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Original Article

Transvaginal sonography versus hysteroscopy in evaluation of abnormal uterine bleeding



Col B.K. Goyal, *vsm*^{a,*}, Capt Indu Gaur^b, Gp Capt Sunil Sharma^c,
Maj Arunabha Saha^d, Col N.K. Das^e

^a Senior Adviser (Obst-Gynae & Gynae Onco), Command Hospital (West Command), Chandimandir, India

^b Medical Officer (Obst-Gynae), Base Hospital, Delhi Cantt 10, India

^c Classified Specialist (Obst-Gynae), Naval Hospital, Powai, Mumbai, India

^d Graded Specialist (Obst-Gynae), 159 Gen Hospital, C/O 56 APO, India

^e Classified Specialist (Obst-Gynae), Command Hospital (Eastern Command), Kolkata 700027, India

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ABSTRACT

Background: Abnormal uterine bleeding (AUB) accounts for 33% of female patients referred to gynaecologists. Common causes of AUB include endometrial polyps, endometrial hyperplasia, submucous fibroids and anovulation. Accurate diagnosis of the cause of AUB can reduce the frequency of hysterectomy. This study was aimed at assessing the usefulness of TVS in comparison with hysteroscopy in AUB evaluation.

Methods: 100 female patients with AUB were enrolled in the study. Each patient was subjected to TVS where uterine cavity was studied in detail and hysteroscopy under anaesthesia using saline as distension medium. Sensitivity, specificity and predictive value of TVS as compared to hysteroscopy were calculated. Subgroup analysis within each group was also performed.

Results: Menorrhagia was the commonest presenting symptom in the study population ($n = 58$) followed by metrorrhagia, menometrorrhagia and continuous bleeding >21 days. 74 female patients had normal size uterus. In 57 patients, the uterine cavity was normal on TVS. Thickened endometrium, endometrial polyp and submucous fibroids were seen in 19, 16 and 6 patients respectively. Hysteroscopy showed normal cavity in 59 female patients and polypoidal endometrium, polyps or submucous fibroids in 41. TVS was found to have high sensitivity and specificity (95.23 and 94.82 respectively) and high positive and negative predictive value. Strength of agreement between TVS and hysteroscopy was high (kappa value 0.898).

Conclusion: TVS is recommended as first line investigation in AUB. If TVS shows normal cavity, further evaluation can be omitted and patient started directly on medical treatment for her symptoms.

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* Corresponding author. Tel.: +91 9831423985.

E-mail address: bkgnona@gmail.com (B.K. Goyal).

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Introduction

Abnormal uterine bleeding (AUB) describes all abnormal patterns of menstrual bleeding that may result from a wide variety of causes including anovulation, pregnancy, uterine pathology and coagulopathies.¹ The term AUB usually indicates one of the following clinical presentations – *menorrhagia* (abnormally long or heavy menses lasting >7 days or involving blood loss >80 mL), *metrorrhagia* (menses occurring at irregular intervals) or *menometrorrhagia* (a combination of the two). It is the single most common complaint that reproductive age females bring to their clinicians and it accounts for 33% of female patients referred to gynaecologists.² Differential diagnosis of AUB includes problems relating to pregnancy, infection, vaginal and cervical abnormalities, benign and malignant uterine neoplasia, coagulopathies, endocrine disorders, trauma, foreign bodies, systemic disease and bleeding related to medications.¹ In order to arrive at the cause of AUB, the clinician should evaluate the patient with judicious use of investigative tools available to him.

A careful history and physical examination are the most useful tools for starting the evaluation of AUB. Infrequent, irregular, unpredictable menstrual bleeding that varies in amount, duration and character and is not preceded by any recognizable or consistent pattern of premenstrual molimina and unaccompanied by any visible or palpable genital tract abnormality, can be diagnosed as anovulatory bleeding. Conversely, regular monthly periods that are heavy or prolonged are more likely related to an anatomical lesion or a bleeding disorder than to anovulation.

Anything that can significantly improve the accuracy of diagnosing the cause of bleeding, can reduce the frequency of hysterectomy as a cure. Dilatation and curettage (D & C) used to be the mainstay of investigation for abnormal uterine bleeding but it is not accurate for diagnosing focal intrauterine lesions such as endometrial polyps or submucous fibroids which may be small or located in areas difficult to curette.^{3–6} Currently, the main diagnostic methods which are being used in the evaluation of AUB are transvaginal ultrasonography and diagnostic hysteroscopy.⁷ According to some authors, diagnostic hysteroscopy represents an indispensable pre-surgical investigation,⁸ although the value of transvaginal ultrasonography compared with hysteroscopy is yet not fully defined.

In evaluation of AUB, what should be the ideal work-up plan? We undertook the present study to compare the accuracy of TVS as compared with hysteroscopy in cases of abnormal uterine bleeding and to formulate the ideal investigation protocol in these female patients with AUB.

Materials and methods

This prospective observational study was conducted at the Department of Obstetrics and Gynaecology of a tertiary care teaching hospital of the Armed Forces from January 2012 to June 2014. The study population included female patients attending the OPD for abnormal uterine bleeding and the sample size consisted of 100 patients not known to have an on-

going pregnancy. Patients with AUB who were hemodynamically unstable, unmarried young female patients where TVS is not desirable, uterine size larger than 12 weeks gestation, patients with known coagulation disorders and those with a cervical lesion or cancer were not included in this study.

Each patient meeting the selection criteria underwent a preliminary assessment by history and clinical examination. The bleeding pattern was categorized as either menorrhagia, metrorrhagia, menometrorrhagia or continuous bleeding for more than 21 days. The uterine size was assessed clinically and determined as normal or enlarged (in weeks of pregnancy size). TVS examination was performed at the first visit in the office setting itself. The uterine anatomy and the adnexae were visualized using a 7.5 MHz vaginal probe transducer (General Electric, Milwaukee, C3 real time sector scanner). Appearance of the endometrial stripe was recorded as either normal or abnormal; a specific note was made of any focal lesion seen in terms of an endometrial polyp, submucous fibroid, intramural fibroid, or thickened endometrium (>12 mm). The contour of the endometrial stripe was assessed in the midline sagittal plane and the point of maximum thickness of the stripe (ET) was measured.

Hysteroscopy under anaesthesia was then scheduled at a subsequent visit. Hysteroscopy was scheduled in the early proliferative phase of the menstrual cycle in patients complaining of regular AUB. Hysteroscopy was performed using a 30° hysteroscope and diagnostic sheath of 5 mm diameter (Karl-Storz Endoscopy) with a fiberoptic cold light source; normal saline was used as the distending medium and the procedure was performed under direct video monitoring.

A total of 100 patients completed the study and underwent both TVS and hysteroscopy. The results of hysteroscopy were taken as the “gold standard” for the diagnosis of intracavitary pathology. Sensitivity, specificity and predictive value of the TVS in detecting the intracavitary lesions were calculated with hysteroscopy taken as the gold standard. Subgroup analysis of various TVS findings was also undertaken and accuracy of TVS in assigning the cause was determined for each pattern. Statistical analysis was performed online using the facility provided on the website www.medcalc.org and www.graphpad.com.

Results

100 consecutive patients presenting with menstrual complaints who met the selection criteria were studied by TVS and hysteroscopy for this study and evaluated. The data was arranged in Microsoft Excel sheet and was analysed statistically.

The age of our patients ranged from 19 to 55 years but maximum number of patients who developed menstrual abnormalities belonged to 41–50 year age group ($n = 51$). 10 patients were above 51 years of age and 10 patients below 30 years.

Parity distribution of the subjects ranged between 0 and 5. Fifty-one patients in our study were para-2, which is in keeping with the modern trends of family size. There were two nulliparas and six with parity four or above.

Table 1 depicts the distribution of various menstrual abnormalities seen in our study group. Menorrhagia was the

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