A Rare Presentation of Pyrexia of Unknown Origin as Subdural Empyema in a Tertiary Care Hospital – A Case Report

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ABSTRACT

Hospital visit in pediatric population is most commonly due to fever. It causes considerable anxiety in parents especially when the cause of fever is unknown. Infections are the most common cause of fever in children. Fever is often due to self-limited viral infection but in certain cases it may be a sign of serious underlying bacterial infection like Pneumonia; UTI; Meningitis; Osteomyelitis; Arthritis; Empyema and Enteritis.

Routine laboratory investigations aids in identifying the cause of fever. However in a minority of patient’s extensive investigations including invasive procedures may be needed to identify cause of fever. Subdural Empyema is a very rare condition in children. Fever, altered mental status, headache, seizures and focal neurological deficit are the common presenting complaints in a child with subdural empyema. In this case report we present a 5 year old male child who had fever of unknown origin without neurological complaints or predisposing factors and who was diagnosed with subdural empyema

Keywords: Fever, subdural empyema, fever of unknown origin

INTRODUCTION

Fever is a common complaint in infants and children and represents 10.5-25% of pediatric emergency department visit. In most patients the cause of fever can be found with a detailed history, physical examination and routine laboratory tests. However in 5-40% patients the cause of fever still remains unknown.

Infection remains the most common cause of fever of unknown origin. The proportion of cases of immune deficiency disorders, collagen tissue disorder and Neoplasia as a cause of fever are on the rise. Unusual reasons for fever such as central fever, diabetes Insipidus, familial Mediterranean fever, Kawasaki disease, foreign body in the respiratory system are far and few in between.

Age plays a very important role in the diagnosis of prolonged fever, while some basic laboratory tests might give clue in the evaluation and may suggest a nearing diagnosis.

Subdural Empyema is a very rare condition in children with mortality range of 10-20%. It is a collection of pus in the space between the outermost layers of the meninges the Dura and the Arachonoid. Sinusitis is the most common predisposing factor for subdural empyema.

The commonest clinical presentation is a triad of fever, sinusitis and neurological deficit with fulminant and rapid downhill course. Other symptoms include headache nausea/vomiting, first time seizures and mental status changes. In conditions of prolonged fever...
in a patient without neurologic signs and symptoms this diagnosis is often missed and this intends to highlight the necessity of investigations in this regard.

CASE REPORT

A 5 year old male child was brought to the hospital with a 2 months history of low grade continuous fever with intermittent high grade fever. There was no history of cough, cold, ear discharge, vomiting, diarrhea, pain abdomen; burning micturition. On examination the child had pallor with both height and weight less than 3rd centile for his age. Rest of the physical examination was unremarkable. There were no signs of meningeal irritation. Systemic examination was normal.

On investigation the child CBP showed Hb of 5.2gm/dl with WBC count of 10,000 cells/mm3 (56% of polymorphonuclear leukocytes) ESR was 120 mm/hr, C-reactive protein was 111 mg/l, peripheral smear showed dimorphic anemia with no atypical cells or sickle cells. After sending blood and urine culture the child was started with empirical IV cefotaxime.

WIDAL test, RDT for malaria, aso-titre, RF factor, anti-nuclear antibody (ANA) Mantoux test were negative. Hemoglobin electrophoresis was normal. Ultra sound abdomen was normal with no intra abdominal abscess or features suggestive of cystitis. Lumbar puncture findings were within normal limits, Iron profile showed picture of iron deficiency anemia.

Bone marrow examination showed normal picture with no atypical cells or blast cells in smear. As the fever spike were persisting despite antibiotics with no source of infection an MRI-brain was planned to rule out intracranial pathology despite absence of features of intracranial pathology like headache, vomiting or altered sensorium. MRI showed right sided subdural Empyema of 0.8 X 1.2 cm in size (Figure 1 & 2) which was managed conservatively with Parenteral vancomycin and Meropenem as advised by Neurosurgical consultation.

The child showed remarkable improvement with subsidence of fever within 48 hours and afebrile since then generalized well being improved and the child was discharged.

DISCUSSION

Subdural empyema represents collection of pus between the Dura and the Arachnoid layers of the meninges. Stephanov et al (1979) described it “as the most imperative of neurological emergencies” it is usually unilateral and cryptogenic in 15% of infants and young children.[3]

Subdural empyema most often occurs as a complication of meningitis and it should be differentiated from reactive subdural effusion. In older children and adult it occurs as a complication of Para nasal sinusitis, Otitis media or mastoiditis.[6]

It is more common in males who account for 80% of cases. It is more common between 2nd and 4th decade of life.[7] The oral commensal streptococcus anginosus groups (SAG) are the most commonly encountered causative organisms.[8] The other causative organisms are anaerobic and aerobic streptococci, staphylococci, Hemophilus influenza and other gram negative bacilli.

The clinical manifestations of the subdural empyema reflect the underlying pathophysiological process such as meningeal irritation, cerebral edema, increased intracranial pressure and mass effect. The usual symptoms are headache, fever, vomiting, lethargy, neck stiffness, seizures and focal neurological deficit.

Unlike other sinogenic intracranial complications such as epidural and intracranial abscess, the subdural empyema has fulminant clinical course due to rapid spread of purulence in a space that lacks anatomical constraints. Long term sequel of subdural empyema include hydrocephalus, residual hemiparesis and epilepsy.

CT is the imaging modality of choice when immediate surgical management is contemplated. MRI is the gold standard in evaluating intracranial infections. The subdural Empyema is often hyperintense on diffusion weighted imaging. This feature differentiates it from epidural empyema and subdural effusion which follows CSF signal on DWI.[9]

Medical management of subdural empyema includes early initiation of antibiotic therapy, anti edema measures and treatment of associated seizures. Early surgical intervention by Burr hole or craniotomy evaluation is the key to timely recovery and salvage of maximal neurological functions.

Subdural empyema will usually present to general pediatrician. Non specific initial presentation vague neurological signs and unremarkable initial imaging examination can potentially delay the diagnosis of this rapidly progressing entity. High index of clinical suspicion and prudent use of imaging are essential for appropriate management of this dreaded complication.

CONFLICT OF INTEREST:
The authors declared no conflict of interest.

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REFERENCES


