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Case Report

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The Rare Instance of Uterine Adenocarcinoma Metastasizing to the Skull Base, Manifesting as Blindness and Ptosis

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ABSTRACT

Metastasis to the skull base is a rare but serious complication of various malignancies. This case report discusses a 50-year-old woman with a history of advanced endometrial adenocarcinoma who presented with progressive headache, left-eye blindness, and ptosis. Imaging revealed a mass along the left optic nerve, raising suspicions of mucormycosis, but biopsy confirmed metastatic endometrial adenocarcinoma. Despite undergoing skull base radiotherapy, the patient's vision did not improve. This case underscores the importance of considering metastatic endometrial adenocarcinoma in differential diagnoses for skull base lesions, particularly when other conditions are ruled out. Accurate diagnosis requires careful integration of clinical, radiological, and histopathological data.

Introduction

Diagnosing malignancies at the skull base is particularly challenging due to the broad range of potential differential diagnoses when a patient first presents [1]. A common clinical presentation of skull base metastasis is the involvement of cranial nerves, which leads to associated symptoms. Conditions such as ptosis, visual impairments, and paresthesia have been reported as secondary effects of skull base metastases originating from genitourinary and gastrointestinal cancers [2].

Endometrial cancer holds the distinction of being the most prevalent gynecologic cancer in the United States, with an estimated 40,100 cases diagnosed annually, resulting in approximately 7,470 deaths [3]. It ranks as the fourth most common cancer among women, accounting for 6% of all female cancers, following breast, lung, and colorectal cancers [4]. Among cancers of the female reproductive system, endometrial adenocarcinoma is the most common. This article reports a rare instance of uterine adenocarcinoma metastasizing to the skull base, manifesting as blindness and ptosis.

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Case Presentation

This case involves a 50-year-old Asian woman with a medical history that includes diabetes mellitus. One year prior, she presented with symptoms of vaginal bleeding and chronic pelvic pain, leading to a diagnosis of advanced endometrial adenocarcinoma. She subsequently underwent a radical hysterectomy and bilateral oophorectomy. Following the surgery, she received six cycles of chemotherapy and 27 sessions of external beam radiation therapy. Hormonal therapy with Tamoxifen was also prescribed as part of her treatment regimen. At that time, there was no evidence of metastatic disease.

Eight months later, the patient returned with complaints of a progressively worsening headache, swelling around the eyes, and blurred vision in her left eye. She also experienced ptosis and complete blindness (No Light Perception, or NLP) in the left eye, a condition that had developed three days prior to her initial consultation with an ENT specialist. Additionally, there was a noticeable disturbance in the movement of her left eye in all directions. Upon examination, the patient's left eye was found to be completely blind (NLP) and fixed, with the left pupil unresponsive to light. The right eye, however, exhibited normal vision and movement in all directions, and the right pupil responded normally to light. The patient did not report numbness in the cheek or facial paralysis, and the examination of other cranial nerves was normal. A nasal endoscopy conducted in the emergency department revealed no signs of necrosis.

Imaging studies, including an orbital MRI, revealed a 10 x 7 mm enhancing focus in the roof of the left sphenoid sinus, adjacent to the left optic canal. There was also evidence of erosion in the small wing of the sphenoid and the anterior clinoid process on the left side, as well as intraorbital optic nerve edema within the left optic canal and haziness of the left intraorbital fat, as observed on a PNS CT scan (Figure 1).

Given the patient's history of diabetes and cancer, a clinical suspicion of mucormycosis arose, and she underwent endoscopic sinus surgery. During the procedure, a diagnostic endoscopy was performed first, which showed no signs of necrosis. The left sphenoid sinus was then accessed directly, and a left sphenoidotomy was performed. A mass was discovered along the left optic nerve path, which was biopsied under the guidance of color Doppler ultrasound and sent for pathological analysis. The pathology results indicated that the tissue sampled from the left optic nerve was negative for fungal infection but confirmed the presence of metastatic moderately differentiated endometrial adenocarcinoma of gynecologic origin. Immunohistochemistry (IHC) studies were positive

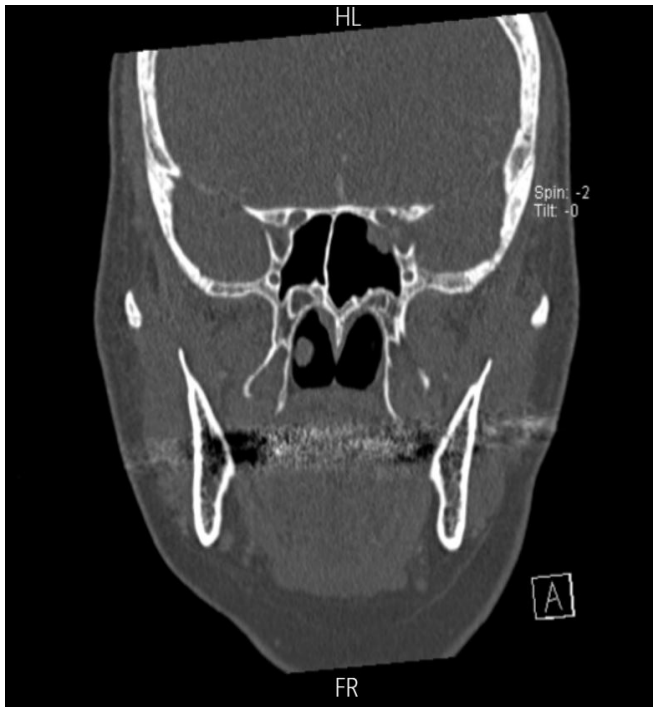

Fig. 1. on the coronal section of CT-scan there was evidence of erosion in the small wing of the sphenoid and the anterior clinoid process on the left side.

for CKAE1/CKAE3, P16, and CK7 in many tumor cells, CK20 in some tumor cells, and ER in a few tumor cells. Following the final pathological confirmation, the patient was referred for skull base radiotherapy. Unfortunately, there was no improvement in her vision following the treatment.

Discussion

Endometrial adenocarcinoma is recognized as the most common malignancy of the female reproductive system. Metastasis from this cancer to organs such as the lungs, liver, bones, and skin is relatively common, with dissemination occurring via local or lymphatic routes [5]. Bone involvement in this disease is reported in approximately 10% to 15% of cases, most frequently affecting the thoracic and lumbar spine [6]. To date, only 29 cases of bone metastases from endometrial adenocarcinoma have been documented, with none reported in the skull or as causing acute myelopathy in the cervical spine due to a pathologic fracture [7-10]. Moreover, there have been instances where endometrial carcinoma has metastasized to the paranasal sinuses and mandible [11]. The treatment regimen for widespread metastatic endometrial adenocarcinoma typically involves a combination of surgery, radiation therapy, chemotherapy, and hormone therapy, depending on the tumor's receptor status [12]. The 5-year survival rate for highly metastatic stage 4A tumors is approximately 17% [13].

Given this relatively low survival rate, there may be an argument for pursuing more aggressive treatment strategies for bone metastases in patients with advanced endometrial adenocarcinoma.

Conclusion

This case highlights several critical learning points. Despite the rarity of this diagnosis, it is important to consider it when other differential diagnoses do not seem applicable. Clinicians should carefully evaluate the patient's history, clinical examination findings, and investigation results to arrive at an accurate diagnosis. Imaging studies should be interpreted cautiously and correlated with clinical findings. Over-reliance on a single diagnostic investigation can be misleading and may lead to incorrect conclusions. Endometrial adenocarcinoma should be considered in the differential diagnosis of skull base lesions and/or pathological spine fractures that present acutely with spinal cord compression."

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this article.

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Conflict of Interests

The authors have no conflict of interest to declare.

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