Commentary

Fulminant intracranial infection is, along with trauma, perhaps the oldest disease process that has required neurosurgical intervention. Trephines on archaeological skulls as well as medieval artistry document the early attempts of treatment of the patient with mental status changes, infections, and localizing neurological signs.[1] The overall incidence of bacterial brain abscess has remained relatively constant despite improved treatment of underlying systemic infections and development of more effective antibiotics.[2] Cases are spread out throughout the population, mostly seen in first two decades of life, peak incidence being 4-7 years, with evolution of bacteriological profile overtime in past 30 years with abscesses due to staphylococcus decreasing, streptococcus remaining same, and abscesses due to gram-negative bacteria increasing. There continues to be a strong representation of anaerobes (30-50%) in patients with brain abscess.[1] The clinical triad of fever, headache, and focal neurological deficit is present in less than 50% of cases. Headache, usually dull and poorly localized, is present in greater than 70% of cases and is so nonspecific to be a potential cause of diagnostic delays. Fever occurs in 35-50% adults and is more common in children. Focal neurological signs depend on location of lesion within the brain and extent of edema. Frontal and parietal lobe abscesses are commonly associated with hemipariesis and aphasia. Temporal lobe presentation may include visual field disturbances, intrasellar lesions tend to mimic pituitary tumors, and cerebellar abscesses often present with ataxia and nystagmus. Seizures occur in 25-35%cases, approximately 10% of cases present with multiple brain abscesses.[3] The CT imaging with and without contrast is investigative tool of choice performed rapidly and has high sensitivity. Initial study in critically ill, obtunded, febrile, and potentially unstable patients should be CT. In more stable patients with less clear picture, MRI is the recommended study. MRI is the best modality to demonstrate meningeal enhancement due to the absence of bony artifacts that occur with CT. The infarction, tumor (especially high-grade glioma), demyelinating process can mimic the ring-enhancing abscess lesion.[1] There is an eight-fold increase in the incidence of sterile cultures in the patients receiving preoperative antibiotics. The systemic antibiotics are generally given for 6-8 weeks.Steroids are to be given only to patients with clinical and radiological evidence of significant brain edema.[1] The choice of surgery varies from stereotactic aspiration/open surgical method including twist drill aspiration, burr hole aspiration with or without drainage, small crainectomy aspiration and drainage, craniotomy, and excision of abscess along with any satellite abscess. Multiple burr hole drainage will be necessary in cases where multiple abscesses are situated at different sites. The stereotactic aspiration versus open surgery has its own merits and demerits and its indications. The article "Brain abscess: Current management" by Alvis-Miranda and colleagues describes the in-depth management of brain abscess in detail.[4] Most important predictor of outcome is patients' neurological status at the time of presentation. Mortality is highest in those with an altered consciousness and rapid progression.[3] From the medical literature it appears that most authors agree with (a) need for surgery, (b) antibiotics are always necessary, (c) total recovery using medical treatment alone is possible in selected patients with brain abscesses or subdural intracranial empyemas especially in cases with a small size lesion, with multiple locations or located in surgically inaccessible areas and in patients without severe deterioration of consciousness, (d) medical treatment alone usually provides good functional result, and (e) a few cases of large focal intracranial infections recover totally after medical treatment alone.[5] Regarding the portal of entry, brain abscess is almost always secondary to a focus of suppuration elsewhere in the body and may develop either by spread from a contiguous focus of infection, after neurosurgery or head trauma or by hematogenous spread from a distant focus.[6,7] Brain abscess is a focal, intraparenchymal infection that begins as a localized area of cerebritis and develops into a

collection of pus surrounded by a well-vascularized capsule. A standard method of classifying brain abscesses is to classify them on the basis of the likely entry point of the infection.[8] The management of brain abscesses aims to reduce the space-occupying activity, reduce the intracranial pressure, and eradicate the pathogenic microorganism. The anatomical location, number and size of abscesses, stage of abscess formation, age, and neurological status of the patient can influence the strategy for managing brain abscess.[9]

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