

Visual Diagnosis in Emergency Medicine

MOUNT FUJI SIGN: TENSION PNEUMOCEPHALUS IN THE EMERGENCY DEPARTMENT

Daniel R. Lasoff, MD, Gabriel Wardi, MD, and Christian Sloane, MD

Department of Emergency Medicine, University of California San Diego, San Diego, California

Reprint Address: Daniel R. Lasoff, MD, Department of Emergency Medicine, University of California San Diego, 200 W. Arbor Drive #8676, San Diego, CA 92103

CASE REPORT

A 59-year-old man with a history of Graves' disease and diabetes presented to our emergency department with complaints of headache and vomiting. He had undergone surgical orbital decompression of his left eye for Graves'

exophthalmos the previous day. On examination, the patient was somnolent with fixed-gaze palsy in his left eye. Pupils were reactive bilaterally. His vitals were unremarkable. The patient's computed tomography (CT) images are shown in [Figures 1 and 2](#).

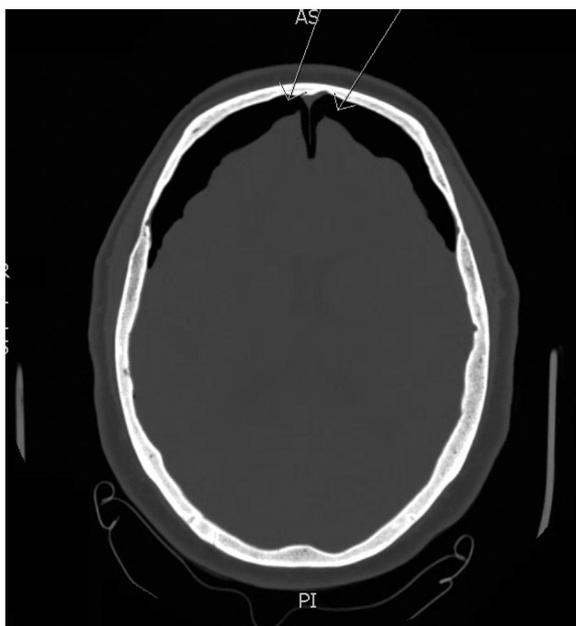


Figure 1. Bone windows of the computed tomography scan demonstrating the Mount Fuji sign.

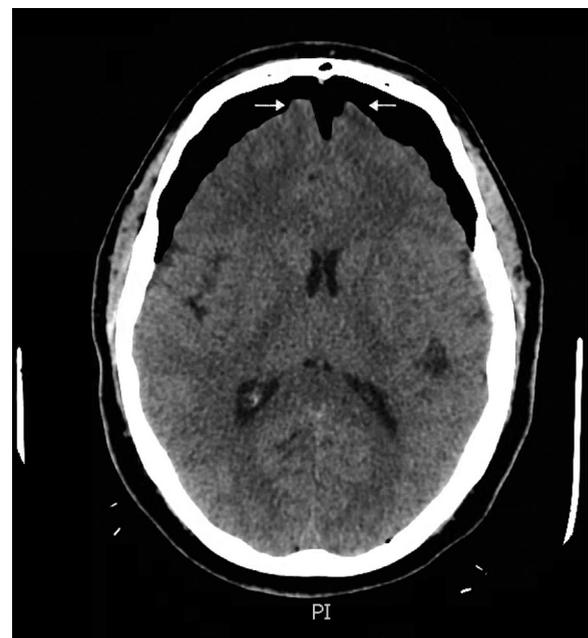


Figure 2. Brain windows demonstrating the Mount Fuji sign. Arrowheads point at the characteristic twin-peak appearance of the frontal lobe.

Diagnosis

Tension pneumocephalus. A CT scan of the patient's head demonstrated bilateral pneumocephalus, worse along the frontal lobes with separation of the bifrontal lobes, referred to as the "Mount Fuji" sign (1). Additional imaging demonstrated a defect in the anterior aspect of the base of the left side of the skull. The patient was administered i.v. antibiotics, 100% oxygen via non-rebreather mask, and the head of his bed was placed flat. He was admitted to the operating room for emergent decompression and repair of the skull defect.

DISCUSSION

Tension pneumocephalus is a life-threatening medical condition that occurs when air inside the skull provides a mass effect on the brain, typically from a ball-valve mechanism that allows one-way entry of air into the subdural space. Failure to treat tension pneumocephalus can result in seizures, significant damage to structures of the central nervous system, permanent brain damage, or death (2). The Mount Fuji sign is a

radiologic finding in which air within the skull compresses the frontal lobes, creating a twin-peak appearance on axial views of the CT scan. Tension pneumocephalus has been described to occur in the setting of trauma, prior neurosurgical intervention, infection, and, as in this case, orbital decompression in Graves' ophthalmopathy (3–5). When tension pneumocephalus is discovered, the treating physician should consult available surgical services promptly for a decompressive craniotomy to prevent herniation of the brain and subsequent death.

REFERENCES

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