



Images in Hospital Medicine

Acute Tension Pneumatocoele Due To Radiation Induced Osteonecrosis and Squamous Cell Cancer

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Figure 1. Large Area of Exposed Calvarium

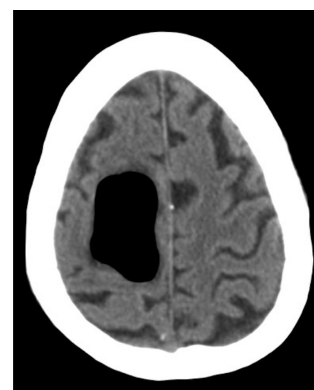


Figure 2. Large Air-filled Cavity in the Right Posterior Frontal Lobe with Mass Effect

A 73-year-old man presented with intermittent unresponsiveness and fevers. He had extensive squamous cell carcinoma (SCC) of the scalp on the right, treatment of which had resulted in radiation-induced osteonecrosis (Figure 1). He had no neurologic deficits on admission. Non-contrasted head CT demonstrated vasogenic edema in the right frontal lobe. Seventy-two hours later, he developed acute left hemiparesis. Repeat head CT (Figure 2) demonstrated a new large air-filled cavity in the right frontal lobe with mass effect.

‘Pneumocephalus’ describes intracranial gas in any location. ‘Tension pneumocephalus’ refers to *subdural* gas which exerts a mass effect. *Intraparenchymal* air with mass effect is consistent with ‘tension pneumatocoele’.¹⁻³ The mechanisms of intracranial air under tension can include a one-way valve phenomenon wherein air can enter but cannot leave, or the inverted soda-bottle effect where air is sucked in to replace leaked CSF.^{1,2} Tension pneumocephalus has been described most commonly in the setting of cranio-facial fractures while tension pneumato-

celes are rarer.⁴ Two 3 mm bubbling holes were found on the patient’s calvarium and this air intake opening was occluded by dressings. He was placed on 100% oxygen and underwent craniectomy, debridement of necrotic bone, drainage of an abscess, and reconstruction. He ultimately passed away after two months.

The patient had an acute tension pneumatocoele, resulting from a calvarial bone defect and infection related to SCC. Clinicians should be mindful of this possibility when caring for patients with extensive scalp defects and neurologic symptoms.

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CONFLICTS OF INTEREST{#coi}

None

AUTHORSHIP

All authors had access to the data and participated in the preparation of the manuscript.

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