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Commentary on “Biomechanical Characteristics of Hemi-Hamate Reconstruction Versus Volar Plate Arthroplasty in the Treatment of Dorsal Fracture Dislocations of the Proximal Interphalangeal Joint”

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This paper¹ compares the biomechanical characteristics of volar plate arthroplasty and hemi-hamate reconstruction. These 2 management paradigms represent the old and new when it comes to reconstruction at the proximal interphalangeal joint. Both methods treat the defect left by the often-irreparable portion of the volar lip of the middle phalanx by discarding the comminuted fragments. Volar plate arthroplasty fixes the volar plate into the defect, whereas hemi-hamate reconstruction uses a portion of hamate as a graft. The relative merits of each technique are hotly debated, and this paper evaluates the biomechanical consequences of these 2 methods of reconstruction.

This well-executed study reveals that both surgical techniques can prevent dorsal subluxation in the cadaver, but volar plate arthroplasty may result in flexion contracture. This is intriguing because some surgeons would contend that volar plate arthroplasty simply cannot prevent dorsal subluxation of the joint. In this paper, the authors are able to reduce the joint with volar plate arthroplasty but at the price of a “flexion contracture” related to the amount of bone lost to the fracture defect. It appears that the force required to maintain joint reduction with volar plate arthroplasty creates a moment arm of flexion about the proximal interphalangeal joint.

It should be noted, however, that no repair of the volar plate was performed in the hemi-hamate group and that a flexion force in the volar plate arthroplasty group might stretch out in the postoperative rehabilitation period.

In practice, both surgical procedures may often be used where open reduction is impossible due to comminution. This article underscores that either procedure can provide a well-reduced joint. The choice of procedure may hinge on the patient’s capacity to unite the hamate graft or tolerate the risk of an extension deficit, at least initially.

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