



Training potential in minimally invasive surgery in a tertiary care, paediatric urology centre

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Summary

Background

Minimally invasive surgery (MIS) is being utilized more frequently as a surgical technique in general surgery and in paediatric urology. It is associated with a steep learning curve. Currently, the centre does not offer a MIS training programme. It is hypothesized that the number of MIS procedures performed in the low-volume specialty of paediatric urology will offer insufficient training potential for surgeons.

Objective

To assess the MIS training potential of a highly specialized, tertiary care, paediatric urology training centre that has been accredited by the Joint Training Committee of Paediatric Urology (JCPU).

Study design

The clinical activity of the department was retrospectively reviewed by extracting the annual number of admissions, outpatient consultations and operative procedures. The operations were divided into open procedures and MIS. Major ablative procedures (nephrectomy) and reconstructive procedures (pyeloplasty) were analysed with reference to the patients' ages. The centre policy is not to perform major MIS in children who are under 2 years old or who weigh less than 12 kg.

Results

Every year, this institution provides approximately 4300 out-patient consultations, 600 admissions, and

1300 procedures under general anaesthesia for children with urological problems. In 2012, 35 patients underwent major intricate MIS: 16 pyeloplasties, eight nephrectomies and 11 operations for incontinence (seven Burch, and four bladder neck procedures). In children ≥ 2 years of age, 16/21 of the pyeloplasties and 8/12 of the nephrectomies were performed laparoscopically. The remaining MIS procedures included 25 orchidopexies and one intravesical ureteral reimplantation.

Discussion

There is no consensus on how to assess laparoscopic training. It would be valuable to reach a consensus on a standardized laparoscopic training programme in paediatric urology.

Often training potential is based on operation numbers only. In paediatric urology no minimum requirement has been specified. The number of procedures quoted for proficiency in MIS remains controversial. The MIS numbers for this centre correspond to, or exceed, numbers mentioned in other literature. To provide high-quality MIS training, exposure to laparoscopic procedures should be expanded. This may be achieved by centralizing patients into a common centre, collaborating with other specialities, modular training and training outside the operating theatre.

Conclusion

Even in a high-volume, paediatric urology educational centre, the number of major MIS procedures performed remains relatively low, leading to limited training potential.

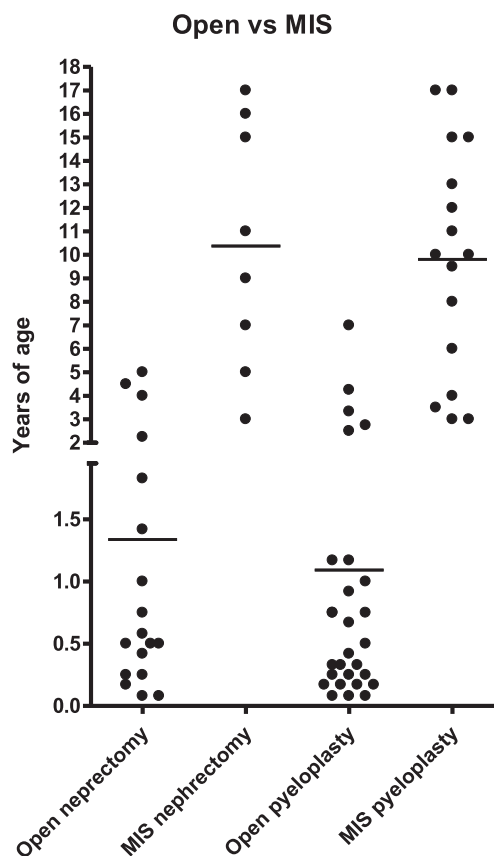


Figure Pyeloplasty and nephrectomy performed by open or minimally invasive surgery (MIS) in 2012 with reference to the age of the patient.

Introduction

Paediatric urology is a relatively new medical specialty that grew out of urology and paediatric surgery. Minimally invasive surgery (MIS) is becoming a more prominent procedure in the field. Its foundation lies in the use of the cystoscope to inspect the peritoneal cavity. MIS has mainly been employed for the localization of non-palpable, undescended testes [1–3].

Over the years, MIS has evolved due to improvements in the instrumentation and the creativity of specialized surgeons. Simple diagnostic and ablative procedures have paved the way for intricate, reconstructive, laparoscopic surgery [4]. Currently, orchidopexy, partial nephrectomy, and ureteral reimplantation are widely performed in paediatric urology. Laparoscopic retroperitoneal and transperitoneal pyeloplasty is believed to be the gold standard procedure, and patients are increasingly requesting 'keyhole' surgery [5].

The outcomes of MIS are comparable to those of open techniques. Laparoscopy has been shown to be effective and safe with a low morbidity rate [2,6,7]. It is known to have a steep learning curve due to its technical challenges. Extended training and repetition are needed to become a skilful laparoscopic surgeon [8,9]. In fact, the rate of complication in MIS is mainly dictated by the experience of the surgeon [7].

The intensive training needed for this procedure has become an important issue and has received increasing

attention from the medical community. Increased numbers of operations are needed to improve in MIS techniques. Nevertheless, no minimum number of procedures has been specified as a requirement for performing MIS procedures in paediatric urology. There is no consensus concerning the number of operations needed to become proficient in MIS. Assessment of surgeons is mainly based on their supervisors' evaluations [8].

The Department of Paediatric Urology at UMC, Utrecht (UMCU) was accredited in 2006 by the Joint Committee of Paediatric Urology (JCPU). In 2008, a close collaboration began with the Department of Paediatric Urology of the Academic Medical Centre (AMC) in Amsterdam. As a result, one central centre (AMC-UMCU) has been formed under the same leadership and operates at two locations. In this centre ablative MIS is being performed by two staff members. Currently, the centre does not offer a separate structured MIS training programme. Therefore, MIS is included in the basic training programme.

This article reviews and analyses the overall surgical MIS activity in a highly specialized, tertiary care, paediatric urology training centre to evaluate the centre's potential as a MIS training centre.

Materials and methods

The clinical activity of the AMC-UMCU centre was retrospectively reviewed. The data were collected from the

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