Accuracy of office hysteroscopy in the diagnosis of endometrial hyperplasia

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Summary

In the last decade the advantages of office hysteroscopy performed without cervical dilatation and/or anaesthesia were fully demonstrated. Many authors consider office hysteroscopy the gold standard diagnostic method in the diagnosis of intrauterine pathology, with high accuracy and compliance. The best sensitivity and specificity are reached in the diagnosis of focal lesions as submucous myomas and polyps but controversy still persists regarding hysteroscopic accuracy in the definition of endometrial hyperplasia. The aim of this prospective study was to evaluate the efficacy of outpatient hysteroscopy in the diagnosis of endometrial hyperplasia and to compare hysteroscopic findings with histology. From April 2000 to May 2002, 145 diagnostic office hysteroscopies were performed at the Euganea Medica clinic. Sensitivity in the detection of endometrial hyperplasia was 89.36%, specificity 91.96%, positive predictive value (PPV) 82.36% while negative predictive value (NPV) reached 95.37%. Uniformity of histology associated with outpatient mini-invasivity and high compliance favour office hysteroscopy and represent important elements in its diffusion as a first level diagnostic method even in the diagnosis of hyperplasia.

Key words: Office hysteroscopy; Hyperplasia; Diagnosis; AUB.

Introduction

Today, diagnostic hysteroscopy represents the gold standard method for diagnosis of intrauterine pathology as it permits a direct magnified panoramic view of the cavity and accurate detailed study of the endometrium. High sensitivity and specificity are reached in the diagnosis of focal lesions such as submucous myomas and polyps while hysteroscopic diagnosis of hyperplasia still remains under evaluation [1-3]. Some authors report good uniformity between hysteroscopic findings of hyperplasia and histology [4, 5] with high sensitivity and specificity, reaching 90%, while PPV is lower, about 60% [6-8]. Controversy associated with hysteroscopic diagnosis of hyperplasia especially concerns the high incidence of false positives and the importance of establishing morphological criteria in the hysteroscopic definiton of hyperplastic aspects [9, 10]; this might be difficult for a pathology that undergoes various and still debated histological classification changes. A simplified WHO classification which reduces the classic four hyperplastic histologic categories into only two (*endometrial hyperplasia, EH* – a benign lesion responsive to medical therapy and lacking malignant potential and *endometrioid neoplasia, EN* – a high risk lesion which progresses to malignancy in about 30% of cases) was recently proposed, using simple morphological criteria and a semiquantitative evaluation of stromal volume in relation to total tissue volume which includes stroma, glands and epithelium [11, 12]. Other research has focused on computed morphometric analysis in order to distinguish the above two categories [13]. In this context, in the last decade efforts have been made to find the most appropriate diagnostic method for endometrial hyperplasia, which is more accurate and less invasive than the classic D&C. According to the literature D&C uniformity with histology ranges between 77-92% but some authors emphasize that diagnostic accuracy may depend on the type of hyperplasia: when simple hyperplastic aspects are associated with complex atypical lesions or focal carcinoma, D&C may often elude correct diagnosis [14]. Endometrial blind biopsy has demonstrated reduced uniformity with histology [15], while transvaginal ultrasound and sonohysterography have a good efficacy in diagnosing even focal increased endometrial thickness but need histological confirmation [16, 17]. Endometrial cytology shows a low diagnostic accuracy, with a high incidence of false positives and is unable to differentiate focal from diffuse lesions [18]; even in association with sonohysterography the accuracy is not optimal [19]. The aim of this prospective preliminary study was to evaluate the accuracy of office hysteroscopy in the diagnosis of endometrial hyperplasia and its uniformity with histology.

Patients and Methods

From April 2000 to May 2002, 145 diagnostic office hysteroscopies were performed at the Euganea Medica clinic. No local anaesthesia, atropine administration or dilatation of the cervical canal were carried out. All hysteroscopies were performed by the same gynaecologist (CV) using a 2.9-mm minihysterocope (Storz); CO_2 uterine distension medium at 30 ml/min flow, with intrauterine pressure inferior to 80 mm Hg was used in 120 cases while in 25 cases the operative Bettocchi minihysteroscope with NaCl solution for distension was needed.

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In 85% of the cases intrauterine directed biopsies were performed with a Novak canula while in 15% of the cases Bettocchi miniscissors were used for target hysteroscopic biopsies. All histological exams were interpreted by the same pathologist (MP). Thirty-seven cases (25.51%) with endometrial hyperplasia were diagnosed by hysteroscopy while histology revealed hyperplasia in 42 cases. Thirty-six patients with histologically confirmed hyperplasia presented with abnormal uterine bleeding (78.26%) and 13 were postmenopausal (28.26%). Hysteroscopic definition of hyperplasia included the following aspects: increased endometrial thickness – revealed by the "track" of the hysteroscope, glandular dilatation, increased vascolarization, sometimes associated with cystic dilatation of the glandular openings or with polypoid endometrium. Cystic atrophy needs to be differentiated from hyperplasia as cystic glandular dilatation is present in association with mucosal atrophy and histological stromal oedema without hyperplasia and characterizes patients with breast malignancy treated with tamoxifen. All hysteroscopic images were archived as digital material and subsequently compared with histology.

Results

Sensitivity of hysteroscopy in the diagnosis of endometrial hyperplasia was 89.36%, specificity was 91.96%; PPV was 82.35% while NPV reached 95.37%. There were nine cases of hysteroscopic false-positives: five secretory endometria, one adenomyosis and the other three cases were proliferative endometria in patients with focal lesions (polyps or submucous myomas) (Table 1). Five of the hysteroscopic false-negatives were proliferative endometrium at hysteroscopy but interpreted at histology as focal glandular hyperplasia. No diffuse hyperplasia was underdiagnosed by hysteroscopy (Table 2). Thirty-six cases of hyperplasia diagnosed by hysteroscopy were "low risk" lesions (simple or glandular cystic hyperplasias); in one case hysteroscopy diagnosed a hyperplastic "high risk" lesion which was histologically confirmed as complex hyperplasia.

Table 1. — *Correlation between hysteroscopy-histology in the diagnosis of endometrial hyperplasia.*

Hysteroscopy False negatives (n = 5)
Hysteroscopy NO
1. Hypotrophic endometrium + submucous myoma
2. Proliferative endometrium
3. Proliferative endometrium
4. Proliferative endometrium+polyp
5. Secretory endometrium
Histology YES
1. Prolifer. endometrium + focal hyperplasia
2. Prolifer. endometrium + focal hyperplasia
3. Focal hyperplasia
4. Focal hyperplasia
5. Focal hyperplasia

Discussion and conclusion

The results of our preliminary study confirm the accuracy of office hysteroscopy in the diagnosis of endometrial hyperplasia. According to literature (Table 3), in our case series hysteroscopic sensitivity, specificity and NPV were high (89.36%,91.96%, 95.37%), respectively, while PPV ranged around 82.35%. The false positive hysteroscopic results included two cases of secretory endometrium interpreted at hysteroscopy as hyperplasia, an error that may occur because morphological hyperplastic aspects are very similar to the thick, glandular pattern of the secretory phase. In another three cases hysteroscopic hyperplasia overdiagnosis included patients with large size focal lesions (2 endometrial polyps and 1 submucous myoma). Consequently an accurate panoramic endometrial study resulted difficult; finally in two hysteroscopic false positive cases endometrial bioptic material was exiguous and did not permit an accurate histology. The two real hysteroscopic errors included one case with histologic adenomyosis and one normal proliferative endometrium interpreted as hyperplasia. In order to reduce hysteroscopic false-positive incidence some authors have suggested the introduction of strict morphologic criteria in the diagnosis of hyperplasia. Hysteroscopic false-nega-

Table 2. — *Correlation between hysteroscopy-histology in the diagnosis of endometrial hyperplasia.*

Hysteroscopy False positives (n = 9)
Hysteroscopy YES
1. Simple hyperplasia + polyp
2. Cystic hyperplasia
3. Simple hyperplasia
4. Simple hyperplasia
5. Simple hyperplasia
6. Simple hyperplasia
7. Simple hyperplasia + polyp
8. Simple hyperplasia + myoma
9. Simple hyperplasia + myoma
Histology NO
1. Fragments of endometrial polyp
2. Secretory endometrium
3. Endometrium with basal glands
4. Secretive endometrium
5. Adenomyosis
6. Proliferative endometrium
7. Rare endometrial cells
8. Proliferative endometrium
9. Proliferative endometrium

Table 3. — *Uniformity of hysteroscopy-histology in the diagnosis of endometrial hyperplasia*

Author	Year	Uniformity of hysteroscopy-histology	Sensitivity	Specificity	NPV	PPV
Bedner	2001	25%	–	–	–	–
Garuti	2001	–	70%	91.6%	94.3%	606.%
Gubbini	1998	90.4%	–	–	–	–
Uno	1995	–	–	–	79.40%	63.53%
Loverro	1996	63%	98%	95%	99%	72-58%
Bettocchi	1994	–	80%	84.7%	–	–

tives were related to focal hyperplastic lesions and in two cases associated with other intracavitary pathologies (polyp and myoma).

In conclusion, hysteroscopy should not bypass histology in the diagnosis of endometrial hyperplasia but nonetheless represents an useful method which permits an accurate panoramic and focused intracavitary view to select even small areas for subsequent biopsy. Hysteroscopy is the only tool able to define the morphology, colour, vascular and glandular pattern of the endometrium, especially with CO_2 distension medium. High compliance is reached when performed without anaesthesia and/or cervical canal dilatation. Hysteroscopic accuracy in the diagnosis of endometrial hyperplasia is high and in the future should be substituted for blind methods.

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