

A Training Module for Laparoscopic Urology

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ABSTRACT

Objectives: A fellowship training model in laparoscopic urological surgery has been established for interested urologists to help them proceed from the pelvic trainer/animal laboratory environment to safe clinical practice. The objective of the model is to provide trainees with clinical experience under direct mentor supervision before embarking on independent laparoscopic urological surgery at their own base hospitals.

Methods: The fellowship model incorporates 9 fluid phases:

Phase 1 to complete basic and advanced training courses. Phase 2 to practice at home or in the office using pelvic trainers. Phase 3 to proceed to an animal laboratory course. Phase 4 to visit centers of international repute to observe high-volume laparoscopic urology. Phase 5 to observe the mentor perform several major renal laparoscopic cases. Phase 6 to perform several hand-assisted renal procedures under direct mentor guidance at the mentor hospital. Phase 7 to perform several laparoscopic or retroperitoneoscopic renal procedures, or both, under direct mentor guidance at the mentor hospital. Phase 8 to mentor assisted trainees to start laparoscopic surgery at their own hospitals. Phase 9 to practice laparoscopic urology independently.

Results: So far, 9 trainees have participated in the fellowship. Six have reached phase 9 with independent practice, 2 others are in phase 8, and 1 is in phase 7. Skills development has been steady, with progressive acquisition of surgical dexterity and spatial orientation.

Conclusion: This fluid fellowship model provides urologists with clinically applicable teaching experience to learn a relatively new surgical concept safely and effectively, thereby promoting clinical governance. It may be possible for other centers to establish similar fluid "mini"

fellowships to help disseminate laparoscopic surgical skills.

Key Words: Laparoscopy, Training skills, Fellowship.

INTRODUCTION

Although great enthusiasm exists for developing skills in laparoscopic urology in the United Kingdom, training opportunities are limited. This is primarily due to a lack of approved urology/laparoscopy fellowships, as exist in the United States. It is an unfortunate fact that many interested urologists do not progress beyond the initial courses stage and indeed a number of urologists who have attended animal laboratory training as well have not proceeded to regular urological laparoscopic practice. It was therefore thought prudent to create a fluid "mini" fellowship, enabling supervised training so that interested urologists could become comfortable and competent with laparoscopic urology.

METHODS

The fellowship program is available to those who have completed the 2 initial training steps, ie, basic/advanced training courses and an animal laboratory course. Prior practice on simulators using laparoscopic instruments is encouraged to enable the trainees to get the most out of their time spent with the mentor in the clinical setting.

Basic training is centered on the development of familiarity with the safe handling of laparoscopic instrumentation and stereoscopic skills in the dry laboratory setting. Advanced training involves a series of formal lectures followed by practice sessions in the animal laboratory; attendees are also shown live surgery via video links.

Skills training is assessed by the mentor in these phases by objectively marking the achievement of various predetermined parameters that evaluate safe acquisition of laparoscopic skills like clipping and suturing.

The fellowship program steps are broadly similar thereafter, but individual variations may occur, depending on the distance that the trainee has to travel and availability of the

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mentor. An honorary contract is raised for the trainee at the mentor hospital; the trainee then observes the mentor perform 4 or 5 laparoscopic renal procedures and may assist with the same by acting as the camera driver for these cases.

If possible, trainees then refer cases suitable for laparoscopic surgery to the mentor; this helps gestate the necessary workload. The first 4 cases that are performed by the trainee are usually hand-assisted simple or radical nephrectomies, and the aim is to perform at least a case a week at a dedicated theater session with the possibility of adding in more cases as appropriate. The trainee then goes on to perform conventional laparoscopic cases, again under mentor supervision, with the mentor initially acting as camera driver. The final training schedule involves retroperitoneoscopy and intracorporeal suturing. This program duration varies but is approximately 4 to 5 months, primarily due to the paucity of clinical material available in any one unit at a time, and secondly, to fit in with other work commitments.

Mentors are then awarded an honorary contract at the trainees' hospital to supervise the trainees during their first few cases therein. Trainees schedule simple cases initially and gradually increase the level of difficulty as their skills and confidence improve.

The final phase is trainees beginning unsupervised laparoscopic urological practice. Trainee are encouraged to discuss their first few scheduled cases with the mentor.

RESULTS

Nine consultant urologists have undergone training over the past 36 months. Six of them are in independent laparoscopic urological practice, and the others are in Phase 6 or above. Trainee One started this program in September 2000 and observed 4 simple nephrectomies and 1 radical nephrectomy before proceeding to Phase 6. Because of the distance involved, the mentor condensed stages 4 and 5 and performed 12 cases with the trainee at the trainee's hospital before the trainee entered independent practice. Since then, he has performed 14 unsupervised laparoscopic urological procedures. Trainee Two started the program in May 2001 and has performed 10 procedures with the mentor; he was fortunate to obtain further hands-on training abroad, which helped shorten his training. Trainee Three, Four, Five, and Six started the program in May 2002 and performed 10 procedures each with the mentor, before commencing unsupervised practice. Trainees Seven, Eight, and Nine are making steady progress,

currently performing hand-assisted procedures with the mentor who is offering support and advice without actually being scrubbed in for the procedure. It is anticipated that over the next few months trainees Seven, Eight, and Nine will adopt independent practice.

Skills development in all cases was steady, with a progressive increase in dexterity and improvement in spatial orientation.

DISCUSSION

For the neophyte laparoscopist, it is indeed a great leap of faith that has to be taken from the animal laboratory to the human arena; we perceive the main stumbling block to be a lack of direct mentor/trainee supervision. This program was designed to allow skill and confidence building under the direct supervision and guidance of experienced laparoscopic urologists, as initially suggested by Shalhav.¹ In effect, this reduces the conversion rate and complications² that otherwise could be a major issue; therefore, the transition to independent urological practice appears to be smoother. We also believe that the selective use of hand assistance early in the program helps build confidence and aids in development of 3-dimensional spatial orientation; secondly, the ability to directly apply digital pressure exists in case of unexpected vascular injury. Once trainees are facile with hand-assisted laparoscopic practice, they are then encouraged to move on towards pure laparoscopic and retroperitoneoscopic procedures; all trainees agreed that the initial phase helped them make the transition more easily.

Definite pitfalls do exist. The case load at one particular hospital may not be enough to enable concentrated dissemination of laparoscopic skills. As a result, sometimes trainees have had to spend up to 4 weeks on occasion without performing a single laparoscopic case; this in turn has a bearing on the length of the fellowship program.

It is not easy to put a finite number onto the number of mentored cases that would have to be performed by trainees before proceeding to independent practice because this appears to depend on innate skills,³ but 10 cases would seem to approximate an acceptable mean. Instructor credentialing, we believe, would be acceptable following 50 major laparoscopic cases.

A definite commitment is involved, both by the trainee and the mentor. Some trainees have had to forfeit other obligations for the duration of the fellowship, which they could not have done without support from their colleagues and the management in their respective hospitals.

We acknowledge unstinting support from anaesthetic colleagues, given the fact that anaesthetic/procedure time needs to be acceptable; this has obviously not always been the case when a new trainee joins the fellowship program. Support from urology colleagues is also mandatory to gestate the appropriate workload.

This program seeks to help safely relocate the teaching of laparoscopy from the lecture hall and animal laboratory to the clinical setting, and, in doing so, we hope to accelerate the training of interested, qualified urologists over the next few years. Residents and fellows are being trained in laparoscopic urology now; as a result, this fellowship may be phased out in the future; until this noticeable lacuna in training is filled, we would wish to continue to offer this training to interested consultant urologists.

CONCLUSION

A one-on-one fellowship program enables rapid, safe, and effective laparoscopic skills acquisition by established urologists.

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