International Journal of Research in Medical Sciences
Manorenj S et al. Int J Res Med Sci. 2017 Apr;5(4):1724-1725
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012
DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20171299

Letter to the Editor

Intracranial massive subdural haematoma: a potentially serious consequence of diagnostic lumbar puncture

Sir,

Intracranial subdural haematoma (SDH) is an exceptionally rare complication of lumbar puncture (LP) and cerebrospinal fluid (CSF) drainage. Post LP headache mostly has a benign course, but it can also be a manifestation of a potentially life-threatening complication such as SDH.[1,2] Only a few cases has been reported in literature.[2-4] We report a case of massive intracranial SDH in a young male following LP and CSF drainage.

A 35-year-old, male presented to the outpatient department for second opinion regarding continuation of weekly intramuscular interferon β 1a which was started by his local doctor for multiple sclerosis. He had previously acute onset quadriplegia diagnosed as short segment cervical myelitis 8 months prior, from which he had recovered completely. He has been on interferon β 1a for the past 6 months. He did not have any visual symptoms or any similar neurological events. He was non-diabetic and normotensive. His previous medical record showed abnormal magnetic resonance imaging (MRI) spine and normal visual evoked responses. Viral markers, connective tissue profile, vitamin B12 and metabolic parameters were with in normal range.

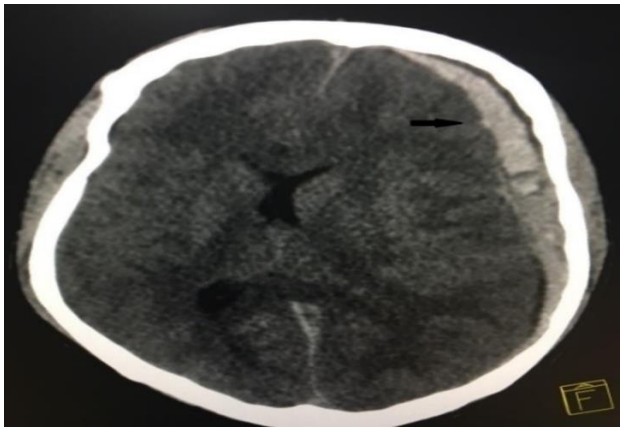

Figure 1: Computed tomography brain showing cresentic hyperdensity along the surface of left cerebral hemisphere with cerebral edema and midline shift marked with arrow suggestive of left subdural hematoma.

On examination, he was afebrile with blood pressure of 110/70mmHg, normal fundus and normal nervous system examinations. Provisionally diagnosed as prior clinically isolated syndrome and was advised admission for LP and CSF Oligoclonal bands. MRI brain, orbit and spine with contrast done were normal.

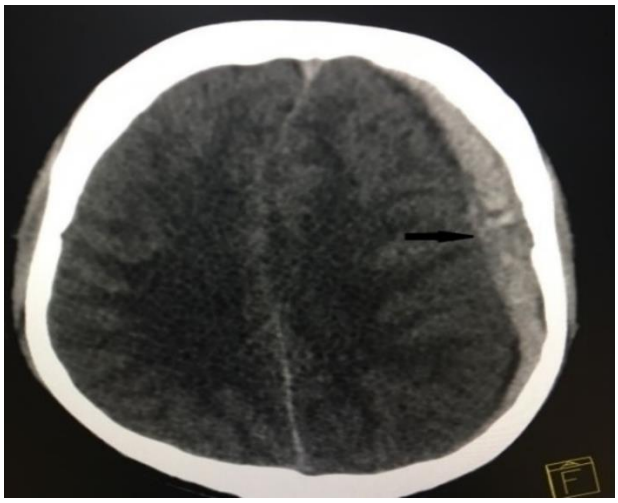

Figure 2: Computed tomography brain axial section upper cuts showing hyperdensity at the left subdural region marked with arrow suggestive of left subdural hematoma.

On second day of admission he underwent diagnostic LP, using 22-gauge LP needle in lateral decubitus position. CSF opening pressure was 8 cm water and 15 ml of CSF was drained for analysis. 18 hours following LP, patient developed severe diffuse throbbing headache with severity localized towards left hemi cranial region, partially relieved by recumbency. Post LP headache was suspected. He received conservative treatment but showed no improvement. After two hours of headache onset he deteriorated further. Developed one episode of generalized tonic clonic seizure following which blood pressure was not recordable, and saturation dropped. Glasgow coma scale (GCS) was 5 (E1M3V1) and his left pupil was dilated and not reacting to light. He was intubated and immediate computed tomography (CT) plain brain was done, which showed massive left SDH with mass effect and midline shift (Figure 1 and 2). An emergency craniotomy and evacuation of the hematoma were performed, and he recovered. Modified rankie scale at 2 months follow up was 3.

SDH is a rare complication of diagnostic LP and LP performed for spinal anaesthesia.[4,5] However a massive

intracranial SDH after diagnostic LP in an apparent normal young male in the absence of bleeding disorder has not been described previously. Cerebral SDH, spinal SDH, epidural haematoma and subarachnoid haemorrhage are the uncommon complication of commonly done LP.[2-4,6,7] Misdiagnosis of such uncommon complication could result in a catastrophic outcome.

Headache after LP occurs in 32% cases, but the true incidence of SDH following LP has not been reported in literature. The pathophysiological mechanism of SDH following LP involve low intracranial pressure (ICP), subsequently congestion and tearing of the subdural veins.[8] Intracranial hypotension accounts for 10% of all SDH and LP is one rare cause for low ICP. The risk of intracranial hypotension is higher in which the loss of CSF is greater. Hence diagnostic LP and CSF drainage has higher risk of SDH than spinal anaesthesia.

Initially headache in our patient was considered as post LP benign headache as it developed within 24 hours of LP and partially improved with recumbency. Onset of seizure and worsening GCS with pathological anisocoria observed in our case prompted for immediate CT head and diagnosis of cerebral SDH. We explored the risk factors and pathophysiology implicated for the development of massive intracranial SDH in our case in spite of all precautionary method taken during and post LP period. There was no history of trauma following LP. He did not have habituation to alcohol. Our patient had normal clotting function and was not on steroids. CSF analysis was normal and Oligoclonal bands were negative. Our patient was on interferon β 1a for the past 6 months. Review of literature documented that between January 2004 and October 2012, 1 individuals taking interferon β reported SDH to the FDA. While on interferon treatment, temporary reduction in the white blood cells and platelets (clotting blood cells), may occur. This makes the patient vulnerable to bleeding.

Second our patient was young. He had baseline blood pressure at the lower limit of normal and CSF opening pressure was 8cm of water. All this predisposed for intracranial hypotension following LP. It has been documented that incidence of headache after lumbar puncture is higher in young.[9] This is attributed to the fact that young ones have high stretchable duramater causing bulging of bridging veins following LP and CSF leak. SDH results from bleeding of the subdural portion of bulging veins which are considered as fragile as subarachnoid portion of vein.

Our case highlights that massive intracranial SDH may result from intracranial hypotension secondary to diagnostic LP. Misdiagnosis of SDH could result in a catastrophic outcome. A thorough history and examination is required to exclude potentially serious underlying conditions that could also lead to massive non-traumatic SDH. Lower blood pressure, young age and lower CSF opening pressure predispose for intracranial hypotension and its sequale observed in present case. Henceforth precautions to be taken and immediate CT head warranted in certain situations.

Sandhya Manorenj*, Suma Kandukuri, Muralikrishna P. S., Sudhakar Barla

Department of Neurology, Employee State Insurance Corporation (ESIC) Superspeciality Center, ESIC Medical College Hyderabad, Telangana, India

*** Correspondence to:**
Sandhya Manorenj*
E-mail: drsandhyamanorenj@gmail.com

REFERENCES

1. Kuntz KM, Kokmen E, Stevens JC, Miller P, Offord KP, Ho MM. Post-lumbar puncture headaches: experience in 501 consecutive procedures. Neurology. 1992;42:1884-87.
2. Han-Joon Kim, Yong-Jin Cho, Joong-Yang Cho, Dong-Ha Lee, Keun-Sik Hong. Acute Subdural Hematoma Following Spinal Cerebrospinal Fluid Drainage in a Patient with Freezing of GaitJ Clin Neurol. 2009;5(2):95-6.
3. Martín-Millán M, Hernández JL, Matorras P, Oterino A, González-Mácias J. Multiple subdural haematomas following lumbar puncture. Eur Neurol. 2005;53:159-60.
4. Gaucher DJ Jr1, Perez JA Jr.Subdural hematoma following lumbar puncture.Arch Intern Med. 2002;162(16):1904-5.
5. Newrick P, Read D. Subdural haematoma as a complication of spinal anaesthetic. Br Med J (Clin Res Ed). 1982;285:341-2.
6. Kulkarni AV, Willinsky RA, Gray T. Serial magnetic resonance imaging findings for a spontaneously resolving spinal subdural hematoma: case report. Neurosurgery. 1998;42:398-401.
7. Masdeu JC, Breuer AC, Schoene WC. Spinal subarachnoid hematomas: clue to a source of bleeding in traumatic lumbar puncture. Neurology. 1979;29:872-76.
8. Markwalder TM. Chronic subdural hematomas: a review. J Neurosurg. 1981;54:637-645.
9. Ahmed SV, Jayawarna C, Jude E. Post lumbar puncture headache: diagnosis and management. Postgrad Med J. 2006;82(973):713-6.

Cite this article as: Manorenj S, Kandukuri S, Muralikrishna PS, Barla S. Intracranial massive subdural haematoma: a potentially serious consequence of diagnostic lumbar puncture. Int J Res Med Sci 2017;5:1724-5.