



## COMPARATIVE STUDY OF TRANSVAGINAL ULTRASONOGRAPHY AND ENDOMETRIAL BIOPSY IN EVALUATION OF ABNORMAL UTERINE BLEEDING

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### ABSTRACT

AUB accounts for 33% of female patients visiting gynaecologists. AUB may account for >25% of all hysterectomies. A careful history, physical and pelvic examination are the most useful tools for starting the evaluation of AUB. Information thus gathered will suggest what investigation is to be done. Accurate diagnosis of the AUB can decrease the rate of hysterectomies.

**Aim:** To evaluate role of TVS and endometrial biopsy in diagnosis of AUB.

**Objective:** Calculate sensitivity, specificity of TVS and endometrial biopsy in detection of intracavitary uterine lesion.

**Materials and methods:** A study done on 70 patients at AIMS, Bathinda. TVS done with 6.5 MHz Voluson E8 probe. Endometrial samples were taken by D&C for all patients enrolled in the study and were sent for histopathological examination.

**Results:** The sensitivity, specificity, PPV, accuracy of TVS and endometrial biopsy was compared and TVS was found to be better in evaluation of AUB.

**KEYWORDS :** Abnormal uterine bleeding, Endometrial biopsy, Transvaginal ultrasonography,

### Introduction:-

Abnormal uterine bleeding describes all abnormal patterns of menstrual bleeding that may result from a wide variety of cause including anovulation, pregnancy, uterine pathology and coagulopathy. Abnormal uterine bleeding accounts for 33% of female patients visiting gynaecologists<sup>1</sup>. A careful history, physical examination and pelvic examination are the most useful tools for starting the evaluation of abnormal uterine bleeding. Information thus gathered will suggest what investigation is to be done. Accurate diagnosis of the abnormal uterine bleeding can decrease the rate of hysterectomies.

**Endometrial biopsy:** It could be a safe and effective diagnostic process in evaluation of abnormal uterine bleeding after ruling out medical causes. Normal cyclical pattern, disordered proliferative pattern, hyperplasia, atrophic pattern, benign endometrial polyp, chronic endometritis, endometrial carcinoma can be studied.

**Transvaginal sonography:** Is the non invasive diagnostic tool for diagnosis of abnormal uterine bleeding. The detection rate of an abnormal pathology by ultrasonography is high when there are focal lesion such as fibroids, polyps, foreign body or endometrial thickening associated with hyperplasia and malignancy.

### Aim of the study:

- To evaluate role of transvaginal ultrasonography and endometrial biopsy in diagnosis of abnormal uterine bleeding.

### Objective of the study:

- Calculate sensitivity, specificity of transvaginal ultrasonography in detection of intracavitary uterine lesion.
- Calculate sensitivity, specificity of endometrial biopsy in detection of intracavitary uterine lesion.

**Materials and Methods:** 70 cases of abnormal uterine bleeding visiting department of Obstetrics and Gynaecology for treatment and satisfying the study design will be included in the study.

**Inclusion criteria:** All cases of abnormal uterine bleeding who presented in Obstetrics and Gynaecology department at Adesh Institute Of Medical Sciences And Research, Bathinda.

### Exclusion criteria:

- Continuous bleeding per vaginam.
- Known case of carcinoma cervix, Carcinoma vagina, Carcinoma endometrium.
- Pelvic infections.
- Coagulation disorders.
- Thyroid disease.

- Pregnancy.
- Drugs like tamoxifen and hormone replacement therapy.
- History of recent intrauterine perforation.
- Unmarried girls in whom transvaginal ultrasonography is not required.

**Methods:** Basic steps of examination in patients include:

- Written informed consent and counselling.
- Detailed history.
- Physical examination.
- Transvaginal sonography was done and findings were recorded.
- Sample for endometrial biopsy were taken and tissue collected was sent for histopathological examination.
- Results collected and analysed.

### Results:

**AGE:** Total 70 patients were analysed in present study. The age of the patients ranged from 21 years to 60 years with a mean of 42.51 years. Youngest patient was 22 years and oldest was 60 years of age. Highest number of cases was found in the age group 41-50 years (55.72%), followed by age group 31-40 years (32.86%) and 61-70 years (28%).

**Parity:** Mostly patients were multiparous with highest para 3 (40%), followed 15 (21.42%) cases of para 2, 9 (12.85%) cases of para 1, 9 (12.86%) of para 4, 6 (8.57%) cases with para 5 and above and 3 (4.28%) cases were nulliparous.

**Body Mass Index:** The calculated mean body mass index of the study is 23.73 kg/m<sup>2</sup>. 47 patients fell between 18.5 – 24.99 kg/m<sup>2</sup> i.e. normal BMI, 19 patients fell between 25 – 29.99% kg/m<sup>2</sup> i.e. overweight, 3 patients were underweight i.e. BMI < 18.5kg/m<sup>2</sup> and 1 patient was obese i.e. BMI > 30 kg/m<sup>2</sup>.

**Symptoms:** Out of 70 cases 22 cases presented with regular cycle with heavy menstrual bleeding, followed by 13 cases of post menstrual bleed, 11 cases of intermenstrual bleed, 10 cases of infrequent cycles with normal bleed, 8 cases of regular cycle with light menstrual bleed, 6 cases of frequent heavy bleed.

**Age related prevalence of intracavitary lesions:** Maximum patient fell in age group of 41 – 50 years with maximum complaints of heavy menstrual bleeding with regular cycles, followed by postmenopausal bleeding which was followed by intermenstrual bleeding.

**Age Versus Symptoms:** Maximum patients fell in age group of 41-50 years. Most common symptom was regular cycles, heavy menstrual bleeding which was commonly seen in the age group of 31 – 40 years followed by post menopausal bleeding which was commonly seen in the age group of 45- 60 years.

**Findings of TVS:** All of the 70 patients were initially investigated with TVS, out of 70 cases 16(22.85%) cases were normal, 17(24.29%) cases diagnosed with adenomyosis, 7(10%)cases diagnosed with fibroid, 11 (15.71%)cases diagnosed with endometrial hyperplasia, and 7 (10%) cases diagnosed with atrophic endometrium and 12 cases of polyp (17.14%), out of which endometrial polyp were 8 and cervical polyp were 4.

**Table 1: Abnormalities Detected In TVS:**

Sr. No.	TVS finding	No.of Patients (n)	Percentage (%)
1	Normal	16	22.85
2	Adenomyosis	17	24.29
3	Fibroid	7	10
4	E.H	11	15.71
5	A.E	7	10
6	Polyp	12	17.14
	Total (N)	70	100

**Table 2: Distribution of patients according to E.T**

	E.T in mm	No. of patients (n)	Percentage %
1	<5	7	10
2	5-9	51	72.85
3	>9	12	17.14
	Total (N)	70	100
	Mean E.T.	8.65 mm	

All the patients were studied in proliferative phase with mean E.T. 8.65 mm. The maximum E.T. was 13 mm.

**E.T vs Symptoms:** As seen in above figure maximum patients were of regular cycle, heavy menstrual bleeding having E.T between 5 – 9 mm and least patients were of regular cycle, light menstrual bleeding having E.T less than 5 mm.

**Symptoms Vs TVS findings:** Maximum number of patients 21(30%) were having regular cycles but heavy menstrual bleeding and maximum were identified with adenomyosis 16(22.85%) on TVS followed by post menopausal bleeding 13 (18.6%) in which maximum patients 7 (10%) came out to be normal on TVS and 3 (4.29%) had endometrial hyperplasia.

**Findings of endometrial biopsy:**

**TABLE 3: Abnormalities detected in endometrial biopsy:**

	TVS Findng	No. of Patients (n)	Percentage (%)
1	Normal	43	61.43
2	E.H	10	14.29
3	A.E	5	7.14
4	Polyp	12	17.14
	Total (N)	70	100

All of the 70 patients then had endometrial biopsy, out of 70cases, 20(28.57%) cases diagnosed with normal proliferative endometrium, 17 (24.28%)cases with adenomyosis, 10(14.29%) cases with endometrial hyperplasia, 12(17.15%) with polyp, 6(8.57%) cases with fibroid, 5( 7.14%) cases with atrophic endometrium.

**BMI vs Endometrial biopsy findings:** Maximum patients were having normal BMI and 30(42.86%) patients came out to have normal endometrium. Overall 43 patients were having normal endometrium followed by polyp in 12(17.14%) patients.

**Symptoms Vs Endometrial biopsy:** Maximum patients had regular cycles with heavy menstrual bleeding and on endometrial biopsy maximum out of them 20(28.57%)came out to be normal. In post menopausal bleeding Maximum patients 6 (8.57%) had endometrial hyperplasia. 11 patients had intermenstrual bleeding and 6(8.57%) had polyp. 10 patients had infrequent cycles with normal bleeding and maximum 6(8.57%) came out to be normal. 7 patients had frequent cycles with heavy menstrual bleeding and 4(5.7%) were found to have polyps.

**Table 4: Comparison between findings of TVS, EBX:**

Sr. no.	Symptoms	TVS		Endometrial Biopsy	
		n	%	n	%
1	Normal	16	22.85	43	61.43
2	Adenomyosis	17	24.28	-	-
3	Endometrial Hyperplasia	11	15.71	10	14.28
4	Atrophic Endometrium	7	10	5	7.14
5	Polyp	12	17.14	12	17.14
6	Fibroid	7	10	-	-
	Total (N)	70	100%	70	100%

**Table 5: Overall Comparison of TVS and Endometrial Biopsy:**

	TVS	Ebx
<b>Sensitivity (%)</b>	63.16	49.12
<b>Specificity (%)</b>	92.31	100
<b>PPV (%)</b>	97.30	100
<b>NPV (%)</b>	36.36	30.95
<b>Accuracy (%)</b>	68.57	58.57

**Discussion:**

Age group of patients in our study ranged from 22-60 years with a mean age of 42.51 yrs. Youngest patient was 22 years and oldest was 60 years of age. Highest number of cases was found in the age group 41-50 years (55.72%), followed by age group 31-40 years (32.86%) and 61-70 years (28%).

Naik M et al<sup>2</sup> study showed age group of patients ranged 20-70 years with a mean age of 45 yrs. Majority of patients 68.2% were in 40-50 year age group followed by 14.84% in 30-40 year age group and 10.5% in 50-60 year age group. 4.5% patients were in 20-30 year age group and 1.7% were above 60 yrs.

In present study Out of 70 cases studied, mostly patients were multiparous with highest para 3 (40%), followed 15 (21.42%) cases of para 2, 9 (12.85%) cases of para 1, 9 (12.86%) of para 4, 6 (8.57%) cases with para 5 and above and 3 (4.28%) cases were nulliparous. Shrestha A et al<sup>3</sup> study shows majority of the women are multiparous (83.6%). Betha K et al<sup>4</sup> study shows 85% of the women with AUB were multiparous.

In view of body mass index Betha k et al<sup>4</sup> study shows maximum patients were obese 144(57.6) in contrast present study shows 19(27.14%) were over weight with only one obese patient.

Incidence of endometrial polyps has ranged from 9.1% in Hamou et al<sup>5</sup> series to 28% in the present study and 45.9% in Pasqualotto series. The incidence of hyperplastic endometrium in patients of AUB in the present study is 30%; as the age of the patient advances. The finding of atrophic endometrium (18% in present study, 6% in Sciarra and Valle<sup>6</sup>, 14.6% in Hamou et al<sup>5</sup>, 12.6% in Valle is particularly reassuring in women with postmenopausal bleeding.

In present study, most common presentation was regular cycles with heavy menstrual bleeding found in 21 cases (30%) followed by post menopausal bleeding 13 cases (18.57%) and intermenstrual bleeding found in 11 cases (15.71%). Pyari et al<sup>7</sup>. studied 70 patients of those 50 having AUB most common symptoms in patients with AUB were menorrhagia (40%) followed by metrorrhagia (18%), menometrorrhagia (14%), and polymenorrhea (14%). In our study histopathology findings reveal single lesion in 25 cases (35.71%), two lesions in 2 cases (2.86%) and normally functioning endometrium in 43 cases (61.43%). Polyp which was the commonest finding by histopathology, was found in 12 patients (17.14%). Endometrial polyp in 4 cases (5.71%) and by 8 cases (11.43%) of cervical polyp. In our study, 30% of the patient had irregular bleeding and 38.57% had history of irregular bleeding within the last 6 months.

Getpook and Wattanakumtornkul<sup>8</sup> studied 111 women with perimenopausal uterine bleeding, 31 (27.9%) had an abnormal endometrium (hyperplasia 13.5%, polyps 5.4, submucous myomas

5.4%, and adenocarcinoma 3.6%) while 80 (72%) had normal endometrium. Ozdemir et al<sup>9</sup> studied 144 women, 113 (78.4%) had normal endometrium and 31 (21.6%) had an abnormal endometrium. The abnormal endometrium was composed of 11.8% hyperplasia, 4.2% endometrial polyp. In present study the abnormal endometrium was composed of 14.29% hyperplasia, 17.14% polyp, 7.14% atrophic endometrium.

Kaur R et al<sup>10</sup> study shows sensitivity 58%, specificity 100%, PPV 100%, NPV 24%, accuracy 63% of endometrial biopsy respectively. Present study shows sensitivity 49.12%, specificity 100%, PPV 100%, NPV 30.95%, accuracy 58.57% respectively of endometrial biopsy.

In Aslam et al<sup>11</sup> study on comparing the TVS with final histopathologic findings, TVS had sensitivity of 71.4%, specificity of 67.7% to detect intrauterine pathologies in AUB, which is comparable to the current study i.e sensitivity 63.16%, specificity 92.31%.

### Conclusion:

There is a high incidence of intracavitary uterine pathology in patients presenting with abnormal uterine bleeding. This is especially true when considering the 35-50 years age group who present with heavy regular bleeding, clinically enlarged uteri and significant anemia. TVS is a simple, non-invasive and higher acceptable technique to the patient. It can identify women with perimenopausal and postmenopausal bleeding in which the likelihood of endometrial pathology is high and in whom tissue sampling should be performed.

TVS should be a first line modality for investigating women with abnormal uterine bleeding.

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