Bulking up: Rethinking first-line surgical management for female stress urinary incontinence in Canada

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KEY MESSAGES

- Periurethral bulking agents are safe and effective.
- Periurethral bulking agents should be considered alongside midurethral slings as first-line surgical treatments for stress urinary incontinence.

Female stress urinary incontinence (SUI) and mixed urinary incontinence (MUI) represent a substantial global burden with variable reported prevalence rates upwards of 53% (age-indexed ≥ 20 years).[1] Although the burden of specialty care is shared among urologists and gynecologists, when surgical options are pursued, urologists tend to operate on older patients with more extensive comorbidities.[2] When patients pursue surgical correction, midurethral slings remain the primary recommendation of the Canadian Urological Association (CUA), American Urological Association (AUA), and the European Association of Urology (EAU).[3-5] This recommendation is not without some restraint. The CUA Canadian Urological Association position statement on the use of transvaginal mesh outlines the broad safety considerations of the mid-urethral sling.[6] When a sling is placed for stress urinary incontinence, the surgeon should be adequately trained in their specific technique and capable of recognizing and managing mesh-related complications. This sentiment is echoed by countless urologic, gynecologic and pelvic surgical organizations.[7]

Despite their well-documented efficacy and safety, there has been a considerable decline in vaginal sling training and implementation.[8,9] A combination of decreased training opportunities, and confusing patient-centred literature regarding mesh safety, has culminated in an anti-mesh climate. These discussions routinely arise in clinical settings. Convincing patients that mesh is well-supported by these urologic institutions is a nuanced discussion. Many ultimately will forego treatment secondary to these concerns. Many urologists do not offer sling treatment in Canadian settings, and those that do, do not always perform mesh removal.[10] The

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decline in urologists offering surgical correction, coupled with the medicolegal concerns of performing slings, whilst not being able to manage the complications, has led to a gross underservicing of female incontinence patients.

Periurethral bulking, specifically polyacrylamide gel, offers a remarkably favorable safety profile, one that we believe should upset the long-held belief that slings represent the primary first line surgical option. It acts as a homogeneous gel without the particulate matter that causes the foreign body inflammatory reactions seen in older, historical bulking agents. Recent randomized trials comparing polyacrylamide to slings have highlighted important safety and efficacy findings.[11] While five-year data indicates that bulking may not meet strict non-inferiority thresholds for objective cure relative to tension-free vaginal tape (TVT), the data clearly shows that the majority of women treated with polyacrylamide bulking are satisfied with their treatment (74.7%) while experiencing half the rate of complications seen with TVT. Crucially, the complications associated with bulking are minimal, transient, and overwhelmingly non-catastrophic. When patients are offered a shared decision-making model that frames bulking as a low-risk, albeit potentially less definitive, first step, a significant proportion will choose the bulking agent.

The CUA has recently established the maximal acceptable wait time for female incontinence procedures at less than 24 weeks.[12] Appropriately, many community urologists forgo mesh placement as they do not have the volume or training to support a mesh-based solution to incontinence. This culminates in referrals to pockets of specifically trained urologists or tertiary care centres which significantly impair our collective ability to meet this 24-week recommendation. Periurethral bulking with agents such as polyacrylamide gel represents a viable solution for this. The relatively inert nature of newer agents, improved safety profile relative to slings, reasonable learning curve, and the ability to easily train with porcine genitourinary models positions bulking as an opportunity for not only reconstructive urologists, but community urologists as well.[13] Through broadening the urologists offering periurethral bulking, we will be able to serve our patients faster while minimizing harm.

Additional advantages of periurethral bulking include the ability to perform the procedure in an ambulatory, office-based setting, which preserves valuable operating room resources. Crucially, it may reduce the risk of exacerbating the urge component in patients with mixed urinary incontinence—a well-documented outcome of sling procedures. Furthermore, bulking agents offer a viable treatment avenue for patients suffering from SUI complicated by impaired detrusor contractility. In this demographic, the risk of postoperative urinary retention following the placement of a mid-urethral sling is high. Historically, these patients have been faced with difficult alternatives: proceeding with an autologous fascial sling that often necessitates clean intermittent catheterization (CIC) due to its obstructive nature, or, more rarely, undergoing implantation of a female artificial urinary sphincter.

Our goal in community urology is to deliver high-quality, safe, and efficient care that aligns with both patient goals and institutional realities. Routine utilization of polyacrylamide hydrogel as the initial surgical intervention for SUI and MUI respects patient autonomy by

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offering a minimally invasive, mesh-free option. It minimizes harm, while simultaneously offering a durable, high-satisfaction choice. Its relatively minor learning curve facilitates widespread adoption amongst community urologists, avoiding unnecessary delays in care as patients await sub-specialty consultation. Furthermore, it demonstrates administrative responsibility by moving low-acuity cases out of the main operating theatre. As urologists performing both peri-urethral bulking and vaginal slings, we believe it is time for our clinical pathways to reflect this evidence. We should secure peri-urethral bulking as a safe and effective first-line surgical option, alongside, and not below, midurethral slings.

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