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tools and devices in the hands of experienced surgeons eager to push their considerable skills to new limits in the hope of providing better surgical care. It is refreshing to see developments in this field driven by surgeons with continuous ongoing input needed. Additionally, however, is the absolute need for patient-reported outcomes, which have been glaringly absent from so-called feasibility studies reporting on new surgical techniques. Closing this loop is critically important and one that best upholds the Hippocratic mandate to “do no harm.” From patient input we gain a better understanding of where benefits may be found and the true priorities regarding cosmesis, surgical outcomes, and the adverse impact of complications on quality of life and patient satisfaction. These data would also prove beneficial in understanding the driving force behind the development of these approaches.

The pioneering work of these investigators is not to be understated, and it is hoped that they continue to develop

these techniques, devices, and instruments as they move ahead into appropriately conceived prospective randomized trials with clearly defined end points demonstrating the advantages of these approaches. Their endeavors will ideally serve in the future to produce concrete advantages for the field and important quantifiable benefits to their patients.

Conflicts of interest: The author has nothing to disclose.

Reference

- [1] Greco F, Cindolo L, Autorino R, et al. Laparoendoscopic single-site upper urinary tract surgery: assessment of postoperative complications and analysis of risk factors. *Eur Urol* 2012;61:510–6.

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Platinum Priority

Reply from Authors re: Jonathan A. Coleman. Laparoendoscopic Single-Site Surgery for the Upper Urinary Tract: Awaiting Evidence. *Eur Urol* 2012;61:517–8

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Minimally invasive surgery aims to provide effective treatment of diseases while decreasing access-related morbidity with reduced postoperative pain, shorter hospital stay, faster recovery, improved cosmesis, and early return to normal daily activity. Laparoscopy has undoubtedly represented a major step in this direction, as it has revolutionized the way surgery has been done, taught, and implemented. If we look at our field, laparoscopic surgery has moved from the skepticism and criticism of the early 1990s to widespread acceptance, so that, for example, laparoscopic nephrectomy is now defined as standard of care for patients with T2 renal tumors.

Evolution of minimally invasive techniques has furthered an impetus in the surgical community to reduce the invasiveness of laparoscopic surgery. Laparoendoscopic single-site surgery (LESS) has been developed in an attempt to further reduce the morbidity and scarring associated

with surgical intervention [1]. Actually, many institutions have made a safe stepwise transition from standard laparoscopy to LESS for selected indications. However, LESS has not replaced standard laparoscopy, even at high-volume institutions performing the technique [2].

The true incidence of complications related to LESS needs to be more clearly defined. Even if complications have been reported for several series of specific LESS procedures [3], very few studies have specifically addressed the issue of complications with LESS. As outcomes data accumulate with this approach, it will be critical for studies to use standardized complications-reporting methodologies to allow for meaningful comparisons across institutions.

Surgical complication depends on the surgeon's level of skill, the surgeon's learning curve for the procedure, the patient's comorbidity and risk factors, and the facilities available [4]. The clinical relevance of reporting surgical complications is related primarily to the fact that the dissemination of technology is very rapid, with current grades of recommendation based on levels of evidence in their corresponding studies. However, in the surgical field, randomized controlled trials with high levels of evidence are uncommon, and this limitation naturally leads to a low number of recommendations.

When new surgical procedures are introduced or when several surgical approaches exist for one procedure, there is a need to compare outcomes and complications for each specific approach in a sound and reproducible way. Standardized classification and severity grading of surgical complications is essential for proper interpretation of surgical outcome data, for comparing the surgical outcomes between institutions or individual surgeons, and for comparing techniques in case randomized trials are either lacking or are difficult to perform [4]. The more widespread

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use of grading schemes in reporting complications has facilitated standardization to some degree.

Based on these considerations, our study represents the first large multi-institutional analysis specifically evaluating risk factors for complications following LESS for upper urinary tract diseases and using a standardized classification. At the same time, we could recognize malignant disease at pathology and high American Society of Anesthesiologists score as the main predictive factors for complications after LESS for upper urinary tract surgery. According to our results, surgeons approaching LESS should start with benign diseases in patients with low surgical risk to minimize the likelihood of postoperative complications [5].

In his editorial, Coleman raises some questions concerning the actual relevance of LESS surgery, pointing out that no reports have demonstrated better outcomes relative to other minimally invasive surgical options including standard laparoscopic and robotic techniques [6].

This is an important aspect to be analyzed because conflicting results can be found in the literature. In one of the first reported comparative studies, Raman et al. [7] showed that the superiority of LESS over standard laparoscopic nephrectomy was “limited” to a merely subjective cosmetic advantage, even if this advantage was not specifically measured or quantified. In contrast, in recently reported prospective randomized comparison of LESS simple nephrectomy and conventional laparoscopic simple nephrectomy, Tugcu et al. reported that patients after LESS presented a reduced time to return to normal activities with lower postoperative pain than in the laparoscopic group and that all patients undergoing LESS were very pleased with the cosmetic outcome [8]. In a comprehensive literature review reported in this same journal, it was pointed out that the outcomes after single-site surgery in non-high-risk patients seem to be comparable but not superior to conventional laparoscopy [3].

Nevertheless, to date, no study has investigated whether the true benefits of LESS are restricted to only improved cosmesis or whether there are also benefits with respect to surgical trauma. Generally, it is true that, compared to standard laparoscopy, the benefits of LESS in terms of reduction in morbidity are modest at best. The improvement in morbidity of standard laparoscopy over open surgery is much greater than that between laparoscopy and LESS.

Another question raised by Coleman concerns the use of additional ports in LESS surgery. In our opinion, this cannot be regarded as a downside of LESS at this time, especially for LESS partial nephrectomy or for right-sided LESS radical nephrectomy (where liver retraction might be needed). The

use of one additional port should be always undertaken liberally if the surgeon is uncomfortable during LESS or during the learning curve, embracing the concept that patient safety comes first (“do not harm”). LESS still represents a demanding surgical procedure. The lack of triangulation of conventional instruments due to the parallel insertion of these devices, with consequent instrument collision, remains the most important problem for the surgeon and requires robust experience with conventional laparoscopy [1].

For the foreseeable future, the task of those committed to the endeavor of *scarless* surgery is to run and to report adequate prospective randomized trials with clearly defined end points. We agree with Dr. Coleman: This should be the way to go, whenever possible. However, more efforts to develop technologies and systems to perform these techniques easily are awaited from the laparoscopic instrument manufacturers.

In the meantime, we must always embrace the concept of evaluating all new technologies systematically and objectively, as the best patient outcomes remain our *polar star*.

Conflicts of interest: The authors have nothing to disclose.

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