SCIENTIFIC ARTICLE

Patient- and Disease-Specific Factors Associated With Operative Management of de Quervain Tendinopathy

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Purpose It remains unclear which factors, patient- or disease-specific, are associated with electing to undergo operative management for de Quervain tendinopathy. Our null hypothesis was that no patient- or disease-specific factors would be associated with the choice of surgical treatment of de Quervain tendinopathy.

Methods We performed a retrospective review of consecutive patients diagnosed with de Quervain tendinopathy over 3 years by 1 of 3 fellowship-trained hand surgeons at an urban academic institution. Descriptive statistics were calculated for patient baseline and disease-specific characteristics. Cohorts were compared using bivariate analysis for all collected variables. Binary logistic regression with backward stepwise term selection was performed including independent predictors identified by bivariate analysis.

Results A total of 200 patients were identified for inclusion. Bivariate analysis revealed that surgically treated patients were significantly more likely to have Medicaid insurance, psychiatric illness history, and disabled work status. Regression analysis revealed an association between surgical treatment and 2 of the factors evaluated: Medicaid insurance status and psychiatric illness history.

Conclusions Psychiatric illness and Medicaid insurance status are associated with undergoing surgical release of the first dorsal compartment. These findings support the use of a biopsychosocial framework when treating patients with de Quervain tendinopathy. *(J Hand Surg Am. 2017;■(■):1.e1-e7. Copyright © 2017 by the American Society for Surgery of the Hand. All rights reserved.)*

Type of study/level of evidence Prognostic IV.

Key words de Quervain, risk factor, tendinopathy, tendinitis, treatment.

De Quervain tendinopathy is a common condition causing radial wrist discomfort and swelling resulting from myxoid degeneration and thickening of the tendon sheath.[1,2] Historically, the mainstay of treatment has been surgical release, with a success rate greater than 90%.[3–7] This treatment approach changed substantially with the advent of injectable corticosteroids in the early 1950s. Today, most patients respond positively to nonsurgical measures, with reported success rates ranging

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from 62% to 93% after injection of the first extensor compartment.[8–13] Other treatments, including bracing and oral anti-inflammatory medications, may also be effective, especially for patients with mild symptoms.[14] Even for patients with severe symptoms, corticosteroid injections may provide durable pain relief.[14] However the success of nonsurgical treatment for de Quervain tendinopathy is not universal, and some patients elect to proceed with surgical release of the first extensor compartment.[5,15]

It has been established that a separate extensor pollicis brevis subsheath and extensor triggering may both adversely influence the efficacy of nonsurgical treatments for de Quervain tendinopathy.[11,16] Other groups have studied a limited subset of additional biologic and patient factors that may affect the efficacy of nonsurgical treatments for de Quervain tendinopathy. Lane et al[14] observed that disease severity predicted the extent of pain relief afforded by use of an orthosis and oral anti-inflammatory medicine. Surgeon-to-surgeon variations and prior corticosteroid injection, but not age, race, or sex, influenced whether patients underwent surgical treatment for de Quervain tendinopathy.[17] Earp et al[18] observed that age, sex, handedness, body mass index, and prior diagnosis of trigger finger were associated with failure of a single corticosteroid injection, as defined by obtaining a subsequent injection. However, factors associated with surgical treatment as an end point were not evaluated. In light of research efforts to elucidate the association between orthopedic outcomes and psychosocial factors[19–24] as well as the impact of depression on upper-extremity disability and perceived pain,[19,25,26] the work of Earp et al could be expanded upon by evaluating these psychosocial factors.

Despite these insights, current understanding remains rudimentary regarding how patients pursuing surgical treatment for de Quervain tendinopathy differ from most who are treated nonsurgically. The purpose of our study was to determine comprehensively which patients would be more likely to pursue surgical treatment for de Quervain tendinopathy by considering disease-specific, psychosocial, and additional patient-specific factors. The null hypothesis was that there would be no patient- or disease-specific factors associated with surgical treatment of de Quervain tendinopathy.

MATERIALS AND METHODS

We performed a retrospective chart review on patients diagnosed with de Quervain tendinopathy between September 2012 and June 2015 by fellowship-trained hand surgeons at an urban academic medical center. We obtained approval for this retrospective cohort study from the University of Pennsylvania's institutional review board (protocol 823893).

Patients were identified through a query of the electronic medical record for the de Quervain tendinopathy International Classification of Diseases, Ninth Revision diagnostic code, 727.04. At our institution, the attending surgeon reviews diagnostic codes after each patient visit to verify accuracy. For each patient, clinical documentation associated with the initial hand surgery clinic visit was reviewed to corroborate the diagnosis of de Quervain tendinopathy. To be included in the study, all patients were deemed eligible for surgical intervention. Examination findings of tenderness or swelling over the first dorsal compartment, positive Finkelstein or Hitchhiker signs (tenderness with resisted thumb radial abduction), and a corroborating history without specific traumatic injury were verified. To be included, documentation of radial-sided wrist tenderness plus at least one additional specific examination maneuver (Finkelstein and/or Hitchhiker signs) was required. Patients with unclear diagnoses based on coding and clinical documentation were excluded. Patients aged less than 18 years and those with rheumatoid arthritis or prior first extensor compartment release were excluded. For patients with bilateral disease, only the wrist involved at initial presentation or the most symptomatic wrist was considered. After we implemented these inclusion and exclusion criteria, we recorded follow-up duration and data pertaining to chosen patient-specific and disease-specific predictors. Tables 1 and 2 provide comprehensive lists of potential patient- and disease-specific predictive factors, respectively. Patients were considered to have a psychiatric illness if documentation of a depression or anxiety disorder was present in a medical note or problem list in the electronic medical record. Fibromyalgia, complex regional pain syndrome, and extensor triggering were also considered to be potential predictive factors, but no patient in the current series had these diagnoses.

Patients were categorized into 1 of 2 cohorts: those who underwent surgical release of the first extensor compartment (operative cohort) and those who had not (nonsurgical cohort). At our institution, treatment decisions are made by the patient and surgeon using a shared decision-making model: Options, associated risks, and prognostic information, as supported by the current literature, are discussed with each patient for observation, placement of a thumb spica orthosis, oral