



RESEARCH ARTICLE

ROLE OF TRANSVAGINAL SONOGRAPHY AND DIAGNOSTIC HYSTEROSCOPY IN ABNORMAL UTERINE BLEEDING

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ABSTRACT

The patients who attended to KIMS OPD with the complaints of Abnormal Uterine Bleeding (AUB) are enrolled in this study after written and informed consent. 60 of the patients who met the required criteria are subjected to relevant clinical examination and investigations. Local causes of bleeding were excluded in these patients. These patients were subjected to TVS and Hysteroscopic examination respectively.

Results: In the present study, transvaginal ultrasound showed an accuracy of 83.3% in detecting the proliferative phase and 66.67% in detecting the secretory phase. TVS has a sensitivity of 0% for a local lesion of endometrial cavity which is in accordance with the study by the others, who concluded that endometrial thickness evaluated by TVS was preferable but not sensitive enough to exclude endometrial pathology.

Conclusion: Both TVS and hysteroscopy can detect endometrial intracavitary abnormalities with varying accuracies. These can supplement and enhance the accuracy of tissue diagnosis. Thus the first procedure to which patients with AUB are to be subjected should be TVS followed by hysteroscopy and hysteroscopically directed biopsy, wherever required.

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INTRODUCTION

AUB is a very frequent gynaecological complaint and occurs across the entire age spectrum; approximately 75000 hysterectomies are carried out each year, with 30% of these for menstrual problems alone. The causes of AUB include a wide variety of gynaecological and non-gynaecological causes. It comprises of 10-15% of gynaec OPDs (Gunjan Sabherwal and Sharnml Bhasin, 2002) Advancements in technology have made TVS and diagnostic hysteroscopy to become useful adjuncts to blind endometrial curettage. Hence, with stepwise evaluation of all possible organic causes of AUB, therapy can be tailored more appropriately and efficiently. This can prevent occurrence of serious consequences in some and improve the quality of life in several others.

Aims

To evaluate the role of transvaginal sonography and diagnostic hysteroscopy in Abnormal Uterine Bleeding.

Objectives

- To evaluate whether TVS and diagnostic hysteroscopy are complementary to one another in the evaluation of Abnormal Uterine Bleeding.
- To evaluate if Hysteroscopy is more specific and gold standard for intracavitary lesions.

Study design

Prospective comparative study.

Study period and place

18 months (the cases were studied between the year 2013-2015) in Kempegowda Institute Of Medical sciences Bangalore, Karnataka.

MATERIALS AND METHODS

Inclusion Criteria

All patients who complained of AUB.

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Exclusion Criteria

Suspected pregnancy and its complications. Patient with local causes of bleeding (Vaginal and Vulval pathology) patient with carcinoma cervix and PID. Patients who attended KIMS OPD with the complaints of abnormal uterine bleeding are enrolled in this study. Relevant clinical examinations and blood investigations were done. 60 patients met the required criteria and were posted for TVS and hysteroscopy. Patients were explained about the need for undergoing TVS and hysteroscopic examinations and risk associated with them. After their consent, they were admitted on the day of the procedure. Patients were asked to be nil orally on the previous night prior to the procedure. Then injection tetanus toxoid and xylocaine test dose and injection Ampicillin 500mg IV (ATD) are given to all patients prior to the procedure. TVS was done in all patients using 7.5 MHz transvaginal probe.

Uterus, endometrium and the adnexae were evaluated by the various maneuvers available. The interpretation and its correlation with the menstrual phases was done following standard book guidelines. Patients were shifted to operation theatre and under general anaesthesia / IV sedation, with all aseptic precautions, hysteroscopy procedure is carried out. Diagnostic hysteroscopy procedure was performed using 4mm Rigid Storz hysteroscope and 5mm sheath. CO₂ was used as distention media aided by hysteroflator. Wherever necessary, cervical dilatation was done. A Systematic survey–observation of cervix, endocervix, uterine fundus, endometrial cavity, right and left cornu and both tubal orifices were visualised and interpreted accordingly. Wherever necessary D and C is also done in the same sitting and endometrial curettings sent for HPE. Then patients were observed in the recovery room for 2 hours and most of the patients were discharged on the same day.

RESULTS

Most of menorrhagia patients had endometrial thickness between 7-9 mm. 60% of our postmenopausal patients had endometrial thickness of less than 4mm.

Table 1. Relationship of type of bleeding and TVS findings

Endometrial Thickness (mm)	Menstrual Symptoms					Total
	Menorrhagia	Metrorrhagia	Polymenorrhagia	Continuous Bleeding	Post Menopausal	
≤3	1	2			5	8
4-6	8	2	4	1	1	16
7-9	14	5	3		3	25
10-12	2		1	1	1	5
13-15	3	1	1	1		6
Total	28	10	9	3	10	60

Table 2. Relationship of type of bleeding and hysteroscopic findings

Hysteroscopy	Menstrual Symptoms					Total
	Menorrhagia	Metrorrhagia	Polymenorrhagia	Continuous Bleeding	Post Menopausal	
Proliferative	9	3	2			14
Secretory	10	1	2			13
Atrophic	1	2		1	6	10
Polyp	5	2	1		1	9
Hyperplastic	1		3	2	2	8
Fibroid	2	1	1			4
Others		1			1	2
Total	28	10	9	3	10	60

45% of the patients with the complaints of cyclical bleeding (menorrhagia and polymenorrhagia) had normal appearing endometrial cavity either with secretory or proliferative endometrium. 10% of post-menopausal patients had atrophic endometrium. All patients with continuous bleeding had an abnormal endometrial cavity.

Table 3. Association of Hysteroscopic findings and TVS findings (ET)

Endometrial Thickness (mm)	Hysteroscopy findings							Total
	Proliferative	Secretory	Atrophic	Polyp	Hyperplastic	Fibroid	Others	
≤3	1		6				1	8
4-6	8	1	3	1		3		16
7-9	5	9	1	6	2	1	1	25
10-12		2			3			5
13-15		1		2	3			6
Total	14	13	10	9	8	4	2	60

Table 4. Performance of TVS (Pick-up rate) in relation to hysteroscopy

S. No.	Findings	Hysteroscopy	Pick number of TVS	Pick-up rate of TVS (%)
1	Proliferate	14	8	57.1
2	Secretory	13	11	84.6
3	Atrophic	10	6	60
4	Polyp	9	2	22.2
5	Hyper plastic	8	3	37.5
6	Fibroid	4	3	75
7	Others	2	-	-

Table 5. Diagnostic value of TVS with respect to hysteroscopy

S.No.	Diagnosis	Diagnostic value of TVS keeping Hysteroscopy as Gold Standard						
		Sensitivity	Specificity	PPV	NPV	Accuracy	Kappa	P Value
1	Proliferate	57.14	91.3	66.67	87.5	83.3	0.51	< 0.001
2	Secretory	84.62	61.7	37.93	93.55	66.67	0.32	0.002
3	Atrophic	60	96	75	92.31	90	0.61	<0.001
4	Polyp	22.22	100	100	87.93	88.33	0.33	0.005
5	Hyper plastic	37.5	96.15	60	90.91	88.33	0.4	0.009
6	Fibroid	75	98.21	75	98.21	96.67	0.73	<0.001

**Submucous Fibroid****Submucosal Polyp**

DISCUSSION

AUB is one of the common gynaecological conditions encountered in the OPD which require a proper evaluation and management. The diagnosis of DUB is often a diagnosis by exclusion for which we have various modalities of investigations with hysteroscopy being gold standard. In this study, comparison of TVS with hysteroscopy being done in evaluating 60 patients with the AUB and its accuracy is analysed. TVS can be used as a first line of diagnostic tool. Hysteroscopy is used as second line diagnostic procedure. In the present analysis, majority of the patients were in perimenopausal age group and recorded painless bleeding in 68.3% of the patients. (Mark H. Emanuel *et al.*, 1995; Sheth *et al.*, 1990; Nancy A. Towbin *et al.*, 1996; Acharya Veena *et al.*, 2003) Since the majority of the menstrual cycles in perimenopausal age are anovulatory or luteal due to weaning of ovarian function, hence dysmenorrhea is less common. In the

study group, Menorrhagia is the commonest mode of presentation, which correlates with many other studies. (Nancy A. Towbin *et al.*, 1996; Acharya Veena *et al.*, Shashank V. Parulekar 3rd ed; Neumann and Astudillo, 1994) In our study, anaemia is presented in 41.5% of the patients, unlike the study conducted by many others in Indian population, which varies between 60 - 75%. This disparity may be because, most of our patients presented within first 6 months of their complaint. (Gunjan Sabherwal *et al.*, 2002; Mark H. Emanuel *et al.*, 1995; Sheth *et al.*, 1990) Hysteroscopy in the present series has revealed normal endometrium in 45% of the cases and various abnormalities in 55% of the cases. This is correlated with the previous various studies. (Gunjan Sabherwal *et al.*, 2002; Acharya Veena *et al.*, 2003; Sciarra and Valle, 1977) Among the local lesions, hysteroscopy in the present series shows submucus fibroid (4) 6.7% and polyps in (9) 15% cases, which is comparable to many other studies. (Sciarra and Valle, 1977; Maia *et al.*, 1996; Cynthia Farquhar *et al.*, 2003) In this study,

one case of post-menopausal bleeding with endometrial thickness of 12mm had hyperplastic endometrium. It proves that hysteroscopy is superior in providing accurate results (Dijkhuizen *et al.*, 2000) but patient was not willing for further evaluation. In the present study, transvaginal ultrasound showed an accuracy of 83.3% in detecting the proliferative phase and 66.67% in detecting the secretory phase. But in the present series, a case of intrauterine synechiae has been missed by TVS in a patient who had come with a complaint of metrorrhagia of 6 months duration. One more case of multiple petechial haemorrhage over the anterior wall of the uterine cavity with cervical length more than uterine length with an atrophic endometrium, was also not picked up, even though it is pathologically not significant. But TVS showed Endometrial thickness of 2mm in this patient which was consistent with the Postmenopausal age group of the patient. One patient with complaint of post-menopausal bleeding was detected to have Endometrial thickness of 9mm. But on hysteroscopic examination, atrophic endometrium was detected. TVS has a sensitivity of 0% for a local lesion of endometrial cavity which is in accordance with the study by the others, who concluded that endometrial thickness evaluated by TVS was preferable but not sensitive enough to exclude endometrial pathology. The accuracy can be improved by the instillation of saline solution in to the uterine cavity to outline the contour of lesions (Hysterosonosalphingography) (Cynthia Farquhar *et al.*, 2003; Dijkhuizen *et al.*, 2000) which is an invasive procedure. Hysteroscopy being the gold standard in diagnosing intracavitary lesions it can be performed instead of Hysterosonosalphingography, as hysteroscopy leads to direct visualisations of the cavitory lesions.

Conclusion

Both TVS and hysteroscopy can detect endometrial intracavitary abnormalities with varying accuracies. These can supplement and enhance the accuracy of tissue diagnosis. Thus the first procedure to which patients with AUB are to be subjected should be TVS followed by hysteroscopy and hysteroscopically directed biopsy, wherever required.

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