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Reply to: doi: 10.1007/s00464-013-3111-4: TEM or TAMIS: what is the future of transanal endoscopic surgery?

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Without Abstract

To the Editor,

We read with much interest the letter by Atallah and Albert [[1](#)] about our article comparing transanal minimally invasive surgery (TAMIS) and transanal endoscopic microsurgery (TEM) in a dry lab [[2](#)].

There are three reports on the use of single-port devices for transanal endoscopic surgery in which the conclusions are not as straightforward as reported by Atallah and Albert, and their use is not always possible. The first is the clinical series reported by Van den Boezem et al. [[3](#)], who found that 2 of 12 lesions were judged too close to the SILS™ Port and the procedures were converted to conventional transanal surgery. A clinical report by Barendse et al. [[4](#)] presented 2 of 15 cases in which the single-port device did not reach sufficient intrarectal retractor expansion and conversion to conventional TEM was necessary. The device used was the one selected by the same authors in a comparative study performed in a porcine model [[5](#)], in which the authors judged the insertion of the GelPOINT® (Applied Medical, Rancho Santa Margarita, CA, USA) impossible with the SILS™ Port (Covidien, Mansfield, MA) and the TriPort™ (Olympus America Inc., Center Valley, PA, USA), which were not stable enough and demanded manual fixation, while CO₂ leaked through the TriPort™ trocar ports. So, it is not only our opinion that TEM equipment is necessary as backup.

It is true that we decided to compare TEM/TEO® (transanal endoscopic microsurgery/transanal endoscopic operation) (Karl Storz GmbH, Tuttlingen, Germany) with only one of the available single-port devices. It is one of the two most commonly used for this purpose and, not by chance, one of the two FDA approved for this indication. We did not take into consideration the use of what Atallah and Albert referred to as “the accessory devices commonly used by TAMIS surgeons, such as automated suturing and knot forming devices” because their use is not at all common in TEM/TEO® procedures. This confirms the fact that visualization and tissue manipulation are worse under TAMIS conditions. Difficulty, of course, is not the litmus test of a new technique, but when one wants to show that the new technique is an alternative to an established technique with comparable benefits for the patient, one has to prove equivalence or benefits in terms of clinical outcomes and/or costs. It was not the goal of our study to answer to these fundamental questions, nor can the existing published series, which include a maximum of 110 cases, with lesions in some cases as small as 0.7 cm in diameter.

Being well aware of the complexity of the original TEM setup, which we used for more than 15 years, we opted to use TEO since 2008; this equipment was used in the comparative study. Its setup time is in line with that for single port, and it allows the use of the dorsal lithotomy position because the rectoscope profile has a flute beak much less pronounced than the original TEM. However, we still recommend turning the patient for large anterior lesions, especially if the distance from the anal verge is in a range where there might be the risk of opening the peritoneum. Lateral positioning of the patient is almost not used anymore by surgeons who use the original TEM device, a maneuver that was mostly responsible of the consistent setup time mentioned by Atallah and Albert [[1](#)].

The last point the authors made was with respect to costs. We believe that there is no argument that TEO instrumentation is much cheaper than the routine use of any single-port device. Single-port

devices are affordable at about 360€ each, provided that standard laparoscopic instruments are used, while the cost of 30°, 5-mm, 50-cm-long optics is about 5,700€. The 7.5-cm TEO instrument, including its support arm and the dedicated 5-mm optics, is affordable at a one-time cost of about 12,500€, with almost no need for service. In other words, after 18 procedures, the costs are equivalent and any further procedures would represent extra cost for those centers that routinely use single-port devices. Not taking into account the need for specific automated suturing and knot-forming devices, as underlined by the authors, all extremely expensive, nor the fact that while TEM/TEO is a true single-surgeon procedure, TAMIS always requires two scrubbed surgeons at the OR table.

What is scary of the diffusion of TAMIS is that there is no need for a specific background in transanal procedures and their correct indications. A large meta-analysis recently published by Barendse et al. [6] has demonstrated substantial equivalence between TEM and endoscopic mucosal resection in terms of recurrence rate, with evident advantages for the flexible endoscopic technique. This is true if TEM is performed as a partial thickness or submucosal excision. The real advantage of transanal surgery compared to flexible endoscopy techniques is the capability of performing a full-thickness excision, reducing the risk of deep-margin infiltration and consequently the need of further surgery. The diffusion of the TAMIS technique, if not combined with the diffusion of expertise in the management of rectal neoplasms, as has been the case for TEM, may lead to erroneous treatment.

In conclusion, we designed an ex vivo comparative study to evaluate the ergonomics and technical efficacy of TEM and TAMIS and found that TEM was superior; this does not imply in any form that TAMIS is not safe or feasible in the clinical setting. However, our experimental results, with the limits related to the laboratory setting, dampen the excess optimism induced by the few reports of limited case series. Therefore, while awaiting results from randomized controlled clinical studies, we suggest caution in the acceptance of a new technique as reasonable general practice, especially where oncologic radicality is concerned.

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