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Future research and developments in hysteroscopy

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Hysteroscopy has become an important tool to evaluate intrauterine pathology. In most cases, the pathology can be diagnosed and treated in the office or outpatient setting. The ability to use normal saline as a distending medium allows the procedure to be performed using bipolar energy. During hysteroscopic myomectomy, visualization can remain unobstructed with the use of a hysteroscopic morcellator. Its use is also associated with decreased operating time. The use of Essure® to block the proximal fallopian tube by a hysteroscopic approach is an approved procedure for tubal sterilization. However, it has been increasingly used to prevent hydrosalpinx fluid from entering the uterine cavity in women undergoing in vitro fertilization. The hysteroscopic approach has also been used to treat a variety of conditions such as treatment of interstitial pregnancy, caesarean scar pregnancy and retained placenta. However, the number of cases is still relatively small, and no randomized trial has ever been conducted. One of the potentially important developments is the use of falloposcopy to obtain distal tubal cytology as a screening for ovarian cancer. The technique remains to be refined.

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Hysteroscopy has developed from a purely diagnostic device to a valuable operative instrument. In addition, more uterine surgeries can now be performed by hysteroscopy in the outpatient setting. On the other hand, the endometrial ablation procedure that previously could only be performed by hysteroscopy can now be done without endoscopy. Yet, the first generation of endometrial ablation such as transcervical resection of the endometrium and roller-ball endometrial ablation remains an important tool in the surgical management of women with heavy menstrual bleeding [1]. The second-generation non-hysteroscopic techniques are popular mainly due to their ease and the results are independent of the surgical skill of the operator.

Outpatient hysteroscopy

Hysteroscopy offers a direct visualization of the entire uterine cavity and provides the possibility of performing biopsy of suspected lesions that can be missed by dilatation and curettage (D&C). It has been demonstrated that D&C misses 62.5% of intrauterine pathologies [2]. Some lesions can also be treated at the same setting as office hysteroscopy. For example, endometrial polyp can be diagnosed and removed; similarly, intrauterine adhesions can be liberated in the outpatient setting without the need for an operating theatre.

Today, many hysteroscopic procedures can be performed in the office or outpatient setting. This is due to the feasibility of operative hysteroscopy using saline as a distending medium [3], the vaginoscopic approach of hysteroscopy [4] and the availability of mini-hysteroscopic endoscopes [5].

Outpatient hysteroscopy can be learnt without a steep learning curve. In a retrospective study, the authors analysed 5000 outpatient hysteroscopies where the main outcome was the relationship between operator experience and the success of completion of the procedure. Most hysteroscopies were successfully performed by operators with low experience (< 50 hysteroscopies per operator); 92.2% of the procedures were done by those who had performed <20 hysteroscopies. It appears that a high level of expertise is not a prerequisite to performing outpatient hysteroscopy [6].

In a prospective trial, 40 patients were randomized to undergo outpatient hysteroscopic polypectomy using mechanical instruments or bipolar electrode versus day surgery using a monopolar resectoscope under general anaesthesia [7]. Outpatient polypectomy was associated with a success rate of 95%. Other outcomes such as discomfort after the procedure, time away from home, analgesia requirements, description and satisfaction of the procedure were all in favour of the outpatient setting. Further, patients in the outpatient group recovered faster.

Instrumentation

In 2005, Campo et al. evaluated the effects of instrument diameter, patient parity and surgeon experience on pain during office hysteroscopy and the success rate of the procedure [8]. They found that all outcomes (pain, visualization and success rate) were largely influenced by patient parity and the diameter of the hysteroscope. Compared to less experienced surgeons, those with more experience elicited less procedure pain. In contrast to the use of hysteroscope with an outer diameter of 5 mm, outpatient hysteroscopy with a mini-hysteroscope (outer diameter of 3.5 mm) was preferable.

Following the concept of 'see and treat' in an outpatient setting, Bettochi et al. evaluated 4683 cases of outpatient hysteroscopy [9]. They used a hysteroscope with a 5-mm maximum diameter and an oval tip to facilitate the passage of the scope into the oval internal cervical orifice [10]. The patient satisfaction rate was found to be high. However, removal of an endocervical polyp larger than the interval cervical opening generated pain.

It appears that the use of a smaller-diameter hysteroscope is associated with less procedural pain. Accordingly, smaller hysteroscopes were developed. One of the small hysteroscopes is a thin 3.2-mm semi-rigid mini-hysteroscope (Versascope, Ethicon Inc., Somerville, NJ, USA) with a disposable sheath and 1.9-mm fibre optic (Alphascope). The operative procedure is facilitated by 7-Fr or 5-Fr mechanical instruments, which is compatible with a 5-Fr bipolar electrode. Despite the 1.9-mm telescopic lens, the endoscopic view was subjectively defined as good or excellent in 95% of

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