

# Young Male With Recurrent Headache: A Case Report

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## Case report

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# Abstract

**Background** Headache, one of the most common symptoms presenting to the emergency department, is usually benign but sometimes fatal. Identifying high-risk headache syndromes and providing appropriate headache therapy remain the first priority for emergency physicians. Common “Red flags” includes sudden onset, focal neurological deficit, fever, neck stiffness and so on. We categorize headache into primary (such as tension, cluster headache and migraine) and secondary (subarachnoid hemorrhage, acute meningitis, intracranial hemorrhage, etc) while ruling out secondary headache is the first step in management.

**Case presentation** We report a case of nasopharyngeal carcinoma(NPC) with defect at left side of nasopharynx and sphenoid sinus causing diffuse pneumocephalus. The 35-year-old male presented to the emergency department for sudden-onset headache with unusual associated symptom: rhinorrhea. Computed tomographic (CT) examination revealed a diffuse pneumocephalus, which did not present in magnetic resonance imaging of brain one month ago. The treatment was mainly conservative and the recovery was smooth.

**Conclusions** Unusual symptoms like rhinorrhea and otorrhea should not be ignored, they might be the only clues to the diagnosis of pneumocephalus. Most of the pneumocephalus related to NPC occurred after recent radiotherapy. However, this patient finished radiotherapy on 2012/5. Thus, metastatic skull bony erosion with associated pneumocephalus might be taken into consideration.

## Background

Headache, one of the most common symptoms presenting to the emergency department, is usually benign but sometimes fatal. Identifying high-risk headache syndromes and providing appropriate headache therapy remain the first priority for emergency physicians. Common “Red flags” includes sudden onset, focal neurological deficit, fever, neck stiffness and so on. We categorize headache into primary (such as tension, cluster headache and migraine) and secondary(subarachnoid hemorrhage, acute meningitis, intracranial hemorrhage, etc) while ruling out secondary headache is the first step in management.

## Case Presentation

A 35-year-old male with nasopharyngeal carcinoma (NPC), cT4N3M0 stage IVA, presented to the emergency department(ED) after 2 days of generalized headache. The whole course of radiotherapy finished on 2012/5. He did not have fever, neck soreness, focal limbs weakness, focal limbs numbness or recent head and neck trauma. This patient frequently visited our ED (once a month) in these six months due to the similar problems. However, during his latest visit, he had clear and odorless rhinorrhea from his left naris for 2 weeks besides headache. The vital signs were normal. Physical and neurological examinations were both insignificant. Laboratory data were unremarkable. We arranged brain computed

tomography (CT) scan for the patient, and it revealed the diagnosis: *Diffuse non-traumatic pneumocephalus*. (Fig. 1 & Fig. 2).

We arranged brain Magnetic resonance imaging (MRI) which revealed bony defects in left sphenoid sinus and nasopharynx. There was erosion of the clivus and skull base, as well. The nasal discharge was sent for sampling (glucose level was around 28 mg/dl) and it was considered to be CSF rhinorrhea. The patient was admitted to our neurosurgery ward. The treatment was conservative. After 10 days of hospitalization, the headache improved, and he was discharged. The repeated brain MRI showed regression of pneumocephalus.

## Discussion And Conclusions

Pneumocephalus is defined as the presence of air within the brain parenchyma, subdural, epidural or subarachnoid space and it can be categorized into two groups: traumatic[1] or non-traumatic[2]. Most pneumocephalus occurred following head trauma (about 75%). Making the diagnosis of non-traumatic pneumocephalus is quite simple (based on imaging) while the timing of initiating further imaging workup for a patient suffering from chronic headache is challenging. There are several risk factors which must be taken into consideration such as headache after recent trans-cranial surgeries, trans-sphenoid surgeries, spine surgeries or lumbar puncture.[3–5] Unusual symptoms like rhinorrhea and otorrhea should not be ignored, they might be the only clues to the diagnosis of pneumocephalus. Most of the pneumocephalus related to NPC occurred after recent radiotherapy. However, this patient finished radiotherapy on 2012/5. Thus, metastatic skull bony erosion with associated pneumocephalus might be taken into consideration.

## List Of Abbreviations

NPC: nasopharyngeal carcinoma

ED: emergency department

CT: computed tomography

MRI: Magnetic resonance imaging

## Declarations

### Ethics approval and consent to participate:

This study was approval by TMU-JIRB (#N201909023)

### Consent for publication:

Written informed consent for publication of their clinical details was obtained from the patient.

### Availability of data and materials:

Not applicable.

### Competing interests:

The authors declare that they have no competing interests

### Funding:

Not applicable.

### Authors' contributions

SY Feng interpreted the patient data and performed the histological examination. YT Chien was a major contributor in writing the manuscript. All authors read and approved the final manuscript

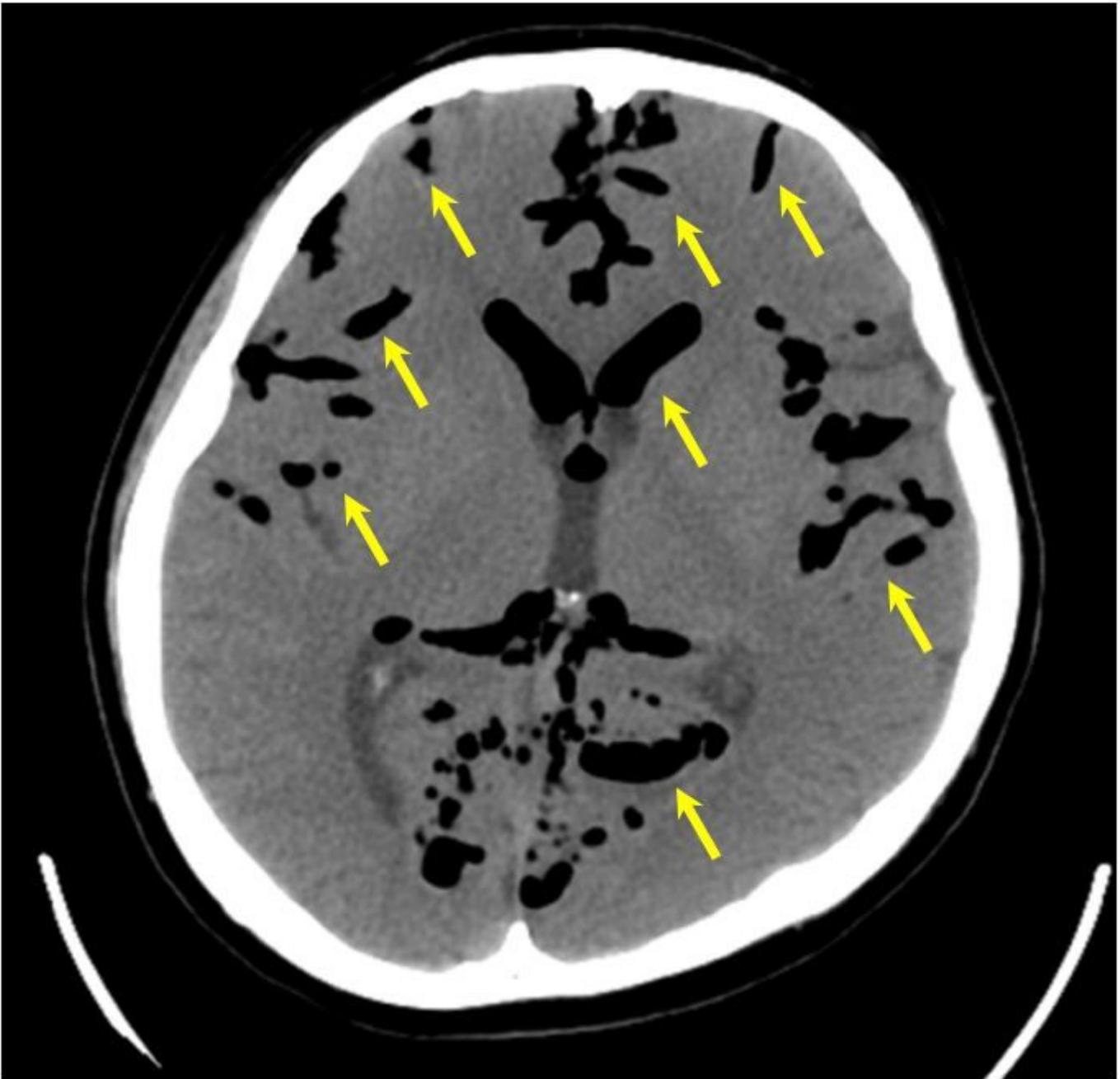
### Acknowledgements:

Not applicable

## References

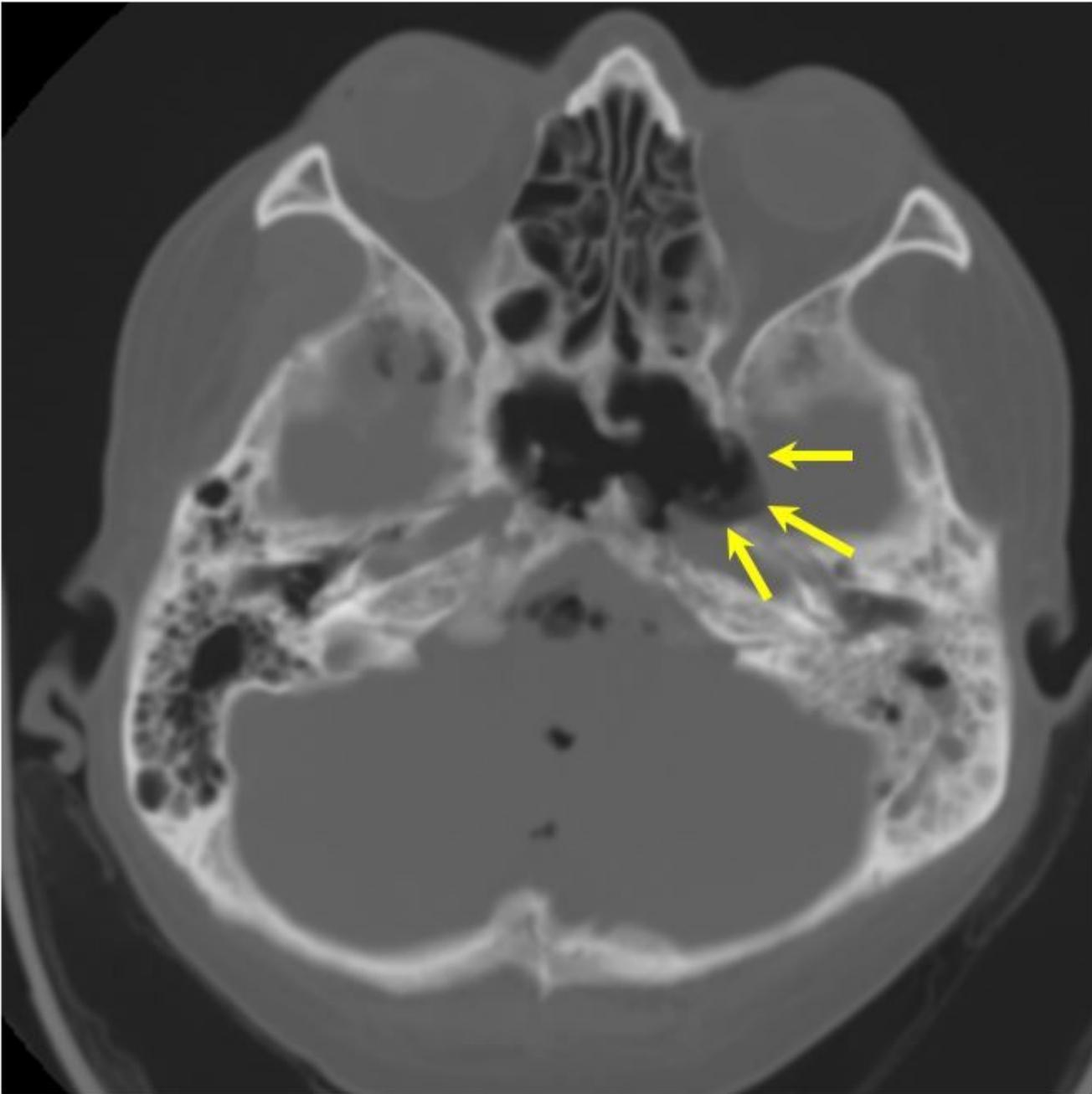
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## Figures



**Figure 1**

CT scan of brain (bone window), demonstrating diffuse intra-cranial free air (arrow).



**Figure 2**

CT scan of brain (bone window), demonstrating (Arrow) bony defect of left sphenoid sinus and nasopharynx