



Introduction

Occipital nerve blocks are routinely performed for the treatment of various headache disorders. Occipital neuralgia commonly presents as sharp, shooting, unilateral pain that lasts for a few seconds to hours. When conventional medications no longer work for recurring attacks, using minimally invasive methods such as occipital nerve blocks can become a viable option to relieve pain. Occipital nerve blocks offer several advantages. They can be performed in the outpatient setting, do not require sedation or significant pre-procedural planning, and generally carry a low risk of complications. The targeted nerves, the greater occipital and lesser occipital nerve, can be reached using anatomical landmarks or, in rare cases, using imaging such as fluoroscopy and ultrasound. Here we present a case of an occipital nerve block procedure inadvertently leading to the discovery of a high-grade neoplasm.

Materials and Methods

- Our patient is a 78-year-old female who presented to the pain clinic for chief complaint of headache for 2 years. The pain was moderate to severe intensity, originated from the left > right occipital region and would radiate superiorly and anteriorly. It was sharp/shooting/stabbing in quality and would typically manifest within a few hours after waking.
- She was diagnosed with occipital neuralgia by an outside provider and had undergone two left occipital nerve blocks, with significant but temporary relief.
- The patient was evaluated by neurology at our institution, who concurred with the diagnosis of left > right occipital neuralgia and was referred to the pain clinic for bilateral occipital nerve blocks.
- Occipital nerve block with 10% lidocaine under fluoroscopic guidance was planned. Using standard protocol, a 25-gauge, 1.5-inch needle was advanced approximately 0.50 inches on the left, but no contact was made with the occipital bone. The thickness of the scalp was re-evaluated by palpation over the targeted area and was normal.
- A lateral X-ray was taken to assess the distance between the needle tip and the periosteum and demonstrated an abnormal appearance of the occipital bone suspicious for a lytic lesion. Due to this finding, the procedure was aborted.

Imaging

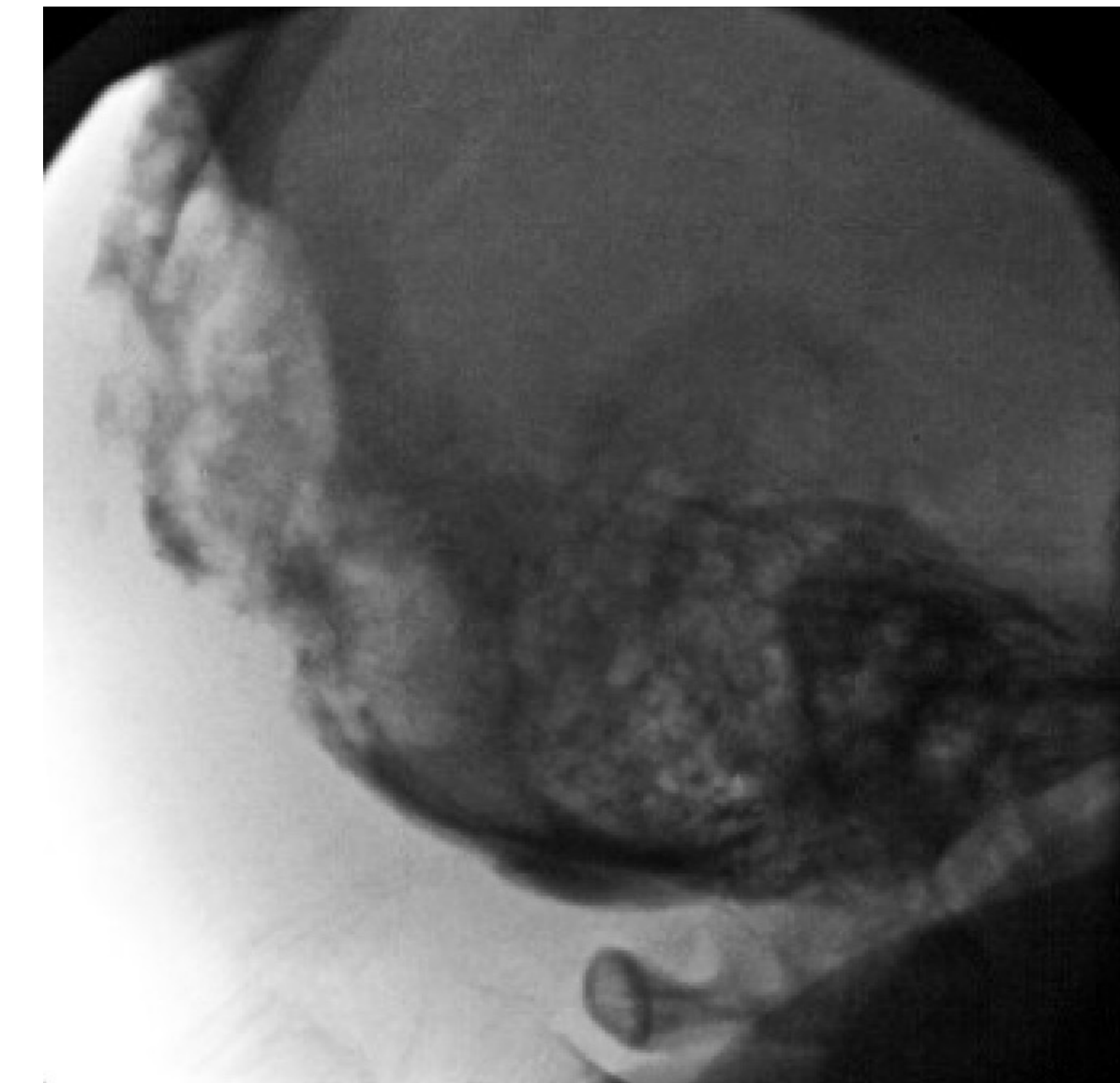


Figure 1. Fluoroscopic images revealed an abnormal appearance of the occipital bone

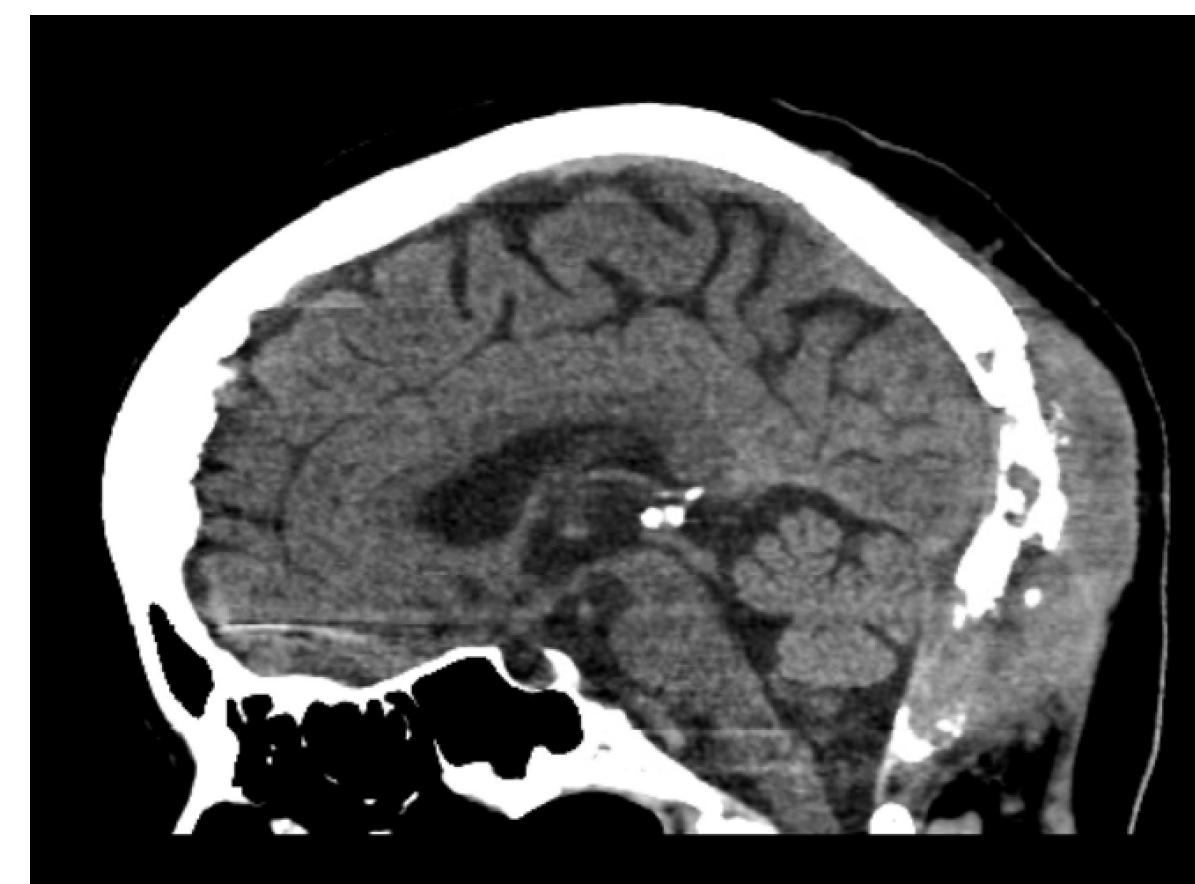


Figure 2. Non-contrast CT head demonstrated destructive osseous changes involving the occipital bone bilaterally with extraosseous soft tissue extension into the occipital scalp. Measurements: 9 x 2.5 x 9 cm



Figure 3. MRI brain with and without gadolinium, demonstrating an expansile and osseous-destructive, heterogeneous lesion involving the occipital calvarium without intracranial enhancement. Measurements: 10 x 3 x 9 cm

Results

- While attempting to perform bilateral greater and lesser occipital nerve blocks using fluoroscopic images, the needle was not advanced to contact the bone and no medications were injected. When the needle was advanced, no contact was felt with the occipital bone.
- Due to the lateral X-ray findings suggesting a lytic lesion, it was deemed unsafe to continue the procedure without further investigation to clarify the nature of this finding.
- In the interim, IV lidocaine infusion was recommended but only showed mild improvement.
- A non-contrast CT head demonstrated destructive osseous changes involving the majority of the occipital bone bilaterally with extraosseous soft tissue extension into the occipital scalp, measuring 9 cm in diameter, 2.5 cm in thickness, and extending 9 cm in in the craniocaudal dimension.
- This was followed by an MRI brain with and without gadolinium, which re-demonstrated the CT head findings.
- Subsequent CT-guided biopsy confirmed malignant high-grade neoplasm with spindle-shaped cell features, favoring carcinosarcoma.

Discussion

Occipital nerve blocks are commonly performed after clinical examination and without prior imaging or image-guidance. This case raises the potential need of pre-intervention screening (e.g., x-ray) or ultrasound guidance, particularly in elderly patients with new-onset occipital neuralgia. The application of screenings or imaging modalities accommodates varying skull sizes, pathologies, and possible anatomical variations, which can improve the effectiveness of the block, minimize the recurrence of occipital neuralgia, and avoid complications.

References

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2. Dougherty C. Occipital neuralgia. Curr Pain Headache Rep. 2014;18(5):411. doi:10.1007/s11916-014-0411-x