Original Article

Transvaginal Sonographic Assessment of Endometrium: A Prospective Cohort Study

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ABSTRACT

Introduction: Dilatation and curettage (D&C) once considered to be the best choice for diagnosing the uterine pathology, is now being replaced by minimally invasive technique called, transvaginal songoraphy. Transvaginal sonography (TVS) converts high-frequency sound waves into different echo patterns and converted into a definite pattern of images, which are interpreted by consultants. The present study is based on role of TVS in abnormal uterine bleeding in a cohort.

Materials and Methods: This prospective cohort study was conducted in Department of Obstetrics and Gynecology, Teerthanker Mahaveer Medical College and Research Center, Moradabad, Uttar Pradesh, India. 70 nonpregnant females 38-51 years of age on no hormonal treatment were chosen for the study, obtaining a written informed consent. D&C was performed followed by TVS using high-frequency transducer was performed in each case.

Results: Results of D&C and TVS compared and contrasted. On the comparison, we found that TVS detected those lesions which were missed by D&C. D&C reports showed that in 47 out of 70 cases there were normal proliferative endometria. An endometrial pathology was found in 38 patients. Endometrial hyperplasia was diagnosed in 13, polyps in 14, and endometrial carcinoma in 5 cases. An abnormal sonography was found in 41 of 70 cases.

Conclusion: We concluded our study with the fact that TVS is the first line of diagnostic modality for the females complaining of uterine bleeding in the majority of cases. TVS is noninvasive, simple, and reliable technique, to carry out and detect lesions more efficiently than any other technique.

Keywords: Cohort, Malignancy, Polyps, Transvaginal sonography

INTRODUCTION

Most of the females of (30-50 years of age approximately) attending gynecology clinic present with irregular, prolonged unexpected bleeding, regardless of the cause.[1,2] This bleeding of unexpected origin not only effects their day-to-day life, but, if left without care can pose serious consequences.[3,4] Dilatation and curettage (D&C) once considered to be the best choice for diagnosing the uterine pathology, is now being replaced by minimally invasive technique called, Transvaginal songoraphy.[5] On diagnosis, about 85-90% of problems are benign in nature and rest used to malignant, until unless proved otherwise.[6,7] Transvaginal sonography (TVS) converts high frequency sound waves into different echo patterns and converted into a definite pattern of images, which are interpreted by consultants.[8] Ultrasound waves do not have any deterrent effect even in pregnant females.[9] D&C once supposed to be the best choice is now not a favorite choice, because it is found to skip certain important causes of unexpected causes of uterine bleeding.[10] Due to its certain limitations of D&C TVS replaced D&C, and now the investigation of choice in abnormal uterine bleeding.[11,12] The present study is based on role of TVS in abnormal uterine bleeding in a cohort.

MATERIALS AND METHODS

Seventy women of age range 38-51 years who attended the department of OBG were included in this study.

Women, known to have any form of hormonal treatment, any gynecological malignancy or hormonal disorders were excluded. The institutional ethical and research committee approved the study and informed consent from every woman was taken. TVS was performed using Madison ultrasound system.

Endometrial thickness was measured. A cut-off value of 8 ± 0.2 mm was taken. By TVS can detect suspicious endometrial pathologies. Endometrial thickness of more than after that D&C was performed. Histopathology of endometrium as obtained was compared with the TVS.

RESULTS

Histological reports showed that in 47 out of 70 cases there were normal proliferative endometria. An endometrial pathology was found in 38 patients. Endometrial hyperplasia was diagnosed in 13, polyps in 14, and endometrial carcinoma in 5 cases. Endometrial echoes were visualized and measured by TVS in all cases. An abnormal sonography was found in 41 of 70 cases. Results of TVS and histopathology among 70 cases are shown in Table 1 (Figure 1).

DISCUSSION

Today the need of an hour is that we should employ those diagnostic techniques that should be easy to perform, cheap, noninvasive, and acceptable to the patients. TVS fulfills all these criteria in perimenopausal age group. Supplemented by other uterine visualization techniques, it can be used a primary investigative technique for most of the uterine pathologies.

Thickness of the uterine endometrium as accessed by TVS can detect suspicious endometrial pathologies. Endometrial thickness of more than 8 ± 0.2 mm is considered suspicious of endometrial pathology in perimenopausal age group and requires further investigative techniques.[13,14]

As noticed by other workers, empty bladder enhances TVS visualization and detects abnormal uterine pathologies well, especially of the uterine cavity.[15,16] TVS in experienced hands is free from all type of risks as compared with D&C. Instrument as used in this study also plays a vital role in better diagnosis. Direct visualization of uterine cavity (Hysteroscopy) supplemented by TVS detects abnormal uterine pathologies better in contrary to using these techniques singly. TVS can be performed without any anesthetic procedure, by just taking patient in confidence.[10,17] Studies show that about 3.5-5% of images cannot be diagnosed well even in very experienced hands and in those cases further more advanced techniques should be employed.18,19

Table 1: Comparative evaluation of uterine pathology by two different diagnostic techniques

	Post dilatation and curettage evaluation	TVS evaluation
Number of patients	70	70
Normal endometrium	27	21
Endometrial polyps	15	18
Hyperplasia	15	8
Uterine malignancy	3	2
Others	10	21

TVS: Transvaginal sonography

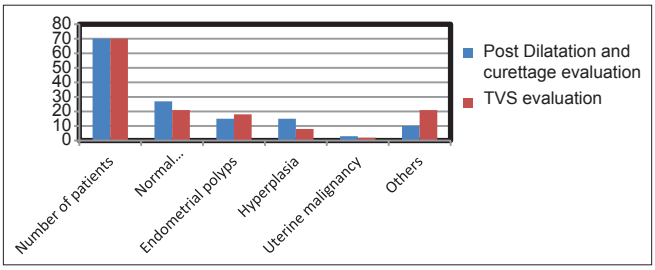

Figure 1: Two diagnostic techniques

CONCLUSION

From the study conducted above, we are very much sure that TVS is the ideal first line of diagnostic modality for the females complaining of uterine bleeding in the majority of cases. TVS has proved its supremacy in being noninvasive, simple, valid technique, which does not even require anesthesia to carry out and detect lesions more efficiently than any other technique. Hence we, the author, recommend this technique in the majority of cases in abnormal uterine bleeding, because this study was conducted in fairly large number of sample.

REFERENCES

1. Munro MG. Abnormal uterine bleeding in the reproductive years. Part II-medical management. J Am Assoc Gynecol Laparosc 2000;7:17-35.
2. Schappert SM. Ambulatory care visits to physician offices, hospital outpatients and emergency departments: United States, 1996 National Center for Health Statistics. Vital Health Stat 1998;134:1-37.
3. McCluggage WG. My approach to the interpretation of endometrial biopsies and curettings. J Clin Pathol 2006;59:801-12.
4. Munro MG. Abnormal uterine bleeding in the reproductive years. Part I – Pathogenesis and clinical investigation. J Am Assoc Gynecol Laparosc 1999;6:393-416.
5. Conoscenti G, Meir YJ, Fischer-Tamaro L, Maieron A, Natale R, D'Ottavio G, *et al*. Endometrial assessment by transvaginal sonography and histological findings after D&C in women with postmenopausal bleeding. Ultrasound Obstet Gynecol 1995;6:108-15.
6. Bakour S, Khan S, Gupta JK. The risk of premalignant and malignant pathology in endometrial polyps. Aca Obstet Gynecol Scand 2000;79:317-20.
7. Kelly P, Dobbs SP, McCluggage WG. Endometrial hyperplasia involving endometrial polyps: Report of a series and discussion of the significance in

an endometrial biopsy specimen. BJOG 2007;114:944-50.
8. Grunfeld L, Walker B, Bergh PA, Sandler B, Hofmann G, Navot D. High-resolution endovaginal ultrasonography of the endometrium: A noninvasive test for endometrial adequacy. Obstet Gynecol 1991;78:200-4.
9. Smith P, Bakos O, Heimer G, Ulmsten U. Transvaginal ultrasound for identifying endometrial abnormality. Acta Obstet Gynecol Scand 1991;70:591-4.
10. Bakos O, Heimer G. Transvaginal ultrasonographic evaluation of the endometrium related to the histological findings in pre- and perimenopausal women. Gynecol Obstet Invest 1998;45:199-204.
11. Dijkhuizen FP, Brölmann HA, Potters AE, Bongers MY, Heinz AP. The accuracy of transvaginal ultrasonography in the diagnosis of endometrial abnormalities. Obstet Gynecol 1996;87:345-9.
12. Emanuel MH, Verdel MJ, Wamsteker K, Lammes FB. A prospective comparison of transvaginal ultrasonography and diagnostic hysteroscopy in the evaluation of patients with abnormal uterine bleeding: Clinical implications. Am J Obstet Gynecol 1995;172:547-52.
13. Granberg S, Wikland M, Karlsson B, Norström A, Friberg LG. Endometrial thickness as measured by endovaginal ultrasonography for identifying endometrial abnormality. Am J Obstet Gynecol 1991;164:47-52.
14. Spandorfer SD, Arrendondo-Soberon F, Loret de Mola JR, Feinberg RF. Reliability of intraobserver and interobserver sonographic endometrial stripe thickness measurements. Fertil Steril 1998;70:152-4.
15. Smith-Bindman R, Kerlikowske K, Feldstein VA, Subak L, Scheidler J, Segal M, *et al.* Endovaginal ultrasound to exclude endometrial cancer and other endometrial abnormalities. JAMA 1998;280:1510-7.
16. Karlsson B, Granberg S, Wikland M, Ylöstalo P, Torvid K, Marsal K, *et al.* Transvaginal ultrasonography of the endometrium in women with postmenopausal bleeding – a Nordic multicenter study. Am J Obstet Gynecol 1995;172:1488-94.
17. Di Naro E, Bratta FG, Romano F, Caradonna F, Loizzi P. The diagnosis of benign uterine pathology using transvaginal endohysterosonography. Clin Exp Obstet Gynecol 1996;23:103-7.
18. Delisle MF, Villeneuve M, Boulvain M. Measurement of endometrial thickness with transvaginal ultrasonography: Is it reproducible? J Ultrasound Med 1998;17:481-4.
19. Langer RD, Pierce JJ, O'Hanlan KA, Johnson SR, Espeland MA, Trabal JF, *et al.* Transvaginal ultrasonography compared with endometrial biopsy for the detection of endometrial disease. Postmenopausal Estrogen/Progestin Interventions Trial. N Engl J Med 1997;337:1792-8.

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