

2019 NEHS Annual Meeting Abstract Submission

ABSTRACT TITLE *	Complications following total wrist arthrodesis
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Name of who will present abstract at NEHS meeting on December 6, 2019 Please note that the same person cannot present more than one abstract at the meeting. *	Merel Hazewinkel
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ABSTRACT – should include background information and a description of methods, programs, or practices. *

Introduction: This study aimed to investigate the overall complications and the factors associated with major complications after total wrist arthrodesis.

Methods: We retrospectively identified adult patients that underwent total wrist arthrodesis using CPT codes, ICD-9 and ICD-10 and verified these by medical chart review. We included patients (n=218) that were treated at a single institutional system from January 1st 2002 to January 1st 2019. The mean age was 53.3 ± 15.0 years and the median follow-up was 5.3 years (IQR=1.7-9.0). The most common indications for wrist arthrodesis included degenerative arthritis (n=46, 21%), inflammatory arthritis (n=54, 25%) and posttraumatic arthritis (n=39, 18%). All wrist arthrodeses were performed using a dorsal fusion plate or dorsal spanning plate, either with autograft (n=171, 78%), allograft (n=8, 3.7%), a combination of both (n=16, 7.3%) or without graft (n=23, 11%). A major complication was defined as any reoperation, infection or nonunion following wrist arthrodesis. We performed a multivariable logistic regression to evaluate factors associated with major complications.

Results: Seventy-three (34%) patients had a postoperative complication, where soft tissue complications (n=20, 9.1%) were the most common followed by symptomatic implants (n=18, 8.7%), implant failure (n=11, 5.1%) and infection (n=11, 5.1%). Forty-six (21.1%) patients reported a major complication, including 42 reoperations, two nonunions and two infections. Reoperations were performed at a median of 0.6 years (IQR=0.3-1.5) following surgery and the indications included symptomatic hardware (n=14, 33%), implant failure (n=8, 19%) and infection (n=7, 17%). In bivariate analysis, prior wrist surgery was associated with a higher rate of major post-operative complications (14.2% vs 29.6%, $p=0.007$). Other factors that may play a role in post-operative complications are smoking ($p=0.072$), wrist arthrodesis on dominant hand ($p=0.066$), younger age ($p=0.087$) and the use of 2-3 proximal screws compared to 4 proximal screws ($p=0.092$). However, we did not have sufficient power to show statistical significance. Additionally, 2.3% of the patients without prior carpal tunnel release were diagnosed with post-operative carpal tunnel syndrome.

Conclusion: Roughly one-third of the patients undergoing wrist arthrodesis experience a post-operative complication, of which 63% are major complications with the majority needing repeat surgery. Prior wrist surgery was associated with major post-operative complications, the soft tissue envelope is often compromised in these patients. Consideration of carpal tunnel release at the time of wrist arthrodesis may be reasonable.