

Parietal Bone Osteomyelitis with Brain Abscess in Traumatic Nonpenetrating Head Injury: An Uncommon Presentation

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Osteomyelitis of the skull bones is uncommon particularly in children. The prevalence of scalp bone osteomyelitis is approximately 1.5% of all osteomyelitis.¹ In children, trauma is the most common predisposing factor followed by sinusitis. Brain abscess is mostly due to hematogenous spread from a distant focus of infection. In as many as 40% of cases, no clear source of infection is reported.³ Brain abscess and skull osteomyelitis following nonpenetrating head trauma are rare complications. Brain abscess complicating intracerebral hemorrhage is rare, and to our knowledge, only 18 cases have been reported so far and none was associated with osteomyelitis. Almost all these patients had episodes of bacteremia, sepsis, or local infection such as phlebitis or an infected surgical wound.⁴ Our patient developed the osteomyelitis with abscess in a posttraumatic intracerebral hematoma with no identifiable focus of infection.

An 18-year-old boy presented in out patient department (OPD) with headache for 1 week and two episodes of vomiting and drowsiness for last 2 days, without history of seizures and fever. There was history of road traffic accident 2 months back for which noncontrast-enhanced computed tomography (NCCT) of the head reported left parietal contusions with scalp swelling (►Fig. 1A), and he was treated and managed conservatively outside. No history of ear discharge and chronic sinusitis found. On examination, no neurologic deficit, no signs of meningitis, and biochemical marker were within limits. Echocardiography was normal. A fresh contrast-enhanced CT (CECT) of the head was done, which showed multiple ring-enhancing lesions in left temporoparietal region with significant midline shift (►Fig. 1B) with moth eaten appearance of overlying bone found. The patient was planned for emergency surgery. There was no scar mark of external injury and no discharging sinus. Intraoperatively a boggy swelling was found over left temporoparietal

region. Subgaleal abscess was found infiltrating the subperiosteal region and eroding the underlying bone (►Fig. 1C). Interestingly no dural breach was found. Multiple abscess cavities found over temporoparietal region were excised. Osteomyelitic bone was discarded. Material aspirated sent for culture and sensitivity. Initially empirically ampicillin- and gentamicin-injectable antibiotics were started. However, as culture reports were found positive for methicillin-sensitive *Staphylococcus aureus* (►Fig. 1) and sensitive for vancomycin and clindamycin, and then antibiotics were changed as per sensitivity. Injectable antibiotics vancomycin and clindamycin were given for 4 weeks. The patient improved and discharged on oral clindamycin for 4 weeks. Brain abscess is less common complication of scalp bone osteomyelitis because of early detection of subcutaneous fistula and thus antibiotic treatment initiated. Among the reported cases of abscess formation in brain hematoma, gram-positive coccus (*Staphylococcus*) is most predominant as shown in ►Table 1. Our patient in the case developed temporoparietal bone osteomyelitis and brain abscess without any evidence of identifiable focus. Detailed history of trauma revealed that he had some minor abrasions and swelling on scalp after trauma. This trauma is possibly responsible for direct inoculation of causative organism sufficient to infect scalp hematoma that spread through bridging vein to cerebral contusion resulting in brain abscess. Although brain abscess may be caused by multiple factors, history of past minor scalp injuries should be kept in mind so that early diagnosis and proper management can be initiated to decrease mortality and morbidity.

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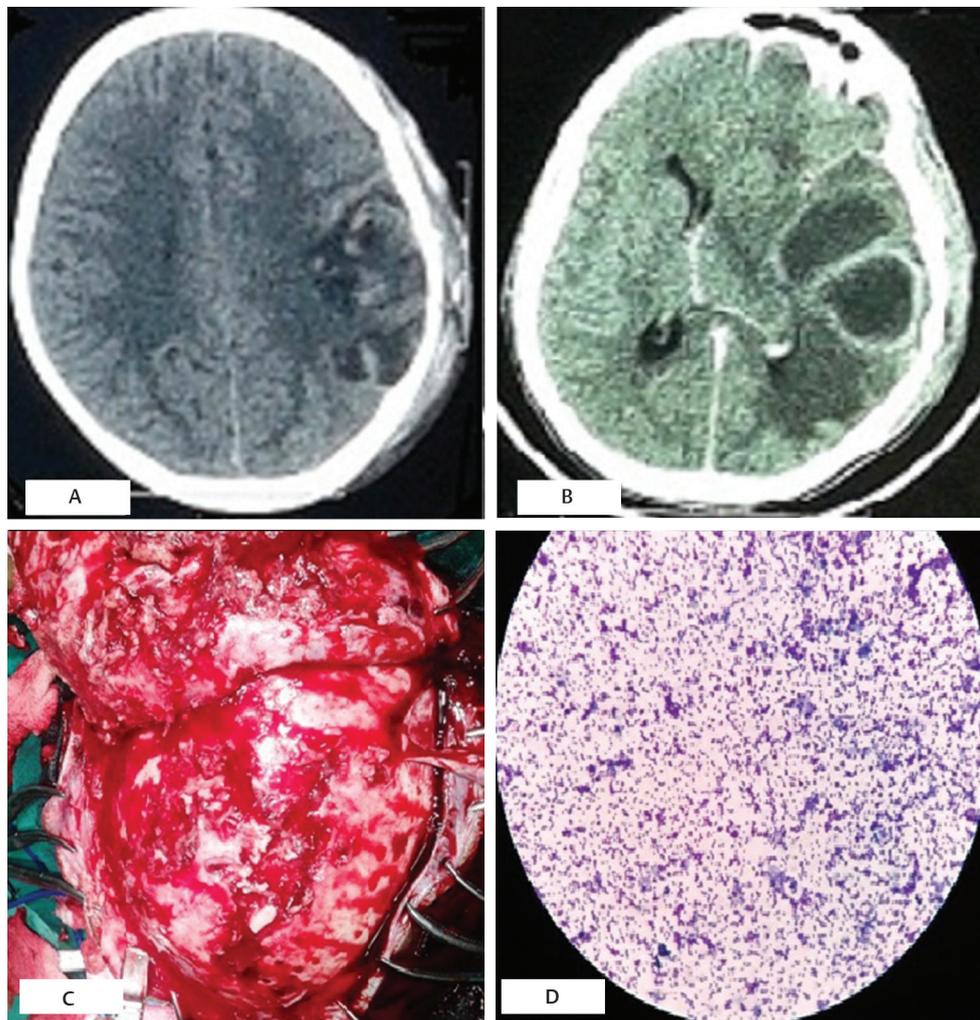


Fig. 1 (A) NCCT of the head showing left parietal contusions with scalp swelling. (B) Multiple ring-enhancing lesions in left temporoparietal region. (C) Subgaleal abscess was found infiltrating the subperiosteal region and eroding the underlying bone. (D) Culture reports found positive for methicillin-sensitive *Staphylococcus aureus*. NCCT, noncontrast-enhanced computed tomography.

Table 1 Reported cases of developing brain abscess in brain hematoma

Author	Site	Focus of infection	Pathogen
Siatouni et al ⁴	Left parietal	Urinary tract Infection	<i>Enterococcus faecalis</i>
Thomus et al ⁵	Left parietal	Unknown	<i>Staphylococcus</i>
Dashti et al ³	Right parietal	Unknown	<i>Staphylococcus</i>
Present case	Left parietal	Unknown	<i>Staphylococcus</i>

References

- Osei-Yeboah C, Neequaye J, Bulley H, Darkwa A. Osteomyelitis of the frontal bone. *Ghana Med J* 2007;41(2):88–90
- Rothholtz VS, Lee AD, Shamloo B, Bazargan M, Pan D, Djalilian HR. Skull base osteomyelitis: the effect of comorbid disease on hospitalization. *Laryngoscope* 2008;118(11):1917–1924
- Dashti SR, Baharvahdat H, Sauvageau E, et al. Brain abscess formation at the site of intracerebral hemorrhage secondary to central nervous system vasculitis. *Neurosurg Focus* 2008; 24(6):E12
- Siatouni A, Mpouras T, Boviatsis EJ, Gatzonis S, Stefanatou M, Sakas D. Brain abscess following intracerebral haemorrhage. *J Clin Neurosci* 2007;14(10):986–989
- Thomas SG, Moorthy RK, Rajshekhar V. Brain abscess in a non-penetrating traumatic intracerebral hematoma: case report and review of literature. *Neurol India* 2009;57:1–3