

Results after hysteroscopic management of premenopausal patients with dysfunctional uterine bleeding or intrauterine lesions

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Summary

Aim: The purpose of this study was to evaluate the efficacy, safety and benefits of hysteroscopic surgery in the management of dysfunctional uterine bleeding or intrauterine lesions causing menstrual disorders in premenopausal women.

Methods: We enrolled in this study 228 patients who underwent operative hysteroscopy because of metrorrhagia due to endometrial polyps or submucous myomas diagnosed by hysterosalpingography, transvaginal ultrasound and diagnostic hysteroscopy. In addition, the study population included 27 patients who presented dysfunctional uterine bleeding resistant to medical therapy. These patients underwent total or partial transcervical resection of endometrium (TCRE).

Results: Operative hysteroscopy was a successful procedure in 250 of the 255 cases (98%) but it needed to be repeated in three cases with large submucous myomas of type I and II and after two polypectomies. Mean duration of the procedure was 26.1 min (range 4-58) and mean postoperative hospital stay was six hours (range 2-48 hours). There were two cases with fluid overload and five with postoperative uterine bleeding reported in this study. During postoperative follow-up (12-36 months) the majority of patients (246/255 or 96.5%) were free of symptoms. After total or partial TCRE, 23/27 patients (85.2%) reported eumenorrhea or hypomenorrhea, 2/27 (7.4%) amenorrhea and 2/27 (7.4%) metrorrhagia (due to adenomyosis).

Conclusion: Hysteroscopic surgery is an effective and safe method for the management of benign intracavitary pathology or the treatment of dysfunctional uterine bleeding. In addition, it has the advantages of quick recovery, early return to normal activities and reduced hospital stay for the patient. Careful monitoring of the patients avoids serious complications.

Key words: Dysfunctional uterine bleeding; Intrauterine lesions; Operative hysteroscopy; Transcervical resection of endometrium; Hysteroscopic polypectomy; Hysteroscopic myomectomy.

Introduction

Minimal invasive surgery is a major advance in patient care and as a result hysteroscopic surgery is playing an important role in the management of menstrual disorders and intrauterine lesions that cause abnormal uterine bleeding. We can accurately diagnose and treat most endometrial pathologies and perform, when indicated, a directed biopsy, retrieval of a 'lost' intrauterine contraceptive device, polypectomy, myomectomy, division of adhesions or endometrial ablation. It is possible to do most of these procedures as day-cases and some of them under local anaesthesia [1, 2]. Especially in selected cases of hysteroscopic myomectomy and hysteroscopic endometrial ablation, the advantages of this approach offer many women an opportunity to achieve a surgical solution to their bleeding problem that retains their uterus, is devoid of incisions, and which can be performed in a short-stay setting [3-6]. Most complications of operative hysteroscopy like uterine perforation, fluid overload or haemorrhage are infrequent and depend on the difficulty of the procedure and the experience of the surgeon [7, 8]. In this study we analysed the results of

255 operative hysteroscopies performed for abnormal uterine bleeding due to intracavitary lesions or heavy dysfunctional menorrhagia resistant to medical treatment.

Material and Method

The 255 patients included in this study were unselected and were examined in the First Academic Gynaecological Department of Papageorgiou General Hospital of Thessalonica (April 2003 to April 2005) and in the Gynaecological Department of the General Hospital of Alexandroupolis, and a small number of them in private practice, in the period from January 2000 to April 2005. All patients gave written consent before the procedure and the study was approved by the institutional ethics committee. Indications for the operative hysteroscopies included abnormal uterine bleeding (AUB), ultrasound or hystero-graphic findings indicative of intrauterine lesions, dysfunctional uterine bleeding (DUB) and infertility. Exclusive criteria were pregnancy, cervical carcinoma, pelvic inflammatory disease and excessive bleeding. Hysteroscopies were performed in the above departments and in the Interbalkan Medical Centre of Thessalonica and the General Clinic of Thessalonica (for private cases). First a diagnostic hysteroscopy was performed and afterwards the final diagnostic operative hysteroscopy was performed at the same time in the majority of the study population. The diagnostic hysteroscopies were performed using a standard 4-mm hysteroscope (Richard Wolf, Germany) with a

25° fore-oblique lens and a 5.5 mm diagnostic sheath or using a 2.7 mm telescope (Acmi, Circon, USA) with a 30° fore-oblique lens and a 3.5 mm diagnostic sheath. All operative hysteroscopies were performed with a 24 French continuous flow resectoscope (Richard Wolf, Germany) with a passive handle mechanism. The uterine cavity was distended with normal saline for diagnostic hysteroscopies and sorbitol with manitol (purisole solution) for operative hysteroscopies. Uterine distension was achieved with a pressure cuff around the bag of irrigant (75-120 mmHg) or by the use of Hamou endomat (Karl Storz, Germany). In some cases, for the maintenance of a clear view during the procedure, suction via the outer sheath was used with a negative pressure of 30-50 mmHg. Illumination was provided by a high intensity cold light source or a xenon light source (300W) via a fibre optic lead. The images were viewed on a high resolution colour monitor using a 3-charge-coupled device camera.

During diagnostic hysteroscopy after visualisation of the external cervical os without using gynaecological valves and no use of speculum or tenaculum, the insertion of the hysteroscope to the endometrial cavity was performed using an atraumatic technique with the use of distension of the normal saline ('no touch' or vaginoscopic approach technique). The cavity was systematically inspected for any abnormal findings. Any intracavitary lesion was localized in relation with the tubal ostia and the uterine walls or fundus. Good visualisation of the entire cavity with no structural abnormalities and a uniformly thin, homogeneous-appearing endometrium without variations in thickness was considered normal. The telescope was then slowly withdrawn from the uterus and the cervical canal viewed in its entire length.

Dilatation of the cervix up to Hegar 9.5 was performed before the introduction of the resectoscope. Good orientation, identification of the tubal ostia and localisation of the lesion was the first step of the procedure. Using a blended cutting and coagulating current of 75-125 W, submucous myomas and endometrial polyps were resected or a transcervical resection of endometrium (TCRE) was performed.

In total TCRE the entire uterine cavity was treated together with the upper part of the endocervix. In partial TCRE the uterine cavity was treated leaving a rim of untreated endometrium of approximately 1 cm in width in the region of the uterine isthmus.

Fluid balance was monitored closely and surgery was stopped when the deficit was > 1.5 l. In cases where hysteroscopic mechanical scissors were used, dilatation of the cervix up to 5.5 Hegar was performed before hysteroscopic polypectomy and normal saline was the distension media.

All cases that underwent TCRE or resection of a large myoma (diameter > 4 cm) had endometrial preparation for at least four weeks with GnRH analogs (triptorelin intramuscular injection or nafarelin nasal spray). Before TCRE histological exclusion of endometrial malignancy was a rule in all cases.

Patients and procedure statistics, side-effects and complications were analysed using descriptive statistics.

Results

The mean age of the patients involved in this study was 41.2 years (range 23-51 years). The presenting symptoms of the women were menorrhagia in 54 patients (21.2%), metrorrhagia in 71 patients (27.8%), menometrorrhagia 48 patients (18.8%), dysmenorrhea in eight patients (3.1%) and postcoital bleeding in six patients (2.4%).

Sixty-eight patients of the total population size were asymptomatic (26.7%) and the intrauterine lesions were found during ultrasound examination or during hysterosalpingography performed for infertility investigation. Patients and procedure statistics are shown in Table 1 and Table 2.

Table 1. — *Patient epidemiological characteristics.*

Total number of patients	255
Mean age (range)	41.2 (23-51)
Parous	209
Normal delivery	133
Caesarean section (C/S)	65
Normal delivery and C/S	11
Nulliparous	46
Previous uterine surgery	59

Table 2. — *Procedure and operative statistics.*

Number of procedures	255
<i>Types of procedures</i>	
Polypectomies	179
Myomectomies	49
TCRE (total or partial)	27
<i>Anaesthesia</i>	
General anaesthesia	47
Epidural	20
Sedation	176
Local analgesia	12
Uterine cavity (weeks of pregnancy)	mean 7 (4-12)
Endometrial preparation	36
Cervical dilatation	248
Operative sheath for mechanical hysteroscopic scissors	34
Operative time (min)	mean 26.1 (4-58)
<i>Fluid balance</i>	
Fluid in (ml)	3,450 (850 to 17,830)
Fluid out (ml)	3,150 (600 to 16,650)
<i>Complications</i>	
Uterine perforation	0
Fluid overload (> 1.5 l absorbed)	2
Uterine bleeding	5

All the operations were completed successfully in 250 patients (98%) except for five cases. One patient with submucous fibroid type I and two patients with type II submucous fibroids completed the resection in two steps within two months. Also, two patients who underwent hysteroscopic polypectomy repeated the procedure because of polyp remnants and intermenstrual bleeding. In all cases antibiotic prophylaxis was used. Preoperative exclusion of malignancy was performed by endometrial biopsy when indicated. Histological assessment of all specimens after the operations did not reveal any pre-malignant or malignant tissue. Histological results confirmed the hysteroscopic diagnosis in all cases involving intracavitary lesions. In two cases of total TCRE, adenomyosis was the histological analysis of the resected endometrium 'chips'.

Hysteroscopic polypectomy was successful in 177 of the 179 patients with endometrial polyps (98.9%). Hysteroscopic polypectomies were performed under sedation except for 12 cases where local anaesthesia was used. In one patient treated by mechanical polypectomy and one patient treated by resectoscopic polypectomy for a large hyperplastic polyp, transvaginal ultrasound after the next period revealed polyp remnants. Both patients underwent resectoscopic polypectomy under sedation with hysteroscopic confirmation of the incomplete polypectomy. No intraoperative or postoperative complications occurred during or after hysteroscopic polypectomies.

Hysteroscopic myomectomy was completed successfully in 46 of 49 patients with submucosal fibroids type I or II according to the classification of Wamsteker *et al.* (93.9%) [9]. Three patients completed the operation with a second-look operative hysteroscopy after two to three months for resection of the residual volume of the myoma. The first operation was stopped because of the prolonged duration and because fluid absorption over 1.5 l of purisole irrigating solution was noted. These patients did not present fluid overload syndrome. One patient with a submucous myoma of type I and a second one of type II presented persistent mild bleeding after the operation for two weeks and was treated conservatively. The same patient had presented fluid overload with severe hyponatraemia after the operation.

TCRE was performed in 27 patients (7 total TCRE and 20 partial TCRE). The operation was completed successfully in all of these patients. In four patients there was persistent but not severe bleeding for ten days after the operation and one patient presented fluid overload with mild hyponatraemia. In the cases of persistent uterine bleeding antibiotic therapy was administered postoperatively because of the possibility of intrauterine or pelvic infection. Most of the women (23/27 or 85.2%) that underwent partial or total TCRE continue to menstruate but they reported that their periods were shorter and lighter (eumenorrhea or hypomenorrhea). The two patients (7.4%) who were found to have adenomyosis after TCRE continued to present dysmenorrhea and irregular bleeding after the operation. They were counseled about having a hysterectomy or other operative therapy for the relief of their symptoms [10]. In two patients (2/27 or 7.4%) the menstrual period ceased completely after the performance of total TCRE. Also, there was no postoperative complication after TCRE like endometritis or hematometra in any case.

The mean duration of the operations was approximately 26.1 (4-58) minutes. The mean volume of purisole solution required for irrigation was 3450 ml and the mean deficit at the end of surgery was 300 (200-1500) ml. As was already reported, there were two cases with fluid overload (absorption from > 1.5 l of purisole irrigating solution) with hyponatraemia. Both patients had completed their operations under general anaesthesia. One case was hysteroscopic myomectomy in a nulliparous woman and the other was TCRE, also in a nulliparous woman. The first case was more severe (severe hypona-

traemia) and presented signs of heart failure, and therefore she was followed for six hours in the intensive care unit but finally was discharged the second postoperative day.

Bleeding immediately after the operation was rarely heavy and lasted longer than ten days in only five cases (after resection of submucous fibroids type I and II or after TCRE). Overall, the women involved in this study were able to return to normal everyday activities after a mean of one (0.5-3) week, depending on the severity of the operation. Follow-up of patients ranged from 12 to 36 months. During this period, 246/255 patients (96.5%) were free of clinical symptoms like menstrual disorders and iron deficiency anaemia.

Discussion

Operative hysteroscopy is an essential part of contemporary gynaecologic practice. This is true in both the office and outpatient setting [11, 12] as well as in the hospital operating theatre [13]. It allows the surgeon to perform directed biopsies or advanced uterine surgery with preservation of the uterus and fertility. As reported in this study, but also in other studies [14], operative hysteroscopy gives excellent results and is the minimally invasive procedure of choice for the treatment of the endometrial polyps, intracavitary uterine fibroids as well as the treatment of abnormal uterine bleeding by endometrial ablation.

The results of this study suggest that hysteroscopic polypectomy in menstruating women is a safe and successful operation for the majority of patients using the sharp hysteroscopic mechanical scissors or the cutting loop of the resectoscope. Similar results from other studies support these findings [15]. Small polyps are extracted easily from the uterine cavity using hysteroscopic grasping forceps. Larger polyps may have to be resected in pieces or be removed with polyp forceps after hysteroscopic localisation. Diagnostic hysteroscopy or mini-hysteroscopy before the application of these methods is of great importance [16]. Resectoscopic or mechanical polypectomy have a low recurrence rate and usually no complications [17].

Moreover, hysteroscopic myomectomy with a resectoscope is a valuable technique for the treatment of submucous myomas. It has been found to be the most effective method in women with a normal sized uterus with no more than two fibroids [18]. There is a greater chance of a successful procedure with a smaller proportion of the myoma extending into the myometrium as reported in this study and by other studies as well [9, 18]. Long-term results have shown high satisfaction rates with improved menstrual symptoms and pregnancy rates [19]. In addition, its beneficial effect is reflected by overall patient satisfaction and it is usually performed as outpatient surgery but occasionally requires an overnight stay [20]. The most important potential complication of the procedure is fluid overload resulting in pulmonary oedema and hyponatraemia due to intravasation of the fluid. Other

complications such as haemorrhage or uterine perforation do occur rarely and the surgeon must be competent in their management. Patients must be fully counseled about these risks prior to surgery.

Total or partial TCRE is followed by a reduction in the amount of bleeding with normalisation of menstrual loss in the majority of patients, as is reported in this study. Partial TCRE avoids the theoretical risk of stenosis at the cervical isthmus causing haematometra. Preoperative counseling and thorough endometrial surveillance is imperative before scheduling women for TCRE. Specific training and a thorough understanding of fluid management, and postoperative follow-up is critical. TCRE is a safe and effective procedure in selected patients and most women undergoing TCRE will avoid hysterectomy [21-23]. Its advantages to the patient and health services as a minimally invasive method are well established. TCRE is an excellent alternative to hysterectomy in women with dysfunctional menstrual bleeding, who have previously failed medical therapy, or when medical therapy is contraindicated.

In conclusion, our data confirm that hysteroscopic surgery is successful in cases of functional menorrhagia resistant to medical therapy (TCRE for DUB), but also when the uterine cavity is distorted by fibroids or endometrial polyps (hysteroscopic myomectomy or polypectomy). In premenopausal women, significant improvement in menstrual symptoms is achieved by these techniques. The complication rates of these procedures are low but require careful intraoperative and postoperative monitoring of the patients.

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