Balkan Med J 2024;41:400-1

Calcifying Pseudoneoplasm of the Neuraxis of the Foramen Magnum

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A 31-year-old woman presented with headaches, dizziness, tinnitus, and syncope. She also experienced difficulty swallowing and impaired balance and coordination. Imaging revealed a 4 mm mass lesion at the right aspect of the foramen magnum on computed tomography, and subsequent magnetic resonance imaging confirmed that extra-axial lesion (Figure 1). Surgical resection was performed, and histology confirmed the presence of a calcifying pseudoneoplasm of the neuraxis (CAPNON) (Figure 2). Following surgery, the patient's condition improved, and she was discharged with recommendations for outpatient follow-up.

CAPNON is a benign, rare entity characterized by slow-growing non-neoplastic fibro-osseous lesions and is distinguished by the presence of calcium deposits within the tumor tissue.[1,2] The calcified material

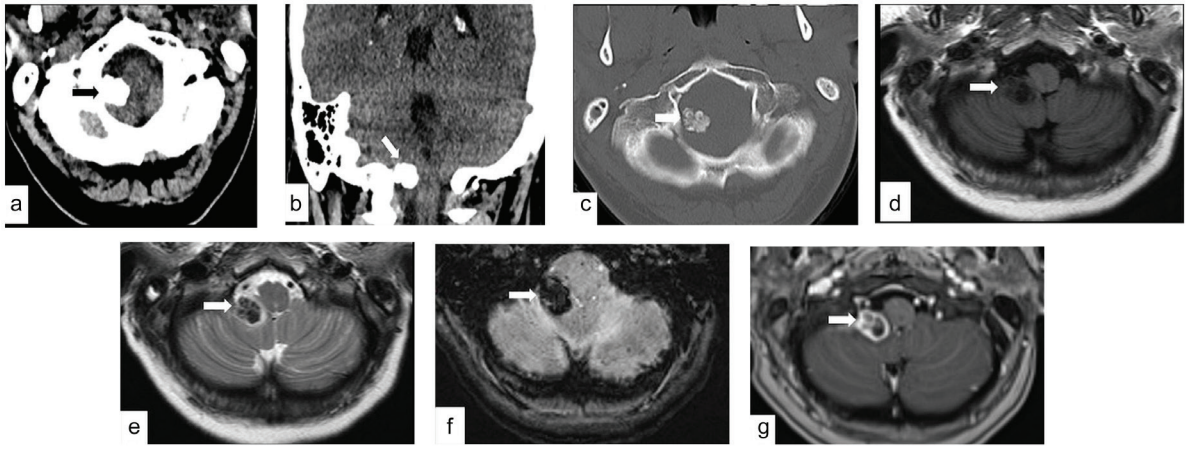

FIG. 1. Computed tomography (CT) of the head: (a, b) axial and coronal CT brain images zoomed at the foramen magnum. The images reveal an extra-axial densely calcified lesion at the right aspect of the foramen magnum (arrows) with mild compression of the right lateral aspect of the cerebellomedullary junction. (c) CT with bone window showing no bone changes or continuity with the adjacent bone. Contrast-enhanced magnetic resonance imaging of the brain: (d, e) axial T1-weighted image (WI) and T2-WI zoomed at the foramen magnum. The images reveal an extra-axial low signal lesion at the right aspect of the foramen magnum (arrows), with mild compression of the right lateral aspect of the cerebellomedullary junction and absence of perilesional edema. (f) Susceptibility weighted imaging showing significant blooming artifact (arrow). (g) Postcontrast T1-WI rim of enhancement and no dural tail (arrow).

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Received: March 18, 2024 **Accepted:** April 27, 2024 **Available Online Date:** September 06 2024 • **DOI:** 10.4274/balkanmedj.galenos.2024.2024-3-51
Available at www.balkanmedicaljournal.org

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Cite this article as: Sabawi M, Lopes Abath Neto O, Policeni BA, Duarte ML, Freitas LF. Calcifying Pseudoneoplasm of the Neuraxis of the Foramen Magnum. Balkan Med J.; 2024; 41(5):400-1.

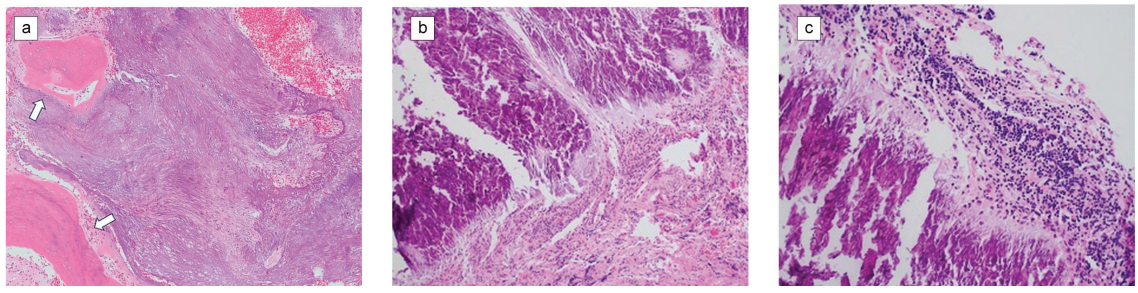

FIG. 2. Histologic sections of the CAPNON. (a) Large areas of the basophilic material with fibrillated quality and focal ossification (arrows) after tissue decalcification [hematoxylin and eosin (H & E) staining, ×40]. (b) Interface of the material with reactive macrophages before decalcification (H & E, ×100). (c) Chronic inflammatory infiltrates composed of lymphocytes and macrophages adjacent to a separate area with calcified material (H & E, ×100).
CAPNON, calcifying pseudoneoplasm of the neuraxis.

has a unique fibrillated quality at least focally and can become ossified. Reactive macrophages and inflammation are frequently present. The pathogenesis, clinical presentation, and outcomes are poorly understood.[1] With only approximately 150 cases reported, diagnosis and management pose a challenge.[2] CAPNONs frequently resemble meningiomas, cavernomas, chordomas, foreign body reactions, or low-grade astrocytomas.[3,4] CAPNONs located at the skull base may resemble intra-axial calcified lesions such as low-grade glial neoplasms (e.g., oligodendroglioma and ependymoma), mixed neuronal-glial tumors (e.g., ganglioglioma), vascular malformations (e.g., cavernous malformation), and granulomatous or infectious processes (e.g., tuberculosis).[2]

CAPNONs can occur at any location along the neuraxis and affect individuals aged 2-90 years, with a peak incidence between the age of 40 and 60 years.[5] The most common presenting symptoms include headache and seizures, although some cases are discovered incidentally.[3] Management depends on factors such as location, size, and presenting symptoms. Asymptomatic lesions may be monitored without intervention, whereas surgical resection is typically indicated for superficial lesions.[3]

Informed Consent: We obtained informed consent from the patient described in this report.

Authorship Contributions: Concept- M.S., O.L.A.N., B.A.P., M.L.D., L.F.F.; Design- M.S., O.L.A.N., B.A.P., M.L.D., L.F.F.; Supervision- M.S., O.L.A.N., B.A.P., M.L.D., L.F.F.; Fundings- M.S., O.L.A.N., B.A.P., M.L.D., L.F.F.; Materials- M.S., O.L.A.N., B.A.P., M.L.D., L.F.F.; Data Collection and/or Processing- M.S., O.L.A.N., B.A.P., M.L.D., L.F.F.; Analysis and/or Interpretation- M.S., O.L.A.N., B.A.P., M.L.D., L.F.F.; Literature Search- M.S., O.L.A.N., B.A.P., M.L.D., L.F.F.; Writing- M.S., O.L.A.N., B.A.P., M.L.D., L.F.F.; Critical Review- M.S., O.L.A.N., B.A.P., M.L.D., L.F.F.

Conflict of Interest: No conflict of interest was declared by the authors.

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