

## Redefining Surgical Innovation in Urology: A Historical Perspective of the Original Publications on Pioneering Techniques in Urology

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**Abstract :** Introduction: Innovation is key to the advancement of medicine and improvement in patient care. This is particularly true in surgery, where pioneering techniques have transformed operative management from a historically highly risky peri-morbid and disfiguring to the contemporary low-risk, sterile and minimally invasive treatment modality. There is a delicate balance between enabling innovation and minimizing patient harm. Publication and discussion of novel surgical techniques allow for independent expert review. Recent journals have increasingly stringent requirements for publications and often require larger case volumes for novel techniques to be published. This potentially impairs the initial publication of novel techniques and slows innovation. The historical perspective provides a better understanding of how requirements for the publication of new techniques have evolved over time. This is essential in overcoming challenges in developing novel techniques. Aims and Objectives: We explore how novel techniques in Urology have been published over the past 200 years. Our objective is to describe the trend and publication requirements of novel urological techniques, both historical and present. Methods: We assessed all major urological operations using multipronged historical analysis. An initial literature search was carried out through PubMed and Google Scholar for original literature descriptions, followed by reference tracing. The first publication of each pioneering urological procedure was recorded. Data collected includes the year of publication, description of the procedure, number of cases and outcomes. Results: 65 papers describing pioneering techniques in Urology were identified. These comprised of 2 experimental studies, 17 case reports and 46 case series. These papers described various pioneering urological techniques in urological oncology, reconstructive urology and endourology. We found that, historically, techniques were published with smaller case numbers. Often, the surgical technique itself was a greater focus of the publication than patient outcome data. These techniques were often adopted prior to larger publications. In contrast, the risks and benefits of recent novel techniques are often well-defined prior to adoption. This historical perspective is important as recent journals have requirements for larger case series and data outcomes. This potentially impairs the initial publication of novel techniques and slows innovation. Conclusion: A better understanding of historical publications and their effect on the adoption of urological techniques into common practice could assist the current generation of Urologists in formulating a safe, efficacious process in promoting surgical innovation and the development of novel surgical techniques. We propose the reassessment of requirements for the publication of novel operative techniques by splitting technical perspectives and data-orientated case series. Existing frameworks such as IDEAL and ASERNIP-S should be integrated into current processes when investigating and developing new surgical techniques to ensure efficacious and safe innovation within surgery is encouraged.

**Keywords :** urology, surgical innovation, novel surgical techniques, publications

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