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Melioidosis causing skull bone osteomyelitis in HIV positive illness: A case report

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Abstract
Melioidosis is a disease of protean manifestations caused by the saprophytic gram-negative bacteria, *Burkholderia pseudomallei*. It ranges from asymptomatic infection to abscess, pneumonia, and disseminated disease. Here is an unusual case report of skull bone osteomyelitis due to melioidosis in a Human immunodeficiency virus (HIV) positive patient which was diagnosed on pus culture from the left parietal swelling that was drained after neurosurgical intervention. Appropriate antibiotic was started based on culture & sensitivity and finally patient improved clinically and radiologically.

Keywords: HIV, Melioidosis, Osteomyelitis, Parietal, Burkholderia

1. Introduction
Melioidosis, a disease of humans and animals geographically localized to south east India, Australia, Thailand, China. The presentation ranges from localized abscess to severe pneumonia leading to septicemia and death [1]. Symptoms of this infection develop later because of the organism's ability to cause latent infection. Burkholderia pseudomallei, the causative organism of Melioidosis, are a facultative intracellular organism whose replication in polymorphonuclear neutrophils and macrophages is due to possession of polysaccharide capsule. Mode of infection is by inoculation, inhalation or ingestion. Inhalation was initially thought to be the primary mode of acquisition, based on studies of U.S. soldiers in Vietnam, where it was noted that helicopter crews seemed to have a high incidence of the disease. This and the long incubation period resulted in melioidosis acquiring the sobriquet "**The Vietnamese time bomb**" [2].
Melioidosis occurs more frequently in patients with underlying disease e.g. Diabetes Mellitus, chronic renal failure, alcoholism, and Immunosuppressed state like HIV infection, hematological malignancy, or drug induced [3] . Diagnosis of melioidosis is not possible by clinical features alone. The definitive diagnosis is made by positive culture of the organism from the blood or infected body fluid e.g. pus. Sometimes biopsy of an infected organ or culture of material obtained from a drained abscess may be required for diagnosis.
B. pseudomallei is a relatively rare causative organism in musculoskeletal infections [4]. Involvement of the musculoskeletal system is usually part of a disseminated infection, with localized bone or joint involvement being rare. The infection is usually chronic and relapsing. Musculoskeletal infections may manifest as osteomyelitis, septic arthritis, and soft tissue abscess. Bone involvement can occur in both axial and appendicular skeleton. Imaging feature of skeletal melioidosis, however is nonspecific, cannot be differentiated from other bacterial causes.

1. Case report
A 41 yr old male, a known case of HIV on Antiretroviral therapy (Emtricitaine, Efavirenz & Tenofovir) came with complaints of pain and swelling over left part of scalp for 10 days. Initially the patient had a history of minor trauma over the skull area 15 days before, subsequently he developed fever with chills after 2 days of trauma and subsequently, and 3 days later, he noticed swelling over the scalp area, initially the swelling was 3x4 cm in diameter, which later increased in size. History of recent loss of weight and appetite in last 2 weeks was present.
The patient had a significant past history of recurrent opportunistic infections. He was diagnosed to be a HIV positive infection 15 yrs before, but was not on treatment, Until 8 months before in june 2014, when he was admitted with epigastric discomfort and on routine

evaluation related to HIV, he was diagnosed to have low CD4 count (28) . He was started on Antiretroviral Treatment (ART), and cotrimaxazole in prophylactic dose. During few days of starting ART, patient became febrile and his Total Leukocyte Count (TLC) was high and blood culture was suggestive of melioidosis. Patient was treated with inj. Ceftazidime for 2 weeks, however, cotrimaxazole couldnot be given in view of repeated pancytopenia after repeated introduction of the drug. Hence as an alternative treatment in place of cotrimaxazole, patient was given Augmentin and Doxycycline. Patient improved symptomatically and was discharged with advise to continue ART, and maintenance phase of Doxycycline (100mg BID) and Augmentin (1gm BID) for 2 month (for melioidosis), and preventive medication for other opportunistic infection . Patient was on regular follow up.

Physical findings on examination:
Mild pallor was present. Right cervical lymphadenopathy (small nodular, non tender, firm 1x1.5 cm in size) was present. Other General examination was normal.

On local examination of the skull there was a swelling over **left parietal region**, the swelling was 5x7cm in size, tender on palpation, firm in consistency, fluctuation test was positive . There was no discharge from the swelling.
Neurological Examination: Patient's mental status was normal, No cranial nerve deficit was present. Motor, sensory examination was normal. No spinal tenderness, swelling or deformity was found. Cerebellar functions were normal. Involuntary movement was absent.
Systemic examination of respiratory, cardiovascular and gastrointestinal system was normal.

Laboratory investigation:

Routine blood investigations (complete blood count, biochemical test) were normal.

Radiological investigation:-
Chest X ray was normal.

CT scan brain was done (for localizing the extent of swelling).

CT brain (1/1/2015)-
well defined crescentric enhancing hyperdensity along the left parietal convexity, with adjacent erosion of inner table and diploe of calvarium involving the left parietal bone. (Fig 1&2)

CT brain (10/1/2015**):-**
Post excision status of left parietal aggressive bone lesion with craniectomy defect and few air pockets seen. Subgaleal collection along left parietal convexity adjacent to the bony defect is persisting showing reduction in its size.
Feature suggestive of bone lesion possibly osteomyelitis of left parietal bone with adjacent subdural and subgaleal abscess formation. (Fig 3&4).

Course of treatment in hospital:
CT scan of brain was suggestive of osteomyelitis of left parietal bone with subgaleal and subdural collection. Neurosurgery consultation was taken for draining the pus and excision of bone in view of osteomyelitis. Patient underwent incision and drainage with parietal bone resection.
Patient was empirically started on meropenam. The pus isolated Burkholderia pseudomallei, but blood culture was sterile. Antibiotic was changed to inj. Ceftazidime. Patient improved symptomatically, the size of swelling reduced, after neurosurgical incision and drainage. Post excision CT scan brain shows reduction in the size of collection and no fresh collection. In view of low CD4 counts (28) and recurrence of Burkholderia sepsis on maintenance therapy, prolonged IV Ceftazidime was advised.

Discussion:-
The term melioidosis was coined in 1921 by Stanton and Fletcher and is derived from the Greek words "melis" meaning "a distemper of asses" and "eidos", resemblance. This was because the disease clinically and pathophysiologically resembled glanders, a chronic and debilitating disease of equines caused by Pseudomonas mallei [5].
Melioidosis is an important cause of sepsis in the tropics, is caused by an environmental saprophyte B. pseudomallei. Human melioidosis was first reported by Whittemore and Krishnaswami in Burma in 1912 [6]. It affects mainly adults with underlying predisposing condition such as diabetes, immunocompromised state [7].
B.pseudomallei is an intracellular pathogen and some of the virulence mechanisms that govern the complex interaction between the organism and the host have been elucidated. Isolation of B.pseudomallei from body fluids of patients remains the "**gold standard**" in diagnosis but a sensitive and specific serological test can lend support to the diagnosis of melioidosis. Ceftazidime is the treatment of choice for severe melioidosis, but the response is slow. Maintenance or eradication therapy for a prolonged period is necessary to prevent relapse and recurrence. Monitoring IgG antibody levels may be useful as a guideline to determine the duration of eradication therapy.
Relapse and recurrent infections are not uncommon in melioidosis, especially in hosts who are immunocompromised, and occur in spite of appropriate and prolonged antimicrobial therapy. In our patient recurrence occurred on maintenance therapy with Doxycycline and Augmentin.
In view of this, cotrimaxazole was reintroduced with gradual escalation of dose. The patient tolerated the cotrimaxazole and complete blood count (CBC) remained normal this time. Relapse and recurrence are potential problems in patients who survive acute melioidosis. Such infections are assumed to be due to failure by the host to eliminate the organism during the initial infection.

Conclusion:
Central nervous system melioidosis presents as a simple brain abscess, Spinal epidural abscess or subgaleal abscess penetrating via osteomyelitis and forming brain abscess. A high index of suspicion and bacteriological examination is needed for diagnosis. Long-term antibiotic therapy is needed to ensure complete eradication of the infection[8].

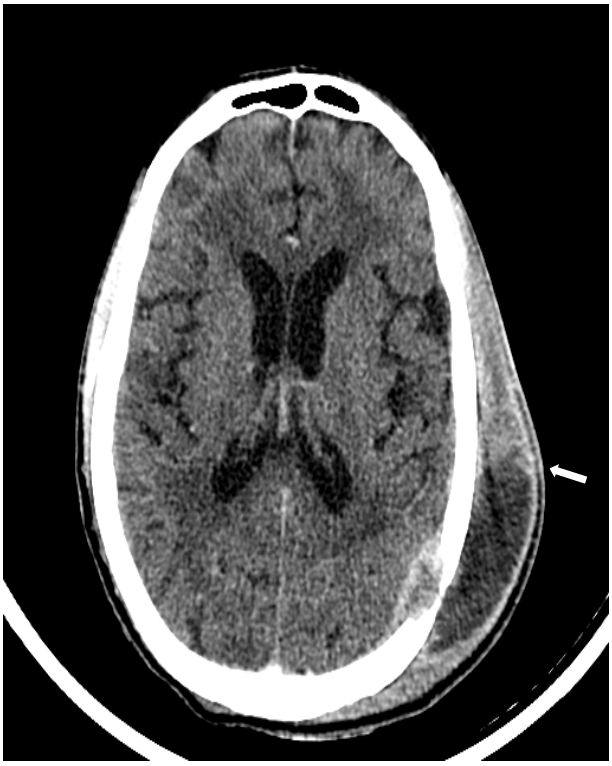

Fig 1 (Axial View)

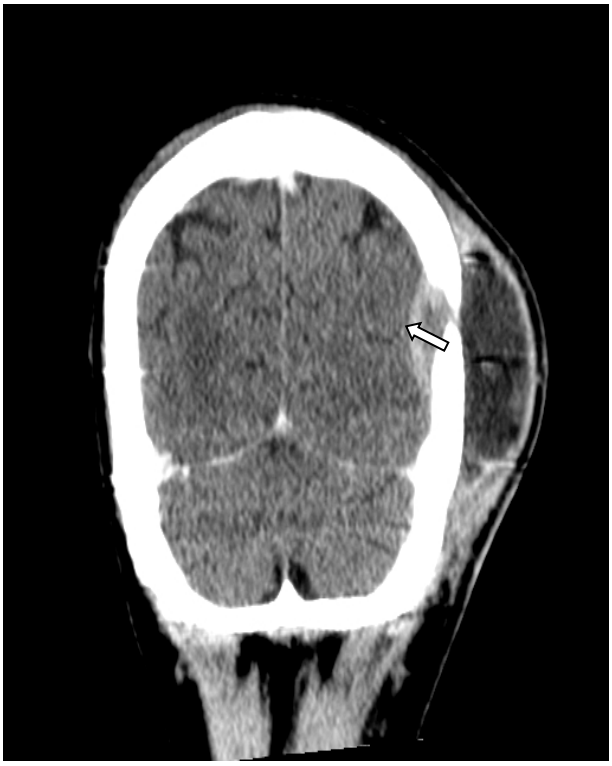

Fig 2 (Coronal View)

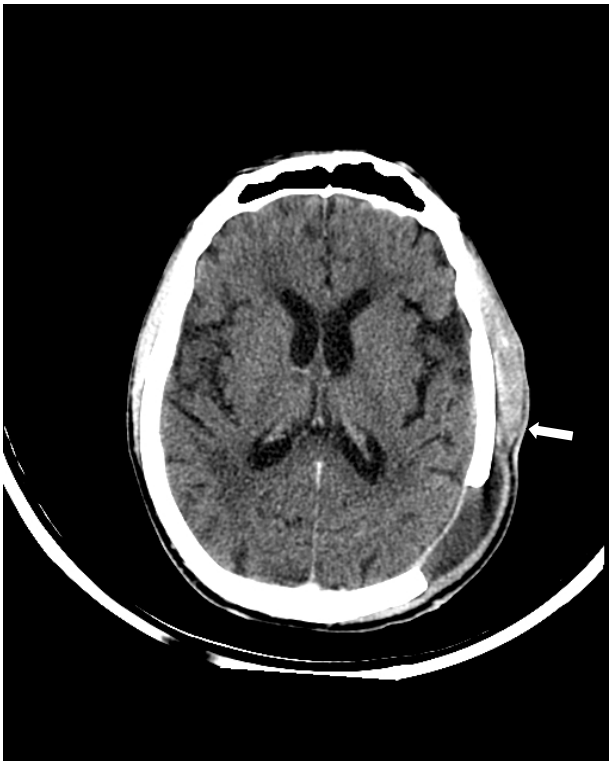

Fig 3: (**Axial View**)

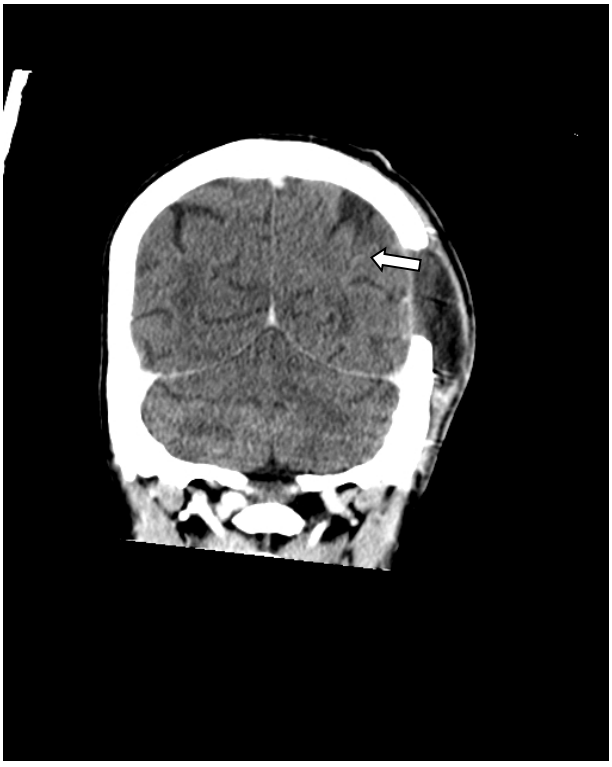

Fig 4: (Coronal View)

References

1. Dance DAB. Melioidosis as an emerging global problem. Acta Trop 2002;74:115–9.
2. How C, Sampath A. Spotnitz S. The pseudomallei group: a review. J Infect Dis 1971; 124: 598-619.
3. M muttarak, MD, Spectrum of imaging findings in melioidosis, The British Journal of Radiology, 82 (2009), 514–52.
4. Popoff I, Nagamori J, Currie B. Melioidotic osteomyelitis in northern Australia. Aust N Z J Surg 1997; 67:692–5.
5. Stanton AT, Fletcher W. Melioidosis. Studies from the Institute for Medical Research, Federated Malay States, John Bale and Sons and Danielson Ltd, London, 1932; 21.
6. Leelarasamee A. Melioidosis in Southeast Asia. Acta Trop 2000;74:129–32.
7. S D Puthucheary, FRCPath, Tropical Infectious Diseases Research and Education Centre, Melioidosis in Malaysia.
8. Kalai Arasu Muthusamy, Spectra of central nervous system melioidosis, Journal of Clinical Neuroscience (2007).