Thumb CMC Arthroplasty with Absorbable Interference Screw for FCR LRTI

The first carpometacarpal (CMC) joint, located at the base of the thumb, allows multidirectional movement of the thumb and is important for grasping and holding objects. However, lack of bony constraints in the CMC joint forces it to rely on the surrounding ligaments for support. The CMC joint is the most common site of osteoarthritis (OA) in the upper extremity and is more prevalent in women than men. OA in this joint leads to pain, pinch and grip weakness as well as overall decreased hand function. One of the surgical procedures used to restore ligamentous support, and subsequently strength and function, to the damaged CMC joint involves removing the affected trapezium bone at the base of the thumb, reconstructing the main stabilizing ligament, and filling the void left by the removal of the trapezium bone with a tendon. This procedure has traditionally utilized sutures for tendon fixation; however, utilization of bioabsorbable screws would allow for fewer assistants during surgery and a shorter surgical time.

The purpose of this study was to evaluate changes in grip strength following CMC repair and determine whether surgical repair of the first CMC joint results in improvements in grip strength and whether there are any differences in functional outcomes between patients who underwent CMC repair using absorbable screw versus suture fixation. Twenty-two patients (8 males, 14 females) with an age range of 55 to 71 years underwent CMC repair by Dr. Plancher between 1999 and 2011. There were a total of 28 hand surgeries included as some patients required bilateral procedures. The postoperative rehabilitation program was the same for each patient and included splinting of the repaired hand for four weeks. Pinch and grip strength as well as self-assessment questionnaires recording pain and functional outcome measures were collected pre- and postoperatively. Average time to follow-up was 5.6 years. There were no statistically significant differences in grip strength, pain, or function between patients in the two surgical repair groups and all patients demonstrated similar grip strength in both the operative and non-operative hands at last follow-up. We conclude that both screw and suture fixation in CMC arthroplasty restore grip and pinch strength and provide excellent long term functional outcomes.