

Results and Experiences After 2000 Performed Hysteroscopies

Vesna Kopitović¹, Dragan Budakov¹, Aleksandra Trninić Pjević¹, Sonja Pop-Trajković², Srdjan Djurdjević¹, Djordje Ilić¹, Artur Bjelica¹, Aleksandra Kapamadžija¹, Stevan Milatović¹

¹Clinic for Gynecology and Obstetrics, Clinical Centre of Vojvodina, Novi Sad, Serbia;

²Clinic for Gynecology and Obstetrics, Clinical Centre of Niš, Niš, Serbia

SUMMARY

Introduction Hysteroscopy is one of the oldest endoscopic procedures which uses the cervix for introducing a telescope to place a camera into the uterine cavity.

Objective The aim of the study was to present our experiences with this procedure during the long-term work starting from the time when hysteroscopic method of treatment was first introduced at this Clinic until today.

Methods This prospective study involved 2000 female patients referred to the Clinic for Gynecology and Obstetrics in Novi Sad from January 2005 till January 2011 for diagnostic and operative hysteroscopy. The following parameters were analyzed: the presence of minor and major pathology of the endometrium, type of anesthesia, technique of operative work, instruments and energy used during hysteroscopy and complications.

Results Seventy-eight percent of all procedures were done under intravenous anesthesia. The most common operative procedure was polypectomy and the most complicated one was myomectomy. By histopathological examination of hysteroscopic biopsy specimens four endometrial carcinomas were revealed. The combination of mechanical instrument and bipolar energy were used in most of the cases, while the percentage of complications was extremely low.

Conclusion Hysteroscopy is a safe, highly sensitive, precise diagnostic and operative endoscopic procedure. Our experiences and dilemmas open a field for discussion and offer salutations to everyday problems. The introduction of this procedure into out-patients conditions has contributed to the efficiency of the treatment of vaginal pathological processes, thus enabling that the method has become available to all gynecologists. This fact requires further study and new results.

Keywords: hysteroscopy; diagnostic-operative procedure; myomectomy

INTRODUCTION

Hysteroscopy is one of the oldest methods of endoscopic surgical technique, which is one of the least invasive surgical procedures due to the fact that a natural cavity in a woman's body is used. It allows diagnostics and surgical treatment of all pathological states in the uterine cavity [1]. A moment in 1869 when Pantaleoni first demonstrated his hysteroscopic examination of a post-menopausal woman with irregular bleeding and visually detected an endometrial polyp was a cornerstone of the new era of diagnostics of the condition and pathology of the uterine cavity [2].

Over one hundred years was needed for the first operative hysteroscopy to be introduced and connected to the name of Hamou in 1981. Ever since then, the gynecological practice has been introducing the first hysteroscope of the third generation with the new system of lenses and using liquids to expand the uterine cavity [3]. Today, hysteroscopes of 7 and 9 mm in diameter are used routinely in operative hysteroscopy with a compulsory cervical channel dilatation and in general anesthesia. The new generation of hysteroscopes based on the Hopkins' rod lens system with a teles-

cope of 2.0 and 2.9 mm in diameter enabled the introduction of working hysteroscopes of 4 and 5 mm in diameter [4]. Due to these small diameters of instruments, it has been possible to avoid cervical dilatation and anesthesia altogether and to commence the era of a new, simple and painless procedure available to all gynecologists. Since it can be used under out-patient conditions, it has been termed "office hysteroscopy" [5].

OBJECTIVE

The aim of this paper was to present our experiences and dilemmas during a long-term work starting from the introduction of hysteroscopy as a mode of treatment until today. This review opens a whole field of controversies which, on one hand may cause possible misconceptions as a consequence of still insufficiently informed gynecologists about novelties in this field and on the other hand, it also opens new gates for gynecologists who are willing to go an extra mile to present novelties and all of their positive and negative features and who aim to create precise protocols and thus make a safe environment both for doctors and patients.

Correspondence to:

Vesna KOPITOVIĆ
Clinic for Gynecology and
Obstetrics
Clinical Centre of Vojvodina
Majevička 1, 21000 Novi Sad
Serbia
vesna.kopitovic@yahoo.com

METHODS

A prospective study was conducted during a six-year period (from January 2005 till January 2011) at the Clinic for Gynecology and Obstetrics of the Clinical Centre of Vojvodina, and it included 2000 diagnostic and operative hysteroscopies. The intervention was performed in a general short intravenous anesthesia (GIV), general endotracheal anesthesia (GET), analgosedation or without any anesthesia. Each intervention was preceded by an anamnestic, gynecological and ultrasound examination and, in addition, a vaginal smear examination. All patients were treated with contraceptive tablets one month before the intervention, which enabled performance of many procedures. All hysteroscopies were done in a day and required a 2- to 3-hour stay, after which they were discharged from the Clinic.

For a diagnostic hysteroscopy and solving minor cavum pathologies we used a hysteroscope with a minimum diameter of the 4 or 5 mm operative hysteroscope with a 3.0 and 2.9 mm telescope (Karl Storz – Bettocchi hysteroscope), so that there was no need for the dilatation of the cervical channel. Various semi-rigid instruments of up to 34 cm were inserted into the working channel of the hysteroscope – 5 french (Fr) and bipolar electrodes of 5 Fr for various uses. The physiological solution was the only medium for dilatation. To deal with major cavum pathology we used a traditional resectoscope (Karl Storz Co.), with the prior dilatation of the internal os. Depending on the requirements of surgery two types of resectoscopes were used. A monopolar resectoscope was used with a compulsory non-electrolytic medium (5% glucose solution). A bipolar resectoscope was used with an electrolytic medium (physiological solution). To dilate the intrauterine space we used an endomat with the pressure of 100-150 mm/Hg, and a continued flow of the medium of 120-200 ml per minute with 0.2 bars suction.

The following parameters were followed: the existence of major and minor cavum pathologies, type of surgery procedures, instruments used and energy, as well as complications during the intervention.

RESULTS

2000 hysteroscopic procedures were performed with or without the use of various forms of anesthesia (Table 1).

Depending on the results, various hysteroscopic procedures were applied (Table 2).

The most common procedure was hysteroscopic polypectomy. The most frequent mode of polypectomy was a combination of a bipolar electrode and a mechanic instrument used in 614 (85.3%) patients, then a bipolar resectoscope in 96 (13.33%) and monopolar resectoscope in 10 (1.38%) patients.

Surgical resection of the septum was most often performed by a combination of bipolar electricity and a mechanical instrument, i.e. in 154 (59%) patients, then by bipolar electricity only in 75 (28.8%) patients, and finally, the least used was monopolar resectoscope in 31 (11.9%) patients.

Myomectomy of submucous myoma was the most complex hysteroscopic intervention. Sixty-one patients (48.8%) had type 0 myoma (myoma completely in the cavum), 42 (33.6%) had type 1 myoma (more than 50% of myoma in the cavum) and 22 (17.6%) had myoma type 2 (less than 50% of myoma in the cavum). Myoectomy was performed in 60 patients in one act, 65 had to go through the procedure twice. Bipolar electricity was used in 176 (92.63%), while the monopolar electricity was used during 14 (7.37%) procedures.

Endometrial biopsy was for the most part performed in situations where there were normal hysteroscopic findings or in case of subtle cavum pathology – minor lesions. These lesions were detected in 244 patients (12.2% of all patients), where other diagnostic procedures like ultrasound showed normal findings, which is a one of their primary characteristic (hysteroscopy specific lesions). Their detailed structure is shown in Table 3. Micropolyposis and a strawberry like endometrium (expressive red patches) which are associated with chronic endometritis were treated with antibiotics. All of 147 patients with these diagnoses underwent the 'second-look' hysteroscopy with a complete restitution of uterine cavum minor lesions.

Four cases of endometrial carcinoma were discovered by histopathological examination of aimed biopsy samples. In all these cases hysteroscopy was done after insufficiently performed curettage of patients with irregular uterine hemorrhage.

In case of five patients (0.25%) complications occurred in the form of uterine perforation. In all cases the treatment was conservative.

Table 1. Overview of different types of anesthesia during hysteroscopy

The type of anesthesia	Number (%)
Intravenous anesthesia	1564 (78.2)
General anesthesia	293 (14.6)
Analgosedation	83 (4.1)
Without anesthesia	60 (3.0)

Table 2. Overview of hysteroscopic procedures

Hysteroscopic procedures	Number (%)
Polypectomy	720 (36.0)
Biopsy of endometrium	344 (17.2)
Diagnostic hysteroscopy	304 (15.2)
Septum resection	260 (13.0)
Myomectomy	190 (9.5)
Resection of uterine synechiae	100 (5.0)
Intrauterine device extraction	48 (2.4)
Endometrial ablation	22 (1.1)
Extraction of residual placental tissue	12 (0.6)
Total number	2000 (100.0)

Table 3. Minor intrauterine pathology

Pathology	Number (%)
Endometrial micropolyposis	83 (34.0)
Strawberry like endometrium	64 (26.2)
Vertical fibrous strips	55 (22.5)
Local endometrial thickening	23 (9.4)
Sites of endometriosis	19 (7.7)
Total number	244 (100.0)

DISCUSSION

Our research represents the first major analytical study in Serbia performed on 2000 hysteroscopic procedures. The results of the research showed that the technique of work of the office hysteroscopy and instruments of small diameters of 4 or 5 mm are used today as a good operative technique, but still mostly under the conditions of short intravenous anesthesia or analgesia.

We as doctors, as well as patients cannot easily forget full anesthesia and the conditions of the operational theatre, and all of these enabling us 'easy work' which we are all so used to. This is something that needs to be changed and surgical hysteroscopy in outpatient conditions should be introduced. In most institutions in Serbia, including our Clinic, which seriously takes surgical hysteroscopy, outpatient or office hysteroscopy has not yet been fully accepted in everyday practice, which is different from what is reported in the literature where advantages are given to outpatient hysteroscopy [6]. The development of contemporary technology and the introduction of outpatient hysteroscopy helped us have a method that is an alternative to the traditional dilatation and curettage. In most European countries it has almost completely replaced curettage in diagnostics and therapy of abnormal uterine bleeding [7]. The verified 4 carcinoma of the uterine corpus are sufficient reasons for the outpatient hysteroscopy to replace curettage.

A large number of patients treated by our team, during different hysteroscopic procedures in anesthesia, created conditions to move these methods to outpatient facilities and make it available to most gynecologists who will have to undergo proper education and to procure quality equipment.

The vaginal approach to the cervical channel is the new technique, which does not require a specula, tenaculum, and biopsy forceps, provides a direct view on the monitor of the passage through the vagina, then through the cervix channel to the cavum without dilating the cervical channel [8]. This technique allows a bloodless approach and easier surgical procedure in a clean field which is pointed out in the literature as the basic postulate of outpatient hysteroscopy [9]. We applied a somewhat modified technique in our work, the modification being that we grasp the cervix with forceps which facilitates placing the uterus into a suitable position making insertion and operative work much easier. Since there is no dilatation of the cervical channel, chances to perforate the uterus are reduced to the minimum.

Utilizing monopolar or bipolar electricity depends exclusively on the evaluation, capacity and experience of the surgeon. Both systems allow good surgical solution using different dilatation media. We have opted for the bipolar system of energy because it is a much safer procedure, it is safer to the patients and it provides a possibility to increase the dilatation medium without being followed by complications (hyposmolarity, hyponatremia, cerebral edema, lung edema and other), as also reported in the literature [10]. So far, in our work we did not have any complications in regard to the electricity and medium of dilatation.

The novelty applied in the preparation of patients for hysteroscopy is based on the simplified process of hysteroscopy. There is no longer the need to apply therapy that involves months of contraception, but only a month for administering therapy. Based on data from the literature by Bettocchia et al., our Clinic has discontinued the practice of taking smears to detect different organisms (chlamydia, mycoplasma), cervical smears for detecting bacteria and other [11]. Instead, we only agreed that it is necessary to check the vaginal smear and the basic laboratory blood tests. Based on the results of over 2000 performed hysteroscopies and the fact that we have never had infections after interventions, this is a sufficient reason for usage of a simple preparation of patients and abolishment of unnecessary analyses.

The field of indications for the operative hysteroscopy encompasses all of the pathological conditions within the cavum. Also, the domain of hysteroscopy includes endometrial ablation with abnormal uterine hemorrhage, which is today one of possible methods other than various types of thermal balloons (Thermochoice or Cavatherm) in order to minimize bleeding or stop it completely. This procedure requires impressive surgical skillful performance and experience, identically to myomectomy. In many of our cases, myomectomy was done in two steps, considering the complexity of the hysteroscopic procedure during myomectomy, chances of bleeding, accumulation of tissue from the resected myoma and picture blurring, possible need for more dilatation medium when the hysteroscopic intervention was stopped if the amount exceeded 1500 ml in monopolar electricity and 2000 ml in bipolar electricity. This especially concerned myoma type 1 and 2, so the total number of myectomies was 190, but in 65 myomas we had to repeat the hysteroscopic intervention and remove the myoma in toto in the second step. Myomectomy is also one of more complex procedures the technique of which depends on the type of submucous myoma (types 0, 1 or 2). Today, the two-step and two-term techniques are more common, which is reported in the literature [12]. The resection of the intracavitary part is not a problem, but when performing resection of the intramural part one should pay particular attention to the curve and color of the myoma – myoma shift [13].

The complications rate of 0.25% corresponds to the results in other studies [14]. This is much lower than the percentage of uterine perforation during the traditional curettage, which can be explained by the introduction of hysteroscope into the cavum under the direct visual control [15].

CONCLUSION

Hysteroscopy is a safe and accurate diagnostic and operative endoscopic method which is performed as a one-day procedure. Our first experiences with these procedures present an important fact because they are the foundation for further evaluation of work in this field and for raising new dilemmas. In this way we hope to open the field of

discussion on this topic in the scientific community which could provide solutions for possible daily problems.

Designing a protocol of operative work in each institution should be helpful for numerous gynecologists who plan to perform these procedures since this is the way the safety of our patients is increased, and the risk of complications is reduced to minimum. This should include, not only the field of indications for different procedures, but also equipment, general setting and education concerning different hysteroscopic procedures, as well as ways to ma-

nage complications. Our first experiences show that the rate of complications has been very low which, in combination with milder forms of intravenous anesthesia, makes hysteroscopy one of the safest procedures in medicine.

The introduction of this method in the outpatient facilities, observing the precisely defined indications and surgical solutions would contribute to the improved efficacy of treating pathological processes of the cavum and would allow for this method to become available to all gynecologists. This fact calls for further research and new results.

REFERENCES

1. ESHRE Capri Workshop Group, Collins J, Crosignani PG. Endometrial bleeding. *Hum Reprod Update*. 2007; 13(5):421-31.
2. Baggish MS, Guedj H, Valle RF. General aspects of operative hysteroscopy. In: Baggish MS, Guedj H, Valle RF, editors. *Hysteroscopy: Visual Perspectives of Uterine Anatomy, Physiology and Pathology*. 3rd ed. London: Lippincott Williams & Wilkins; 2007. p.330-59.
3. Advincula A, Falcone T. Minimally invasive gynecologic surgery. In: Nezhat C, editor. *Nezhat's Operative Gynecologic Laparoscopy and Hysteroscopy*. New York: Cambridge University Press; 2008. p.567-77.
4. Bradley H, Nezhat F. Hysteroscopy. In: Nezhat C, editor. *Nezhat's Operative Gynecologic Laparoscopy and Hysteroscopy*. New York: Cambridge University Press; 2008. p.577-9.
5. Bettocchi S, Ceci O, Nappi L, Pontaceli G, Pinto L. Office hysteroscopy. In: Donnez J, editor. *Atlas of Operative Laparoscopy and Hysteroscopy*. London: Informa Healthcare; 2007. p.471-82.
6. Kopitović V. Histeroskopiја u ambulantsnim uslovima. *Acta medica Semendrica*. 2005; 21-21(Suppl 1):35-8.
7. Revel A, Shushan A. Investigation of the infertile couple: hysteroscopy with endometrial biopsy is the gold standard investigation for abnormal uterine bleeding. *Hum Reprod*. 2002; 17:947-9.
8. Bettocchi S, Selvaggi L. A vaginoscopic approach to reduce the pain of office hysteroscopy. *J Am Assoc Gynecol Laparosc*. 1997; 4(2):255-8.
9. Kopitović V. Primena histeroskopije u ginekološkoј onkologiji. In: Đurđević S, Kesić V, editors. *Ginekološka onkologija*. Novi Sad: UGOS i Medicinski fakultet Novi Sad; 2009. p.332-4.
10. Jadoul P, Donnez J. Complications of hysteroscopic surgery in gynecology. In: Donnez J, editor. *Atlas of Operative Laparoscopy and Hysteroscopy*. London: Informa Healthcare; 2007. p.553-70.
11. Bettocchi S, Ceci O, Nappi L, Venere R, Masciopinto V, Pansini V, et al. Operative office hysteroscopy without anesthesia: analysis of 4863 cases performed with mechanical instruments. *J Am Gynecol Laparosc*. 2004; 11:59-61.
12. Spiezio A, Sardo S, Mazzoni I, Bramante S, Bettocchi S, Bifulco A, et al. Hysteroscopic myomectomy: a comprehensive review of surgical techniques. *Hum Reprod*. 2007; 1-19.
13. Kopitović V. Savremeni stavovi u operativnoj histeroskopiji. 52. Ginekološko-akušerska nedelja SLD, 5-6 jun, 2008, Beograd. Beograd: Srpsko lekarsko društvo; p.39-44.
14. Singhi A. Comparison of complications rates in endoscopic surgery performed by a clinical assistant vs. an experienced endoscopic surgeon. *J Gynecol Endosc Surg*. 2009; 1(1):40-6.
15. Baggish M. Anatomy of the uterus. In: Baggish MS, Guedj H, Valle RF, editors. *Hysteroscopy: Visual Perspectives of Uterine Anatomy, Physiology and Pathology*. 3rd ed. London: Lippincott Williams & Wilkins; 2007. p.15-30.

Резултати и искуства након две хиљаде хистероскопија

Весна Копитовић¹, Драган Будаков¹, Александра Трнинић Пјевић¹, Соња Поп-Трајковић², Срђан Ђурђевић¹, Ђорђе Илић¹, Артур Бјелица¹, Александра Капамаџија¹, Стеван Милатовић¹

¹Клиника за гинекологију и акушерство, Клинички центар Војводине, Нови Сад, Србија;

²Клиника за гинекологију и акушерство, Клинички центар, Ниш, Србија

КРАТАК САДРЖАЈ

Увод Хистероскопија је једна од најстаријих метода ендоскопске хируршке технике која, због коришћења природног физиолошког отвора у телу жене, припада групи минимално инвазивних хируршких поступака.

Циљ рада Циљ рада је био да се прикажу наша искуства током вишегодишњег рада, од почетка примене хистероскопске методе лечења до данас.

Методе рада Проспективна студија је урађена од јануара 2005. до јануара 2011. године на Клиници за гинекологију и акушерство Клиничког центра Војводине, а обухватила је две хиљаде дијагностичких и хируршких хистероскопија. Посматрани су следећи параметри: постојање мајор и минор патологије матичне шупљине, тип анестезије, техника хируршког рада, коришћени инструменти и енергија, као и компликације саме интервенције.

Резултати У краткотрајној интравенској анестезији изведено је 78% захвата. Најчешћи хируршки захват била је по-

липектомија, а најкомпликованији миомектомија. Хистопатолошким прегледом циљних хистероскопских биоптата откривена су четири карцинома тела матереце. Најчешћи начин рада био је комбинација биполарне енергије и механичког инструмента, а проценат компликација интервенције био је изузетно мали.

Закључак Хистероскопија је једнодневни, сигуран и егзактан дијагностички и хируршки ендоскопски поступак. Наша искуства и дилеме отварају поље дискусије и пружају решење проблема у свакодневном раду. Увођење ове методе у амбулантне услове допринело би побољшању ефикасности лечења патолошких процеса матичне шупљине и омогућило да ова метода постане приступачна свим гинекологима. Ипак, потребна су даља истраживања и нови резултати.

Кључне речи: хистероскопија; дијагностичко-хируршка процедура; миомектомија

2011. Preliminarni rezultati istraživanja sadržaja. središnje informativne emisije Javne televizije "Dnevnik" nakon presude generalima. Gotovini, Marka i Čermaku od 15. do 30. travnja 2011. Zagreb: Documenta. Orahovac, H. 2006. Hiljade ljudi na dočeku Namera Orića u Sarajevu. Dnevni avaz, 3 (7 July). Orentlicher, Diane F. 2008. Ti dve poziciji glede sodnega narativa "vztrajanje rterev na doloeni interpretaciji zloina in skoraj popolno zanikanje, da se je zloin sploh zgodil" se ne moreta primerjati kot enakopravni. Medtem, ko se narativ rterev razlikuje od sodbe le v niansah, uradni srbski narativ negira dokazane fakte. 350. Loading the chords for 'Block Out - Nikad // Dve hiljade i kusur godina (cover by Vukasin)'. [guitar] [ukulele] [piano]. [animated] [summary]. PEES_ukupni_rezultati_nakon_ispita_06.09.2014. Uploaded by. Senadin Murtic. Save Save PEES_ukupni_rezultati_nakon_ispita_06.09.2014 For Later. 0 ratings 0% found this document useful (0 votes). 22 views 4 pages. PEES_ukupni_rezultati_nakon_ispita_06.09.2014. Uploaded by. Senadin Murtic. Rezultati: U prvoj grupi od 12 bolesnika kojima je uraena radikalna limfadenektomija morbiditet nakon sprovedenog ranog rehabilitacionog tretmana je iznosio 43%, a mortalitet 9%. U drugoj grupi ispitanika od 24 bolesnika kojima je uraena modifikovana limfadenektomija morbiditet nakon sprovedenog ranog rehabilitacionog tretmana je iznosio 20%, a mortalitet 0%. Zaključak: Rehabilitacioni tretman kod bolesnika nakon operacija na urogenitalnom traktu zbog. Naši rezultati pokazuju da se određivani parametri generalno. Correspondence to: Janko Pejović^{1/2}, Institute of Medical Biochemistry, Military Medical Academy, Crnotravska 17, 11 000 Belgrade, Serbia. Histeroskopija je sigurna, visokosenzitivna dijagnostička procedura koja predstavlja idealnu metodu za ispitivanje uzroka postmenopauznog krvarenja. Primena histeroskopije sa biopsijom endometrijuma obezbeuje preciznu dijagnozu. Adekvatna dijagnoza je preduslov za izbor odgovarajućeg lečenja postmenopauznog krvarenja i izbegavanje nepotrebnih velikih hirurških zahvata. Lečenje ratnih povreda i iskustva hirurga iz mirovnih misija u Avganistanu, Siriji, Keniji i drugim zemljama izazvali su veliku pažnju međunarodnim stručnjacima skupa.