Renal Cell Carcinoma with Metastasis to the Clivus

Amit A. Patel, MD; Arjuna B. Kuperan, MD; Chirag R. Patel, MD; Leroy R. Sharer, MD; James K. Liu, MD; Jean A. Eloy, MD

Abstract

Background: Renal cell carcinoma is an uncommon malignancy which accounts for approximately 3% of all adult malignancies. Metastasis from renal cell carcinoma generally occurs in locoregional lymph nodes, lungs, liver, bones, and the brain. Other sites of spread have been described, but are increasingly infrequent. We describe a rare metastasis of renal cell carcinoma to the clivus causing multiple cranial nerve neuropathies treated by purely endoscopic resection with complete resolution of symptoms. This is the first report of clival metastasis due to renal cell carcinoma in the English literature.

Methods: Case report and current literature review.

Results: A 59 year old female presented to our institution from a long term care facility with headaches and acute onset cranial nerve neuropathies. Imaging of the head revealed a large clival based lesion with extension into the sphenoid sinus and encasement of the carotid artery. She underwent a transnasal endoscopic decompression of the large mass. Intraoperative pathology was positive for a tumor of mesenchymal origin. Final pathology revealed metastatic renal cell carcinoma.

Conclusion: This case aims to increase awareness of this infrequently encountered disease of the skull base/clivus and offers insight into the diagnosis and treatment of this rare entity.

Introduction

Renal cell carcinoma is an uncommon malignancy which accounts for approximately 3% of all adult malignancies diagnosed per year. It has been known to metastasize to unusual distant locations. We report a case of a renal cell carcinoma with metastasis to the clivus causing cranial nerve neuropathy.

Case Report

A 59 year-old female with a medical history notable for hypertension and mental retardation presented to an outside hospital with progressive headaches, acute onset left ptosis, diplopia and left V2 hypesthesia. CT and MRI scans revealed a large clival lesion with skull base destruction with extension into the sphenoid sinuses and nasopharynx. There was encasement of the left carotid artery with narrowing of the lumen of the artery. Endoscopic endonasal extended approach of this anterior skull base tumor was successfully performed with near complete resection. Intraoperative frozen section was concerning for sarcoma, however, final pathology showed renal cell carcinoma. Postoperatively the patient had complete resolution of her cranial nerve neuropathies. Follow-up CT of the abdomen revealed a large left renal mass. The patient elected to undergo palliative radiation treatment.

Discussion

- Renal cell carcinoma accounts for 3% of all malignancies diagnosed per year. Clear cell renal carcinoma accounts for 85-90% of all renal carcinoma diagnosed. It typically affects middle aged to elderly men with a history of smoking.
- In the most classic presentation, renal cell carcinoma causes hematuria, flank pain, and a palpable mass. However, renal carcinoma is notorious for its protean manifestations including multiple paraneoplastic syndromes and unusual locations of metastasis. 10-20% of patients present with metastasis. There are a number of reports of metastasis to the heart, thyroid, and even skeletal muscle.
- Clear cell carcinomas most likely arise from proximal tubular epithelium, and usually occur as solitary unilateral lesions. Histologically, the show a growth pattern that varies from solid to trabecular or tubular. The tumor cells have a rounded or polygonal shape, and may have clear or granular cytoplasm, which contains glycogen and lipid along with delicate branching vascularity. Most tumors are well differentiated, but some show marked nuclear atypia with formation of bizarre nuclei and giant cells.
- The most common type of clival tumor is a chondroma. Other common possibilities include chondromas, meningiomas, and chondrosarcomas. Nasopharyngeal malignancies can invade posteriorly into the clivus. Clival tumors usually present with pain, cranial nerve neuropathies, and occasionally, cerebellar dysfunction.
- On CT scan, malignant clival lesions show bony destruction and can excise vital structures such as the carotid artery and cranial nerves III, IV, V, and VI. MRI appearance is dependent on the pathology of the lesions.
- There have been three case reports of renal carcinoma presenting with clival metastasis, all in the Japanese literature. Each case presented with cranial nerve neuropathies. In addition to renal cell carcinoma, metastases from other malignancies to the clivus have been reported. 4-6

References