Concurrent occurrence of subdural hematoma (SDH) in the cranial as well as spinal compartment of craniospinal axis is extremely uncommon. In a detailed PubMed/Medline search, we could find only four cases of spontaneous concurrent craniospinal SDH, and adding our one case to the preexisting literature and thus reviewing total five cases. Spontaneous concurrent intraspinal and intracranial subdural hematoma affected exclusively male in their fourth to fifth decades of life with a mean age of 37.4 years (range 14–59 years). Four cases were managed conservatively and one case needed evacuation of spinal SDH. All cases had good outcome. The authors report an interesting case of spontaneous occurrence of concurrent craniospinal SDH in a boy, who was managed successfully with symptomatic treatment along with blood and blood product transfusion without need of surgical intervention. To the best of authors’ knowledge, current case represents first of its kind occurring in pediatric age in the Western literature. Diagnosis and management along with the pertinent literature is reviewed briefly.

Keywords: Concurrent cranial and spinal SDH, management, outcome, pediatric, spontaneous SDH

**Introduction**

Spinal subdural hematoma (SDH) is an extremely rare occurrence. Spinal SDH comprises about 6.5% of all spinal hematomas. Further, concurrent occurrence of cranial and spinal SDH is extremely uncommon.[1-8] It may occur following a trauma, vascular malformation bleeding, or bleeding disorder. Further, spinal SDH associated with concurrent intracranial SDH is extremely uncommon and to the best of authors’ knowledge only about 18 cases are reported. However, spontaneous concurrent intraspinal and intracranial subdural hematoma (SCIISDH) is extremely uncommon and only four cases are reported in the literature.[4-7,9]

**Case Illustration**

A 14-year-old boy, presented to our emergency services with sudden onset severe headache and backache for last 12 h. The headache was associated with fever and vomiting and associated severe pain over mid-back region and nape of neck; however, there was no history of fall or major trauma. He had two similar episodes of headache previously, which occurred about 7 and 4 days earlier and responded promptly to the conservative management with multiple blood transfusions and was scheduled to receive anti-thymocyte globulins as he was a known case of anaplastic anemia. He was awaiting bone marrow transplant pending suitable human leukocyte antigen–matched donor.

At the time of evaluation on admission, he was conscious and alert, febrile with stable vitals. He was markedly pale with the presence of petechial rashes present all over his body. The signs of meningeal irritations, that is, neck rigidity, Kernig’s sign, and Brudzinski’s sign, were positive. Fundus evaluation showed the presence of papilledema. He had motor power of at least 4/5 MRC grade in all limbs; however, exact assessment was not possible due to severe pain.

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Deep tendon reflexes were brisk; Babinski reflex was bilateral extensor response. Hematological examination revealed hemoglobin of 6 g/dL and platelet count was less than 10,000/dL; he was managed conservatively. The patient received repeated platelet transfusion and got relief of symptoms over weeks.

Noncontrast cranial computed-tomography scan of the head revealed the presence of SDH in bilateral frontotemporal region and posterior fossa. Magnetic resonance imaging (MRI) of the head and the spine, sagittal section [Figure 1] revealed the presence of SDH behind the clivus and over the cerebellar hemispheres and below the tentorium producing compression of the brain stem and shifted anterolaterally [Figure 2]. The hematoma of the spine was located in the cervical region and also extended up to lower dorsal spine region causing compression and displacement of spinal cord [Figure 2].

**DISCUSSION**

Spinal spontaneous SDH is a rare entity. In the literature, 18 cases of concurrent spinal SDH along with the cranial SDH have been reported. Predisposing factors for spinal SDH development include trauma, vascular malformation, coagulopathy, tumor bleeding, alcohol abuse, and iatrogenic procedures such as lumbar puncture or may be spontaneous. Simultaneous spinal and intracranial, spontaneous spinal SDH concurrent with cranial SDH is extremely rare, reported in only four patients to the best of our knowledge; none had a history of trauma or surgical procedures. However, three patients had some medical history of antiplatelet therapy, aplastic anemia, or tumor metastasis [Table 1].

The current case had no history of minor trauma but had low platelet count because of associated aplastic anemia as the predisposing factor. This case highlights the importance of evaluating the presence of spinal SDH in patients with aplastic anemia and presenting with headache and backache.

Mechanism still remains poorly understood. Hypothesis includes spinal hematoma originated from the intracranial bleeding, which was substantiated by the observation of a thin hemorrhagic collection connecting cranial and lumbar hematomas on MRI.[5] Ahn and Smith[1] reported a case harboring infratentorial and spinal SDHs following traumatic injury in a 4-year-old child who presented with a civil and spinal SDH after a fall from a fourth-story window. The pediatric case and such observed cases can present the clinician with a challenge in diagnosis and management. The authors advocated decisions regarding surgical or conservative management must be taken by clinicians, which include precise identification of location, volume of hematomas, distribution, mass effect, associated neurological deficit, progression, and response to therapy.[1]

Exact method of management of SCIISDH still remains debatable as paucity of published literature makes management challenging. The authors postulated the hypothesis that redistribution of the cranial SDH to dependent areas in the spinal subdural space is a significant mechanism in the evolution of these lesions.[1]

Bortolotti et al.[3] reported a case of subacute spinal SDH developing after spontaneous resolution of traumatic intracranial SDH in a 23-year-old woman, who developed acute intracranial SDH after a snowboarding accident. She was managed conservatively for supratentorial SDH with resulted spontaneous resolution documented radiologically.
with redistribution of blood in the subdural space. The patient started noticing new onset of mild low-back pain after 4 days of initial injury. There was no clinical or radiological evidence of spine injury. MRI of the lumbosacral spine after 10 days of injury revealed the presence of SDH over L4–S2 and underwent bilateral L5–S1 laminotomy with drainage of the subacute spinal SDH, which relieved pain. Bortolotti et al. hypothesized cases developing spinal SDH may be related to redistribution of blood from the supratentorial subdural space. Yamaguchi et al. reported a 59-year-old man presented with mild paraparesis and numbness in lower extremities. MRI showed simultaneous occurrence of cranial and spinal SDHs. The patient managed conservatively and recovered well within 1 month.

Lecouvet et al. reported a case with a history of pain, paresthesia, and weakness in both legs. MRI of the lumbar spine demonstrated subacute SDH. MRI of the brain obtained 1 day to evaluate the cause of the progressive headache showed hemorrhagic cortical metastasis and extensive SDH. Broc-Haro et al. reported a 44-year-old man with severe headache, diagnosis of subacute frontoparietotemporal SDH, and signs of lumbar radiculopathy and concluded the prognosis is proportional to the initial neurological deficit.

Moon et al. reported a 39-year-old woman, who presented with chronic spinal SDH manifesting as low-back pain and radiating pain from both legs and imaging showed spinal SDH extending over L4–S2 vertebral level leading to severe central spinal canal stenosis. One day after admission, the patient observed nausea and severe headache. Cranial noncontrast computed tomography revealed the presence of the chronic SDH associated with midline shift. Intracranial chronic SDH was managed with surgical evacuation through burr holes; however, backache and radiating leg pain subsided in about 2 weeks with resultant spinal SDH resolution and MRI obtained after 3 months during follow-up period showed complete resolution. Cui et al. reported a case of spinal SDH combined with bilateral intracranial SDH, in which the cranial lesion was detected after the evacuation of spinal SDH. The undiagnosed chronic SDH developed acute-on-chronic SDH after the evacuation of spinal SDH. Kanamaru et al. reported a 67-year female who had bilateral cranial subdural hematoma managed surgically developed delayed spinal subdural hematoma.

Table 1: Review of spontaneous cranial and spinal SDH

| S. no. | Author/reference | Year | Age (year)/sex | Radiology | Management | Outcome |
|--------|----------------|------|----------------|-----------|------------|---------|
| 1      | Yamaguchi et al. | 2005 | 59/male        | Cranial and spinal SDH | Conservative | Good |
| 2      | Broc-Haro et al. | 2008 | 44/male        | Subacute frontoparietotemporal SDH with lumbar region SDH | Conservative | Good |
| 3      | Lecouvet et al.  | 2003 | 31/male        | L2–S2 subacute SDH. MRI of the brain showed hemorrhagic cortical metastasis | Conservative | Good |
| 4      | Moon et al.      | 2013 | 39/male        | Cranial SDH with L4–S2 SDH | Cranial SDH drained with Burr Holes and spinal managed conservatively | Good |
| 5      | This case        | 2017 | 14/male        | Cranial and spinal SDH in thoracolumbar region | Conservative | Good |

Conclusion

The treating pediatrics, physicians, neurosurgeons, and neurologists should be aware of the possibility of concurrent cranial and spinal SDH. Most of the

Figure 2: An axial MRI of the brain; T1-weighted image showing the presence of SDH in the posterior fossa.
cases of SCIISDH can be managed conservatively. High degree of clinical suspicion is important for early diagnosis and prompt treatment of the cause should be carried out. Most of the cases respond very well to conservative methods; however, surgical evacuation may be needed rarely for either cranially or spinally located SDH. As spontaneous concurrent craniospinal SDH carry good outcome, special vigilance is needed for those cases of known cranial SDH developing fresh neurological deficits. Backache and radiating pain to the lower extremities should be investigated with MRI to exclude the coexisting or freshly developing spinal SDH.

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Conflicts of interest
There are no conflicts of interest.

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