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Original Research Article

Role of hysteroscopic techniques in the treatment of female genital pathology

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ABSTRACT

Background: Hysteroscopy is the process of viewing and operating in the endometrial cavity from a transcervical approach. A camera is commonly attached to the proximal end of the hysteroscope to broadcast the image onto a large video screen. The development of hysteroscopy is rooted in the work of Pantaleoni, who first reported uterine endoscopy in 1869. However, at that time, instrumentation was elementary, and expansion of the uterine cavity was insufficient. In 1925, Rubin first used CO₂ to distend the uterus. The use of liquid distention media became routine by the 1980s, and many new hysteroscopic procedures, including endometrial ablation, were developed.

Methods: This was a retrospective study which presents the results of hysteroscopic treatment of various gynecological diseases in Cantonal hospital Travnik, Bosnia and Herzegovina in the period from 2011 to 2019. Total 175 cases were enrolled. All underwent hysteroscopic surgery in general anesthesia. The results were statistically analyzed.

Results: Total number of patients is 175. The incidence is highest in the age 31-50 years (62%). Endometrial polyp is the most common pathological condition in 80%, myoma submucosum in 5,7%, and septum uteri 2,8%. The most common treatment was polypectomy 80%, then resection of submucosal myoma 5,7%, and extraction of IUD 4%.

Conclusions: Hysteroscopy involves a minimal damage to body tissues. It is safer than open surgery. Hysteroscopic treatment has contributed to faster treatment, faster recovery and reducing the cost of treatment, and thus raise the level of efficiency.

Keywords: General anesthesia, Hysteroscopy, Uterine cavity

INTRODUCTION

Hysteroscopy is the process of viewing and operating in the endometrial cavity from a transcervical approach. The basic hysteroscope is a long, narrow telescope connected to a light source to illuminate the area to be visualized. The distal end of the telescope is passed into a dilated cervical canal, and, under direct visualization, the

instrument is advanced into the uterine cavity. A camera is commonly attached to the proximal end of the hysteroscope to broadcast the image onto a large video screen. Other common modifications are inflow and outflow tracts included in the shaft of the telescope for fluids. Media, such as sodium chloride solution, can be pumped through a hysteroscope to distend the endometrial cavity, enabling visualization and operation

in an enlarged area. Hysteroscopy is a minimally invasive intervention that can be used to diagnose and treat many intrauterine and endocervical problems. Hysteroscopic polypectomy, myomectomy, and endometrial ablation are just a few of the commonly performed procedures. Given their safety and efficacy, diagnostic and operative hysteroscopy have become standards in gynecologic practice. The development of hysteroscopy is rooted in the work of Pantaleoni, who first reported uterine endoscopy in 1869.¹ However, at that time, instrumentation was elementary, and expansion of the uterine cavity was insufficient. In 1925, Rubin first used CO₂ to distend the uterus.¹ Around the same time, Gauss was experimenting with the use of fluids to achieve uterine expansion. Hysteroscopy did not become popular until the 1970s, when technology afforded more practical and usable instruments than before (see hysteroscopes above). The use of liquid distention media became routine by the 1980s, and many new hysteroscopic procedures, including endometrial ablation, were developed.¹ Initially used by urologists for transurethral resection of the prostate, the resectoscope was modified for hysteroscopic procedures, allowing for resection of intrauterine pathology with monopolar cautery. By the mid-1980s, hysteroscopic procedures had nearly replaced dilation and curettage (D and C) for diagnosing intrauterine pathology.² Hysteroscopy has nearly replaced standard D and C for the management of abnormal uterine bleeding (AUB), as it allows for direct visualization and diagnosis of intrauterine abnormalities, and it often offers an opportunity for simultaneous treatment.^{3,4} To diagnose the cause of AUB, a full workup is required to rule out endocrine or hormonal disorders, benign lesions, premalignant, or malignant pathology. Uterine sampling can be done by means of endometrial biopsy, D and C, or direct visualization with hysteroscopy and specific biopsy procedures. Evaluation of the uterine cavity with sonohysterography or diagnostic hysteroscopy is up to 88% effective in identifying polyps and submucosal fibroids.^{5,6} Hysteroscopic diagnosis of intracavitary abnormalities in women with AUB carries a sensitivity of 94% and specificity of 89% and compares favourably with the accuracy of saline infusion sonography, which has a reported 95% sensitivity and 88% specificity.^{7,8} Of note, the diagnostic accuracy of hysteroscopy for endometrial cancer is also high with an overall sensitivity of 86.4% and specificity of 99.2%.⁹ Some consider MRI useful for evaluating intrauterine pathology, but MRI is a relatively expensive test.¹⁰

For patients with AUB for whom fertility is not an issue, in whom no endocrine or hormonal cause is isolated, and in whom endometrial atypia or malignancy is ruled out, endometrial ablation has become an acceptable alternative to hysterectomy. In the short term, ablation for a benign disorder results in amenorrhea in approximately 30% of patients.¹¹⁻¹³ Studies show that approximately 26% of patients have spotting after ablation, 34% have a decreased flow, and 10% have no change or increased

symptoms.¹³ The same data suggested that the long-term effectiveness of endometrial ablation for menorrhagia or fibroids is 60-90%, with 90% of patients noting an overall decrease in flow and amenorrhea, which occurs in 30-50%.¹⁴

In unexplained infertility, hysteroscopy may be performed simultaneously with laparoscopy to evaluate the uterine cavity and cervix.^{15,16} Intracavitary lesions are implicated as causes of infertility, and their removal may increase fertility. However, literature supporting the significance of this association is scant. Overall, pregnancy rates of 50-78% in previously infertile women have been reported after hysteroscopic polypectomy.¹⁷⁻²¹

Endometrial polyps and fibroids are well known to cause irregular vaginal bleeding. Fibroids are the most common solid pelvic tumor in women, found in 20% of women older than 35 years.²² Menorrhagia due to symptomatic submucosal fibroids is the most common indication for surgical intervention.²³ Other indications include infertility, dysmenorrhea, and pelvic pain. Polyps and submucosal fibroids can be definitively diagnosed and effectively treated with hysteroscopy. Diagnosis of endometrial polyps via hysteroscopy is 94% sensitive and 92% specific. For submucosal myomas, diagnostic hysteroscopy is 87% sensitive and 95% specific.⁷ Only 16% of treated patients require further surgery.²⁴ The advantages of hysteroscopic resection are numerous and include treating irregular bleeding and obtaining tissue diagnosis; for myomectomy, benefits include avoiding laparotomy, uterine incision, and hospital stays. If a fibroid is predominantly submucosal, complete resection is possible. A 2-step procedure is sometimes needed to resect a fibroid that is partially intramural or large.¹⁰

METHODS

In this retrospective study, we present the results of laparoscopic treatment of gynecological diseases in General hospital Travnik, Bosnia and Herzegovina in the period from year 20011 to 2019. During this period, we treated 175 patients with different gynecological diseases and conditions. All patients were hospitalized for the planned treatment; diagnosis is established after gynecological and sonographic exam. Patients with morbid obesity, severe hypertension, coronary artery disease, acute bronchitis, chronic obstructive lung disease and patients with urinary tract infection were excluded from the study. After applying general anesthesia, the vulva, vagina, and perineum were cleaned with iodine solution in the lithotomy position, and a bladder catheter was applied. Using the standard approach, the cervix is manually dilated with metal dilators to the same diameter as the outer diameter of the outer sheath of the hysteroscope setup. A single-tooth tenaculum is placed on the anterior lip of the cervix while dilating to help straighten the cervix and uterus. After the cervix is dilated, the hysteroscope is inserted into the endocervical canal and advanced into the uterine cavity (with the

distention medium flowing) under direct visualization to limit the risk of perforation. The tenaculum on the cervix is left in place to help in manipulating the uterus, and the vaginal speculum is removed to increase maneuverability of the hysteroscope and hysteroscopic surgery was initiated. All the results were statistically analyzed, where study presented the demographic characteristics of the patients expressed in total and in percentage by age. Study then presented the incidence of gynecologic patients treated with hysteroscopic surgical technique expressed in total and in percentage. In the end we statistically processed the method of work in hysteroscopic treatment expressed in total and expressed in percentage.

RESULTS

The total number of patients by various gynaecological diseases is 175. Table 1 shows the demographic characteristics of patients undergoing hysteroscopic surgery. The incidence is highest in the age 30-49 with the peak of 40-49 (32%).

Table 1: Demographic characteristics of women undergoing hysteroscopic surgery.

Age in years	No. of patients	Percentage
20-29	16	9.14%
30-39	54	30.85%
40-49	56	32.00%
50-59	23	13.14%
60-69	18	10.28%
70-79	8	4.57%
Total	175	100.0

Table 2: Hysteroscopic findings of women undergoing hysteroscopic surgery.

Characteristic findings	No. of patients	Percentage
Endometrial polypus	140	80.00%
Submucosal myoma	10	5.71%
Retained IUD	7	4.00%
Septate uterus	5	2.86%
Endometrial cancer	4	2.28%
Endometrial bleeding	5	2.85%
Infertility	4	2.28%
Total	175	100%

Table 2 shows the incidence of gynaecological diseases treated with hysteroscopic surgical technique, Endometrial polypus are the most common pathological condition in 80.0%, submucosal myoma in 5.71% and retention of IUD 4.0%.

Table 3 shows the method of hysteroscopic surgical procedures done in patients with various pathological conditions. The most common treatment was polypectomy 80.0%, then resection of sunmucosal myoma 5.71% and extraction of retained IUD 4.0%.

Table 3: Methods of hysteroscopic surgical procedures done for the patients with various pathological conditions.

Surgical procedures	No. of patients	Percentage
Polypectomy	140	80.0%
Resection of submucosal myoma	10	5.71%
Extraction of retained IUD	7	4.0%
Resection of the septum	5	2.86%
Endometrial ablation	5	2.86%
Endometrial biopsy	4	2.28%
Diagnostic hysteroscopy	4	2.28%
Total	175	100%

DISCUSSION

Hysteroscopy is a minimally invasive surgical endoscopic procedure. Operative hysteroscopy offers several advantages for treatment of intrauterine pathology, primarily because of better visualization, less tissue trauma, and much shorter recovery time. By the mid-1980s, hysteroscopic procedures had nearly replaced dilation and curettage (D and C) for diagnosing intrauterine pathology.² Hysteroscopy has nearly replaced standard D and C for the management of abnormal uterine bleeding (AUB), as it allows for direct visualization and diagnosis of intrauterine abnormalities, and it often offers an opportunity for simultaneous treatment.^{3,4}

Evaluation of the uterine cavity with sonohysterography or diagnostic hysteroscopy is up to 88% effective in identifying polyps and submucosal fibroids.^{5,6} Hysteroscopic diagnosis of intracavitary abnormalities in women with AUB carries a sensitivity of 94% and specificity of 89% and compares favorably with the accuracy of saline infusion sonography, which has a reported 95% sensitivity and 88% specificity.^{7,8} Of note, the diagnostic accuracy of hysteroscopy for endometrial cancer is also high with an overall sensitivity of 86.4% and specificity of 99.2%.⁹ Some consider MRI useful for evaluating intrauterine pathology, but MRI is a relatively expensive test.¹⁰ In unexplained infertility, hysteroscopy may be performed simultaneously with laparoscopy to evaluate the uterine cavity and cervix.^{15,16} Intracavitary lesions are implicated as causes of infertility, and their removal may increase fertility.

However, literature supporting the significance of this association is scant. Overall, pregnancy rates of 50-78% in previously infertile women have been reported after hysteroscopic polypectomy.¹⁷⁻²¹ Endometrial polyps and fibroids are well known to cause irregular vaginal bleeding. Fibroids are the most common solid pelvic tumor in women, found in 20% of women older than 35 years.²² Menorrhagia due to symptomatic submucosal fibroids is the most common indication for surgical

intervention.²³ Diagnosis of endometrial polyps via hysteroscopy is 94% sensitive and 92% specific. For submucosal myomas, diagnostic hysteroscopy is 87% sensitive and 95% specific.⁷ Only 16% of treated patients require further surgery.²⁴ Hysteroscopy were performed under general anesthesia. The whole uterine cavity was visualized, abnormality found was recorded and treated accordingly. A retrospective study of 175 females aged 20-75 years who underwent hysteroscopic surgery concluded that the procedure is a safe first-line strategy for endometrial polyps. The intraoperative diagnosis of these cases was highly correlated with the final pathology. In this study we had 140 (80.0%) polyps, 10 (5.71%) submucosal myomas and 7 (4.0%) cases of retained IUD. There were no complications in this study.

CONCLUSION

Hysteroscopy involves a minimal damage to body tissues. It is safer than other procedures in uterine cavity. Hysteroscopy is a valuable, simple, low-risk technique which allows an adequate exploration of the uterine cavity under visual control. It ensures speed and safety with the diagnosis and treatment. The results are immediately available. In patients with abnormal uterine bleeding, hysteroscopy provides the possibility of immediate diagnosis and prompt and effective treatment. It allows finding out the source of bleeding and perform a directed biopsy of the suspected area. It affords a more accurate diagnosis than dilatation and curettage for intrauterine pedunculated pathologies. But for hyperplasia and carcinoma endometrium, histopathology is 100% diagnostic. Lesions like endometrial polyps and pedunculated fibromyomas can be removed under direct vision with the hysteroscope. So, it can be concluded that hysteroscopy offers an invaluable advantage of direct visualization of any abnormality within the uterine cavity. It does not substitute other diagnostic procedures; rather, it complements them. Hysteroscopy is a safe, simple, quick and economic technique, well-accepted by the patient, with great potential in gynecology.

Hysteroscopic-guided biopsy and histopathology are considered as the “new gold standard” in evaluating a case of abnormal uterine bleeding.

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