Infected subdural hematoma

The infection of a subdural hematoma is an unusual cause of subdural empyema with fewer than 50 cases reported in the literature.

Differential diagnosis

To distinguish ISH from CSH, Tamai et al. focused on three specific radiological features: the biconvex shape of the hematoma, presence of a high-density region at the lower end of the hematoma on plain computed tomography (CT), and presence of a hyperintense signal within the hematoma on Diffusion-weighted magnetic resonance imaging (DWI).

They analyzed 30 ISH (current and previously reported) and 102 CSH cases. They found no statistically significant associations between the hematoma type (ISH or CSH) and the presence of a high-density region at the lower end of the hematoma on plain CT ($p = 0.13$) or the presence of hyperintensity in the hematoma on DWI ($p = 1.00$). Conversely, a statistically significant association was found between the hematoma type and the biconvex shape of the hematoma ($p < 0.01$).

These results suggest that the shape of the hematoma on imaging provides valuable information that can be used to differentiate ISH from CSH and optimize therapeutic approaches [1)].

Treatment

The appropriate surgical option for this entity has not been determined because of its rarity.

Case series

A study examined ISH cases and chronic subdural hematoma (CSH) cases that underwent surgery at the Ishikawa Prefectural Central Hospital between January 2016 and March 2018. To distinguish ISH from CSH, they focused on three specific radiological features: the biconvex shape of the hematoma, presence of a high-density region at the lower end of the hematoma on plain computed tomography (CT), and presence of a hyperintense signal within the hematoma on diffusion-weighted imaging (DWI).

They analyzed 30 ISH (current and previously reported) and 102 CSH cases. They found no statistically significant associations between the hematoma type (ISH or CSH) and the presence of a high-density region at the lower end of the hematoma on plain CT ($p = 0.13$) or the presence of hyperintensity in the hematoma on DWI ($p = 1.00$). Conversely, a statistically significant association was found between the hematoma type and the biconvex shape of the hematoma ($p < 0.01$).

These results suggest that the shape of the hematoma on imaging provides valuable information that can be used to differentiate ISH from CSH and optimize therapeutic approaches [2)].

Case reports

A 76-year-old man was admitted to the Tochigi Medical Center Shimotsuga, Japan. hospital with a headache, loss of appetite, and nausea. Computed tomography revealed bilateral subdural hematoma treated by burr hole drainage. A hematoma with pus was found on the left side and the chronic hematoma was found on the right side. Consequently, they diagnosed him with ISH on the left side and chronic subdural hematoma on the right side. Edwardsiella tarda was detected in culture from the hematoma with pus on the left side. As postoperative antibiotic therapy, they administered ceftriaxone and metronidazole for 47 days. The patient was discharged with no residual neurological deficit.

This case implied that favorable outcomes can be obtained by drainage and appropriate antibiotic therapy for ISH caused by E. tarda.

Dabdoub et al. presented a case report of a post-traumatic subdural hematoma infected with Escherichia coli that was successfully treated with craniotomy. In addition, we performed a PubMed search to comprehensively illustrate the causative organism, source of infection, clinical picture, surgical treatment, and outcome for this condition. This article represents an update on the condition.

A 55-year-old man was admitted to our hospital complaining of headache, seizure, and urinary incontinence. He had a history of alcoholism and several hospitalizations for mild head trauma. Neuroimaging studies revealed a chronic hematic collection in the left frontal-parietal region. Laboratory tests showed increased C-reactive protein levels. In addition, surgical results revealed an infected subdural hematoma. A bacterial culture of the purulent specimen identified Escherichia coli. In view of the urinary complaint and leukocyturia, the etiology of the infected subdural hematoma was postulated as a urinary tract infection.

Infected subdural hematoma is an unusual disorder. We must keep in mind the possibility of this complication when seeing a patient who present with any of the three most common symptoms in this review. In these patients, craniotomy should be the method of surgical drainage, especially in adults. It ensures maximal drainage of the loculated pus and allows the total removal of the infected hematoma capsule [3].

References

[1], [2]
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[3]
Dabdoub CB, Adorno JO, Urbano J, Silveira EN, Orlandi BM. Review of the Management of Infected Subdural Hematoma. World Neurosurg. 2015 Nov 13. pii: S1878-8750(15)01532-6. doi: 10.1016/j.wneu.2015.11.015. [Epub ahead of print] PubMed PMID: 26585725.