Retroclival subdural hematoma after a lumbar puncture: An uncommon complication for a common procedure

Sir,

Spontaneous retroclival subdural hematoma (RSH) is extremely rare and usually results from traumatic or coagulopathy-related causes. In this report, we briefly describe the clinical presentation and assessment of a patient who developed both an intracranial supratentorial hematoma and an RSH following a lumbar puncture (LP). The patient was a 45-year-old female with long-lasting use of oral contraceptives, who presented with subacute-onset of paresthesia of the lower limbs and left arm, which was accompanied by evidence of deep and periventricular white matter lesions observable on magnetic resonance imaging (MRI). A demyelinating disease was suspected and an LP was performed. Following the LP, the patient developed an acute and persistent postural headache, with severe neck pain. A second MRI revealed a left frontal-parietal subdural hematoma [Figure 1a] and RSH [Figure 1b]. Thrombosis of the left transverse venous sinus was also detected on MRI venography [Figure 1e]. The patient's medical history did not reveal any recent head trauma or the use of anticoagulants or antiplatelet drugs. No evidence of coagulopathy was identified and other extensive laboratory tests were normal. At the 2-month neuroradiological follow-up, both the supratentorial hemorrhage [Figure 1c] and the RSH [Figure 1d] had completely resolved.

Our report highlights the possibility of an uncommon but potentially life-threatening complication of LP, namely the development of a subdural hematoma, that can occur in unusual locations, such as the retroclival area. It is known that intracranial hypotension following a LP can lead to stretching of the bridging veins and, rarely, to their rupture. Accordingly, intracranial and intraspinal hemorrhage have been described in literature following a diagnostic lumbar puncture and spinal anesthesia. However, unlike the supratentorial space, the retroclival subdural area is highly protected and relatively bloodless, thus accounting for the rarity of a spontaneous hematoma in this location. The possible causes of RSH include coagulopathies, use of anticoagulants, dural arteriovenous fistulae, and meningeval-based neoplasms. In addition, anatomical alterations of the intracranial venous system have been observed in patients with an intracranial subdural hematoma. Indeed, hemodynamic stress caused by an impaired venous outflow may occur due to the presence of cerebral venous sinus thrombosis. This might lead to the collapse of the bridging veins secondary to the high back pressure due to venous engorgement. Accordingly, in the present case, we hypothesize that thrombosis of the venous sinus led to stress to the bridging veins in the supratentorial area, as well as to the petrosal veins and other minor veins close to the foramen magnum. The eventual collapse and rupture of these veins after the LP possibly explains both the supratentorial hemorrhage and RSH.

In conclusion, although complications of LP are rare overall, persistent or drug-resistant headache should warn clinicians of the possibility of occurrence of an intracranial subdural hematoma, even in unusual sites, especially in patients with concomitant cerebral venous sinus thrombosis.

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Acknowledgement
We would like to thank Editage (www.editage.com) for English language editing.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

References


Giuseppe Zelante, Riccardo Ricceri, Giuseppe Lanza1, Giuseppina Fiumanò2, Giovanni Pennisi3, Rita Bella
Department of Medical and Surgical Sciences and Advanced Technologies, Section of Neurosciences, Azienda Ospedaliero Universitaria Policlinico Vittorio Emanuele, Departments of 2Radiology and Radiotherapy and 3Specialità Medico-Chirurgiche, Azienda Ospedaliero Universitaria Policlinico Vittorio Emanuele, Catania, 1Department of Neurology IC, "Associazione OASI Maria SS", Troina, Italy

Address for correspondence:
Dr. Giuseppe Lanza,
Department of Neurology IC, “Associazione OASI Maria SS”,
Troina, Italy.
E-mail: glanza@oasi.en.it


© 2017 Neurology India, Neurological Society of India | Published by Wolters Kluwer - Medknow