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Urethral Injury and Other Urologic Injuries During Transanal Total Mesorectal Excision: An International Collaborative Study

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Abstract

Objective: To identify risk factors for urethral and urologic injuries during transanal total mesorectal excision (taTME) and evaluate outcomes.

Background: Urethral injury is a rare complication of abdominoperineal resection (APR) that has not been reported during abdominal proctectomy. The Low Rectal Cancer Development Program international taTME registry recently reported a 0.8% incidence, but actual incidence and mechanisms of injury remain largely unknown.

Methods: A retrospective analysis of taTME cases complicated by urologic injury was conducted. Patient demographics, tumor characteristics, intraoperative details, and outcomes were analyzed, along with surgeons' experience and training in taTME. Surgeons' opinion of contributing factors and best approaches to avoid injuries were evaluated.

Results: Thirty-four urethral, 2 ureteral, and 3 bladder injuries were reported during taTME operations performed over 7 years by 32 surgical teams. Twenty injuries occurred during the teams' first 8 taTME cases ("early experience"), whereas the remainder occurred between the 12th to 101st case. Injuries resulted in a 22% conversion rate and 8% rate of unplanned APR or Hartmann procedure. At median follow-up of 27.6 months (range, 3-85), the urethral repair complication rate was 26% with a 9% rate of failed urethral repair requiring permanent urinary diversion. In patients with successful repair, 18% reported persistent urinary dysfunction.

Conclusions: Urologic injuries result in substantial morbidity. Our survey indicated that those occurring in surgeons' early experience might best be reduced by implementation of structured taTME training and proctoring, whereas those occurring later relate to case complexity and may be avoided by more stringent case selection.