

Ian C. Bickle, MB BCH BAO, FRCR¹
Diyana Mohamed, MBChB²

¹Department of Radiology
RIPAS Hospital,
Bandar Seri Begawan
Brunei

²Wellington School of Medicine, University of Otago
New Zealand

Cerebral Abscess with Rupture into the Ventricles due to Chronic Otitis Media

This 43-year-old man with a known history of schizophrenia presented with a one-week history of left ear pain accompanied by a purulent discharge from the external auditory canal over the last three days. Shortly afterwards he became confused.

On direct examination, the left ear canal was oedematous containing granulation tissue.

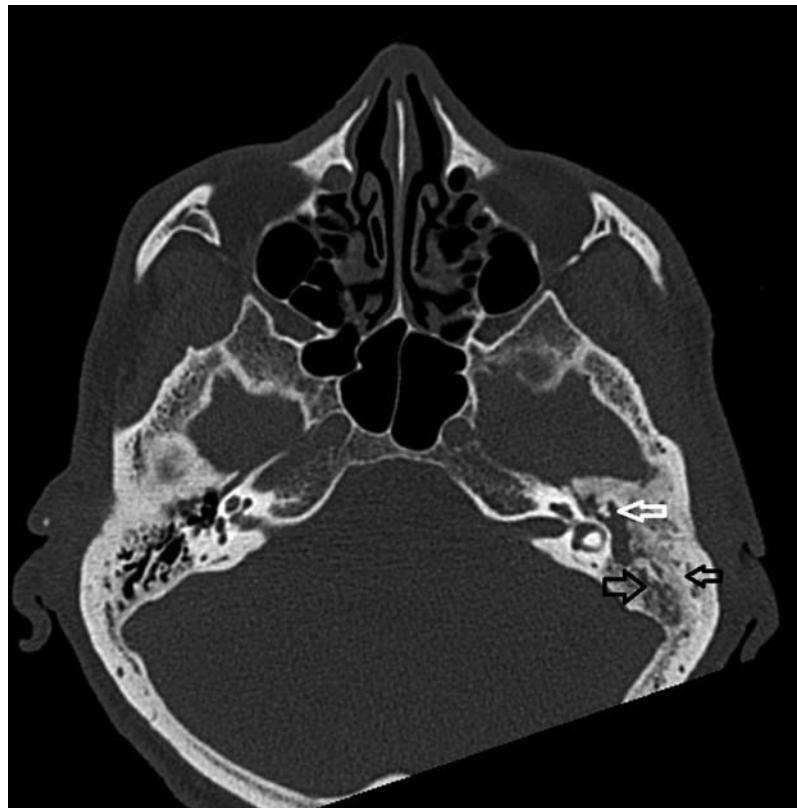


Figure 1. High resolution CT of Temporal Bone: Sclerosis of the temporal bone (thin black arrow) with pus in the mastoid air cells (wide black arrow). Soft tissue in the middle ear surrounding the ossicular chain (white arrow).

Correspondence: Dr. Ian C. Bickle
Department of Radiology
RIPAS Hospital
Bandar Seri Begawan BA1710
Brunei Darussalam
Phone: (673) 8 612182
Fax: (673) 224 2690
Email: ian@bickle.co.uk
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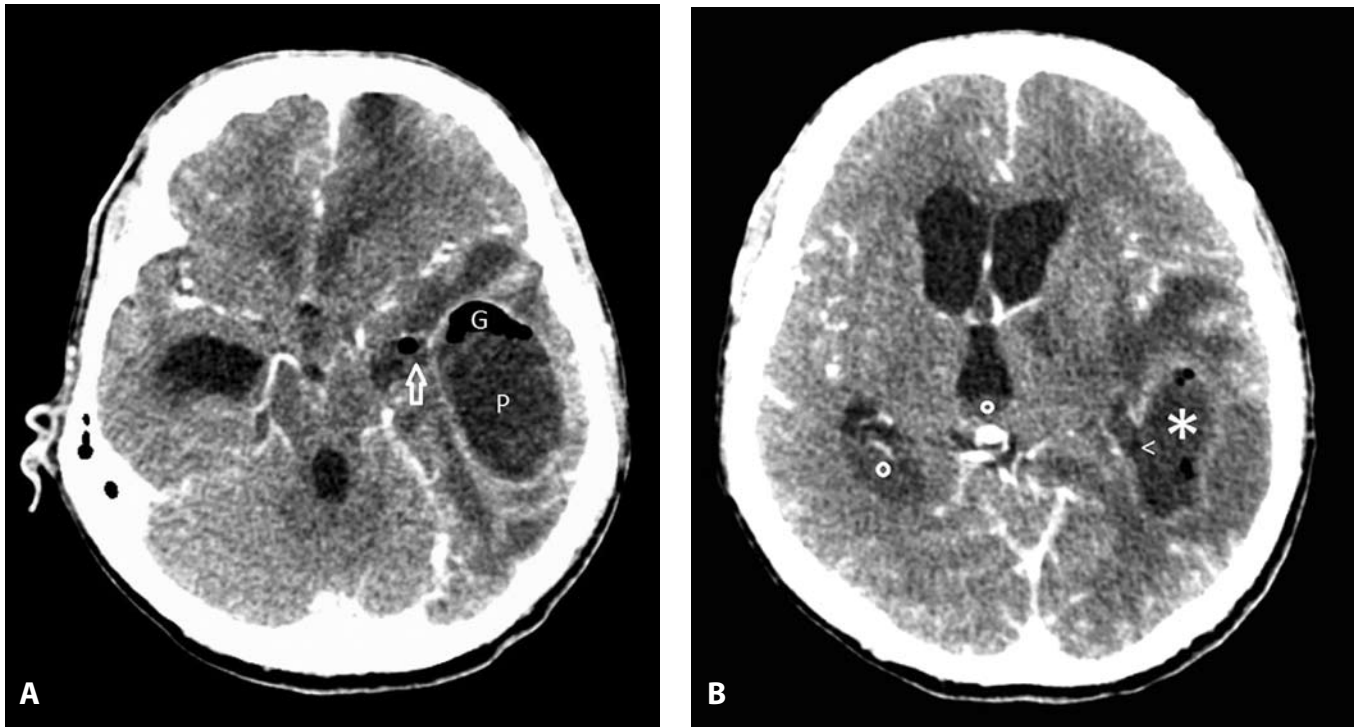


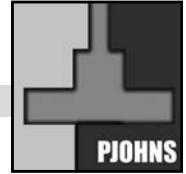
Figure 2. A. Contrast enhanced Axial CT of the Brain: a large left temporal lobe abscess containing pus (P) and gas (G), with similar content in the temporal horn of the left lateral ventricle (arrow). **B.** Left temporal lobe abscess (asterisk) with tract formation (arrow) communicating with the ventricle. Pus in the third ventricle and the right lateral ventricle (circles).



Figure 3. Pus contaminated CSF in the extra-ventricular drain

High resolution CT of the temporal bones supplemented by contrast enhanced CT of the brain was performed in this patient. This identified sclerosis of the left temporal bone with opacified mastoid air cells along with soft tissue within the middle ear. (Figure 1) Contrast enhanced CT of the brain established the presence of a large left temporal lobe abscess, with a tract communicating with the left lateral ventricle, which contained pus resulting in a tri-ventricular obstructive hydrocephalus. (Figures 2A & B)

Severe intracranial complications of otitis media are uncommon but are associated with significant morbidity and mortality. The incidence of intracranial and intra-temporal complications of otitis media is reported at 3.2 per million, of which only 18% are intracranial in nature.¹ Of the intracranial complications cerebral abscess is the commonest occurring in nearly half of all cases. Typically, the bacteria causing the abscess are anaerobes. The annual risk in adults of developing a



cerebral abscess secondary to otitis media is in the region of 1 in 10,000.² Other intracranial complications include; venous sinus thrombosis, meningitis, extra-axial collections and hydrocephalus. A known, albeit rare, complication of cerebral abscess is rupture into the ventricular system.³ Obstructive hydrocephalus may then result.

A left temporal craniotomy and abscess excision was performed with insertion of an extra-ventricular drain which contained pus. (Figure 3) A modified radical mastoidectomy was then performed. The

presence of gas within the intracranial abscess cavity is an indication for total surgical excision of the abscess as it allows removal of the mass lesion, prevention of possible persistent extra-corporal communication and provides debridement of devitalised tissue that might prevent resolution of infection.⁴

In this case, the diagnosis of brain abscess was delayed as his psychiatric history distracted from the history of confusion. This serves as a learning point for us all in our clinical endeavours.

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