TEP versus TAPP: comparison of the perioperative outcome in 200 patients with a primary unilateral inguinal hernia

INTRODUCTION
Transabdominal preperitoneal patch plasty (TEP) and total extraperitoneal patch plasty (TAPP) are common methods for inguinal hernia repair. This present analysis compares the prospective data collected for all patients who had undergone primary unilateral inguinal hernia repair using either transabdominal preperitoneal patch plasty (TAPP) or total extraperitoneal patch plasty (TEP).

MATERIALS AND METHODS
We registered 200 patients. All postoperative complications occurring up to 30 days after surgery are recorded. On 1-year follow-up, postoperative complications are once again reviewed when the general practitioner and patient complete a questionnaire. This present analysis compares the prospective data collected for all patients who had undergone primary unilateral inguinal hernia repair using either transabdominal preperitoneal patch plasty (TAPP) or total extraperitoneal patch plasty (TEP).

ABSTRACT
A total of 200 patients were enrolled prospectively between September 1, 2013, and April 15, 2016, in RIMS, RAIPUR. Of these patients, 61.9% had a TAPP and 38.1% a TEP repair. The dependent variables were intra- and postoperative complication rates, number of reoperations as well as absolute and relative frequencies. The results of unadjusted analyses were verified via multivariable analyses. Multivariable analysis verified the results of unadjusted analysis, indicating that the surgical technique did not have any significant impact, also while taking account of other factors, on occurrence of intraoperative ($p = 0.1648$; OR: 1.214; 95% CI: 0.933; 1.596) and general postoperative complications ($p = 0.0738$; OR: 1.315; 95% CI: 0.974; 1.775). Postoperative surgical complications [OR = 2.323 (1.882; 2.866); $p < 0.0001$] were noted more often after TAPP. Furthermore, the hernia defect size [OR = 0.872 (0.582; 0.872); $p < 0.0001$] or scrotum [OR = 2.170 (1.501; 3.137); $p < 0.0001$] hernia and age ($p = 0.0002$; 10-year OR = 1.135 (1.062; 1.213)] had a significant impact on the occurrence of postoperative complications. Complications were observed more commonly for larger hernia defects and a scrotal hernia. However, the difference in the postoperative complication rate between TEP and TAPP did not result in any difference in the reoperation rate (TEP 0.82% vs TAPP 0.90%; $p = 0.6165$). The intraoperative and general postoperative complication rates as well as the reoperation rate for complications show no significant difference between TEP and TAPP.

KEYWORDS:
TEP, TAPP, Intraoperative complications, Seroma, Postoperative complications, Inguinal hernia repair.
TEP was observed across different patient collectives. However, TAPP technique, hence this higher complication rate compared with the postoperative complication rates, which were higher for TAPP vs TEP. The significance difference occurred in the case of a scrotal hernia with a hernia sac reaching as far as the scrotum. Only experienced TAPP experts should use laparoscopic repair for scrotal hernias. It appears that TEP surgeons are more reluctant to use this technique for scrotal hernia because of the challenging anatomy, indicative of a significantly higher rate of postoperative complications amenable to conservative treatment occurred in the former. These manifested as seromas, something that was consistent with these findings. Therefore, by adopting a tailored approach for inguinal hernia surgery, as recommended in the guidelines on the basis of a decision-making tree, the indication for use of the laparoscopic technique for very large hernias and for scrotal hernias should be based on ultra stringent criteria. If the surgeon has only limited experience of the laparoscopic technique, it would be advisable to opt instead for the Lichtenstein technique in the case of a scrotal hernia with a hernia sac reaching as far as the scrotum.

In our study, no difference was seen in the age or gender distribution between the TEP and TAPP groups. Conversely, significant differences were discerned between the TEP and TAPP groups in terms of the proportion of medial, lateral and scrotal hernias. That also applied for the defect size. Significantly, more medial and scrotal hernias as well as larger defects were seen for the TAPP group. Conversely, there were fewer postoperative complications in young patients and in patients with a medial or lateral hernia. Likewise, the multivariable model revealed the significant influence of the surgical technique on seroma formation or on secondary bleeding. For TAPP, postoperative seromas were seen significantly more often (OR=5.873; 4.11; 8.380), p=0.0001. For every 1000 patients undergoing surgery, there would therefore be 35 seromas for TAPP patients compared with six seromas on using TEP. The presence of a scrotal inguinal hernia also had a significant effect on the seroma rate, with this being conducive to onset of seroma (p=0.0001; OR=2.784 (1.837; 4.217)); smaller hernia defects (p=0.0002; 1v III: OR=0.398 (0.258; 0.615), II v III: OR=0.754 (0.499; 1.149), OR=0.500; 2}; 10-year OR=1.155 (1.062; 1.215]) had a significant impact on the occurrence of complications. Conversely, the scrotal hernia occurred more commonly for larger hernia defects and a scrotal hernia. Conversely, there were fewer postoperative complications in young patients and in patients with a medial or lateral hernia. Likewise, the multivariable model revealed the significant influence of the surgical technique on the onset of complications. Postoperative complications occurred in eight out of every 1000 TAPP patients and in 11 out of every 1000 TEP patients. Conversely, the secondary bleeding rate was influenced more by the ASA status (p=0.005), medial inguinal hernia (p=0.02) and age (p=0.04). A low ASA score, e.g., ASA III versus I: OR=0.765 (0.490; 0.876) or scrotal hernia defects (p=0.01; OR=2.170 (1.50; 3.137)) and hernia age (p=0.002); 10-year OR=1.155 (1.062; 1.215) had a significant effect on the occurrence of complications.

Discussion

In our study, no difference was seen in the age or gender distribution between the TEP and TAPP groups. Conversely, significant differences were discerned between the TEP and TAPP groups in terms of the proportion of medial, lateral and scrotal hernias. That also applied for the defect size. Significantly, more medial and scrotal hernias as well as larger defects were seen for the TAPP group. Despite that disparity, no difference was seen in the intraoperative complication rate between TEP and TAPP. The significant difference in the postoperative complication rates, which were higher for TAPP (TEP 1.70 vs TAPP 3.97; p=0.0001), was due to a significantly higher seroma rate (TEP 0.51% vs TAPP 3.06%; p=0.0001). In multivariable analysis, the variables identified as impacting onset of a postoperative complication, in particular seroma formation, were a large hernia defect and a scrotal hernia. Both hernia pathologies were found significantly more often in patients operated on with the TAPP technique, hence this higher complication rate compared with TEP was observed across different patient collectives. However, despite adjustment of these parameters, TAPP per se proved to be a lower but independent risk factor. To what extent the various surgeons’ experience played a role here cannot be elucidated on the basis of that analysis. As such, the difference in perioperative outcome between TEP and TAPP must be imputed more to the indication than to the surgical technique. Since a greater number of large inguinal hernias and scrotal hernias were operated on with the TAPP technique, it is significantly higher rate of postoperative complications amenable to conservative treatment occurred in the former. These manifested as seromas, something that was consistent with these findings. Therefore, by adopting a tailored approach for inguinal hernia surgery, as recommended in the guidelines on the basis of a decision-making tree, the indication for use of the laparoscopic technique for very large hernias and for scrotal hernias should be based on ultra stringent criteria. If the surgeon has only limited experience of the laparoscopic technique, it would be advisable to opt instead for the Lichtenstein technique in the case of a scrotal hernia with a hernia sac reaching as far as the scrotum.

CONCLUSION

Finally, analysis of a large patient collective in routine practice has revealed that 25 years after the introduction of laparoscopic surgical techniques for inguinal hernia repair, TAPP and TEP techniques can be carried out with a very low rate of predominantly harmless complications and with an acceptable duration of operation. Today, onset of serious visceral and vascular complications is rare, even in non-specialist hospitals, but the situation is still not satisfactory. However, a further reduction can only be achieved through continuing training, accrual of knowledge and improvement of the surgical techniques.

References

