

## **SUMMARY**

Our studies indicate that it is possible to treat effectively patients with foreign bodies in the urinary bladder, using keyhole surgery. This requires the use of appropriate techniques, including transvesical laparoendoscopic single-site surgery (T-LESS) as well as modern surgical instruments, such as the TriPort+. Single ports techniques can be as effective as open and laparoscopic surgery, with respect to reduced invasion, good cosmetic outcome, and, frequently, reduced hospitalization time. Thus, single port techniques can be a valuable alternative to traditional procedures.

### **Study A.**

This study presents the use of a T-LESS technique in a patient with an unusual foreign body (a metal cylinder with power cable) introduced into the urinary bladder as a result of sexual auto-stimulation. This is probably the first use of this technique for the removal of such an unusual foreign body. Until now, treatment of such a patient could only be carried out by open surgery, which is associated with increased morbidity and several days of hospitalization. It should be noted that classic multi-port laparoscopic access would be ineffective, due to the insufficient width of standard trocars. An indicator of the originality of our technique is the citation of our publication in prestigious International Neurourology Journal. The clearly reduced invasiveness of this procedure and the safety of the operation is indicated by the mere 8 h of post-operative hospitalization.

### **Study B.**

In this study, as an international first, we present the preliminary results of the complete removal of several bladder stones of medium size from the urinary bladder using the T-LESS technique. In view of a lack of consensus as to which of the currently applied techniques would be the most appropriate option for the patient, our procedure brought to light a new and attractive alternative in the treatment of this relatively frequent condition of the lower urinary tract. Transvesical laparoendoscopic access allows the removal of multiple, or hard, medium-sized stones that could not be removed transurethrally, and that are relatively small for invasive cystolithotomy. The intact removal of stones (without fragmentation with lithotripsy) reduces the risk of a recurrence of the illness that may result from small fragments of stone remaining in the bladder mucosa and forming nuclei for crystallization. Further advantages of this method are short

hospitalization time, minimal blood loss, excellent cosmetic effect, and quick return to social and vocational activity.

### **Study C.**

This study describes our results in removing iatrogenic foreign bodies, such as polypropylene material used in the treatment of stress urinary incontinence that eroded into the bladder. We present the comparison of the results of open, laparoscopic and transvesical techniques. Differences in hospitalization, complications and recurrence are noted. In comparison to standard laparoscopy, valuable advantages of the T-LESS technique are shorter hospitalization time and an almost pain-free post-operative period, reduced invasiveness in comparison to other techniques, and a decreased risk of recurrence, particularly concerning transvesical intervention. In this study we show that even such a complicated procedure may be carried out safely and effectively with minimal intervention. Comparison of our results with those of other investigators confirms the effectiveness and safety of this method. With more than a year of follow up, a reliable assessment of the effectiveness of this procedure can be made.