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Can endourology fellowship training enhance minimally invasive surgery in urology practice?

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KEYWORDS

Endourology;
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ABBREVIATIONS

EFTS, endourology fellowship trained member of staff;
URS, ureteroscopy;
PCNL, percutaneous nephrolithotomy;
HOL(EP), holmium laser (enucleation of the prostate)

Abstract ***Objective:*** To evaluate the influence of fellowship training in endourology on different endourological procedures in a single institution.

Subjects and methods: The operative records of endourological and open surgeries were reviewed. Data analysed included numbers, types, and technical issues related to surgeries. The early study period ranged from September 1998 to September 2004, and the later period from January 2014 to June 2016. The study duration was classified into three periods according to the availability of an endourology fellowship trained member of staff (EFTS). In period A (September 1998 to September 2001) no EFTS was available, in period B (October 2001 to September 2004) an EFTS joined the urology unit, and in period C (January 2014 to June-2016) the EFTS had left the urology unit.

Results: In periods B and C the number of rigid ureteroscopy (URS) significantly increased compared with period A. Also, flexible URS was used for the first time in period B and continued in period C. The number of percutaneous nephrolithotomies increased in period B and continued to be performed in period C. Laparoscopic urological surgery was not undertaken in period A, and only done in four cases in

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period C, whilst it was performed in 62 patients in period B. Holmium laser enucleation of the prostate was carried out in 36 patients during period B and not performed in periods A and C. Finally, the number of open stone surgeries decreased in periods B and C.

Conclusion: The introduction of an EFTS definitely enhanced the practice of minimally invasive procedures.

Introduction

Over the past 50 years surgical specialties have been revolutionised by endoscopically based techniques. The collaboration of Harold H. Hopkins, Karl Storz and George Berci in the technology and design of endoscopic equipment facilitated the growth endoscopic surgery, which was recognised by the *Journal of Urology* as a 'milestone in urology' leading to the field known as 'Endourology' [1]. Endourology has since become an established subspecialty in urology. The terminology was popularised by pioneers who founded the Endourological Society in 1984 [1]. This subspecialty utilises most of the advanced technology in urology including ureteroscopy (URS), percutaneous renal surgery, laparoscopy, laser technology, shockwave lithotripsy, and recently robot-assisted surgery. Many centres worldwide have moved away from open surgery to minimally invasive procedures.

To develop this subspecialty further, the Endourological Society has recognised and initiated fellowship programmes to improve the level of practice of this technology dependent field of urology. To the best of our knowledge, the present study is unique in assessing the effect of fellowship training in endourology on urology practice. In the present study, we reviewed the effects of an endourology fellowship trained member of staff (EFTS; A.M.A.) joining the urology unit on the change in urology practice, especially on the numbers, types, and technical issues of minimally invasive surgeries in a single institution in Kuwait.

Subjects and methods

The operative records of endourological and open surgeries were reviewed in a single institution with 600 beds. The review included the number, types, and technical issues related to surgeries. The study was divided into three periods: period A, early stage (September 1998 to September 2001); period B (October 2001 to September 2004); and period C, late stage (January 2014 to June 2016). This was according to the availability of an EFTS in the department. In period A, and C the EFTS was not available, whilst in period B the EFTS was available. The EFTS (A.M.A.) had completed a residency training programme in Canada followed by a 1-year clinical endourology fellowship in the USA. The EFTS had the following minimally invasive procedures in his log per year during his fellowship: 160 percutaneous nephrolithotomies (PCNLs), 135 rigid URS, 22 flexible URS, and 44 laparoscopic urological surgeries.

With regard to the single institution where the study was done, in period A, the urology unit comprised nine members including two consultants, five specialists, and two residents. In period B the number of staff was 10 including two consultants, five specialists, and three residents, whilst in period C, there were 16 staff members, including two consultants, seven specialists, and seven residents. The unit had two operative days per week and two operating rooms available on each day.

The three study periods were compared for the number and indications of different endourological procedures, and technical issues. This included the number of rigid and flexible URS, the type of intracorporeal lithotripsy machine used with URS. Furthermore, the number of PCNLs and endopyelotomies was assessed. The number of laparoscopic urological surgeries and the use of holmium laser (HOL) for transurethral enucleation of the prostate (HOLEP) were also recorded. Finally, the number and indications of open surgery for treatment of stone disease were recorded in the study periods.

Results

Table 1 summarises the types and number of endourological procedures performed in the three studied periods. Rigid URS was the most frequent endourological technique. It was conducted in 110 patients with ureteric stones in period A. During this period, a large calibre URS (10, 11, 12 F) with no camera was used and hydrophilic guidewires were not available. The vast majority of the stones (87%) were located in the pelvic part of the ureter (Table 2). Big stones were fragmented with a LithoClast device, whilst fragments and smaller stones were extracted with a basket and/or forceps. A HOL was not used in disintegration of ureteric stones in this period and flexible URS was not available.

A marked improvement in the technique of URS was seen during period B and continued in period C. Table 2