SYMPOSIUM ON ADVANCES IN THE MANAGEMENT OF SCAPHOID PROBLEMS

Scaphoid malunion

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ABSTRACT

Scaphoid malunion may be more common than one might expect, because many cases initially are asymptomatic. In advanced cases, functional impairment and posttraumatic arthritis are highly likely. This article discusses the causes, diagnosis, and management of scaphoid malunion.

Key Words: Humpback deformity; Scaphoid malunion; Scaphoid osteotomy

INTRODUCTION

In the normal wrist, the distal carpal row is under stress to palmar flex with reference to the proximal row. This is prevented by the very strong scaphotrapezial ligament distally and the scapholunate ligament proximally. In a way, the scaphoid also functions as a stabilising structure to maintain the relationship between the proximal and distal carpal rows, so that despite the lack of strong ligaments binding the capitate and lunate in addition to the very large degree of freedom of movement in the capitolunate joint, the normal carpus does not go into collapse pattern deformity. In scaphoid fractures, when the strong linkage provided by the scaphoid is disrupted, the two bone fragments are under stress to become displaced from one another. The proximal fragment, while remaining attached to the lunate, will be dorsiflexed with the lunate. The distal fragment, being attached to the trapezium by the strong scaphotrapezial ligament, will be flexed. This creates the typical palmar flexed displacement of scaphoid fracture, and if this position persists in delayed union or nonunion, it will result in the typical humpback deformity of scaphoid. There is usually also a persistent dorsiflexion of the lunate, producing the classical dorsiflexed intercalated segment instability (DISI) deformity of the carpus. Sometimes there is comminution of the anterior cortex of scaphoid, making the fracture more unstable and with a higher tendency to palmar flex in the course of time. When a fracture initially displaced in such a manner eventually progresses into bone union, malunion of the scaphoid results.

Malunion of the scaphoid is difficult to diagnose and is frequently missed. In the long run, many cases of malunion will develop arthritis.

DIAGNOSIS OF MALUNION

Malunion of the scaphoid occurs when there is flexion deformity of the scaphoid with an increase in flexion of the lateral intrascaphoid angle in the sagittal plane. The