

Surgery Treatment in Advanced Osteoarthritis of the Thumb CMC Joint

Abstract

The thesis addresses therapy of advanced stages of degeneration of the first carpometacarpal joint. First carpometacarpal joint is crucial for thumb opposition, allowing for a grip and fine motor skills. Based on standardized examination methods and criteria of thumbs` range of motion, grip strength – as described in experiment of this work – functional evaluation, overall patients` satisfactory rate and pain evaluation, this work compares the most frequently used surgical methods in treatment of 3rd and 4th degree of first carpometacarpal joint osteoarthritis. Arthrodesis, which provides good stability and thumb strength, however, range of motion is and fine motor skills are deteriorated. Resection arthroplasty, a wide group of surgical techniques based on trapeziectomy, where – despite the performance of tendon interposition, tendon sling or even ligament reconstruction – a grip strength loss, stability of the grip deterioration and restriction of thumb range of motion is inevitable. The last group of arthroplasty using implants, either replacing trapezium after its resection or total joint arthroplasty of the first carpometacarpal joint, which preserve both first column height and a center of rotation. Aim of this thesis is to prove that an achievement of the the best possible clinical and functional outcome of the surgery is based on minimal intervention with joint capsule ligaments and surrounding soft-tissue structures, but most fundamentally, to preserve both first column height and a center of rotation of the thumb. The first carpometacarpal joint arthroplasty is considered by the method of choice, since it achieves all of the previously named parameters.

Keywords

Arthrodesis, arthroplasty, carpometacarpal joint, thumb opposition, osteoarthritis, thumb, rhisarthritis, stability, grip strength, total joint arthroplasty, trapezectomy, trapesiometacarpal joint, grip