



MIDCARPAL AND STT ARTHRITIS IN PATIENTS WITH CMC ARTHRITIS



EVAN B. KATZEL, MD¹, DIERDE BIELICKA, MD², SAMEER SHAKIR, MD³, JOHN FOWLER, MD², GLENN A. BUTERBAUGH, MD^{2,4}, JOESPH E. IMBRIGLIA

¹ Department of Plastic Surgery, University of Pittsburgh; Pittsburgh, PA

² Department of Orthopedic Surgery, University of Pittsburgh; Pittsburgh, PA

³ Division of Plastic Surgery, Hospital of the University of Pennsylvania; Philadelphia, Pennsylvania

⁴ Hand and UpperEx Center; Pittsburgh, Pennsylvania

INTRODUCTION

Carpometacarpal (CMC) arthroplasty provides well-documented pain relief with preservation of thenar function for the treatment of basal joint arthritis. Nevertheless, a segment of the population undergoing this procedure will continue to have pain following surgery. Anecdotally, the authors hypothesize that unrecognized midcarpal (capitolunate) arthritis is a major contributor to persistent pain after CMC arthroplasty. The prevalence of midcarpal arthritis in patients with basal joint arthritis is unknown.

GOAL

- establish the radiographic prevalence of midcarpal arthritis in CMC and/or STT (scaphotrapezotrapezoid) arthritis patients.

MATERIALS AND METHODS

- Standardized anteroposterior (AP) radiographs of the hand were retrospectively reviewed.
- graded using the Eaton classification for CMC arthritis (Table 1).
- graded using the Eaton classification for CMC arthritis (Table 2).
- All radiographs were reviewed and analyzed with Centricity PACS-IW (GE Healthcare, Little Chalfont Buckinghamshire, United).
- Data were analyzed with Chi square, and Fisher's exact tests with adjusted residuals with a significance level of $p < 0.05$ using Prism GraphPad 5.0 (GraphPad Software, Inc., La Jolla, Calif.) statistical software .

Eaton Grade	Description
Grade 1	Slight joint space widening
Grade 2	Slight narrowing of the CMC joint with sclerosis and osteophytes less than 2mm
Grade 3	Marked narrowing of the CMC joint with osteophytes great than 2mm
Grade 4	Pantrapezial arthritis (STT involved)

Table 1. Eaton grading system for CMC arthritis.

Sohda Grade	Description
Grade 1	No or nearly no arthrosis
Grade 2	Definite arthrosis but not severe;
Grade 3	Severe arthrosis

Table 2. The Sodha grading system for osteoarthritis.



Figure 1. Examples of patients with basal joint and midcarpal arthritis. On the left is a 55yo nurse anesthetist who presented after CMC arthroplasty with continued pain in wrist. On the right is a 54 year old male who presented with thumb base pain but on exam also had pain in the wrist joint. X ray shows both CMC joint arthritis and luno-capitate arthritis.

RESULTS

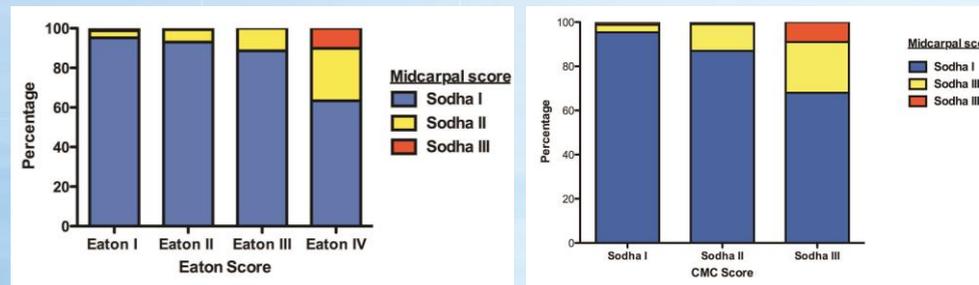


Figure 2. (Left) Percentage of midcarpal Sodha arthritis scores for Eaton basal joint arthritis scores of I through IV ($X^2 95.294$, $p < 0.0001$). (Right) Percentage of midcarpal Sodha arthritis scores for Sodha basal joint arthritis scores of I through III ($X^2 53.151$, $p < 0.0001$).

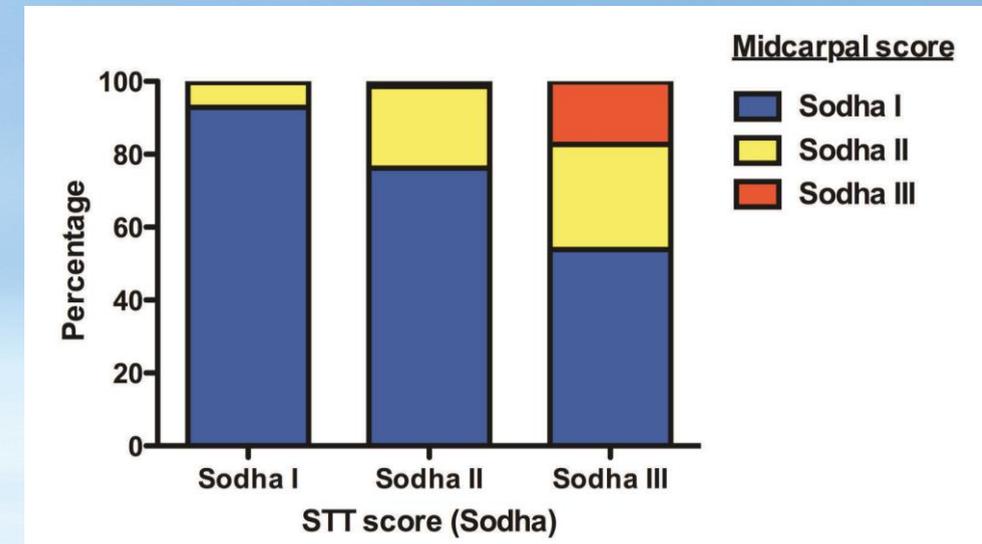


Figure 3. Percentage of midcarpal Sodha arthritis scores for Sodha STT joint arthritis scores of I through II ($X^2 147.984$, $p < 0.0001$).

896 x-rays were reviewed. The overall prevalence of STT arthritis in this population was 64%. The overall prevalence of midcarpal arthritis in this population was 23.5%. The prevalence of midcarpal arthritis in patients with radiologic evidence of CMC arthritis was 25.4%. The prevalence of severe midcarpal arthritis was 7.0%.

CONCLUSIONS

- The prevalence of midcarpal arthritis in patients with basal joint arthritis is 24%.
- The presence of two locations of arthritis may explain persistent hand and wrist pain in this population despite CMC arthroplasty.
- Clinically, this data will allow hand surgeons to better educate patients with basal joint and midcarpal arthritis regarding the possibility of incomplete pain relief following CMC arthroplasty.