

CASE REPORT

Rare case of subdural empyema presenting as chronic subdural hemorrhage

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ABSTRACT

ISDE (intracranial subdural empyema) is a potentially fatal disorder. Patients who have had previous intracranial surgeries are more likely to develop ISDE. ISDE might be challenging to identify due to its non-specific clinical appearance. We provide a rare case of ISDE that mimicked a recurrent chronic subdural hematoma, underlining the importance of obtaining early magnetic resonance imaging of the brain for early diagnosis and treatment in order to achieve the best possible outcome.

Keywords: Craniotomy, ISDE, MRI, Subdural Hematoma

INTRODUCTION

Intracranial subdural empyema (ISDE) is a potentially fatal disorder that occurs between the dura and the arachnoid mater. Sinusitis, mastoiditis, infected cranial operations, and dental problems are just a few of the causes [1–3]. ISDE is thought to be responsible for 5 to 25% of intracranial infections [2]. ISDE [3] has published statistics with death rates ranging from 4.4 to 24 %. Multiple studies have shown that immediate neurosurgical intervention is critical in patients with ISDE, since failure to do so can lead to septic shock and death [1, 4]. ISDE can be difficult to diagnose due to its generic presentation, despite its decreasing prevalence[5-8]. Fever, headache, and vomiting are the most typical triad of symptoms[7,8]. Rapid diagnosis, fast beginning of appropriate antibiotic medication, and early surgical drainage are all crucial to improving patient outcomes[7-10]. ISDE is a critical area of practice that can result in considerable morbidity and mortality as a result of focal neurology and seizures[11]. We present a rare instance of ISDE that mimicked a recurrent chronic subdural hematoma (CSDH), underlining the importance of getting early magnetic resonance imaging (MR) of the brain for early identification and treatment in order to achieve the best possible outcome. We present a rare case of Fronto-parietal chronic subdural hematoma in a 25-year-old female.

CASE PRESENTATION

A 25-year-old female patient presented to the Neurosurgery department with a two-month history of pain in the temporo-parietal region. For two months, there was swelling in the parietal region. There was no history of sickness, and there was no sign of a temperature. Diabetes Mellitus, hypertension, TB, asthma, and hypothyroidism were not present in the patient's medical history.

A complete blood count (CBC) is a blood test used to evaluate your overall health and detect a wide range of disorders, including anemia, infection and leukemia. A complete blood count test measures several components and features of your blood, including: Red blood cells,

which carry oxygen. CBC investigations on cell counters with PS showed 10.4 g/dLHb. Total RBC, TLC and Platelet count was 3.01 million/mm³, 7300/mm³, and 3.76/mm³ of blood respectively.

There were no major changes in the coagulation profile of the patient. Initially, the coagulation profile showed a Prothrombin Time of 14.0 seconds whereas the APTT was 38.5 seconds. INR of the patient on the day of admission was highly raised to 0.99.

KFT Test or Kidney function test is a common work blood test that aims to appraise how well the kidneys are operating. On the day of admission the KFT showed a urea level of 17 mg/dL. Creatinine levels were in normal range i.e.0.5 mg/dL. The sodium levels were 138 mEq/L. Potassium levels were 4.3 mmol/L.

A liver function test (LFT) is a blood test that measures the levels of several substances (enzymes and proteins) excreted by your liver. Levels that are higher or lower than normal can indicate liver problems. Bilirubin level of 0.3 mg/dL was observed on the day of admission.

2D Echo report is a non-invasive heart investigation that creates images of the sections of the heart using sound vibrations. It presents the various parts of the heart as in pictures so that it becomes easy to check if there is any damage or blockages, and blood flow rate. It showed normal findings on the 2D Echo report.

Under general anesthesia, a fronto-parietal micro craniotomy with pus and necrotic mass evacuation was done. First and foremost, the patient was painted and draped. An incision was made, which was then deeper, and the scalp flap was elevated. Muscle excision was performed until healthy margins were visible, then burr holes were drilled and a craniotomy was performed. The necrotic tissue was debrided, and hemostasis was accomplished before the scalp was closed in layers and a sterile dressing was applied.

Figure 1 (a,b,c)- Depicting the Fronto-parietal craniotomy with elevated scalp flap

Figure 1 a



Figure 1 b



Figure 1c

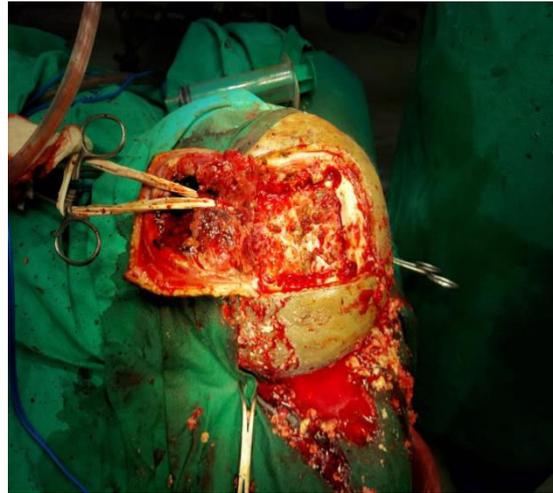


Figure 2 (a,b)- MRI showing subdural hematoma
Figure 2 a

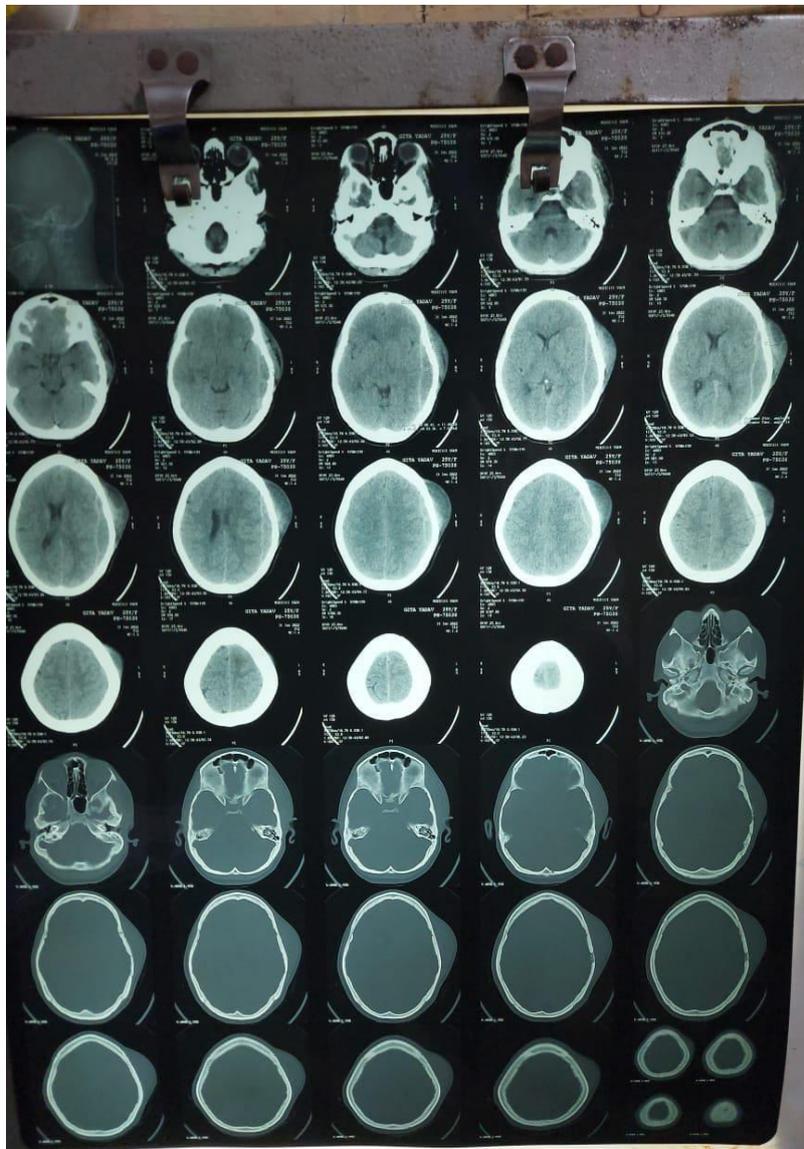
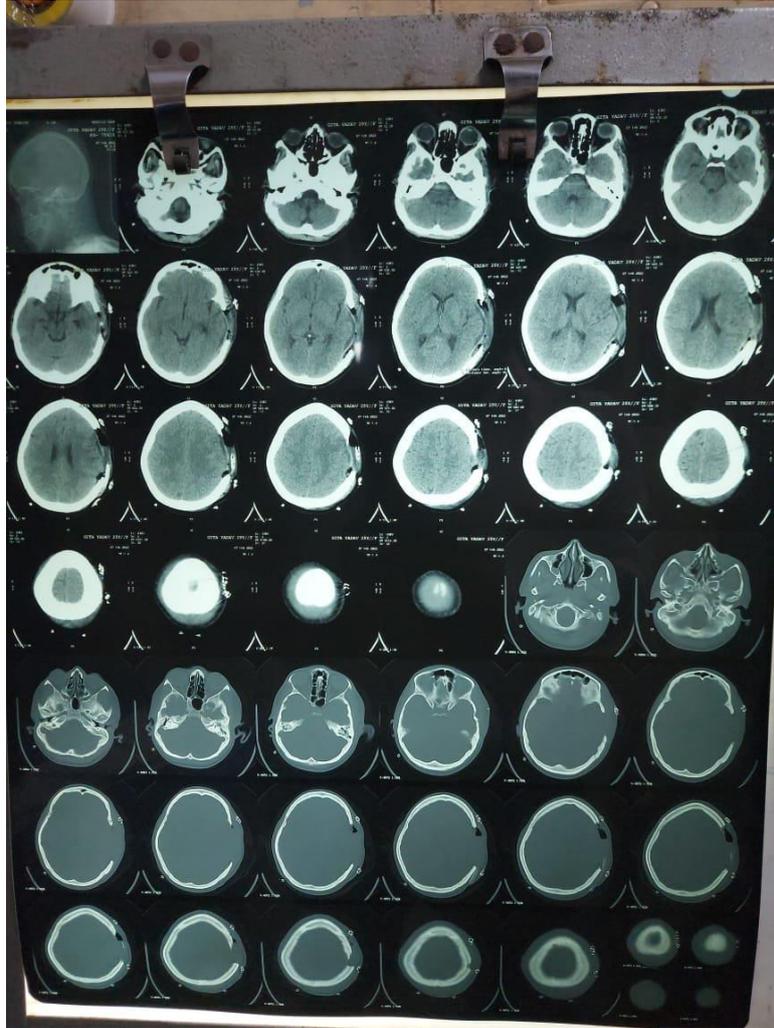


Figure 2b**DISCUSSION**

ISDE is a life-threatening infection that causes up to 25% of all intracranial infections [3]. Because of developments in neurosurgical treatment techniques, imaging, and improved antimicrobial treatment regimens, the death rate from ISDE has dropped from 40% to 10% in the last 60 years [12]. The ISDE is treated with an empyema evacuation and antibiotics based on the sensitivity resulting from the culture [2]. Streptococcus and Staphylococcus species have been the most commonly isolated organisms from ISDE [1, 12].

The most crucial component of managing an ISDE is early identification and treatment in order to avoid serious consequences. One of the difficulties that clinicians encounter while treating an ISDE is that patients, like the one described in this case, can arrive with modest clinical indications and no typical signs of infection, such as fever. Only around 20% of individuals with ISDE had the so-called "classic trio" of fever, headache, and vomiting, according to research [1, 12].

However, having had a previous neurosurgical surgery has been linked to the development of an ISDE [1, 2]. In other studies, the risk of acquiring an ISDE following several intracranial surgeries was as high as 50%, while it was just 0.44–1.8% after a single neurosurgical treatment [2, 13]. Our patient had previously had a subdural hematoma removed four weeks before acquiring the ISDE. The patient did not have a fever or an increased white blood cell count when he returned. In fact, according to Ryu et al., patients who acquire ISDEs following a neurosurgical surgery frequently have modest signs and symptoms, with only

around 35% of patients having a temperature and only 15% experiencing headaches from ISDEs [2].

While cranial CT is commonly utilized in the initial examination, it has a 6% false negative rate for detecting an ISDE, which can be easily recognised with a considerably greater sensitivity and specificity by MRI of the brain [2, 4, 5]. It is critical to diagnose ISDE early since untreated ISDE can lead to serious complications such as seizures, septic sinus thrombosis, infarctions, septic shock, and even death [2]. Given the lack of sensitive and specific clinical signs of ISDE, a low threshold for obtaining an early MR of the brain is critical for facilitating a prompt diagnosis and treatment, particularly in patients who have had previous procedures and have findings on a CT of the brain suggesting a recurrent chronic subdural hematoma.

CONCLUSION

Sensory changes, fever, vomiting, and headache should prompt clinicians to consider ISDE as a possibility. The source of the patient's infection should be determined by a history of neurosurgery, paranasal sinus infection, otitis media, or skull trauma. In suspected ISDE patients, empirical antibiotic therapy should be initiated and adjusted as sensitivities are determined, with craniotomy as the last treatment option. Seizure prophylaxis is widely utilized, however seizures can still occur, necessitating more research into the best seizure prophylaxis.

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