Arthroscopic Strategy for Treatment of Scaphoid Fracture and Sequelae

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Scaphoid fractures are the most common fracture of the carpal bones and account for 60% carpal injuries. Due to anatomical properties including tenuous vascular supply, joint fluid dilution, and the inability to form callus, as well as biomechanical properties, such as high shear stress and displacement of fragments, delayed unions and non-unions are not uncommon. It is known that the nonunion rate of scaphoid fracture is 5–10% with non-surgical treatment.

Wrist arthroscopy, a minimal invasive technique, provides a wider and clearer view in diagnosis in wrist problems with aid of scope magnificent. By using small size arthroscopy and fine instruments, arthroscopic surgery preserves native circulation, ligaments and the remaining carpal motion can be maximized with reduced postoperative pain. There is also cosmetic benefit with the minimal surgical scar. Wrist arthroscopy helps to get more accurate evaluation of fracture reduction and concomitant ligament injuries in patients with scaphoid fracture without damage of ligaments. Wrist arthroscopy is also helpful in evaluation of cartilage condition in patients with scaphoid nonunion with advanced collapse. For scaphoid nonunion, curettage to the level of good puncture bleeding and transportation of cancellous bone graft into non-united site can also be done under by wrist arthroscopic technique. Partial wrist fusion is considered as salvage procedure for advanced stage of scaphoid nonunion with advanced collapse. It is a good alternative way, rather than total wrist fusion, with preservation of some degree of wrist motion, wrist proprioception, and serves as a function-improving procedure. However, it is a technically demanding procedure with a steep learning curve. With proper training in small joint arthroscopy, arthroscopic partial wrist fusion is a valuable option for patients with wrist arthritis to preserve motion and good cosmetic outcome.