Objective

To develop and validate a classification system for urethral stricture disease (USD) based on retrograde urethrogram (RUG), patient history, and physical exam.

Introduction

Medical classification systems help categorize complex disease, predict outcomes, aid in communication, and facilitate research.

Male urethral stricture disease is a heterogeneous condition and differences in stricture length, location, and etiology impact treatment choice and outcomes.

The absence of widely implemented stricture classification system impairs the ability to compare outcomes between surgeons, centers, and surgical techniques.

Methods

3 variables selected: clinically useful and known to predict outcomes

L: stricture length
S: stricture segment/location
E: stricture etiology

Figure 1 and Figure 2 developed over 3 sequential validation steps

• 22 clinical vignettes detailing stricture history, physical exam, and retrograde urethrogram distributed to 20 reviewers to provide classification

• Interrater reliability was assessed using Light’s Kappa statistical analysis

• Kappa=0.7 used as threshold of sufficient inter-rater agreement

• Reviewer feedback and analysis of vignettes with poor agreement used to revise the classification system in an iterative fashion

• Culminated with in-person Trauma and Urologic Reconstruction Network of Surgeons (TURNS) meeting, at which the final classification system was unanimously agreed upon by attendees based on interrater reliability data

Results

• Overall Kappa= 0.79 (substantial agreement)

• Individual component kappa values increased with each validation step

  L: 0.71 to 0.72 to 0.76
  S: 0.50 to 0.56 to 0.70
  E: 0.85 to 0.98 to 0.93

Conclusions

• The inter-rater reliability of the LSE classification system was sufficiently high to be used clinically.

• This system has also now been validated in complementary studies for its ability to predict urethroplasty type and surgical outcomes.

• Widespread use of a classification system in clinical and research endeavors will improve communication with other clinicians, with prospective patients, and will facilitate multi-institutional outcomes studies and meta-analyses.

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