Examination of the scaphoid

Scaphoid manipulation is an important part of the examination of the wrist. The “scaphoid shift” is a maneuver that is helpful in assessing scaphoid stability and in identifying scaphoid and periscaphoid pathology. The anatomic basis of the maneuver is explained and its performance and interpretation discussed. (J Hand Surg 1988;13A:657-60.)


Several years ago we described a maneuver that we had found helpful in the examination of the scaphoid. Later dubbed “Watson’s test” in The Wrist, it is far more widely known as simply “the scaphoid test.” The maneuver has proven confusing to many persons, and we would like to clarify its performance and interpretation. In addition, the name “scaphoid test” has been criticized, and although semantic crusades are of little interest and rarely successful, we will propose an alternate term—“the scaphoid shift.”

The scaphoid shift

Comprehensive examination of the wrist includes not only observation and palpation, but also manipulation. The latter reveals passive ranges of motion and provides an assessment of stability. In addition, as adjacent bones move against each other, they may produce a variety of “noises” or sensations appreciable to the examiner or patient. These findings reflect the quality of adjacent articular surfaces and may enable precise localization of the patient’s problem. The maneuver we will describe is no more than a formalized manipulation of the scaphoid.

The patient is approached by the examiner as if to engage in arm wrestling, face to face across a table with diagonally opposed hands raised (right to right or left to left) and elbows resting on the surface in between. With the patient’s forearm slightly pronated, the ex-
Fig. 2. When the wrist is in ulnar deviation, the long axis of the scaphoid is more nearly in line with the axis of the radius.

Fig. 3. In radial deviation, the scaphoid axis is more nearly perpendicular to the axis of the radius, and its distal pole becomes prominent on the palmar side of the wrist.

Examiner grasps the wrist from the radial side, placing his thumb on the palmar prominence of the scaphoid and wrapping his fingers around the distal radius. This enables the thumb to push on the scaphoid with counterpressure provided by the fingers (analogous to opening a car door). The examiner's other hand grasps at the metacarpal level, controlling wrist position. Starting in ulnar deviation and slight extension, the wrist is
moved radially and slightly flexed, with constant thumb pressure on the scaphoid (Fig. 1).

When the wrist is in ulnar deviation, the scaphoid lies nearly in line with the long axis of the forearm (Fig. 2). As the wrist deviates radially and flexes, the scaphoid rotates to an orientation more nearly perpendicular to the forearm, and its distal pole becomes prominent on the palmar side of the wrist (Fig. 3). The examiner’s thumb pressure opposes this normal rotation and creates a subluxation stress, causing the scaphoid to shift in relation to the other bones of the carpus. This “scaphoid shift” may be subtle or dramatic. In a patient with rigid periscaphoid ligamentous support, only minimal shift is tolerated before the scaphoid continues to rotate normally, pushing the examiner’s thumb out of the way. In patients with ligamentous laxity, the combined stresses of thumb pressure and normal motion of adjacent carpus may be sufficient to force the scaphoid out of the elliptical fossa and up onto the dorsal rim of the radius (Fig. 4). As thumb pressure is withdrawn, the scaphoid returns abruptly to its normal position, with a resounding “thunk.” The response of most patients is somewhere between these two extremes, and the maneuver may provide useful information.

Findings

Experience gives the examiner a subjective feel for the mobility of the scaphoid. Patients vary tremendously and extremes of mobility should not in themselves be considered pathologic. Asymmetry, however, is highly suspicious, and both wrists must be examined and compared. A unilateral hypermobile scaphoid in a patient with a history of wrist injury may be presumed to have a traumatic instability. Decreased motion is equally suggestive. In the context of acute injury the scaphoid may be stabilized by surrounding inflammatory reaction, while in a chronic setting fibrosis or advanced arthritic change may effect the same result. The quality of motion is also important. The scaphoid may shift smoothly, or with a gritty sensation, or clicking. Grittiness suggests loss of smooth articular cartilage, and clicking or catching may indicate bony change sufficient to produce impingement.

Pain is a significant finding, especially when it reproduces the patient’s symptoms. Most subjects will admit to some palmar discomfort, especially if the thenar muscle is compressed between the thumb and scaphoid, but this is of no consequence. A rare patient may have exquisite tenderness at the scaphoid prominence as to preclude adequate thumb pressure, and in this case the maneuver is not possible. Pain of diagnostic significance occurs as the scaphoid shifts and is usually perceived as dorsal. Frequently, the patient will exclaim, “That’s the pain I’ve been trying to describe!” Pain such as this in the context of increased motion is virtually diagnostic of symptomatic rotary subluxation of the scaphoid. A less well localized pain with normal or decreased mobility is encountered in patients with periscaphoid arthritis, whether of triscaphe (scaphoid-trapezium-trapezoid) or scapho-lunate advanced collapse (SLAC) pattern. This pain is often accompanied by a grinding sensation as the arthritic articular surfaces
rub against each other. Patients with scaphoid fractures or nonunion will recognize a pain similar to that which they experience with loading. In these patients the two scaphoid fragments are forced to move independently by the divergent forces of adjacent carpus and examiner’s thumb.

Manipulative examination of the scaphoid is an integral part of the wrist examination. The “scaphoid shift” described above is not so much a test as a provocative maneuver. It does not offer a simple positive or negative result, but rather a variety of findings. With experience, an examiner will learn to recognize and interpret these findings in their patients. We have found it a valuable examination technique.

REFERENCES

Limited wrist fusions

Seventeen patients had wrist fusions done for diseases other than rheumatoid arthritis of the wrist and carpal bones. Arthrodesis was done at the radiocarpal joint in five wrists and at the midcarpal joint in 12. There were 12 men and five women. Ages at the time of operation averaged 42 years. Follow-up ranged from 6 months to 5 years and 5 months, and with an average of 1 year and 10 months. Overall postoperative results were excellent in five wrists, good in seven, fair in two, and poor in three. Wrists with the midcarpal fusion fared better than those wrists with the radiocarpal fusion. Complications included one pseudoarthrosis and one rupture of the flexor pollicis longus tendon. In one of the 17 wrists new osteoarthritic changes surrounding the arthrodesed joints occurred. (J HAND SURG 1988;13A:660-7.)

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Panarthrodesis of the wrist1 is the standard accepted procedure for treatment of serious conditions, such as fracture and dislocation, inflammation, tumor, and degenerative disease in the distal radius and carpal bones. Some patients complain of significant disabilities in everyday activities and occupations because of their complete loss of motion.

There have been several reports of limited wrist fusions between the radius and carpal bones and between carpal bones.2-16 Recently, scaphotrapeziotrapezoidal (STT) fusions have been done for treatment of Kienböck’s disease,11, 12 carpal instability,17 and rotatory subluxation of the scaphoid.14 However, there have been few reports regarding clinical results in a large series of limited wrist fusions other than the STT fusion.10, 11, 12, 16

Seventeen patients with wrist disease, excluding rheumatoid arthritis, had limited wrist fusions performed. The clinical results and indications are reported.

Materials and methods

Seventeen limited wrist fusions were done at Hokkaido University Hospital from 1978 to 1985. Details of all patients are summarized in Table I. Twelve patients were men and five were women. Ages at the time