

Review article

Palinacousis—Evidence to suggest a post-ictal phenomenon

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ABSTRACT

Introduction: Palinacousis is a paroxysmal auditory illusion in which perseveration of an external auditory stimulus occurs after cessation of the stimulus. The subjects recognize the illusory nature of this experience, which is often a fragment of the last sentence they heard. Palinacousis has been reported in only a few documented cases. It has been described as an aura, a component of complex partial seizures, and a post-ictal event. We put forward evidence demonstrating palinacousis as a post-ictal event.

Case: A 68-year-old woman presented with an acute sensory aphasia, and an EEG showed frequent epileptiform discharges from the left temporo-parietal region. MRI showed an enhancing mass in the left inferior parietal lobule that was consistent with a metastasis. A CT scan of the thorax later showed an enhancing mass in the left lung that was determined to be an invasive non-small cell carcinoma. Treatment with levetiracetam resulted in loss of epileptiform activity on EEG and resolution of aphasia, but soon afterward, she started complaining of recurrent auditory illusions in her right ear. These consisted of phrases from the ends of sentences she heard. Continuous EEG monitoring during her auditory symptoms showed intermittent left temporal slowing but no epileptiform discharges or electrographic seizures. An FDG-PET scan with the glucose uptake phase during episodes of auditory illusions revealed hypometabolism of bilateral medial temporal cortices and increased uptake in the metastatic tumor.

Review of literature: A systematic review identified 14 cases with palinacousis since 1981. Cases prior to that were excluded due to the lack of sufficient data.

Discussion: We propose that palinacousis is a “negative” phenomenon, at least in some individuals. It occurs with a loss of function of a region of the brain that normally suppresses auditory perseveration.

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1. Introduction

Palinacousis is a paroxysmal auditory illusion in which perseveration of an external auditory stimulus occurs after cessation of the

stimulus [1]. The subjects recognize the illusory nature of this experience and are aware of where they heard the particular auditory stimulus, often a fragment of the last sentence that they heard [2]. A more recently described characteristic was incitement of the initial perseveration by a second auditory stimulus [3]. Symptoms that have been described as occurring in association with palinacousis include palinopsia, or visual perseveration [2], and musical hallucinations [4].

Although palinacousis has been described in association with psychiatric illness [5], there are key factors that differentiate it from

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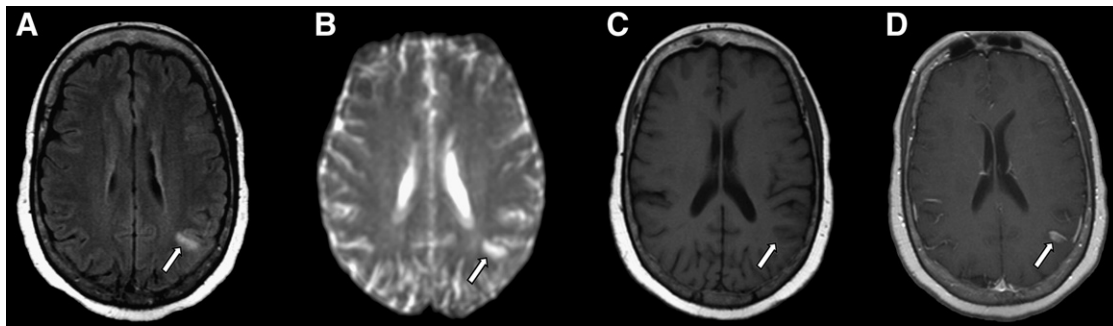


Fig. 1. Parietal metastasis sequence. A: Axial FLAIR image with hyperintensity in the left parietal lobe (white arrow). B: DWI image with hyperintensity in the left parietal lobe (white arrow). C: Axial T1weighted image with mild hypointensity in the left parietal lobe (white arrow). D: Post-contrast axial T1weighted image with a small enhancing area in the left parietal lobe (white arrow).

auditory hallucinations of schizophrenia. The auditory illusion of palinacousis is always an echo of an external auditory stimulus recognized by the patient as well as others, whereas auditory hallucinations of psychiatric nature are not always associated with an external stimulus. Secondly, the thought echoing described by Schneider in relation to schizophrenia is a process in which one's own thoughts, as opposed to external sounds (as in palinacousis), are heard repeatedly.

Since it was first described, palinacousis has been reported in only a few documented cases. It has been described mainly in patients with seizures as an aura, a component of complex partial seizures [3,6], and a postictal event [7].

We put forward an array of radiologic and electrographic evidence suggesting that palinacousis is a post-ictal event.

2. Case presentation

2.1. History

A 68-year-old African-American woman was brought to the hospital because she was not acting like her usual self, and her family could not understand her speech. She was evaluated and was found to have difficulty interpreting and following commands. Her speech was fluent

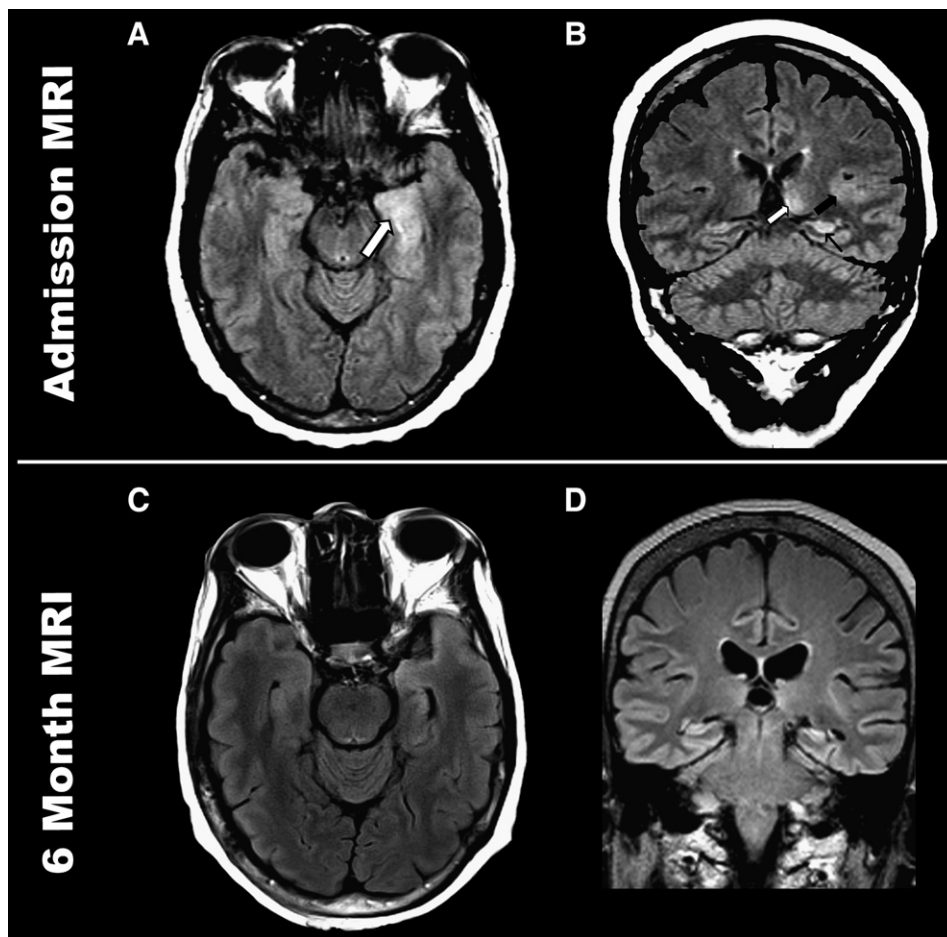


Fig. 2. MRI of brain on admission and 6 months later: FLAIR sequences. A: Axial FLAIR image with hyperintensity in the left medial temporal lobe (white arrow). B: Coronal FLAIR image with hyperintensity in the left hippocampus (thin black arrow), thalamus (white arrow), and superior temporal gyrus within the lateral sulcus (thick black arrow). C: Axial FLAIR image 6 months later showing partial resolution of the previous hyperintensity in the left medial temporal lobe. D: Coronal FLAIR image 6 months later showing complete resolution of the increased signal in the left hippocampus, thalamus, and cortex.

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