

Belcher HJ, Nicholl JE. A Comparison of Trapeziectomy With and Without Ligament Reconstruction and Tendon Interposition. J Hand Surg Br 2000;25B:350-356.

Design: Randomized clinical trial

Population/sample size/setting:

- 36 patients (42 hands, 5 male, 37 female, mean age 60) operated on for osteoarthritis (Eaton-Littler grade 2-4) of the trapeziometacarpal joint of the thumb in a plastic surgery department in the UK
- Exclusion criteria were rheumatoid arthritis, or undergoing a second procedure at the same operation (e.g., thumb metacarpophalangeal joint fusion)

Main outcome measures:

- Patients were randomized intra-operatively to either trapeziectomy alone (n=19), or to trapeziectomy plus ligament reconstruction and tendon interposition (LRTI, n=23)
- LRTI group had an additional 3 cm incision and division the dorsal slip of the abductor pollicis longus, which was looped around the flexor carpi radialis tendon and left in the trapeziectomy defect to act as the interposition
- After surgery, skin sutures were removed at 2 weeks and a splint was fitted; at 4 weeks, gentle mobilization was begun, and the splint was discontinued at 6 weeks
- Follow-up was done between 7 and 29 months later (median 13 months) by a second investigator, who recorded 15 outcome variables
- The outcome variables included several measures of range of motion, radiographic distances between the scaphoid and trapezoid and the base of the thumb metacarpal, three measures of strength, activities of daily living, pain VAS, and functional VAS
- None of the outcome variables differed between the two treatment groups; patients expressed equal satisfaction with the operation
- Both operations shortened the thumb equally, and thumb strength improved postoperatively in both groups equally
- Complications were more common in the LRTI group (n=6); these included 2 with recurrent pain, 1 with instability, 1 with neuroma, 1 with sensory loss, and 1 with rupture of the flexor carpi radialis; in the trapeziectomy group, 1 patient had recurrent pain and 1 had a neuroma

Authors' conclusions:

- LRTI does not prevent proximal migration of the metacarpal, and thumb shortening does not correlate with the functional outcome
- Simple trapeziectomy may be the method of choice for treating OA at the base of the thumb; the harvesting of the tendon for LRTI results in additional scars, longer operations, and the potential for more morbidity

- Stabilizing procedures may be suitable for situations in which there is significant subluxation and instability in the joint, or for salvage procedures

Comments:

- It appears that randomization was by patient, not by thumb, so that patients with bilateral operations had the same procedure in each hand
- Intraoperative randomization ensures both allocation concealment and analysis by intention-to-treat
- The age of the trapeziectomy group (63) was slightly older than the LRTI group (58)
- Outcome assessment was not blinded; it is not clear whether this was a source of bias in outcome assessment
- The functional consequences of the complications are not clear: e.g., it is not reported whether the patients with neuroma were less able to perform ADL
- While the difference in complication rates involves numbers too small to be statistically significant, the data can be combined with other studies to yield a significant pooled estimate
- Follow-up time may be too short to compare potential later sequelae of simple trapeziectomy and LRTI (e.g., arthritis involving articulations of the first metacarpal with either the scaphoid or trapezoid)
- Numbers are too small to support a statement that the operations are equivalent in outcomes

Assessment: Adequate for an evidence statement that LRTI is not superior to simple trapeziectomy in the first year, and that LRTI may have more complications of unclear functional significance