Brazilian Journal of Videoendoscopic Surgery

Original Article

Can Transvaginal Sonography Avoid the Diagnostic Complementary Hysteroscopy in the Detection of the Endometrial Polyp?

[1] LUIZ AUGUSTO HENRIQUE MELKI (MD, PH.D); [1, 2] MARCO AURELIO PINHO OLIVEIRA (MD, PH.D); [3] HILDOBERTO CARNEIRO OLIVEIRA (MD, PH.D)

[1] Associate Professor of the Department of Gynecology of the School of Medicine of the State University of Rio de Janeiro, Rio de Janeiro, Brazil; [2] Assistant Doctor of Videosurgery of the CEPEM - Woman's Research Center, Rio de Janeiro, Brazil; [3] Head Professor of the Department of Gynecology of the School of Medicine of the State University of Rio de Janeiro, Rio de Janeiro, Brazil.

ABSTRACT

Objective: to evaluate if the diagnosis of endometrial polyp by transvaginal sonography has enough accuracy to avoid diagnostic hysteroscopy before polipectomy. **Methods:** we compared the detection of endometrial polyp by transvaginal sonography with the respective hysteroscopies in 451 pre and post-menopausal symptomatic and asymptomatic women, whose ages ranged from 22 to 91 years (mean age 49.1 years). **Results:** hysteroscopy detected 273 (60.5%) cases of endometrial polyps, 71 (15.8%) cases of normal uterine cavity, 51 (11.4%) cases of other diagnoses such as synechiae, chronic endometritis and focal calcifications, 23 (5.1%) cases of polypoid endometrium, 16 (3.5%) cases of endometrial thickness, 13 (2.8%) cases of submucous myoma, and 4 (0.9%) cases of adenocarcinoma. The positive predictive value of transvaginal sonography was 60.5% in the detection of the endometrial polyps. **Conclusions:** this study shows that the diagnosis of endometrial polyp by transvaginal sonography has just moderate positive predictive value in the detection of the endometrial polyps; therefore, it should not replace diagnostic hysteroscopy and biopsy under direct vision before polipectomy.

Key words: transvaginal sonography; hysteroscopy; endometrial polyp, hysteroscopic resection of polyps.

Bras. J. Video-Sur, 2008, v. 1, n. 2: 071-075

Accepted after revision: February, 29, 2008.

INTRODUCTION

Abnormalities of the reproductive tract are a common cause of abnormal uterine bleeding (AUB). Endometrial polyp is frequently found in symptomatic patients: from 10% to 16% in patients with premenopausal abnormal bleeding until 21% in patients with postmenopausal bleeding[1]. Small polyps can be asymptomatic and accidentally detected during ultrasound scan or uterine curettage. Endometrial polyps are associated with AUB, infertility and dysmenorrhea. When they reach the cervix or the vagina, they can suffer ulceration and degeneration with consequent vaginal bleeding. The malignant degeneration of a benign endometrial polyp is a rare occurrence,[2] but it is a concern in peri and postmenopausal women [3, 4, 5, 6, 8, 9, 10, 11]. Some studies show endometrial polyp rates of malignization above 2% [4, 6, 7]. In special situations such as tamoxifen use, the rate is up to 4.6% [10]. Due to the difficulties of following the evolution of a uterine polyp and the possibility of malignant transformation, the current tendency is for hysteroscopic polipectomy and histological examination of the lesion as the treatment of choice [3, 4, 5, 6, 8, 11, 12, 13, 14, 15].

Initial diagnosis of endometrial polyp is usually based on transvaginal sonography (TVS), which is considered the first step in the evaluation of the uterine cavity. Some investigators concluded that TVS is an excellent initial diagnostic method and in premenopausal patients it allows the diagnostic and operative hysteroscopy to be performed at the same moment [15]. Other studies in infertile women conclude that TVS is as effective as hysteroscopy in the diagnosis of benign intra-uterine lesions, and it permits to proceed directly to operative hysteroscopy [16, 17]. However, TVS accuracy in the identification of endometrial polyps is debatable, as is its diagnostic value in patients with AUB, because an abnormal sonographic finding is not specific [18, 19, 20]. Other

authors found that one of the limitations of the method consists of the impossibility to distinguish with confidence among several types of benign lesions and also among benign and malignant lesions. [20, 21, 22, 23]

The objective of this study is to verify if the accuracy of TVS in the detection of the endometrial polyp permits to avoid diagnostic hysteroscopy before polipectomy. We compared the diagnosis of endometrial polyp by TVS with the respective hysteroscopy, considered the gold standard method in the evaluation of the uterine cavity.

MATERIAL AND METHODS

This is a retrospective study, in which we validated the diagnosis of endometrial polyp by TVS in 489 cases with hysteroscopy as the gold standard method. It was carried out in the Gynecological Endoscopic Unit of the State University of Rio de Janeiro and at CEPEM - Woman's Research Center, both in Rio de Janeiro. From June 2000 to July 2006, 2786 hysteroscopies were consecutively carried out in pre and postmenopausal patients. Of the 2786 exams, 489 had diagnosis of endometrial polyp by TVS. After exclusion of 38 cases, 451 exams were selected for the analysis of accuracy of the diagnosis of the endometrial polyp by TVS. The hysteroscopies were done using a small endoscope (2,7 or 2,9mm) and the uterine cavity was generally distended with normal saline via an electronic pump or a pressoric cuff, taking care not to exceed 100mmHg.

Table 1 - *Hysteroscopic findings versus diagnosis of endometrial polyp by TVS.*

Hysteroscopy	**N**	**%**
Lesions or alterations of uterine cavity		
Endometrial polyp	273	60.5
Polypoid endometrium	23	5.1
Endometrial thickness	16	3.5
Submucous myoma	13	2.8
Adenocarcinoma*	4	0.9
Other**	51	11.4
Normal uterine cavity	71	15.8
Total	451	100.0

**Confirmed by histologiycal analysis.*
*** Cases of: small synechiae, chronic endometritis, an focal calcifications.*

TVS were carried out in both phases of the menstrual cycle, in a radiologic clinic of the patient's choice. The interval between the accomplishment of TVS and hysteroscopy ranged from 7 to 60 days.

The criteria for exclusion were: 1) incomplete hysteroscopic examination for cervical stenosis or pain, 2) suboptimal hysteroscopic evaluation of the uterine cavity by bleeding, excessive mucus or illumination problems.

For the purposes of this study we took into consideration mainly the hysteroscopic image; as a validity measure we calculated the Positive Predicted Value (PPV) and the respective 95% confidence interval.

RESULTS

Of the 489 hysteroscopic examinations, 38 (7,7%) incomplete or inconclusive examinations were excluded. Table 1 records the hysteroscopic findings of the 451 uterine cavities that could be examined satisfactorily.

Hysteroscopy confirmed endometrial polyp in 273 cases (PPV = 60.5% [IC 95% 61.0 to 69.8]). In 71 cases (15.8%) the uterine cavity was normal. Small synechiae, endometritis and focal calcifications (51 cases) added 11,4% of the cases. Four cases (0.9%) of adenocarcinoma of the endometrium (confirmed by biopsy) in patients who were 47, 53, 57 and 78 years old were correctly diagnosed by hysteroscopy.

DISCUSSION

In this study, TVS resulted in PPV of 60.9%; in 39.5% of the cases (178 cases) we found discrepancy between the TVS and hysteroscopy findings. Although low our PPV is in agreement with literature findings of symptomatic and asymptomatic groups of pre and postmenopausal women. In previous studies for detecting endometrial polyp in those groups of women, Kamel and cols (2000), Kalecki and cols (2005), Cepni and cols (2005) and Matchingler and cols (2005) found PPV for TVS of 72.6%, 50%, 69% and 79.9%, respectively.

Our PPV contrasts with the high rates of PPVs of TVS in the diagnosis of the endometrial polyp found in some studies that evaluated infertile women. In six of those papers involving 646 infertile women, only one study showed PPV below 90%.[30] In the other five papers the PPVs ranged from 91% to 100%.[16,

[17, 27, 28, 29] These authors concluded that TVS is as effective as hysteroscopy in the diagnosis of the benign lesions of the uterine cavity, and that TVS permits to proceed directly to the operative hysteroscopy.[16, 17] However, other authors did not get those elevated rates of PPVs in older women.[9, 24, 25, 26] It is interesting to observe the high rates of endometrial polyp found in infertile asymptomatic women: in recent works those rates ranged from 9.4% to 34.9%.[16, 17, 29, 30] Syrop and Sahakian (1992) referred that the incidence of endometrial polyps in the population submitted to in vitro fertilization ranged from 6-44%. A possible explanation for this discrepancy of PPVs may be the fact that endometrial polyp is more prevalent in infertile asymptomatic women.

Consequently, in the infertility group, (in most, young women), TVS can be fairly sufficient in the detection of the endometrial polyp, but, in our opinion, the accuracy of TVS in infertile women still needs further studies for definitive conclusions, tends to observe that the rates of endometrial polyp in infertile women varies widely in the literature.

Although in the literature the rates of false-positive results of TVS for endometrial polyp ranged from 19% to 25% [24, 32] we found discrepancy between TVS and hysteroscopy in 39.5% of cases. A possible explanation for that difference may be the fact that the ultrasonography examinations of our series were done in different phases of the menstrual cycle and not with a single radiologist, decreasing internal validity. However, this situation reflects what happens more commonly in daily practice, increasing external validity. In this false-positive group, the hysteroscopic examination showed normal uterine cavity in 15.8% of the cases, showing that in menstruating women, especially if the TVS was performed in the secretory phase of menstrual cycle, it may be an advantage to wait the following menstruation and later to perform hysteroscopy or to repeat TVS. Even in this group we observed that morphologic alterations of endometrium, intra-uterine synechiae, submucous myoma and adenocarcinoma (the four cases had the polypoid form) were diagnosed as endometrial polyp by TVS. Those findings confirm that one of the limitations of the method consist of the impossibility to distinguish accurately among several types of benign lesions and also among benign and malignant lesions, as evidenced by others.[20, 21, 22, 23]

The most worrying problem is to delay the diagnosis and treatment of a malignant lesion supposed to be a benign endometrial polyp according to TVS findings. This is especially true in older patients, maily in postmenopausal women. In 17 postmenopausal patients in which TVS showed abnormal endometrial texture, Cacciatore and cols (1994) found two cases in which the diagnosis of malignancy of the polypoid mass was not clear because no signs of invasion were seen; in 87 diagnosis of endometrial polyp by TVS in postmenopausal symptomatic women, Macthinger and cols (2005) found three cases of atypical hiperplasia and six of adenocarcinoma. Although adenocarcinoma is infrequent in patients before 50 years old [34], one of the adenocarcinoma cases of our series was found in a 47 year-old patient and, in agreement with Gompel and Silverberg (1977) study, where 12.8% of the diagnosed adenocarcinomas were found in women from 41 to 50 years. Therefore, if TVS detects an endometrial polyp in women older than 40 years, it is a cautious measure to do a diagnostic hysteroscopy.

If we indicated surgery to all patients with TVS diagnosis of endometrial polyps, only 63.3% would probably be benefited since they had definitive diagnosis of polyps or myomas. The other 36.7% would be incorrectly indicated to surgery, since in 15.8% the uterine cavity was normal and in 20.9% the cavity abnormalities traditionally do not require surgical treatment.

In summary, because of the low PPV of TVS in the detection of endometrial polyp observed in this study, we conclude that sonographic diagnosis of endometrial polyp in pre and postmenopausal women do not have enough accuracy to avoid diagnostic hysteroscopy before polipectomy, justifying hysteroscopy and biopsy under direct vision, as a separate diagnostic procedure.

REFERENCES

1- Nagele F, O·Connor H, Davies A, Badawy A, Mohamed H, Magos A. 2500 outpatient diagnostic hysteroscopies. Obstet Gynecol 1996; 88:87-92.

2- Novak ER, Woodruff JD. Novak's Gynecology and Obstetric Pathology. 7th ed. Philadelphia: WB Saunders, 1974: 241.

3- Goldstein SR, Monteagudo A, Popiolek D, Mayberry P, Timor-Tritsch I. Evaluation of endometrial polyps. Am J Obstet Gynecol 2002; 186: 669-74.

4- Campaner AB, Carvalho S, Lima SMRR, Santos ER,Galvão MAL, Ribeiro PAG, Tsutomo A. Avaliação histológica de pólipos endometriais em mulheres após a menopausa e correlação com o risco de malignização. [Histopathologic features of endometrial polyps during menopause and correlation

with the risk for concomitant pathology.] (in Portuguese with English abstract.) Rev bras ginecol obstet 2006; 28: 18-23.

5- Savelli L, De Iaco P, Santini D, Rosati F, Ghi T, Pignotti E, Boviccelli L. Histopathologic features and risk factors for benignity, hyperplasia and cancer in endometrial polyps. Am J Obstet Gynecol 2003; 188: 927-31.

6- Ben-Arie A, Goldchmit C, Laviv Y, Levy R, Caspi B, Huszar M, Dgani R, Hagay Z.The malignant potential of endometrial polyps. Eur J Obstet Reprod Biol 2004; 115: 206-10.

7- Bakour SH, Khan KS,Gupta JK. The risk of premalignant and malignant pathology in endometrial polyps. Acta Obstet Gynecol Scand 2000; 79: 317-20.

8- Martín-Ordanza C, Gil-Moreno A, Torres-Cuesta L, Garcia A, Eyzaguirre F, Diaz-Feijoo B, Xercavins J. Endometrial cancer in polyps: a clinical study of 27 cases. Eur J Gynaecol Oncol 2005; 26: 55-8.

9- Matchtinger R, Korach J, Padoa A, Fridman E, Zolti M, Segal J, Yefet Y, Goldenberg M, Ben-Baruch G. Transvaginal ultrasound and diagnostic hysteroscopy as a predictor of endometrial polyps: risk factors for premalignacy and malignancy. Int J Gynecol Cancer 2005; 15: 325-8.

10- Mbatsogo BA, Le Boëdec G, Michy T, Bourdel N, Fouilloux G, Dauplat J. Dégénérescence maligne de polypes endométriaux sous tamoxifène. [Endometrial cancers arising in polyps associated with tamoxifen use] (in French with English abstact.) Gynecol Obstet Fertil 2005; 33: 975-9.

11- Oliveira MAP, Melki LAH, Crispi CP, Cará PR, Oliveira HC. Pólipo endometrial: diagnóstico e tratamento [Endometrial polyps: diagnosis and treatment] (in Portuguese with English abstract.) Femina 2003; 31: 885-90.

12- Orvieto R, Bar-Hava I, Dicker D, Bar J, Bem-Rafael Z, Néri A. Endometrial polyps during menopausa: characterization and significance. Acta Obstet Gynecol Scand 1999; 78: 883-6.

13- Gebauer G, Hafner A, Siebzehnrubl E, Lang N. Role of hysteroscopy in detection and extraction of endometrial polyps: results of a prospective study. Am J Obstet Gynecol 2001; 184: 59-63.

14- Shushan A, Revel A, Rojanski N. How often are endometrial polyps malignant? Gynecol Obstet Invest 2004; 58: 212-15.

15- Mortakis AE, Mavrelos K. Transvaginal ultrasonography and hysteroscopy in the diagnosis of endometrial abnormalities. J Am Assoc Gynecol Laparosc 1997; 4: 449-452.

16- Fabres C, Alam V, Balmaceda J, Zegers-Hochschild F, Mackenna A, Fernandez E. Comparison of ultrasonography and hysteroscopy in the diagnosis of intrauterine lesions in infertile women. J Am Assoc Gynecol Laparosc 1998; 5: 375-8.

17- Loverro G, Nappi L, Vicino M, Carriero C, Vimercatti A, Selvaggi L. Uterine cavity assessment in infertile women: comparison of transvaginal sonography and hysteroscopy. Eur J Obstet Gynecol Reprod Biol 2001; 100: 67-71.

18- Dueholm M, Lundorf E, Olesen F. Imaging techniques for evaluation of the uterine cavity and endometrium in premenopause patients before minimally invasive surgery. Obstet Gynecol Surv. 2002; 57: 388-403.

19- Laifer-Narin S, Ragavendra N, Parmenter E K, Grant E G. False normal appeareance of the endometrium on conventional tranvaginal sonography: comparasion with saline hysterosonography. AJR Am J Roentgenol 2002; 178: 129-33.

20- Davidson KG, Dubinsky TJ. Ultrasonographic evaluation of the endometrium in postmenopausal vaginal bleeding. Radiol Clin North Am. 2003; 41: 769-80.

21- Fedele L, Bianchi S, Dorta M, Brioschi D, Zanotti F, Vercellini P. Tranvaginal ultrasonography versus hysteroscopy in the diagnosis of uterine submucous myomas. Obstet Gynecol 1991; 77: 745-8.

22- Chan FY, Chau MT, Pun TC, Lam C, Ngan HY; Leong L, Wong RL. Limitations of transvaginal sonography and color Doppler imaging in the differentiation of carcinoma from benign lesions. J Ultrasound Med 1994; 13: 623-8.

23- Maia H, Barbosa I C, Farias J P, Ladipo O A, Coutinho E M. Evaluation of the endometrial cavity during menopause. Int J Gynaecol Obstet 1996; 52: 61-6.

24- Kamel HS, Darwish AM, Mohamed Abdel-Rady S. Comparison of transvaginal ultrasonography and vaginal sonohysterography in the detection of endometrial polyps. Acta Obstet Gynecol Scand 2000; 79: 60-4.

25- Kelecki S, Kaya E, Alan M, Alan Y,Bilge U, Mollamahmutoglu L. Comparison of transvaginal sonography, saline infusion sonography,and office hysteroscopy in reproductive-aged women with or without abnormal uterine bleeding. Fertil Steril 2005; 84: 682-6.

26- Cepni I, Ocal P, Erkan S, Saricali FS, Arkbas H, Demirkiran F *et al*. Comparison of transvaginal sonography, saline infusion sonograpy and hysteroscopy in the evaluation of uterine cavity pathologies. Aust N Z J Obstet Gynecol 2005; 45: 30-5.

27- Narayan R, Goswamy RK. Transvaginal sonography of the cavity with hysteroscopic correlation in the investigation of infertility. Ultrasound Obstet Gynecol 1993; 3: 129-133.

28- Stadtmauer L, Grunfeld, L. The significance of endometrial filling defects on routine transvaginal sonography. J Ultrasond Med 1995; 14: 169-172.

29- Shalev J, Meizner I, Bar-Hava I, Dicker D, Mashiach R, Ben-Rafael Z. Predictive value of transvaginal sonography performed before routine diagnostic hysteroscopy for evaluation of infertility. Fertil Steril 2000; 73: 412-17.

30- Soares SR, Reis MMBB, Camargos AF. Diagnostic accuracy of sonohysterography, transvaginal sonografy, and hysterosalpingography in patients with uterine cavity diseases. Fertil Steril 2000; 73: 406-11.

31- Syrop CH, Sahakian V. Transvaginal sonography detection of endometrial polyps whith fluid contrast augmentation. Obstet Gynecol 1992; 79: 1041-43.

32- Epstein E, Ramirez A, Skoog L, Valentin L. Transvaginal sonography, saline contrast sonography and hysteroscopy for investigation of women with postmenopausal bleedind and endometrium > 5 mm. Ultrasound Obstet Gynecol 2001;18: 157-162.

33- Cacciatore B, Ramsay T, Lehtovirta P,Ylöstalo P. Transvaginal sonography and hysteroscopy in postmenopausal bleeding. Acta Obstet Gynecol Scand 1994; 73: 413-16.

34- Melki LAH, Oliveira MAP, Tostes Filho W, Assumpção AMB, Oliveira HC. Dilatação e curetagem na avaliação do sangramento uterino anormal: achados histopatológicos e relação custo/benefício. [Dilatation and curettage in the evaluation of abnormal uterine bleeding: histopathologic findings and the cost/benefit relation.] (in Portuguese with English abstract.) Rev bras ginecol 2000; 22: 495-502.

35- Gompel, C, Silverberg SG. Pathology in Gynecology and Obstetrics. 2th ed. Philadelphia: J B Lippincott, 1977: 202.

Correspondence address:
LUIZ AUGUSTO HENRIQUE MELKI
Av. Prefeito Dulcídio Cardoso, 800; bl 02; apto 501.
Barra da Tijuca - CEP: 22620-311 - Rio de Janeiro, RJ, Brazil
Tel: 55 21 2438-0098
Email: luizmelki@uol.com.br