

Editorial

Lack of training in endoscopy: a license to ...?

It is reasonable to assume that new approaches in the field of surgery require a certain amount of training before applying these operative procedures on patients. The history of laparoscopy seems to be an example of the contrary. Gynaecology was one of the first disciplines where laparoscopy was introduced (Raoul Palmer) and laparoscopy slowly invaded the field of gynaecology. It was an exciting new tool as it offered the possibilities of direct visualization of the pelvis through a small opening. While initial procedures were only diagnostic, minimal operative procedures were introduced (Debrock et al., 1979). A specific hand-eye coordination was at that point not necessary as the surgeon was looking directly through the endoscope. As operative procedures became more complex and time consuming, the physical burden for the surgeon was no longer sustainable. A camera system was introduced and the surgeon was looking at the screen while performing the surgery (Henning and Look, 1971; O'Sullivan, 1991). Although initially experienced as "not easy" there was no direct notion that special training was required to optimize this hand-eye coordination by using camera navigation. This is astonishing as in the beginning of the 1970's, with the introduction of microsurgery, courses were introduced all over the world to learn not only how to handle fine micro-instruments and fine suture material but also to adapt to the eye-hand coordination, mandatory for the performance of microsurgical operations by looking through the microscope (Boeckx et al., 1981). It can be questioned whether the surgeons who have been trained this way didn't have too many difficulties performing laparoscopic procedures while looking at a screen. Laparoscopy was perceived as a minimal invasive procedure and the late 80's were revolutionary years for laparoscopy.

In 1989 we believed that we were on the verge of global explosion. Despite the unquestionable passion at the beginning, laparoscopic surgery did not develop as hoped for and it became clear that minimal access didn't mean minimal invasiveness and difficulties and risks had been underestimated. Laparoscopy is not only a way of access; it is a different access with several advantages if performed properly. It needs a good knowledge of equipment, organization and ergonomics to improve the conditions of work and increase productivity. The perception of difficulty was due to hand-eye coordination, fixed entry points, long instruments, different tactile sensation and difficult control of movements. Because of the unacceptable amount of serious (lethal) complications in common laparoscopic procedures within general surgery and gynaecology, in the Netherlands the Ministry of Health performed a major inspection regarding patient safety. It concluded that: "To deal with the assurance of patient safety, it seems obvious, but not yet implemented, that future laparoscopic surgeons should possess objective measurable theoretical knowledge and practical skills, prior to enter in a one to one clinical training - teaching program". (<http://www.igz.nl/publicaties/rapporten/2007/mic>).

Recent developments in medical education do not allow to guarantee an adequate training in laparoscopic procedures. This is due to the European law on working hours and to the development of adequate new medical therapy resulting in a reduced number of indications for surgery. For these reasons there is no more place for the classical apprentice-tutor model and it is difficult to implement the latter for teaching and learning the technical aspects of laparoscopic procedures.

It is ethically no longer acceptable that this training is performed on patients. Psychomotor skills (hand-eye coordination and suturing), essential for each laparoscopic procedure, have to be trained before entering the operating room. Once these basic skills are acquired, one never loses them as it goes for biking or swimming as well. An improvement plateau in suturing skills has been reported by Botchorishvili et al. (2012), but it was not observed for the performance in nephrectomies. Although knowledge about longevity is still limited, we can expect that after a period of non-practicing, suturing will go slower but it will return rapidly to the acquired plateau. The paper by Sleiman et al. (2015) in this issue, clearly demonstrates the beneficial effect of training by shortening the operation time and reducing the number of mistakes and trauma. All these factors are

important to reduce the risks of postoperative adhesion formation. Not only minimizing trauma but also reduced operation time has been reported to be important in the prevention of adhesion formation in an experimental mouse model setting by Corona et al. (2011).

The huge benefit in training for SUTT in the group of surgeons with a large experience in laparoscopic procedures was not expected and may be a reflection of the initial lack of training in this procedure.

Different pelvi-trainers, virtual reality models, in vitro and in vivo workshops are now available but a standardised and quality controlled training program is frequently lacking. Several endoscopic societies however are aware of the importance of training programs. It is the privilege of the European Academy to provide a validated system for laparoscopic skills testing and training (LASTT) and laparoscopic suturing (SUTT) (Molinas et al., 2008).

These psychomotor skill training is part of the GESEA training program in the ESGE (Campo et al., 2014) and of the ECRES (European Certification for Reproductive Endoscopic Surgeons) training program within ESHRE. The future will show what the predictive validity of these training programs is and whether the required skills are transported to the operating theatre (Gallagher et al., 2003). These data unfortunately are still lacking today.

References

- Boeckx W, Gordts S, Vasquez G et al. Microsurgery in gynecology. *Int Surg.* 1981;66:47-52.
- Botchorishvili R, Rabischong B, Larraín D et al. Educational Value of an Intensive and Structured Interval Practice Laparoscopic Training Course for Residents in Obstetrics and Gynecology: A Four-Year Prospective Multi-Institutional Recruitment Study. *Journal of Surgical Education* 2012;69:174-9.
- Campo R, Puga M, Meier Furst R et al. Excellence needs training “Certified programme in endoscopic surgery”. *Facts Views Vis Obgyn.* 2014;6:240-4.
- Corona R, Verguts J, Binda MM et al. The impact of the learning curve on adhesion formation in a laparoscopic mouse model *Fertil Steril.* 2011;96:193-7.
- Debrock M, Brosens I. Laparoscopic tubal ring sterilization under local anesthesia. *Eur J Obstet Gynecol Reprod Biol.* 1979;9:41-4.
- Gallagher AG, Ritter EM, Satava RM. Fundamental principles of validation and reliability: rigorous science for the assessment of surgical education and training. *Surg Endosc.* 2003;17:1525-9.
- Henning H, Look D. Routine documentation in laparoscopy using the Polaroid camera. *Z Gastroenterol.* 1971;9:341-5.
- Molinas CR, De Win G, Ritter O et al. Feasibility and construct validity of a novel laparoscopic testing and training model. *Gynecol Surg.* 2008;5:281-90.
- O’Sullivan GC. Laparoscopy before and after the video screen. *Ir J Med Sci.* 1991;160:263-4.
- Palmer R. *Les explorations fonctionelles gynecologiques*, 2nd edition. 1974; Masson, Paris, pp. 226-8.
- Sleiman Z, Tanos V, Van Belle Y et al. The European Academy laparoscopic “Suturing Training and Testing” (SUTT) significantly improves surgeons’ performance. *Facts Views Vis Obgyn.* 2015;7:153-160.

Stephan Gordts

Leuven Institute for Fertility & Embryology

Schipvaartstraat 4, 3000 Leuven, Belgium

E-mail: stephan.gordts@lifeleuven.be