# Interhemispheric subdural empyema

**Awadhesh Kumar Jaiswal, Kumar Sushil*, Singh Anil Kumar, Bundela Yash Pal**

**Abstract:** The authors describe two cases of interhemispheric subdural empyema. Both presented with fever, headache and seizures. Imaging revealed interhemispheric subdural empyema. Aspiration of empyema through a burr hole was done in both cases with good postoperative recovery. *(p124-125)*

***Key words:*** *Empyema, subdural, abscess and interhemisphere*

## Introduction

Interhemispherical subdural empyema is an uncommon condition.[6] Only a few series are available regarding this entity.[6,8] In this report, we describe two cases of interhemispheric subdural empyema.

***Case 1*:** A 21-year-old male presented with history of fever and headache for one month and one episode of left focal seizure two days prior. He had history of cerebrospinal fluid proven pyogenic meningitis 3 months previously. There was no history of ear discharge or sinusitis. Examination revealed no neurological deficit. Contrast enhanced computerized tomography (CT) showed interhemispheric subdural empyema in posterior one third region (Fig. 1). Right occipital burr hole and evacuation of pus was done under local anaesthesia. Pus culture grew streptococcus fecalis and the patient received appropriate antibiotics for 8 weeks. He improved symptomatically and was discharged on 7$^{th}$ postoperative day.

***Case 2:*** A 14-year-old boy was admitted with history of fever and headache for 20 days, plus two episodes of left focal seizures in one week. Again, there was no history of ear discharge or sinusitis and neurological examination was unremarkable. Contrast enhanced CT and magnetic resonance imaging (MRI) showed interhemispheric subdural empyema in right frontal region (Fig. 2). Right frontal burr hole and evacuation of pus was done under local anaesthesia. Pus culture grew staphylococcus aureus and antibiotics according to the culture sensitivity were prescribed for 8 weeks. Following this, patient's headache

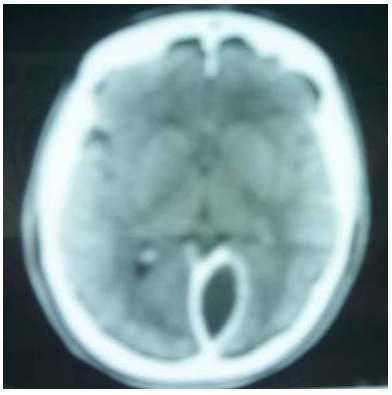

**Figure 1** - Contrast enhanced CT scan axial section showing interhemispheric subdural empyema in posterior one third region.

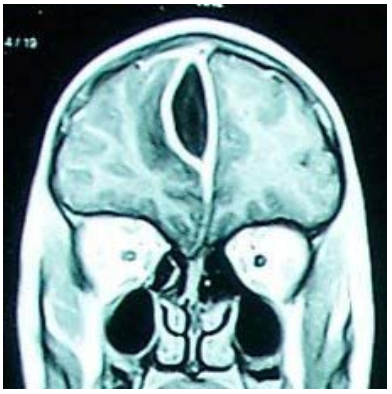

**Figure 2** - Contrast enhanced MRI scan coronal section showing interhemispheric subdural empyema in anterior one third region.

Department of Neurosurgery
GB Pant Hospital
New Delhi
India

*Department of Neurosurgery
St. Stephen's Hospital
New Delhi
India

***Correspondence:***
Dr. Awadhesh Kumar Jaiswal
Department of Neurosurgery
Sanjay Gandhi Postgraduate Institute of Medical Sciences
Lucknow, UP-226014
India
Email: jaiswal_dr_2002@yahoo.co.in

and fever subsided and he was discharged on 5th post-operative day.

## Discussion

Subdural empyema represents 13 - 20% of all intracranial suppurations.[8] It commonly occurs as a complication of adjacent infections in paranasal sinuses and middle ear, but, less commonly, following a penetrating wound, bullet injury, meningitis or procedures such as intracranial pressure (ICP) monitoring and craniotomy, or after drainage of a subdural haematoma.[1] A thorough clinical evaluation including paranasal sinuses for any sinusitis, oral cavity for any oro-dental infection and middle ear for any pyogenic infection are necessary to find out the primary source of infection. In cases where no apparent focus of infection is found, the possibility of a past history of meningitis should be considered.[8]

In Case 1, the empyema was following an episode of meningitis and in Case 2 no apparent cause was found. Probably inadequately treated meningitis may be a possible cause of developing interhemispheric subdural empyema following meningitis as in Case 1. In Case 2, no definite predisposing factor could be identified despite thorough evaluation. Almost 80% of subdural empyema occurs over the cerebral convexities and 12% in the interhemispheric fissure.[10] Only a few series are available about this entity.[6,9] Patients of interhemispheric subdural empyema usually present with features of raised ICP, cerebral falx syndrome and focal seizure.[6] Our cases presented in a similar manner. Contrast enhanced CT or MRI are the best investigations for accurate diagnosis.[3,7] Yerdura, et al described the angiographic diagnosis of interhemispheric subdural empyema.[11] The spindle shape of the empyema on imaging was determined by the confining boundaries of neo-vascularization in the abscess capsule and compression of cerebral tissue on the other.[10] Hypermia in the normal adjacent brain also plays a role in outlining the interhemispheric mass. Usually, the empyema collects below and to either side of the falx.[4,5] Superior sagittal sinus may be displaced away from the inner table of the skull. Yende and Mohanty reported a case of massive intra-falx empyema with multiple cavitations associated with thrombosis of the superior sagittal sinus.[10]

## Conclusion

Surgery through a cranial burr hole or excision of abscess followed by appropriate antibiotic, according to culture and sensitivity, is the recommended treatment for this condition.[6] Antibiotics should be continued systemically for 3 - 4 weeks and followed by oral antibiotics for another 4 weeks to avoid recurrence of the disease.[2] Both of our cases received antibiotics for 8 weeks. Detailed clinical examination and serial CT or MRI imaging is advisable in the follow-up period to confirm positive results of therapy.

Mortality still remains high (25 - 38%) and is influenced by age of the patient, preoperative course and neurological status of the disease, aetiological factors, localization of the abscess, possible diagnostic failure and postoperative complications.[1]

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