

Scapholunate ligament injury: the natural history

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A 72-year-old man fell and injured his left wrist. Radiographs showed an increased scapholunate (SL) space (Fig. 1), known as the Terry Thomas sign, named after a British actor who had a gap between his front 2 teeth. The SL space is measured from the middle of the flat medial facet of the scaphoid to the lunate.¹ An asymmetrical SL gap greater than 5 mm is diagnostic of SL dissociation. Despite these findings of an SL ligament tear, his case was treated as a "sprain," and no further follow-up occurred.

His pain improved, but 2 minor falls over the next 5 years readily revived his wrist pain and resulted in further radiographs being taken. X-rays 1 year after

the first fall looked similar to those taken at first. Those taken 5 years after the original fall, however, showed evidence of degenerative changes at the radioscapoid joint, with joint space narrowing and sclerosis (Fig. 2). A lateral radiograph (Fig. 3) showed a dorsal osteophyte on the lunate, which also exhibits a dorsal tilt and an abnormal alignment, as well as an increased SL angle (normal range 45°–60°).²

Eight years after the first fall, the patient's wrist developed more persistent pain and stiffness. Examination revealed chronic swelling and tenderness on the dorsum of the wrist overlying the SL region. There was a 45% loss of wrist motion; because of this stiffness, his result

on the Watson shift test³ was negative. Radiographs showed an advance in degenerative changes at the radioscapoid and lunocapitate joints, with significant cyst formation in the scaphoid and distal radius, subchondral sclerosis in these regions and loss of carpal height. As is typical, the radiolunate joint remained spared from any changes.

This man was recently treated with a steroid injection into the radiocarpal joint, which improved his symptoms. Nonetheless, the progressive natural history of this condition indicates that eventually he will require wrist surgery.

Injury to the SL ligament is frequently missed or dismissed as a sprain. It can therefore present late with chronic pain



FIG 1. Wrist radiograph following the patient's initial fall. Note the widened gap between the scaphoid and lunate bones (arrow), signifying complete disruption of the scapholunate ligament (Terry Thomas sign). There are no signs of osteoarthritis.



FIG 2. Four years later, osteoarthritis is present in the radioscapoid joint. Subchondral sclerosis and loss of the joint space are visible.

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and further degenerative changes. If initial radiographs are unremarkable, which is often the case, dynamic, loading or traction films should be utilized. A clenched-fist anteroposterior radiograph plus radial and ulnar deviation views are useful. Arthrography, magnetic resonance imaging and ultrasound of the SL

ligament are all relevant diagnostic tools. Wrist arthroscopy is the best choice; the SL ligament and SL joint can then be assessed directly via radiocarpal and midcarpal portals. Geissler and colleagues⁴ used arthroscopy to demonstrate that 31% of distal radial fractures were associated with an acute SL injury.

With late presentation of an SL injury, the patient complains of pain, stiffness and grip weakness. Physical examination typically reveals swelling, tenderness over the SL joint and a positive Watson (scaphoid) shift test: with the thumb maintaining constant pressure on the scaphoid tubercle, the wrist is brought from ulnar to radial deviation. With an SL ligament tear, this manoeuvre leads to dorsal subluxation of the scaphoid, such that release of the scaphoid results in a painful click or clunk that can be felt dorsally over the SL joint.¹

This case illustrates the progressive natural history of a scapholunate injury and follows the radiographic progression of degenerative changes, from SL gap to radioscapoid osteoarthritic changes, to progressive degenerative changes called scapholunate advanced collapse (SLAC), with loss of carpal height as the capitate migrates proximally into the gap between

the scaphoid and the lunate. This progression is associated with increasing symptom intensity and decreasing wrist motion, underscoring the importance of investigating and accurately diagnosing painful and "sprained" wrists at initial presentation.

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FIG 3. A lateral radiograph shows osteophyte formation on the dorsum of the lunate (arrow), a mild dorsal tilt of the lunate and an increased scapholunate angle (75°), signifying carpal collapse.

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