Reply to "Letter Regarding 'Traumatic Nondissociative Carpal Instability: A Case Series'"

Online Only

To the editor:

We would like to thank Drs Lichtman and Pientka[1] for their interest and commentary regarding our case series.[2] Debate is always beneficial to the evolution and progress of our specialty. However, we respectfully disagree with the use of the term midcarpal instability to describe this clinical situation, traumatic or not.[3] In our opinion, which is shared by Garcia-Elias et al,[4] Wright et al,[5] and others, the pathology of nondissociative instability concerns both the radiocarpal and the midcarpal joints: it is the proximal row that is unstable, and not the midcarpal joint alone. The injured ligaments responsible for this type of situation cross the radiocarpal and the midcarpal joints. The palliative surgical solutions to counteract this instability each address stabilization of the proximal carpal row, and include radiocarpal solutions (eg, radiolunate fusion, radioscaphocapitate ligament shortening, dorsal radiocarpal ligament plication) and midcarpal solutions (eg, 4-corner arthrodesis).[6–12] In our opinion, the capitate is not subluxated in volar intercalated segment instability, because the joint remains concentric in all but the most severe cases: it is the entire proximal row that is malrotated.

Therefore, we recommend that the terms "carpal instability nondissociative" or "proximal row instability" be used instead of the term midcarpal instability. The pathomechanics of this type of instability are abnormal kinematics of the proximal carpal row because of loss of ligamentous functional integrity, whether congenitally lax or disrupted by trauma. The result is increased static or dynamic sagittal plane rotation between the capitate and the lunate at the midcarpal joint, accompanied by an equal and opposite sagittal rotation of the lunate on the radius at the radiocarpal joint, which reduces with the classic painful catch-up-clunk. This rotation is usually volar, but may also be dorsal or, rarely, both; either way, it involves a dissociation of normal motion of the proximal row, manifested at both the midcarpal and radiocarpal joints.

We again thank Drs Lichtman and Pientka for their comments; the objective of our work was to raise awareness of this traumatic carpal instability pattern and encourage early diagnosis and repair of the responsible volar, dorsal, radiocarpal, and/or midcarpal ligaments.

*Francois Loisel, MD**
Steven Orr, MD†
Mark Ross, MBBS‡
Greg Couzens, MBBS§
Andrew J. Leo, MD‖
Scott Wolfe, MD¶
**Besançon Teaching Hospital, Besançon, France*
the †New York University Langone Health, New York, NY
the ‡Brisbane Hand and Upper Limb Clinic, University of Queensland, Brisbane, Australia
the §Brisbane Hand and Upper Limb Clinic, Queensland University of Technology, Brisbane, Australia
the ‖Northwell Health, New York, NY
¶Hospital for Special Surgery, Weill Medical College of Cornell University, New York, NY

https://doi.org/10.1016/j.jhsa.2022.05.009

REFERENCES

1. Lichtman DM, Pientka WF II. Letter regarding "Traumatic Nondissociative Carpal Instability: A Case Series". *J Hand Surg Am.* 2022;47(8):e15.
2. Loisel F, Orr S, Ross M, Couzens G, Leo AJ, Wolfe S. Traumatic nondissociative carpal instability: a case series. *J Hand Surg Am.* 2022;47(3):285.e1–285.e11.
3. Lichtman DM, Schneider JR, Swafford AR, Mack GR. Ulnar midcarpal instability-clinical and laboratory analysis. *J Hand Surg Am.* 1981;6(5):515–523.
4. Wolfe SW, Garcia-Elias M, Kitay A. Carpal instability nondissociative. *J Am Acad Orthop Surg.* 2012;20(9):575–585.
5. Wright TW, Dobyns JH, Linscheid RL, Macksoud W, Siegert J. Carpal instability non-dissociative. *J Hand Surg Br.* 1994;19(6):763–773.
6. Garcia-Elias M. The non-dissociative clunking wrist: a personal view. *J Hand Surg Eur Vol.* 2008;33(6):698–711.
7. Johnson RP, Carrera GF. Chronic capitolunate instability. *J Bone Joint Surg Am.* 1986;68(8):1164–1176.
8. Ming BW, Niacaris T, Lichtman DM. Surgical techniques for the management of midcarpal instability. *J Wrist Surg.* 2014;3(3):171–174.
9. von Schroeder HP. Dorsal wrist plication for midcarpal instability. *J Hand Surg Am.* 2018;43(4):354–359.
10. Trumble T, Bour CJ, Smith RJ, Edwards GS. Intercarpal arthrodesis for static and dynamic volar intercalated segment instability. *J Hand Surg Am.* 1988;13(3):384–390.
11. Lichtman DM, Bruckner JD, Culp RW, Alexander CE. Palmar midcarpal instability: results of surgical reconstruction. *J Hand Surg Am.* 1993;18(2):307–315.
12. Goldfarb CA, Stern PJ, Kiefhaber TR. Palmar midcarpal instability: the results of treatment with 4-corner arthrodesis. *J Hand Surg Am.* 2004;29(2):258–263.

