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Transanal minimally invasive surgery (TAMIS) versus transanal endoscopic microsurgery (TEM): Is one better than the other?

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To the Editor,

We read with interest the recent publication by Rimonda et al. [1] comparing transanal minimally invasive surgery (TAMIS) using a SILS Port (Covidien, Mansfield, MA) with the more traditional transanal platform, transanal endoscopic microsurgery (TEM), for local excision of rectal neoplasms. We congratulate them for their effort to provide the first comparative study of the two platforms. However, an unexplained disparity exists between the findings of this small ex vivo study ($n = 10$) and the data obtained from multiple clinical series on TAMIS referenced by the authors (combined $n = 109$).

The first report of using a multichannel port transanally was published by our group in this journal on 21 February 2010, and this approach was named TAMIS [2]. Subsequently, other investigators reported their experience with various multichannel ports [3–6]. In each of these publications, however, the conclusion was the same: this new approach for transanal surgery is feasible and safe, with encouraging clinical results. In these studies, no significant difficulty was reported. Instead, investigators typically pointed to the elegant simplicity of TAMIS as one of its principal advantages, which contradicts the findings in this comparative trial. These other clinical data thereby validate TAMIS, and this, in fact, has led to United States Food and Drug Administration (FDA) approval of two multichannel ports for use with TAMIS (SILS Port by Covidien, and GelPOINT Path Transanal Access Platform by Applied Medical, Inc., Rancho Santa Margarita, CA).

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Using their ex vivo comparative model, the authors concluded that TEM has a significant advantage, particularly with closure of the surgical defect, and emphasized that this was more technically challenging when performed with the TAMIS platform. They cite this difficulty as a key reason why TEM was preferred over TAMIS by the surgeons (neither of whom was experienced with either platform). But the comparison represents a limited construct and does not account for surgeon skill level, training, or experience. Nor does it account for the various types of TAMIS platforms available or the accessory devices commonly used by TAMIS surgeons, such as automated suturing and knot-forming devices. These devices aid significantly with the more technically demanding part of TAMIS, namely, closure of the surgical defect after local excision has been completed. Such automated devices, readily available from industry, are tools commonly used by seasoned TAMIS surgeons. These devices allow for rapid and accurate closure of rectal wall defects and have resulted in excellent outcomes.

The TAMIS platform allows surgeons to translate familiar laparoscopic skills to transanal surgery, which is expected to result in rapid acquisition of the skill necessary for competency. Despite this advantage, the authors found the TAMIS approach to be difficult. Perhaps difficulty, however, should not be the litmus test of a new technique. Traditionally, safety and efficacy are considered more relevant parameters.

A more durable method for validating TAMIS is to compare clinical outcomes obtained using this platform with those obtained using TEM. In the largest series to date on TAMIS for local excision of rectal neoplasia ($n = 50$), the rate of locoregional recurrence and tumor fragmentation was found to be comparable with those reported for TEM, and no appreciable difference in morbidity was

observed [7, 8]. Therefore, TAMIS and TEM are both thought to be capable of providing the same high-quality resection.

The authors also cite a 30 % failure rate for TAMIS in their study. This represents a vast disparity compared with the results obtained in vivo by our group. For 50 consecutive patients who underwent TAMIS, the failure rate was 0 % [7]. Therefore, TEM equipment is not necessary as a backup, and the conclusion by Rimonda et al. [1] that centers offering TAMIS are "forced" to have the more costly TEM equipment is erroneous.

Although multiple series and clinical data strongly support the use of TAMIS, the authors state that there are "serious concerns" about the introduction of TAMIS into clinical application, asserting that TEM is the gold standard and that TEM can be used for more sophisticated procedures such as en bloc resections. However, TEM is not the only platform that allows for such resections. The TAMIS platform also has proved to be quite effective for advanced transanal surgery, including transanal TME [9–17]. In fact, the first completely transanal total mesorectal excision reported was performed using TAMIS, not TEM [18].

This ex vivo study has other important limitations. For example, the authors, in their experimental model, ignore the complexity of the TEM setup. With TAMIS, the patient may always be placed in the dorsal lithotomy position, and the setup time typically is 1–3 min [2, 7]. In contrast, with TEM, the patient must be positioned so that the lesion is dependent, and the setup time, even for expert TEM surgeons, typically is 20 min or longer.

Certainly, both TAMIS and TEM surgeons would agree that both platforms mandate appropriate training and that neither of these advanced transanal platforms is intended for novice surgeons. Ultimately, surgeon preference and background as well as device availability and hospital cost economics govern which instruments and platform are selected for use. Based on available clinical data, use of either the TEM and TAMIS platform in experienced hands results in high-quality local excisions with similar morbidity profiles. Therefore, it is our belief that they are effectively equivalent advanced transanal platforms.

Disclosures Sam B. Atallah and Matthew R. Albert are consultants for Applied Medical, Inc.

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