GENERAL GYNECOLOGY

Can we rely on blind endometrial biopsy for detection of focal intrauterine pathology?

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OBJECTIVE: To compare the diagnostic power of random endometrial biopsy with hysteroscopy for intrauterine lesions.

STUDY DESIGN: A retrospective cohort study of 639 women evaluated by diagnostic office hysteroscopy and endometrial biopsy (Novak curette) was carried out between 10/1997-6/2000. Reasons for evaluation were postmenopausal bleeding, abnormal uterine bleeding, ultrasound or hystero-salpingography findings, intrauterine device removal, suspected retained products of conception, infertility, late abortions and recurrent abortions.

RESULTS: The women's mean age was 43.4±13.3 years (range, 18-88). The most prevalent indication for investigation was abnormal uterine bleeding (n=218, 34.1%), followed by sonographic or hysterosalpingographic findings (n=167, 26.1%). Hysteroscopy revealed a normal uterine cavity in 367 (57.4%) women. Endometrial polyps and submucosal fibroids were the most common hysteroscopic findings (in 151 [23.6%] and 72 [11.3%], respectively). The hysteroscopic findings were compared with the pathology results in 558 cases. The sensitivity of the Novak curette for detection of endometrial polyps and submucosal fibroids was only 8.4% and 1.4%, respectively. The positive predictive value (30.9%) and the negative predictive value (57.9%) for both lesions were likewise low. On the other hand, hysteroscopy was not effective in diagnosing the 27 cases of hyperplasia (26 simple and one complex) all without atypia.

CONCLUSION: Random endometrial sampling alone is not effective for diagnosing focal lesions of the uterine cavity and should be combined with other modalities, preferably diagnostic hysteroscopy.

Key words: endometrial biopsy, focal intrauterine pathology, hysteroscopy

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Focal lesions of the uterine cavity, including submucosal fibroids and endometrial polyps, are common pathologies associated with diverse clinical situations ranging from abnormal uterine bleeding to infertility.[1] These conditions are usually diagnosed by office procedures, such as hysteroscopy, transvaginal sonography, and hydrosonography, which have replaced the classic dilatation and curettage by being more accurate and less invasive.[2,3] Nevertheless, the blind and random endometrial biopsy (either the Pipelle sampler or the Novak curette) procedure is still widely used as the only diagnostic modality for evaluating women with abnormal bleeding.[4] The aim of the current study was to compare the accuracy of blind endometrial biopsy to that of hysteroscopy for detection of intrauterine lesions, using hysteroscopy as reference.

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Materials and Methods

Between October 1997 and June 2000, 639 consecutive women were evaluated by office diagnostic hysteroscopy followed by blind endometrial biopsy using a Novak curette. All procedures were performed in an outpatient health facility (Maccabi Women's Health Center, Tel-Aviv, Israel) by 2 experienced gynecologists. The indications for evaluation included abnormal uterine bleeding, ultrasound or hysterosalpingography findings, postmenopausal bleeding, infertility, recurrent abortions, intrauterine device removal, amenorrhea, late abortions, and retained products of conception (Table 1). The procedures were performed in an office setting after informed consent had been signed, and following a brief explanation.

The diagnostic hysteroscopy was performed with the Circon-ACMI MR-PC pediatric cystoscope (Stamford, Connecticut) under continuous saline flow, as previously described.[5] This device is a single-sheath 2.3-mm diameter scope connected to an ordinary endoscopic camera and containing 2 small working channels. The first channel is used to irrigate and distend the uterine cavity and the second to drain it. An ordinary light source (180 W Xenon light) was used. The procedure included a pelvic examination, speculum placement, cervical tenaculum application, and measurement of the uterine cavity. The hysteroscopy

TABLE 1
The indications for diagnostic office hysteroscopy and endometrial biopsy in the 639 study women

Indication	Number (%)
Abnormal uterine bleeding	218 (34.1)
Ultrasound or hysterosalpingogram finding	167 (26.1)
Postmenopausal bleeding	74 (11.6)
Infertility workup	112 (17.5)
Recurrent abortion workup	39 (6.1)
Removal of intrauterine device	16 (2.5)
Amenorrhea	7 (1.1)
Previous late spontaneous abortion	3 (0.5)
Retained products of conception	3 (0.5)

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was defined as completed when the entire uterine cavity was visualized. An endometrial biopsy was then performed by a 4-mm stainless steel Novak curette using 4 strokes for each biopsy. Four or more samples were taken (one for each uterine wall), depending upon the indication for which the woman was sent, or if the performer considered it necessary based upon the hysteroscopic findings. All biopsy attempts were successful and adequate specimens were obtained. No routine premedication or local anesthesia was used for the procedure, but oral nonsteroidal anti-inflammatory drugs (NSAIDs) were prescribed whenever analgesia was required following it.

The hysteroscopic findings and pathologic results were compared, using the hysteroscopic diagnosis as reference.

Excluded were cases where hysteroscopy could not visualize the entire cavity (n = 14), where the pathology sample did not contain enough material for diagnosis (n = 35), and where the sample contained only cervical cells (n = 35). This left 558 cases for analysis. The positive predictive value and the negative predictive value for detecting intrauterine focal lesions (ie, endometrial polyps and submucous fibroids) were also calculated.

The study was approved by the ethics committee of "Asaf Harofe" Medical Center, Zerifin, Israel.

RESULTS

The mean age of the 639 study women was 43.4 ± 13.3 years (range, 18-88 years). The indications for investigation are presented in Table 1: the most prevalent were abnormal uterine bleeding (n = 218, 34.1%) and sonographic or hystero-salpingographic findings (n = 167, 26.1%). Hysteroscopy diagnosed a normal uterine cavity in 367 (57.4%) women, while endometrial polyps and submucosal fibroids were the most common hysteroscopic pathologies (in 151 [23.6%] and 72 [11.3%] women, respectively) (Table 2). There were no cases of invasive carcinoma. The hysteroscopy could not be performed in 14 cases (2.2%) due to cervical stenosis (n = 8) and patient noncompliance (n = 6). Immediate complications of the procedure occurred in only 1 patient (0.1%) who was conservatively managed for uterine perforation. There was no complication associated with taking an endometrial biopsy.

The hysteroscopic findings and the pathologic diagnoses were compared in 558 cases in which there were complete results of both procedures, using hysteroscopy as reference. The sensitivity of the Novak curette for diagnosing endometrial polyps and submucosal fibroids was only 8.4% and 1.4%, respectively. The positive predictive value (30.9%) and the negative predictive value (57.9%) for endometrial polyps and submucosal fibroids were likewise low. Of note, there were 16 cases of endometrial polyps diagnosed only by pathology and not seen by hysteroscopy.

Hysteroscopy failed to diagnose the 27 cases of hyperplasia in this study (26 simple and 1 complex, all without atypia). It revealed a normal uterine cavity in 351 (63%) women, submucosal fibroids in 127 (22.8%) women, and endometrial polyps in 83 (14.8%) women.

TABLE 2
Findings of diagnostic hysteroscopy in the 639 study women

Hysteroscopic diagnosis	Number (%)
Normal uterine cavity	367 (57.4)
Endometrial polyp(s)	151 (23.6)
Submucosal fibroid(s)	72 (11.3)
Intrauterine adhesions	22 (3.4)
Septate/bicornuate uterus	11 (1.7)
Unicornuate uterus	2 (0.3)
Uterine cavity not visualized	14 (2.2)

Random endometrial sampling alone is not effective for diagnosing focal lesions of the uterine cavity and should be combined with other modalities, preferably diagnostic hysteroscopy.

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COMMENT

Focal intrauterine lesions (mainly endometrial polyps and submucosal fibroids) are among the most common gynecologic conditions of women of reproductive age as well as of postmenopausal women, affecting approximately 30% of the former and 9% of the latter women who present with abnormal uterine bleeding.[6] Previous studies have demonstrated that hysteroscopy, transvaginal ultrasound, and sonohysterography are effective methods for diagnosing these conditions.[7] On the other hand, methods for random endometrial sampling, including the classic dilatation and curettage and the newer Pipelle suction device, both of which show good results in diagnosing endometrial hyperplasia and cancer, were found to have significant false negative rates in these cases.[3,7-10] Our current results of the effectiveness of the Novak curette as a sole diagnostic method are similar: we found a false negative rate of 88.7% for the detection of endometrial polyps and a false negative rate of 98.5% for the detection of submucosal fibroids. In contrast, the combination of office diagnostic hysteroscopy together with endometrial biopsy improved the diagnostic accuracy and enabled us to diagnose all focal lesions in the uterine cavity.

The main drawbacks of including diagnostic hysteroscopy in the initial investigation for uterine pathologies are its cost and patient alleged intolerance. Our experience, however, shows that using the most advanced instruments and techniques made office hysteroscopy very well tolerated, with only ~10% of patients experiencing minor adverse events—similar to the rate of minor adverse events following blind endometrial biopsy alone.[4] The hysteroscopy procedure was safe, with only 1 case (1/639, 0.1%) of uterine perforation. Although the rate of minor adverse events was not specifically investigated in the current study, a previous study using the same hysteroscopy technique (ie, with a pediatric cystoscope) reported that < 1% of patients suffered from vasovagal reflex or significant abdominal cramps.[5] The cost of performing office hysteroscopy as a first-line procedure in women with abnormal uterine bleeding is indeed higher.[4] but it may be justified in view of its results.

In our study, there were 16 cases of endometrial polyps diagnosed by pathology and missed by hysteroscopy. They fell into the classification of microscopic polyps. Cicinelli et al[11] suggested that the presence of "micropolyps" measuring < 1 mm is associated with chronic endometritis. According to Colafranceschi et al,[12] other conditions diagnosed by pathology and often missed by hysteroscopy range from premalignant endometrial hyperplasia to endometrial carcinoma.[12] In the current study, 17 (63%) of 27 cases of hyperplasia were diagnosed by pathology and missed by hysteroscopy, while pathology revealed only 6 out of 152 (3.9%) macroscopic polyps and 1 out of 72 (1.3%) cases of submucous myomas that were diagnosed by hysteroscopy.

Our findings lead us to the conclusion that both hysteroscopy and endometrial biopsy should be used as complementary diagnostic tools in women undergoing investigation for intrauterine lesions. This combined approach was shown to be more accurate in diagnosing focal macroscopic intrauterine lesions (such as endometrial polyps and submucosal fibroids) as well as microscopic pathologies (such as endometrial carcinoma or hyperplasia). ■

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