacrectomy area showed diffuse celluler prolyfration with hyperchromatic nucleus. The result was consistent with medullablatoma metastasis. A pink-blue bone fragment can be seen at the left side of the specimen (H&E,x100).

It was previously believed that the CNS does not cause extracranial metastasis. However, in 1930, Bailley reported a case of medulloblastoma that spread via the CSF (10). In 1936, Nelson established that cerebellar medulloblastoma can metastasize outside the CNS, and this was confirmed in future reports (8,11,12). In 1955, Weiss confirmed criteria regarding the treatment of primary CNS tumors that cause extracranial metastases. Hoffman and Duffner determined systematic metastasis patients, of whom 282 had CNS tumor; 31% of the tumors originated from the medulloblastoma (8). In a patient series of Choux and Lena, 106 medulloblastoma patients were examined and metastasis was outside the CNS in 5.6% of them, in particular to the pelvis, femur, vertebra and costal bones, and bone marrow (12,13,14). In this reported case, sacral bone metastasis was found.

There are three different histological subtypes of medulloblastoma, namely classical medulloblastoma, lipo-medulloblastoma and medullomyoblastoma (15). On microscopic examination, the tumor is extremely cellular, with sheets of anaplastic cells. Individual tumor cells are small with little cytoplasm and hyperchromatic nucleolus. These nucleolus structures were frequently elongated or crescent-shaped. Abundant mitoses and markers for cellular proliferation such as Ki-67 are detectable in a high percentage of cells. The tumor has potential to express neurosecretory granules and Homer-Wright rosettes, as occurs in neuroblastoma (10). Medulloblastoma is a brain tumor which touchy on chemotherapy and radiotherapy, but these remain the most important components in treatment of total resection of the tumor (16,17). In our case, partial sacrectomy was applied because the patient had no other metastasis.

CONCLUSION:

Medulloblastoma is rarely seen in adults and its extracranial spreading occurs in bone marrow and in bone, such as pelvis, femur, vertebra and costal bones. This is the first report of a sacral medulloblastoma metastasis case successfully treated with a radical sacrectomy and total tumoral excision.

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