BJU Int 2026; **138:** 68–69 doi:10.1111/bju.70291

BJUI
BJU International

Comment

Reconstructive urology at a crossroads: innovation, identity, and future

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Over the past two decades, the landscape of urological surgery has had a deep transformation, driven by advances in robotic technology [1], the refinement of endoscopic instruments, and the development of innovative devices such as drug-coated balloons. While these breakthroughs have surely improved patient care and expanded therapeutic possibilities, they have also begun to modify the shape of the professional identity of reconstructive urologists.

Reconstructive urology has historically been defined by technical excellence in open surgery, creativity, good tissue handling, graft harvesting, and complex anatomical variations. The reconstructive urologist has long been the problem solver, the specialist to whom others refer when they struggle with urethral strictures, ureteric injuries, and bladder neck contractures. However, today, as an increasing number of these conditions become accessible to robotic and endoscopic techniques, a critical question emerges: what will be the role of the reconstructive urologist in the next decades? One of the most important changes involves the management of bladder neck and vesicourethral anastomotic stenoses, traditionally addressed through open or endoscopic techniques by reconstructive surgeons. Recently, several high-volume centres have begun to treat complex or recurrent cases robotically, taking advantage of enhanced visualisation and dexterity to perform a reconstruction of the bladder neck or the anastomosis after prostatectomy. This trend, while still at the beginning, is rapidly growing. If it continues, it could lead to these procedures being performed primarily by robotic surgeons, who often have training in oncology or general urology, rather than reconstructive surgery. Similarly, ureteric strictures are now increasingly managed robotically, through end-to-end anastomosis, ureteroureterostomy, ureteric re-implantation, ureteroplasty using buccal mucosa, or even bowel or appendix interposition [2,3]. In this model, the reconstructive urologist risks becoming a 'technical adjunct' rather than the primary surgeon. Similarly, the pyeloplasty, once a foundational procedure in reconstructive training, now belongs almost exclusively to the robotic surgeon [4].

Concurrently, over recent years, endourology is again taking its place as a dominant force in the treatment of strictures. The advent of drug-coated balloons has shown promising results in the treatment of short bulbar urethral strictures, with data suggesting a possible prolonged patency compared to standard dilatation or internal urethrotomy [5,6]. As this technology matures and indications expand, its appeal may grow especially among general urologists and endourologists, who typically serve as first-line managers of strictures. Even more alerting for reconstructive urology, drug-coated balloons are now being studied and proposed for ureteric strictures as well. Should their efficacy be confirmed, this could significantly reduce the number of patients referred for open or robot-assisted ureteroplasty, further narrowing the reconstructive surgical interventions. The trajectory we observe in reconstructive urology is reminiscent of what transpired in cardiac surgery over the past 30 years. The rise of interventional cardiology and structural heart interventions has dramatically curtailed the indications for traditional open-heart surgery. Today, percutaneous techniques dominate, and many cardiac surgeons have been relegated to emergencies or complex salvage procedures. Reconstructive urologists may face a similar fate if they do not evolve. Relying only on open techniques or remaining isolated from robotic and endoscopic advances, risks obsolescence. Already, younger generations of urologists are entering practice with robotic and endoscopic skills but without strong foundations in open reconstruction urology. Without proactive integration, the field may become fragmented, and the reconstructive surgeon may become marginalised. To secure its future, reconstructive urology must embrace a hybrid identity. Surgeons must incorporate robotic and endourologic techniques into their skillset, not as options but as integral components of their armamentarium. Just as robotic urological oncology has absorbed and redefined cancer surgery, so too must robotic and endoscopic techniques become native to reconstruction. This means rethinking training pathways, restructuring fellowships, and promoting a culture of technological curiosity. It also means increase collaboration with endourologists and robotic surgeons not as competitors, but as partners in comprehensive care. For example, the judicious use of drug-coated balloons by a reconstructive expert who understands its limitations may be safer and more effective than indiscriminate application. The next decade will be critical for

reconstructive urology, and the mood should be 'evolution', not 'extinction'. The pressures of technological evolution, institutional economics, and shifting referral patterns demand a strategic and forward-looking response. The reconstructive surgeon must adapt or risk being replaced. This is not a call for abandonment of traditional principles, but for their integration into a new framework, one that embraces the tools of the present and anticipates the needs of the future. By doing so, reconstructive urology can reaffirm its relevance and reassert its leadership in the management of complex urological conditions.

Disclosure of Interests

Nothing to declare.

References

1 **De Marchi D**, **Mantica G**, **Tafuri A et al.** Robotic surgery in urology: a review from the beginning to the single-site. *AME Med J* 2022; 7: 16

2 **Xu M**, **He Y**, **Ji G**, **Song Z**, **Liang C**. Robotic-assisted versus laparoscopic and open buccal mucosa graft ureteroplasty for complex ureteral strictures: a systematic review and meta-analysis. *J Robot Surg* 2025; 20: 97

3 **Hassan AA**, **Mady AM**, **Abozied H et al.** Robotic assisted vs. open ureteral reimplantation in adults: a systematic review and meta-analysis. *J Robot Surg* 2025; 19: 373

4 **Mantica G**, **Ambrosini F**, **Parodi S**, **Tappero S**, **Terrone C**. Comparison of safety, efficacy and outcomes of robot assisted laparoscopic pyeloplasty vs conventional laparoscopy. *Res Rep Urol* 2020; 12: 555–62

5 **VanDyke ME**, **Morey AF**, **Coutinho K et al.** Optilume drug-coated balloon for anterior urethral stricture: 2-year results of the ROBUST III trial. *BJUI Compass* 2024; 5: 366–73

6 **Oszczudłowski M**, **Białek Ł**, **Vetterlein MW**, **Trauma and Reconstructive Urology Working Party of the European Association of Urology Young Academic Urologists**. Paclitaxel-coated balloon dilation for urethral stricture disease: 5 years of clinical insights and future directions for Optilume. *Eur Urol Focus* 2025; 11: 747–51

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