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Neuroimaging Highlight

Iatrogenic Spinal Intradural Hemorrhage in a Patient with Dural Ectasia in Marfan Syndrome

Giulio Vara[1,2], Gianfranco Vornetti[3] and Luca Spinardi[1]

[1]University of Bologna, IRCCS Azienda Ospedaliero-Universitaria di Bologna, Bologna, Italy, [2]Diagnostic and Interventional Radiology, Ospedale Civile Umberto I, Lugo (RA), Emilia Romagna, Italy and [3]Dipartimento di Scienze Biomediche e Neuromotorie, University of Bologna, Bologna, Italy

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Marfan Syndrome (MFS) is a connective tissue disorder that affects multiple organ systems, characterized by abnormal skeletal and cardiovascular features.[1]

A 46-year-old woman affected by MFS developed acute lower limb weakness and sensory deficit after cardiac surgery with cerebrospinal fluid pressure monitoring with a lumbar catheter.

The patient underwent lumbar MRI with T1w (A), T2w(B), and post-contrast T1w with fat saturation (C) sequences (Fig. 1). MRI revealed the presence of inhomogeneous content within the dural sac due to different phases of hemoglobin catabolism. A collection with a fluid level was evident posteriorly to L2–L3, with focal contrast enhancement related to active bleeding ("spot-sign"). This was indicative of the patient undergoing active bleeding post-surgery. Dural ectasia, a major diagnostic criterion of MFS, was observed in the patient, defined as dilatation of the dural sac and the subsequent expansion of the spinal canal. The patient underwent decompressive laminectomy, with partial recovery of the symptoms.

This case report highlights the possibility of an increased risk of intradural hemorrhage in patients with Marfan syndrome and dural ectasia following a lumbar puncture and the importance of prompt recognition and treatment. Dural ectasia is already an established anesthesiological risk factor, impairing the efficacy of spinal anesthesia.[2] The risk of spinal hematoma following a lumbar puncture is low in the general population, while

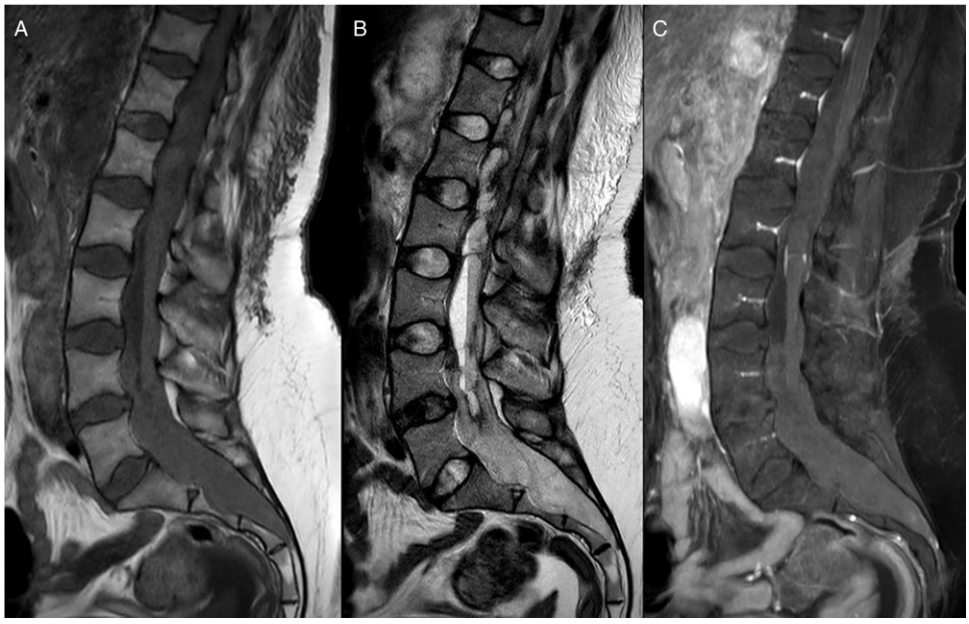

Figure 1: The lumbar MRI was performed with T1w (***a***), T2w (***b***), and post-contrast T1w with fat saturation (***c***) sequences. The dural sac is filled with inhomogeneous content due to different phases of hemoglobin catabolism. A collection with a fluid level is evident posteriorly to L2–L3, with focal contrast enhancement related to active bleeding ("spot-sign"). Dural ectasia, according to the Ghent nosology, represents a major diagnostic criterion of Marfan syndrome; it is defined as a dilatation of the dural sac (and the subsequent expansion of the spinal canal), and is very evident in this patient.

Corresponding author: G. Vara; Email: giulio.vara@gmail.com

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spontaneous occurrence in Marfan patients is reported only anecdotally.[3,4] To minimize the risk of complication, patients with genetic conditions related to dural ectasia should undergo an imaging screening of the lumbar spine or an opportunistic post hoc evaluation of previous imaging studies that include it in the field of view. Further studies are needed to better understand the underlying mechanisms and risk factors for this complication in this patient population. If dural ectasia proves to be a risk factor for intradural hemorrhage, alternative surgical monitoring methods should be researched.

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