

# Radiological imaging finding of calcified pseudoneoplasm of neural axis

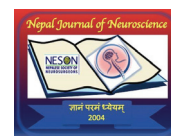
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## Abstract

Calcified pseudoneoplasm of neural axis (CAPNON) is rare non-neoplastic non-inflammatory heavily calcified lesions of neural axis which can be intra-parenchymal or extra-axial and have been reported within brain and spinal cord with equal frequency. Here we describe unique radiological (CT & MRI) Imaging finding of CAPNON in left hippocampus on CT scan and MRI.

**Key words:** Calcified pseudoneoplasm of neural axis (CAPNON), MRI, Temporal lobe

## Introduction

CAPNON is rare slow growing, non-neoplastic non-inflammatory heavily calcified lesions of neural axis which can be intra-parenchymal or extra-axial and have been reported within brain and spinal cord with equal frequency.<sup>1</sup> The etiology of the lesion is still unknown; however, investigators favor it to be a reactive rather than a neoplastic process.<sup>2</sup> Patients with CAPNON are usually asymptomatic and found incidentally but sometimes they can present with a seizure or headache mainly due to mass effect or local irritation of adjacent tissue rather than local invasion because CAPNONs are usually considered to be benign non-infiltrative lesions.<sup>3</sup> The most common

location is temporal region. This is a unique case report & we describing imaging findings of CAPNON in left hippocampus.

## Case Report

We present a case of 23 year old female with refractory partial seizure of right side, admitted in neurology department of I.G.I.M.S., Patna. Patient came to Radiology department for CT scan.

On NCCT, amorphous calcification was seen at left hippocampus with subtle effacement of temporal horn of left lateral ventricle but no peri-lesional edema noted, then advised MRI for further characterization of lesion.

MRI performed on 1.5 Tesla system revealed a well defined T1W/T2W hypointense lesion which blooms on GRE\* sequence and show enhancement after contrast administration (Fig- 2 & 3). No perilesional edema noted.

## Discussion

The first intracranial calcifying pseudoneoplasm of neural axis was reported in 1978 by Rhodes and Davis<sup>1</sup>. Since then, 40 intracranial lesions have been found<sup>2</sup>. Calcified pseudoneoplasm of neural axis (CAPNON) is rare slow growing, non-neoplastic non-inflammatory heavily calcified lesions of neural axis. It can be intra-parenchymal or extra-axial and have been reported within brain and spinal cord with equal frequency.<sup>3</sup> They do not seem to have a predilection for sex, age, or central nervous system location<sup>1,4,5,6</sup>. The patient age ranges from 12 to 83 years.<sup>2</sup> Most reported lesions have been extra-axial, but several intra-axial cases have also been reported.<sup>1</sup> Patients with CAPNON are usually asymptomatic and found incidentally but sometimes they can present with a seizure and second most common symptom is headache/pain,

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likely due to focal compression or irritation of adjacent tissue. The radiological finding is typical, On NCCT, lesion appear well defined & calcified intracranial mass. On MRI, Lesion is hypointense on T1W/T2W with no perilesional edema, bloom on GRE sequence & show minimal to mild enhancement after contrast administration. CAPNON should be considered as close differential diagnosis of a heavily calcified lesion in neural axis in imaging. It is important to consider this entity to avoid aggressive surgical intervention. The close differential diagnosis for a heavily calcified lesion is Cavernoma, Oligodendroglioma, calcified Meningioma and calcified granuloma. The key distinguishing feature of CANON is uniform T1 and T2 hypointensity without solid enhancement. Calcified

lesions with T2 hyperintensity or heterogenicity are more likely to be a calcified neoplasm and inconsistent with CAPNON. In our case, lesion appear uniform hypointense on T2W sequence. Calcified lesions with the typical popcorn (hyperintensity) appearance on T2 and peripheral hemosiderin ring are more consistent with cavernous malformation and easily distinguish it from CAPNON. Standard treatment is complete resection and is known to be curative. Due to benign behavior of lesion, no need of additional chemotherapy or radiotherapy. After complete resection of this lesion, the prognosis is typically favorable and complications tend to arise, if there is adhesions to adjacent arachnoid along the cranial nerves, blood vessels, or brainstem which rendering unsafe complete excision.<sup>3</sup>

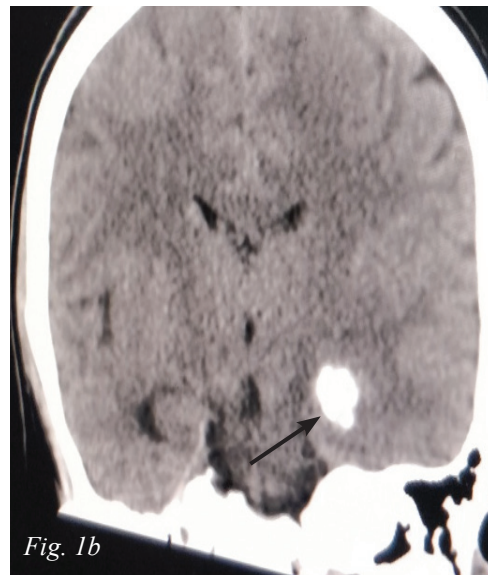
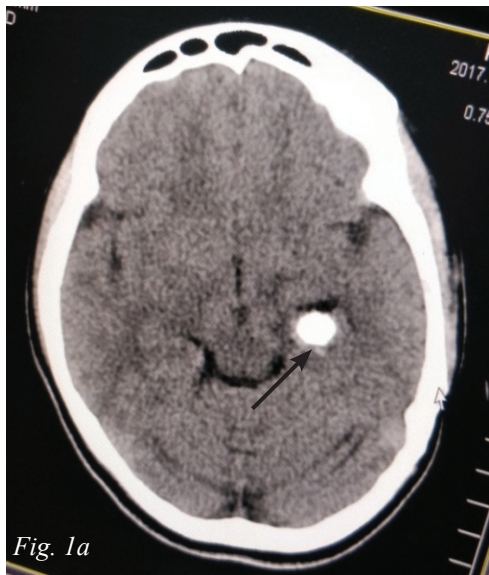
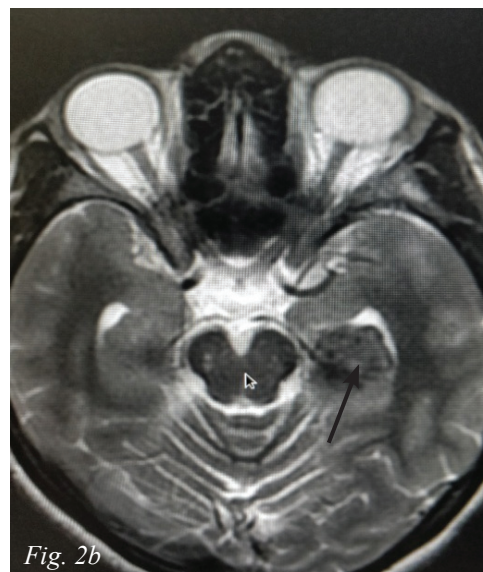
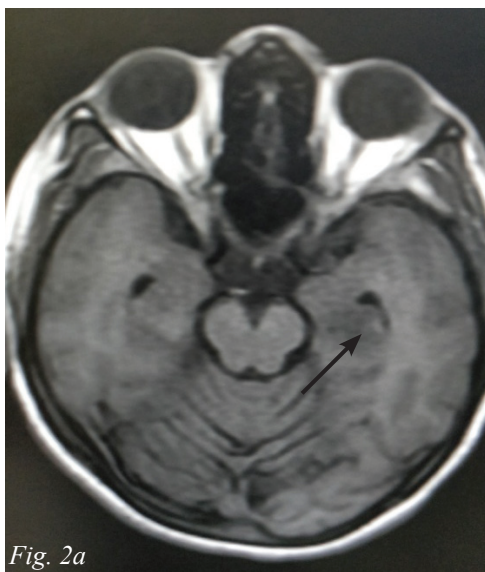


Figure 1a Axial & 1b coronal image of NCCT BRAIN showing amorphous calcification in left hippocampus. (Note no perilesional edema is visualized).



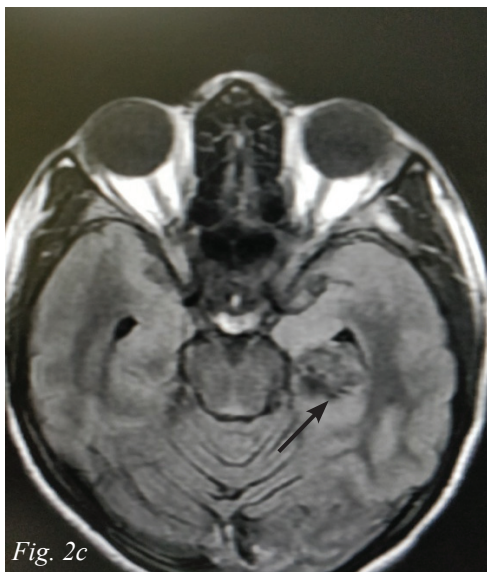


Fig. 2c



Fig. 2d

**Figure 2:** Axial MRI Images shows T1W (2a), T2W (2b), FLAIR (2c) hypointense lesion seen at left hippocampus (black arrow) which shows blooming on GRE\*(2d).

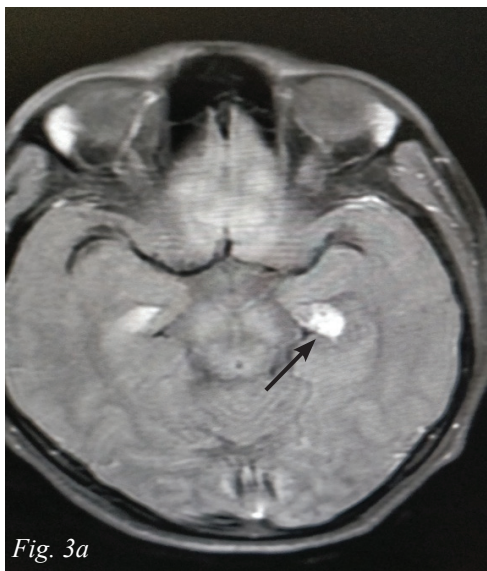


Fig. 3a

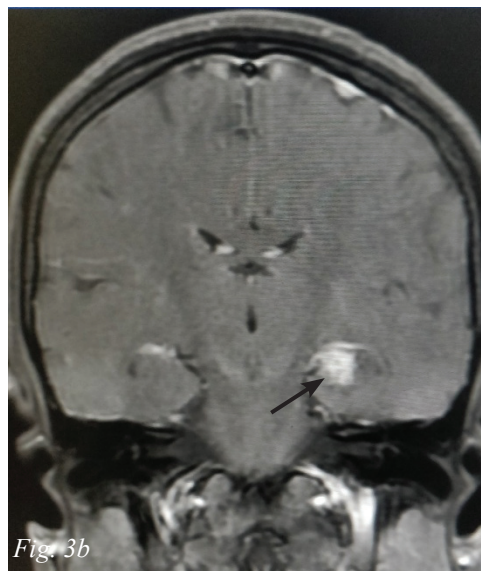


Fig. 3b

**Figure 3:** On gadolinium injection, contrast enhancement was visualized within lesion in the left hippocampus on axial (3a) and coronal (3b) images.

## Conclusion

When a heavily calcified lesion is found on CT and lesion appear hypointense on T1-weighted and T2-weighted MR image which blooms on GRE sequence and shows none to minimal post contrast enhancement and no perilesional edema, CAPNON should be considered as close differential diagnosis, to avoid aggressive diagnostic procedure.

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**Conflict of Interest:** None

**Source(s) of support:** None

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