www.surgicalneurologyint.com

Surgical Neurology International

Editor-in-Chief: Nancy E. Epstein, MD, Professor of Clinical Neurosurgery, School of Medicine, State U. of NY at Stony Brook.

SNI: General Neurosurgery

Editor
Eric Nussbaum, MD
National Brain Aneurysm and Tumor Center, Twin Cities, MN, USA

ScientificScholar®
Knowledge is power
Publisher of Scientific Journals

SNI
Open Access

Letter to the Editor

Clarifying rarity versus underreporting of idiopathic spinal arachnoid web: An analysis of the available evidence and the need for extended postoperative outcome reports

Abdulgadir Bugdadi[1,2], Anne Herbrecht[1], Nozar Aghakhani[1], Fabrice Parker[1]

Department of Neurosurgery, Bicetre University Hospital, Kremlin Bicetre, France, [2]Department of Surgery, Faculty of Medicine, Umm Al Qura University, Makkah, Saudi Arabia.

E-mail: *Abdulgadir Bugdadi - abdulgadir_bugdadi@hotmail.com; Anne Herbrecht - anne.herbrecht@aphp.fr; Nozar Aghakhani - nozar.aghakhani@aphp.fr; Fabrice Parker - fabrice.parker@aphp.fr

***Corresponding author:**
Abdulgadir Bugdadi,
Department of Neurosurgery,
Bicetre University Hospital,
Kremlin Bicetre, France.

abdulgadir_bugdadi@hotmail.com

Received: 25 August 2023
Accepted: 29 September 2023
Published: 13 October 2023

DOI
10.25259/SNI_713_2023

Quick Response Code:

Dear Editor,

We read the recent article by Tran *et al.*,[10] which presented a case of a 31-year-old male with right lower limb weakness and persistent numbness. Investigation revealed the presence of a "scalpel sign" at the T7 level, attributed to a spinal arachnoid web (SAW). By the 10th postoperative day, the patient demonstrated substantial improvement, with regained muscle strength of 5/5 and significantly reduced numbness. Idiopathic SAW is characterized by a thick arachnoid band spanning the subarachnoid space, extending from the pial surface of the spinal cord to the dura mater.[6,9] The condition is considered idiopathic if a thorough medical history review reveals no probable culprit.[2-4] The etiology of SAW remains speculative, giving rise to various hypotheses.[6,8,9] Since its initial description by Mallucci *et al.*,[6] the literature on SAW has predominantly consisted of individual case reports. Recent efforts have aimed to enhance our understanding through case series.[3,5,7,11] The most recent series, with the earliest publication dating back to 2019, has shed light on the postoperative prognosis of idiopathic SAW. These studies have highlighted favorable short- and intermediate-term outcomes, as well as a reduced propensity for postoperative recurrence.[3,5,7,11] Consequently, these intriguing findings suggest that idiopathic SAW may constitute a distinct arachnoidopathy, distinct from both traumatic and nontraumatic spinal arachnoiditis pathologies.[3,11]

In light of the case report by Tran *et al.*,[10] we wish to underscore two aspects of SAW that warrant further clarification and scholarly exploration.

First, a central theme in discussions about SAW pertains to the ongoing uncertainty regarding its rarity versus potential underreporting.[2,3,5,7,8,11] A thorough examination of the available multicenter case series could provide a more precise answer. Notably, Hirai *et al.* documented a cohort of five SAW cases; however, the specific timeframe of their medical registry survey remains undisclosed.[5] Similarly, Nisson *et al.* conducted a comprehensive systematic review of SAW, supplementing their findings with cases from the distinguished Weill Cornell Brain and Spine Center in New York, USA, revealing merely two cases.[7] Likewise, Voglis *et al.* published a multicenter case series involving SAW patients treated from 2014 to 2020 at Saint Michael's University Hospital in Toronto, Canada, and Geneva and Zurich University Hospitals in Switzerland, yielding a cumulative

total of 12 cases.[11] Adib *et al*. investigated all patients with syringomyelia between 2003 and 2023 at Tuebingen University Hospital, Germany, and found only 3 cases of SAW.[1] Notably, our institution, The Bicetre University Hospital, Kremlin-Bicetre, France, holds a pivotal role as a regional reference center for Chiari, spinal, and medullary malformations. Our independent series, encompassing patients operated on for idiopathic SAW between 2005 and 2020, yielded 12 cases.[3] Chellathurai *et al*., in a study conducted at Stanley Medical College Hospital in India over a 4-year period, examined 1350 spinal magnetic resonance images of patients with and without neurological complaints but without a history of spinal trauma or surgery. They identified only 6 cases of SAW.[4]

After carefully examining the number of cases stemming from the various international university health centers, it becomes evident that the idiopathic SAW is likely a rare phenomenon rather than an underreported one.

Second, the current body of literature about SAW predominantly consists of case reports elucidating immediate and/or short-term postoperative outcomes. Similarly, available case series often report the short- to intermediate-term clinical statuses postoperatively. The longest reported postoperative outcome analysis, a recent contribution by our research team, encompassed an observation period extending to 9.1 years.[3] The second longest follow-up spanned a duration of 6.5 years.[11] Therefore, to facilitate an informed prognostication concerning the enduring postoperative trajectory of SAW, a conspicuous deficiency of extended follow-up data is apparent within the existing literature. Consequently, an imperative emerges for including more expansive longitudinal investigations in the scholarly discourse. This inclusion would offer valuable insights into the prolonged postoperative evolution of SAW.

Declaration of patient consent

Patient's consent is not required as there are no patients in this study.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that they have used artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript or image creations.

REFERENCES

1. Adib SD, Schittenhelm J, Kurucz P, Hauser TK, Tatagiba M. Surgical management of syringomyelia associated with spinal arachnoid web: Strategies and outcomes. Neurosurg Rev 2023;46:152.
2. Ben Ali H, Hamilton P, Zygmunt S, Yakoub KM. Spinal arachnoid web-a review article. J Spine Surg 2018;4:446-50.
3. Bugdadi A, Herbrecht A, Alzahrani A, Aghakhani N, Parker F. Long-term outcome of surgical treatment for idiopathic spinal arachnoid web: A case series. Neurochirurgie 2023;69:101455.
4. Chellathurai A, Balasubramaniam S, Gnanasihamani S, Ramasamy S, Durairajan J. Pathophysiology and grading of the ventral displacement of dorsal spinal cord spectrum. Asian Spine J 2018;12:224-31.
5. Hirai T, Taniyama T, Yoshii T, Mizuno K, Okamoto M, Inose H, *et al*. Clinical outcomes of surgical treatment for arachnoid web: A case series. Spine Surg Relat Res 2019;3:43-8.
6. Mallucci CL, Stacey RJ, Miles JB, Williams B. Idiopathic syringomyelia and the importance of occult arachnoid webs, pouches and cysts. Br J Neurosurg 1997;11:306-9.
7. Nisson PL, Hussain I, Härtl R, Kim S, Baaj AA. Arachnoid web of the spine: A systematic literature review. J Neurosurg Spine 2019;31:1-10.
8. Paramore CG. Dorsal arachnoid web with spinal cord compression: Variant of an arachnoid cyst? Report of two cases. J Neurosurg 2000;93:287-90.
9. Pham N, Ebinu JO, Karnati T, Hacein-Bey L. Neuroimaging findings and pathophysiology of dorsal spinal arachnoid webs: Illustrative case. J Neurosurg Case Lessons 2021;1:CASE2142.
10. Tran TD, Vo PD, Truong TV, Ho TD. A case of neurosurgical treatment of thoracic dorsal arachnoid web. Surg Neurol Int 2023;14:210.
11. Voglis S, Romagna A, Germans MR, Carreno I, Stienen MN, Henzi A, *et al*. Spinal arachnoid web-a distinct entity of focal arachnopathy with favorable long-term outcome after surgical resection: Analysis of a multicenter patient population. Spine J 2022;22:126-35.

How to cite this article: Bugdadi A, Herbrecht A, Aghakhani N, Parker F. Clarifying rarity versus underreporting of idiopathic spinal arachnoid web: An analysis of the available evidence and the need for extended postoperative outcome reports. Surg Neurol Int 2023;14:367.