Spinal subdural hematoma

Epidemiology

Spinal subdural hematomas are a rare entity, much more so than spinal epidural hematomas. In a meta-analysis of over 600 spinal hematomas, only 4% were subdural [1].

Classification

Spontaneous spinal subdural hematoma

Traumatic spinal subdural hematoma

Spinal chronic subdural hematoma.

Etiology

Factors that predispose to subdural hematoma include:

Coagulopathy

Anticoagulant therapy:

Till 2015, only three published cases report the incidence of rivaroxaban-induced nontraumatic spinal subdural hematoma (SSDH) [2]

Spinal vascular malformations

Percutaneous spinal intervention

Back surgery

Trauma uncommon cause

A combination of any of the above

Clinical features

Symptoms are those of spinal cord compression or cauda equina syndrome, often presenting initially as back pain and/or radicular pain. Symptoms tend to develop more rapidly with subdural hematomas [3].

Diagnosis

Spinal subdural hematoma diagnosis.

Differential diagnosis

It is important to distinguish between subdural hematomas and other entities which can occupy the spinal subdural space:

Spinal subdural empyema: rare

Different history and clinical picture, including fever local extension or haematogenous spread, or iatrogenic behaves differently on MRI

Spinal subdural hygroma: CSF collection Appears as clumping of nerve roots in shape of inverted Mercedes-Benz sign

Injury to dura mater may be directly detected

Large hygroma can show MRI signs of craniospinal hypotension:

dural venous distension

pachymeningeal enhancement

decreased pontomesencephalic angle

Epidural lipomatosis: fat-sat sequences will help differentiation between early subacute SSDH and lipomatosis

Intradural-extramedullary mass: meningiomas and nerve sheath tumors (both common) enhance avidly, while arachnoid cysts follow CSF signal on all sequences

Arachnoiditis: nerve root clumping surrounded entirely by CSF (i.e. not the inverted Mercedes-Benz appearance)

Treatment

Conservative treatment with watchful waiting (i.e. follow-up with serial MRIs) is acceptable for small collections. In case of significant neurologic defects, laminectomy with clot evacuation is done.

Outcome

Although prompt diagnosis and emergent surgical intervention are important in acute spinal subdural hematoma (SSDH), some cases with spontaneous remission of symptom and hematoma without surgery have been reported.

Cervical and thoracic SSDH are associated with a worse outcome than lumbar SSDH, as is coexisting spinal subarachnoid hematoma (SSAH).

Case reports

Farzan A, Pourbakhtyaran E, Moosavian T, Moosavian H. Spinal Subdural Hematomas in a Normal Child without Trauma History: A Case Report. Iran J Child Neurol. 2019 Summer;13(3):121-124. PubMed PMID: 31327977; PubMed Central PMCID: PMC6586447.

1)
Kreppel D, Antoniadis G, Seeling W. Spinal hematoma: a literature survey with meta-analysis of 613 patients. Neurosurg Rev. 2003 Jan;26(1):1-49. Epub 2002 Sep 24. Review. PubMed PMID: 12520314.
2)
Zaarour M, Hassan S, Thumallapally N, Dai Q. Rivaroxaban-Induced Nontraumatic Spinal Subdural Hematoma: An Uncommon Yet Life-Threatening Complication. Case Rep Hematol. 2015;2015:275380. doi: 10.1155/2015/275380. Epub 2015 Oct 12. PubMed PMID: 26543654; PubMed Central PMCID: PMC4620391.
3)
Pierce JL, Donahue JH, Nacey NC, Quirk CR, Perry MT, Faulconer N, Falkowski GA, Maldonado MD, Shaeffer CA, Shen FH. Spinal Hematomas: What a Radiologist Needs to Know. Radiographics. 2018 Sep-Oct;38(5):1516-1535. doi: 10.1148/rg.2018180099. Review. PubMed PMID: 30207937.