Spontaneous spinal subdural hematoma



Spontaneous spinal subdural hematomas are extremely rare.

A nontraumatic acute spontaneous spinal subdural hematoma (sSDH) is a rare complication after spinal surgery. Although an sSDH is often associated with anticoagulation therapy, vascular malformations, or lumbar puncture, the pathogenesis of nontraumatic spontaneous sSDH remains unclear ¹⁾

Spontaneous spinal subdural hematoma after anticoagulation therapy

In the majority of cases, spontaneous hematomas are idiopathic. However, when attributed to anticoagulation therapy coumarins are more common than direct factor Xa inhibitors such as apixaban. Previous reports have linked direct factor Xa inhibitors with intracranial subdural hematomas much more frequently than spinal subdural hematomas. The manifestation of severe neurological deficits, such as sensorimotor disturbances and loss of sphincter control, is common and is considered a surgical emergency ²⁾.

An 82-year-old patient with a history of ischemic heart disease and atrial fibrillation under acenocoumarol was admitted to emergency department with sudden onset of paraplegia and intense back pain associated with urinary incontinence and anal sphincter disorder. On examination his lower limb power was MRC grade 0 out of 5 in all ranges of movement bilaterally and a complete bilateral anesthesia reaching the T12 dermatome was noted. Biological test results showed an International Normalized Ratio at 10. Magnetic resonance imaging revealed a posteriorly located spinal hematoma at T12 level, measuring 36 mm with spinal cord compression. After correction of hemostasis disorders the patient was admitted to the operating room for a T11-L1 laminectomy with evacuation of the

subdural hematoma. Muscle power showed a gradual improvement in the lower limbs estimated at 3/5 with regression of sphincter disorders but unfortunately a sequellar sensory impairment persisted.

SSH is a rare situation of acenocoumarol bleeding incident, it should be evoked in any patient treated by this molecule with signs of spinal cord compression $^{3)}$.

A case of a patient with a spontaneous spinal thoracic subdural hematoma secondary to apixaban use with loss of sphincter control and paraplegia. After 6 months of follow-up, the patient recovered completely $^{4)}$.

Aneurysmal Subarachnoid Hemorrhage with Spinal Subdural Hematoma

Spinal subdural hematoma (S-SDH) rarely occurs after aneurysmal subarachnoid hemorrhage (SAH). Little information is known regarding the management and prognosis of patients with both S-SDH and SAH. Here, we present an illustrative Case and provide a systematic review of S-SDH in the setting of SAH. METHODS:

A systematic literature review using PRISMA guidelines revealed 11 previous cases of concurrent intracranial SAH and spinal SDH, which are presented with our new reported Case. RESULTS:

Intracranial sources of spontaneous SAH included 8 aneurysms, 1 pseudoaneurysm, and 3 angiogram negative cases. Hunt Hess grade ranged from 1-4, mean time between SAH and S-SDH was 5.8 days, and S-SDH presented most frequently in the lumbar spine. 8 patients showed significant to complete clinical recovery, 2 had continued plegia of the lower extremities, and 2 expired. Modified Rankin score ranged from 0-6, with mRS > 2 for 4 out of 12 patients. Patients with a poor clinical outcome (mRS > 2) had an initially negative cerebral angiogram, earlier presentation with less time between SAH and S-SDH (0.8 vs 7.6 days), use of antithrombotic medication, no diversion of CSF, and cervical or thoracic S-SDH. CONCLUSION:

S-SDH is an uncommon occurrence in the setting of aneurysmal SAH with better outcomes associated with lumbar location, delayed presentation, CSF diversion, and lack of antithrombotic use. Conservative treatment may be sufficient in cases with delayed S-SDH and lack of significant neurological deficits. More reported cases will allow greater understanding of this clinical entity ⁵.

Treatment

Surgical intervention is recommended in patients presenting with severe neurologic deficits. Conservative treatment is a reasonable option for asymptomatic patients ⁶⁾.

Case reports

Raymaekers et al. presented the case of an intradural hematoma after an extraforaminal surgery through the Wiltse approach for an extraforaminal disk herniation at L5/S1. This 58-year-old woman experienced hypoesthesia and progressive motor dysfunction in the left leg several hours postoperation. Urgent magnetic resonance imaging revealed an intradural hematoma at the L1/L2 to L2/L3 level in the ventral dural sac proximal to the surgical level. Surgical decompression was performed. There was no evidence of trauma, coagulopathy, or anticoagulation therapy. To our knowledge, this case is the first to report an acute sSDH proximal to the surgery level after an extraforaminal spinal surgery through the Wiltse approach for an extraforaminal disk herniation. It illustrates that attentive postoperative neurologic monitoring, even in the absence of intraoperative irregularities, remains important to diagnose and treat this complication at the early stage ⁷⁾

A 55-year-old woman without malignancy or coagulopathy history presented with progressive low back pain for the past 2 weeks. Progressive bilateral leg weakness happened 1 week ago. On the day she called for help, she presented with bilateral leg grade 2 muscle power and generalized back pain. There was no headache or meningeal sign. An absent bilateral knee reflex was found. Magnetic resonance imaging showed a space-occupying lesion at the T2-T6 and T12-L1 levels in the ventral and dorsal spinal canal, leading to cord compression. Due to rapid neurologic function deterioration, emergent T12-L1 laminectomy was performed. We found a T12-L1 tense dura sac with subdural hematoma ventral to the cord. Removal of the SDH was performed. T2-T6 levels were treated conservatively. She returned ambulant 1 week after operation. Magnetic resonance images at 3 months and 1 year later showed the SDH being absorbed and replaced by adhesive arachnoid cysts along the whole T and L spine. However, these lesions are asymptomatic for at least 2 years⁸.

Sanchez et al. reported a case of Reverse Takotsubo Cardiomyopathy in an otherwise healthy 23year-old man presenting with back pain, urinary retention, bradycardia, and hypertension. Troponin levels and brain natriuretic peptide (BNP) were elevated, and echocardiogram revealed an ejection fraction (EF) of less than 20%. In addition, MRI demonstrated a spinal subdural hematoma from T1-S1 with no cord compression. Repeated echocardiogram demonstrated an EF of 20-25% with a reverse Takotsubo pattern of cardiomyopathy. With supportive care, his clinical picture improved with normalization of cardiac enzyme and BNP values. This case represents a r-TTC presenting as heart failure in a young, apparently healthy male likely incited by a spinal subdural hematoma. To our knowledge, it is the first of its kind reported ⁹.

A 7-yr old girl presented to Neurology Department, Mofid Hospital, ShahidBeheshti University of Medical Sciences, Tehran, Iran with limping and pain in lower extremities and acute paraplegia without history of direct trauma. The patient had muscle weakness in lower limbs and was unable to bear weight. Deep Tendon Reflexes (DTR) in lower extremities had increased. Her MRI showed spinal subdural hematoma we reextended from T2 to T6. We performed laminectomy from T2 to T5 and about 70 cc of subdural hematoma was evacuated. One month after the surgery, the patient's neurological deficit resolved completely. The results showed the pivotal role of attention to clinical manifestation in acute spinal subdural hematoma and early diagnosis to prevent irreversible neurologic complication ¹⁰

Spinal subdural hematoma in pediatric nonaccidental trauma¹¹

A case of spontaneous, atraumatic subdural hematoma involving the thoracic region in an 80-year-old woman on warfarin is reported. The patient presented with gross motor and sensory loss, delayed onset of incontinence, and no other symptoms. An MRI suggested an epidural hematoma concentrated around the T4-T9 levels. She was taken emergently to the OR approximately 30 hours after the initial onset of symptoms for a T3-T11 laminectomy. No epidural hematoma was noted. However, discoloration and bulging of the thecal sac were noted, and the dura was incised longitudinally from T2 to T10 revealing an expansive jelly-like blood clot which was evacuated. Postoperatively, the patient had regained 1/2 sensory function in the bilateral lower extremities. At the 2-week mark, the patient was still incontinent and showed 2/2 sensory and 2/5 motor functions in select muscle groups in her bilateral lower extremities. Completely nontraumatic, spontaneous subdural hematomas of the spine are very rare, and early surgical decompression within 24 hours from symptom onset may allow neurological recovery. Large extensive laminectomies up to 10 thoracic levels have been shown to be safe and effective in a few cases, including our case ¹²⁾.

Acute lumbar spinal subdural hematoma inducing paraplegia after lumbar spinal manipulation ¹³.

Cases of non-traumatic spinal subdural hematoma accompanied by intracranial hemorrhage are even more rare. There are a few reports of spontaneous spinal subdural hematoma with concomitant intracranial subdural or subarachnoid hemorrhage, but not with intracerebral hemorrhage. Especially in a case of Lee et al., the evaluation and diagnosis were delayed because the spontaneous intracerebral hemorrhage accompanying the unilateral spinal subdural and subarachnoid hemorrhages caused hemiplegia. They reported a case of spinal subdural and subarachnoid hemorrhage with concomitant intracerebral hemorrhage, for the first time, with a relevant literature review ¹⁴.

A 76-year-old woman with a spinal subdural hematoma (SDH) was presented with severe back pain without headache. Magnetic resonance imaging (MRI) performed 4 days after onset showed SDH extending from Th2 to L3. She was diagnosed with spontaneous SDH without neurological manifestation, and conservative treatment was selected. Transient disturbance of orientation appeared 7 days after onset. Small subarachnoid hemorrhage (SAH) was detected on head CT, and strict antihypertensive therapy was started. Symptoms changed for the better. Back pain disappeared 4 weeks after onset. On follow-up MRI at 6 months after onset, the SDH had been resolved spontaneously. Although adhesive arachnoiditis was observed at Th4-6, the recurrence of clinical symptoms was not observed at one year and a half after onset. Spinal subdural space is almost avascular; a hematoma in a subdural space is considered to come from a subarachnoid space when it is a lot. A hemorrhage in subarachnoid space was flushed by cerebral spinal fluid; hematoma or arachnoiditis was not formed in general. In this case, hemorrhage was a lot and expansion of SDH was large enough to cause cranial SAH and arachnoiditis. But longitudinally expanded SDH did not show neurological manifestation and resolved spontaneously ¹⁵⁾.

A 38-year-old male patient presented with sudden lower back and bilateral leg pain.

A magnetic resonance imaging (MRI) scan on the third day after the onset of symptoms revealed a subdural hematoma from L1 to S1, presenting as hyperintensities on T1 weighted sequences and hypointensities to isointensities on T2 weighted sequences.

Laminectomy and subdural evacuation were performed immediately.

An abnormal ligamentum flavum was observed intraoperatively. A histological examination revealed extravasation of blood in the degenerated ligamentum flavum. Postoperatively, the lower limb pain improved immediately. At the 6-month follow-up, the pain and numbness of the lower limb disappeared, and the muscle strength of both legs recovered completely with normal gait.

Spontaneous SSDH with ligamentum flavum hematoma was caused by a sudden increase of intravenous pressure, resulting from a marked surge in the intra-abdominal or intrathoracic pressure. Consecutive MRI scans provided valuable information, leading to a diagnosis of spontaneous SSDH ¹⁶.

Oh et al. presented a case of acute nontraumatic SSDH presenting with transient left hemiplegia for 4 hours. A magnetic resonance imaging study of cervical spine confirmed SSDH with C3-6 cervical cord compression at the left side. The patient had conservative management without recurrence. Although hemiplegia is an unusual clinical manifestation of SSDH, it should be differentiated from that of cerebrovascular origin promptly. Conservative management may be an alternative therapeutic option for selective cases with transient neurological deficits ¹⁷⁾.

References

1) 7)

Raymaekers V, Beck T, Goebel S, Janssens F, Van den Branden L, Menovsky T, Plazier M. An Acute Spinal Intradural Hematoma after an Extraforaminal Wiltse Approach: A Case Report and Review of the Literature. J Neurol Surg A Cent Eur Neurosurg. 2020 Oct 21. doi: 10.1055/s-0040-1714432. Epub ahead of print. PMID: 33086421.

2) 4)

Ardebol J, Cahueque M, Lopez W, Azmitia E. Spontaneous thoracic spinal subdural hematoma associated with apixaban therapy. J Surg Case Rep. 2019 Apr 27;2019(4):rjz115. doi: 10.1093/jscr/rjz115. eCollection 2019 Apr. PubMed PMID: 31044059; PubMed Central PMCID: PMC6486654.

Aissa I, Elkoundi A, Andalousi R, Benakrout A, Chlouchi A, Moutaoukil M, Laaguili J, Bensghir M, Balkhi H, Lalaoui SJ. Unusual localization of bleeding under acenocoumarol: Spinal subdural hematoma. Int J Surg Case Rep. 2019;59:15-18. doi: 10.1016/j.ijscr.2019.04.053. Epub 2019 May 10. PubMed PMID: 31100481; PubMed Central PMCID: PMC6522769.

Rothrock RJ, Li AY, Rumsey J, Fifi JT, Kellner CP, Roonprapunt C. Aneurysmal Subarachnoid Hemorrhage with Spinal Subdural Hematoma: A Case Report and Systematic Review of the Literature. World Neurosurg. 2019 May 16. pii: S1878-8750(19)31343-9. doi: 10.1016/j.wneu.2019.05.069. [Epub ahead of print] Review. PubMed PMID: 31103768.

Gan CW, Chen SY, Chang CS, Liu JD. Spontaneous Spinal Subdural Hematoma: Case Report of 2 Years' Clinical and Radiologic Findings. World Neurosurg. 2019 Jul;127:275-278. doi: 10.1016/j.wneu.2019.04.063. Epub 2019 Apr 13. PubMed PMID: 30986583.

Sanchez K, Glener S, Esplin NE, Okorie ON, Parikh A. A Case of Reverse Takotsubo Cardiomyopathy Incited by a Spinal Subdural Hematoma. Case Rep Neurol Med. 2019 Jul 22;2019:9285460. doi: 10.1155/2019/9285460. eCollection 2019. PubMed PMID: 31428488; PubMed Central PMCID: PMC6679891.

10)

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.

11)

Hong CS, Camara-Quintana J, Kundishora AJ, Diluna ML, Kahle KT. Teaching NeuroImages: Spinal subdural hematoma in pediatric nonaccidental trauma. Neurology. 2019 Jul 30;93(5):e522-e523. doi: 10.1212/WNL.00000000007869. PubMed PMID: 31358679.

12)

Arain AR, Moral M, Shams S, Desai K, Kalsa K. Atypical Presentation of Atraumatic Spinal Subdural Hematoma Associated with Warfarin: A Case Report and Review of the Literature. Case Rep Orthop. 2019 May 20;2019:4037916. doi: 10.1155/2019/4037916. eCollection 2019. PubMed PMID: 31236299; PubMed Central PMCID: PMC6545747.

13)

Benyaich Z, Laghmari M, Lmejjati M, Aniba K, Ghannane H, Benali SA. Acute lumbar spinal subdural hematoma inducing paraplegia after lumbar spinal manipulation: A case report and literature review. World Neurosurg. 2019 May 9. pii: S1878-8750(19)31275-6. doi: 10.1016/j.wneu.2019.05.002. [Epub ahead of print] PubMed PMID: 31078801.

Lee Y, Lim J, Han S, Choi SW, Youm JY, Koh HS. Spontaneous Spinal Subdural and Subarachnoid Hemorrhage with Concomitant Intracerebral Hemorrhage: A Case Report. Korean J Neurotrauma. 2019 Apr 19;15(1):34-37. doi: 10.13004/kjnt.2019.15.e7. eCollection 2019 Apr. PubMed PMID: 31098347; PubMed Central PMCID: PMC6495584.

Go T, Tsutsui T, Iida Y, Fukutake K, Fukano R, Ishigaki K, Tsuchiya K, Takahashi H. A Case of Spontaneous Spinal Subdural Hematoma Complicated by Cranial Subarachnoid Hemorrhage and Spinal Adhesive Arachnoiditis. Case Rep Orthop. 2019 Mar 13;2019:7384701. doi: 10.1155/2019/7384701. eCollection 2019. PubMed PMID: 31001442; PubMed Central PMCID: PMC6436331.

16)

Li X, Yang G, Wen Z, Lou X, Lin X. Surgical treatment of progressive cauda equina compression caused by spontaneous spinal subdural hematoma: A case report. Medicine (Baltimore). 2019 Mar;98(12):e14598. doi: 10.1097/MD.00000000014598. PubMed PMID: 30896615.

Oh SH, Han IB, Koo YH, Kim OJ. Acute spinal subdural hematoma presenting with spontaneously resolving hemiplegia. J Korean Neurosurg Soc. 2009 Jun;45(6):390-3. doi: 10.3340/jkns.2009.45.6.390. Epub 2009 Jun 30. PubMed PMID: 19609426; PubMed Central PMCID: PMC2711240.

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