The British Association of Urological Surgeons: guidelines for training in laparoscopy

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OBJECTIVE

To report the guidelines of the British Association of Urological Surgeons (BAUS), commissioned by the National Institute for Health and Clinical Excellence (NICE) in response to safety concerns about the rapid uptake of new, complex laparoscopic procedures.

METHODS

A combination of expert opinion and review of published studies was used to produce a consensus document.

RESULTS

Patient demand and excellent published reports have prompted many consultant urologists with little previous laparoscopic training to learn laparoscopic procedures. Laparoscopic urological surgery involves some of the most complex procedures in all of surgery and there has been a lack of formal training for consultants. The guidelines produced by BAUS are designed to help consultant urologists gain experience safely, by a combination of didactic learning and mentorship. We recommend that urologists work with a mentor and master ablative laparoscopic surgery before attempting more complex procedures such as prostatectomy, cystectomy, pyeloplasty and partial nephrectomy. These guidelines were approved by BAUS Council in October 2006.

CONCLUSIONS

These guidelines are intended to be complementary to the NICE guidelines on specific procedures (available at www.nice.org.uk).

KEYWORDS

laparoscopy, training, guidelines, nephrectomy, radical prostatectomy

INTRODUCTION

Training in urological laparoscopic surgery in the UK has been inadequate because of several factors, i.e. a shortage of designated training centres, a shortage of recognized trainers, and the lack of appropriate facilities, in the form of either equipment, expertise or support from respective Trusts.

Laparoscopic surgery in urology differs from its counterparts in general surgery or gynaecology, in that there are no relatively simple high-volume procedures suitable for training. Consequently, laparoscopy in urology has traditionally been considered a sub-specialist procedure; in fact, most consultant urologists in the UK have had little if any training in laparoscopic urological procedures. Future training needs to be targeted and more structured for the trainee to gain experience while maintaining patient safety.

The UK has few centres of excellence for urological laparoscopic surgery. This situation is compounded by a lack of trained manpower, expertise, funding and flexibility. Britain has fewer consultant urologists per capita than in Europe or North America. The present funding structure of the UK NHS does not reward hospitals for undertaking complex procedures and new technological advances. The job plans of traditional consultant urologists, which typically include two or three inpatient theatre sessions per week, do not offer enough access to theatre time nor the flexibility needed to develop a timely and effective referral service focused on laparoscopic surgery.

Training in laparoscopy would be enhanced by a change in the law on the use of animal-based 'wet labs' for surgical training, which at present effectively amounts to a complete prohibition in the UK. Instead of mastering complex tasks in a training facility, UK trainees must learn within the context of clinical practice, i.e. on patients, with all of its limitations and risks. A training centre should be able to offer laparoscopic training in both a structured 'dry' and 'wet' laboratory facility, and in a busy clinical setting. Trainees at such a centre should be able to participate in complex laparoscopic surgery and undertake laboratory-based simulation practice on a daily basis. Currently no centre in the UK offers this level of training.

The goal of this report is to guide urological surgeons through the learning process and thus reduce the risks associated with the introduction of complex new procedures.

CRITERIA FOR TRAINING IN LAPAROSCOPIC UROLOGICAL SURGERY

As part of training in laparoscopic urological surgery, we recommend that urologists fulfil the following training criteria. First, before introducing laparoscopic procedures to a hospital, consultants need to comply with local clinical governance rules. For instance, a common requirement is to have written approval from the lead clinician and medical director, as well as the local Clinical Effectiveness Committee. Consultant urologists training in laparoscopic techniques are encouraged to work in partnership with another consultant within their department where possible, to develop a team approach.

The technique of laparoscopic nephrectomy, when performed by experienced surgeons in

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high-volume centres, is associated with better safety and recovery times than with the open surgical approach [1,2]. Laparoscopic radical nephrectomy appears to confer at least the same oncological benefits as open radical nephrectomy [3,4]. The BAUS Laparoscopic Nephrectomy Audit reported that centres undertaking >12 cases/year have better outcomes in terms of conversion, transfusion and complication rates than those with fewer cases [5].

The National Institute for Health and Clinical Excellence (NICE) published guidelines (www.nice.org.uk) for several laparoscopic procedures, including nephrectomy, pyeloplasty and radical prostatectomy (RP). While each procedure has been deemed to be safe and effective by NICE, each document refers to the adequacy of training as being of particular concern.

Those wishing to learn urological laparoscopy, assuming no previous laparoscopic skills, must complete the following steps:

- Complete a 'dry lab' course and develop facilities to practice at 'home'.
- Complete an animal-based 'wet lab' course.
- Watch live procedures in the context of demonstrations, i.e. a master class.
- Attend a high-volume centre to watch designated cases; and the proposed theatre team to visit a high-volume centre to learn all aspects of the surgery.
- Identify a mentor.
- Start practising laparoscopic nephrectomy with the mentor.
- At the end of the training period, do several procedures independently observed by an experienced laparoscopic surgeon.
- Audit their results; submit the results to the BAUS annual laparoscopic nephrectomy audit.
- Aim to do at least 12 marker cases per year.

The sequence of the training programme for each urologist might vary, to take into account previous laparoscopic experience and the expertise offered by consultant urological colleagues within the department. For example, a consultant working in a urology department with an established laparoscopic workload would not necessarily need to visit another centre, while a newly appointed consultant with extensive training could start by identifying a mentor (fifth point). We recommend strongly that urologists with complementary skills work together in teams of two, e.g. one with expertise in laparoscopic surgery and the other in open surgery. An alternative model of training is to work for a designated period, e.g. 6 months, in a high-volume centre.

Laparoscopic skills, such as access, dissection, haemostasis and reconstruction, are initially best acquired in a 'skills-laboratory' environment, thus improving skills by practice. We recommend that each unit have an in-house dry simulator to maintain competence with the skills. Research has shown that such simulators enable trainees to maintain competency, by contrast to units with no access to simulators, where the trainees have to re-learn competency in the clinical setting [6–8].

UK centres should be identified which can offer intensive training in urological laparoscopic surgery. These centres should be beyond the initially difficult learning phase and undertaking a high volume of cases per year. The trainee would be expected to assist in laparoscopic cases, undergoing structured training in all aspects of the procedure, then to perform a designated number of cases under supervision. At the end of the training period, the trainee would either be accredited or recommended for further training.

ADVANCED LAPAROSCOPIC PROCEDURES

Further training can be undertaken in laparoscopic suturing and more advanced courses that are procedure-based, e.g. pyeloplasty, partial nephrectomy and RP. We recommend that these procedures are *not* carried out by clinicians with no previous experience in laparoscopic nephrectomy. Nevertheless, we recognize that entry criteria into this level of complex surgery can be fulfilled in several different ways, depending on the level of expertise in both open and laparoscopic procedures. For example, a consultant with extensive experience in open RP might choose to have focused training in laparoscopic RP by doing an intensive fellowship in that procedure, rather than training initially in laparoscopic nephrectomy. We will describe our preferred method for training, i.e. to become competent at standard upper tract laparoscopic procedures before moving on to more complex procedures. Complex upper tract procedures such as partial nephrectomy and pyeloplasty should *not* be undertaken without previous audited competence in nephrectomy. Once again, we recommend working as a team within a department, to take advantage of local expertise.

Consultants wishing to progress to more advanced procedures, e.g. laparoscopy for pelvic malignancy, should first establish competence in upper tract laparoscopic surgery. This can be accomplished by either competence-based assessment or by submitting audit data confirming safe practice. Following this, consultants should adopt the following approach:

- Attend a designated procedure specific 'wet lab' course.
- Watch live procedures in the context of demonstrations, i.e. a master class.
- Attend a high-volume centre to watch designated cases. The proposed theatre team should visit a high-volume centre to learn all aspects of the surgery.
- Identify a mentor.
- Start doing complex procedures with mentor.
- At the end of the training period, perform several procedures independently observed by an experienced laparoscopic surgeon.
- Audit results. Submit results to BAUS annual laparoscopic audit.

LAPAROSCOPIC RP

RP offers a potential cure for many men with early-stage prostate cancer and is being used with increasing regularity in the UK. The technique of laparoscopic RP, when done by experienced surgeons in high-volume centres, appears to offer unique advantages over other surgical approaches. Laparoscopic RP appears to confer the same oncological benefits as open RP, albeit with a faster recovery and less blood loss [9–12].

Problems associated with laparoscopic RP tend to be related to surgical experience and competence, not to the procedure itself. We think that it ought to be offered as a valid, safe treatment option to men with prostate cancer who are deemed appropriate for local radical therapy, but significant improvements in training are necessary before urologists or units in most parts of the UK can offer this procedure to patients in safety. Alternative training models are being developed involving modular training so that the tasks involved in this complex procedure can be learned in stages rather than 'all at once' [13,14].

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Laparoscopic RP is a uniquely challenging procedure, for which training in the UK is restricted to a few centres. The procedure demands an extremely high level of laparoscopic surgical competence and should not be offered to patients in the UK without strict adherence to the present guidelines on training. The primary reason for these guidelines is that laparoscopic RP, when done by inexperienced surgeons, is associated with a high incidence of serious short- and long-term complications. Thus, those urologists who work in cancer centres and are keen to develop a laparoscopic pelvic malignancy service should undertake the training suggested above. However, only a few units in the UK have experience of >50 procedures in this field.

The NICE guidance suggests that clinicians wishing to undertake laparoscopic RP should inform the clinical governance leaders in their trusts through the Clinical Effectiveness Committee. The same holds true for other advanced laparoscopic procedures, such as cystectomy, partial nephrectomy and pyeloplasty. They should ensure that patients offered this procedure understand any uncertainty about the procedure's safety and efficacy, and should provide them with clear written information. Use of NICE's 'Information for the Public' is recommended. Clinicians should ensure that appropriate arrangements are in place for audit or research, as publication of safety and efficacy outcomes will help to reduce current uncertainty.

Existing NICE cancer service guidance is available from their website (http://www.nice.org.uk), including recommendations on laparoscopic RP, pyeloplasty, and nephrectomy.

CONFLICT OF INTEREST

None declared.

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Abbreviations: **NICE**, National Institute for Health and Clinical Excellence; **RP**, radical prostatectomy.

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