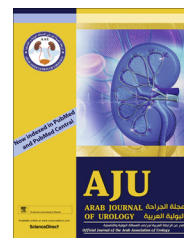




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EDITORIAL

The age of robotic surgery – Is laparoscopy dead?



Laparoscopy has now been utilised for more than 100 years. Initially, it could only be used for diagnostic purposes, as surgeons were not able to perform complex procedures with the available instruments. Later, visualisation was greatly improved with the invention of the Hopkins rod-lens system in the 1960s. Better working instruments followed and for the first time it was possible not only to inspect the abdominal cavity but also to perform simple procedures. At the beginning it was adopted by gynaecologists for the incision of ovarian cysts or tubal ligation, the new technique was then tried on more complex indications and the first laparoscopic cholecystectomy was described in 1985 by German surgeon Dr Erich Mühe. Nevertheless, despite this successful development, the majority of the surgical community remained sceptical and was rather slow to see the advantages of this minimally invasive surgery.

In the 1990s, urologist Ralph Clayman performed the first laparoscopic nephrectomy and the first laparoscopic prostatectomy followed 1 year later. Subsequently, laparoscopic surgery slowly became established in the traditionally progressive field of Urology; however, the shortcomings of the available instruments became apparent. That set the scene for the development of more complex systems, such as the Automated Endoscopic System for Optical Positioning (AESOP) and the ZEUS Robotic Surgical System (ZRSS), which later led to the development of the first da Vinci® surgical system, produced by Intuitive Surgical (Intuitive Surgical Inc., Sunnyvale, CA, USA). The da Vinci surgical system had an improved three-dimensional visual system and wristed instruments with seven degrees of freedom, which made it possible to access difficult to reach spaces and to perform complex surgical procedures. The prime example is the radical prostatectomy, where the robotic system became very successful and it did not take long before most radical prostatectomies in the USA and UK were performed using the da Vinci surgical system. The rest of the developed world has caught up in the

meantime. Nowadays, indications have broadened and to date there is nearly no urological procedure that has not been carried out successfully using the robot. Even the most complex procedure in urology, the radical cystectomy with intracorporeal neobladder, is done in specialist centres completely robotically and replicating the principles of open surgery.

A significant problem with the new robot-assisted techniques is that high-quality data regarding their superiority are still missing. Another well-known major problem is the higher cost of robotic surgery, which is only partially offset by shorter hospital stay and better outcomes. Especially in the initial phase of adoption, increased preparation time of the operating room and the cost of the robotic system are not in harmony with the raising cost pressures in health systems. Such factors need to be considered when deciding which technique should be used for a particular indication.

In this special issue of the *Arab Journal of Urology*, we have asked well-established experts in the field of minimally invasive surgery to review a comprehensive list of topics with the aim of answering the question of whether laparoscopy still has its place or if it has been replaced by robotic surgery altogether.

Conflict of interest

None.

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