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ORIGINAL ARTICLE

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A comparative diagnostic evaluation of hysteroscopy, transvaginal ultrasonography and histopathological examination in cases of abnormal uterine bleeding

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OBJECTIVE(S): To evaluate the diagnostic efficacy of hysteroscopy, transvaginal utrasonography (TVS) and histopathological examination in cases of abnormal uterine bleeding.

METHOD(S) : A total of 70 patients were included in this study done during the period of one year out of whom 50 with complaints of abnormal uterine bleeding were included in the study group and 20 with no menstrual irregularity and normal pelvic examination formed the controls.All women underwent TVS and hysteroscopy, and dilatation and curettage was done only in cases with abnormal findings. Endometrium was sent for histopathology. Findings were compared and chi square test used for statistical analysis.

RESULTS : Most common symptoms in patients with abnormal uterine bleeding were menorrhagia (40%), metrorrhagia (18%), menometrorrhagia (14%), and polymenorrhea (14%). Compared to hysteroscopy TVS has sensitivity of 78.15% and specificity of 44.4% while D and C has a sensitivity of 89% and specificity of 45%.

CONCLUSION(S) : Hysteroscopy and guided biopsy is more sensitive than TVS or D and C in diagnosing causes of abnormal uterine bleeding.

Key words : hysteroscopy, transvaginal sonography, histopathological examination, abnormal uterine bleeding

Introduction

Of the women attending gynecological out patient those with abnormal uterine bleeding constitute 30-70%. Main causes include fibroids, polyps, endometrial hyperplasia, carcinoma of endometrium or endocervix, and atrophic vaginitis. Anything that can significantly improve the accuracy of diagnosing the cause of bleeding can reduce the frequency of hysterectomy as a cure. Traditionally dilatation and curettage (D and C) used to be the mainstay of investigation for abnormal uterine bleeding but it is not accurate for diagnosing focal intrauterine lesions which are small or located in areas difficult to curette.

Transvaginal sonography (TVS) being simple and noninvasive has emerged as an important diagnostic modality for diagnosing endometrial abnormalities. Hysteroscopy is a new endoscopic approach that can illuminate the darkness of uterine cavity. Present study is designed to compare the accuracy of TVS, hysteroscopy, and hystopathological examination of endometrium after D and C in cases of abnormal uterine bleeding.

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Methods

This prospective study was conducted over a period of one year, on 70 women attending the out patient department. Fifty of them had abnormal uterine bleeding and constituted the study group while 20 had no menstrual irregularity had normal findings on pelvic examination and constituted the control group. Those having pelvic inflammatory disease, endometrial or cervical cancer, cervical stenosis, and profuse uterine bleeding were excluded from study.

Detailed clinical history was taken and general, systemic,

pelvic, and rectal examinations were done. Investigations like complete hemogram,bleeding time, clotting time, platelet counts, liver function tests, and routine urine examination were carried out. All patients underwent TVS and hysteroscopy followed by D and C.

TVS was done by 6.5 MHz transducer and uterine size and contour, intramural and submucosal lesion, if any, and endometrial thickness were studied. Endometrial echo complex ≥ 15 mm in menstruating females and ≥ 5 mm in postmenopausal women were considered abnormal.

After informed consent hysteroscopy was performed in the operation theater using 6 mm diagnostic sheath and 4 mm telescope (Karl Storz). The procedure was done under sedation with paracervical block using ringer lactate or 1.5% glycine as a distending medium. Systematic inspection of uterine cavity was carried out and internal os and cervical canal visualized. D and C was performed on those cases who were found to be having abnormal endometrium by hysteroscopy or by TVS. Tissue was collected in formalin and sent for histopathological examination.

Results

Patients in the study group usually presented with menorrhagia, metrorrhagia, hypomenorrhea, and postmenopausal bleeding. Most common abnormality was menorrhagia (40%) (Table 1). On TVS, 18 of the 20 in the control group had no abnormality while one had a myoma and one a lost intrauterine contraceptive device. In the study group 26% were found to have functional endometrium, 26% had myoma, and 20% had endometrial hyperplasia. Mean endometrial thickness was 2.5 ± 0.7mm in atrophic endometrium, 17.1 ± 2.10 mm in endometrial hyperplasia, 10.5 ± 2.89 mm in endometrial polyps, and 18.24 ± 2.17 mm in endometrial carcinoma (Table 2). In the study group common lesions detected hysteroscopically were myoma (34%), polyp (18%), and endometrial hyperplasia (10%). In the control group 60% (12/20) women had functional endometrium and the common abnormality detected was myoma in 15% (3/20) while 10% (2/20) were found to have endometritis which was not detected by TVS (Table 3). Eight patients in the control group did not undergo D and C following TVS and hysteroscopy as there was no indication for it. Of the 50 subjects in the study group, in two cases the tissue obtained by D and C was insufficient for histopathology. Hyperplasia was diagnosed histologically in 22% (11/50) in the study group compared to only 10% (5/50) hysteroscopically (Tables 3 and 4). Adenomyosis was best diagnosed by TVS which misdiagnosed three cases of polyp and focal hyperplasia as myoma and missed the small polyps and endometritis (Table 5).

Table 1. Bleeding abnormality (n=50).

Symptoms	Number of cases	Percentage
Metrorrhagia	9	18
Hypomenorrhea	3	6
Menorrhagia	20	40
Menometrorrhagia	7	14
Polymenorrhea	4	8
Postmenopausal bleeding	7	14

Table 2. Endometrial thickness by transvaginal sonography (TVS).

TVS diagnosis	Total	Endometrial thickness						Mean ± SD
		≤ 5mm	6-10 mm	11-15mm	16-20mm	>20 mm	Could not be measured	
Functional endometrium	13 (26%)	1	11	1	-	-	-	8.76 ± 1.87
Myoma	13 (26%)	-	3	6	2	-	2	12.54 ± 3.5
Endometrial polyp	4 (8%)	-	2	2	-	-	-	10.5 ± 2.89
Adenomyosis	3 (6%)		1	2	-	-	-	16.33 ± 2.89
Endometritis	1 (2%)	-	1	-	-	-	-	8.0 ± 0.0
Atrophic endometrium	2 (4%)	2	-	-	-	-	-	2.5 ± 71
Endometrial hyperplasia	10 (20%)	-	-	-	8	-	-	17.1 ± 2.10
Carcinoma	2 (4%)	-	-	-	1	1	-	18.24 ± 2.17
Miscellaneous	2 (4%)	-	1	-	-	-	1	-
Total	50	3	19	13	11	1	3	-

Table 3. Hysteroscopy findings (n=100) .

Findings	Study Group		Control Group		Total	
	Number	Percent	Number	Percent	Number	Percent
Functional endometrium	9	18	12	60	21	30
Myoma	17	34	3	15	20	28
Endometrial polyp	9	18	1	5	10	14
Adenomyosis	2	4	-	-	2	2
Endometritis	3	6	2	10	5	7
Atrophic endometritis	1	2	-	-	1	1
Hyperplasia	5	10	-	-	2	2
Endometrital cancer	2	4	-	-	5	7
Miscellaneous	2	4	2	10	45	
Total	50	100	20	100	70	100

Table 4. Histopathology findings (n=100).

Histopatology	Study group		Control group		Total
	Number	Percent	Number	Percent	
Normal	9	18	8	66	17
Myoma	16	32	1	8	17
Polyp	6	12	1	8	7
Adenomyosis	-	-	-	-	-
Endometritis	2	4	2	10	4
Atrophic endometrium	-	-	-	-	-
Hyperplasia	11	22	-	-	11
Cancer	2	4	-	-	2
Miscellaneous	2	4	-	-	2
Insufficient tissue	2	4	-	-	2
Total	50	100	12	100	62

Table 5. Comparison between transvaginal sonography (TVS) and hysteroscopy.

TVS findings	Total	Hysteroscopy	
		Abnormal	Normal
Abnormal	37	32	5
Normal	13	9	4
Total	50	41	9

TVS - Sensitivity 86%, Specificity 31%, Positive predictive value 78%, Negative predictive value 44%.

Discussion

Management of abnormal uterine bleeding depends on diagnostic accuracy. In our study most common presenting symptom was menorrhagia (40%) (Table 1). Emanuel [1] reported menorrhagia in 41%, metrorrhagia in 40%, and post-menopausal bleeding in 18%.

On comparing 37 cases detected as abnormal by TVS, hysteroscopy confirmed 32 (86%) and refuted 5 (13%) (Table 5). Emanuel [1] reported 121 cases of abnormal endometrium by TVS out of which only 105 (86%) were abnormal hyteroscopically.

Nine cases were normal on histopathology after D and C. Hysteroscopy confirmed only 4 (44%). Out of 39 abnormal cases on histopathology, hysteroscopy confirmed 33 and refuted six, five of which had hyperplasia. Among these 48 patients in only 37 the results of D and C and hysteroscopy were in agreement. This is in concurrence with the study by Gimpleson and Rappold [3] wherein out of 276 cases, 223 (81%) had concurrent results while in 44 (16%) cases hysterscopic biopsy was more revealing than curettage.

Brooks and Serden [4] did hysteroscopy on 29 patients of abnormal uterine bleeding having negative curettage results in 20 and found that 19 had myoma, five had polyps, two had endometrial atrophy while true negatives were only three.

Granberg et al [2] studied histological diagnosis and related endometrial thickness obtained by endovaginal scanning. They found mean endometrial thickness of 3.4 ± 1.2 mm in atrophy, 9.7 ± 2.5 mm in hyperplasia, and 8.2 ± 6.2 mm in cancer. Similarly we found mean endometrial thickness of 2.5 ± 0.71 mm in atrophy, 17.1 ± 2.1 mm in hyperplasia and > 18 mm in endometrial cancer.

Conclusion

Hysteroscopy is more sensitive than D and C and TVS in diagnosing small myoma and polyps while D and C is more sensitive for diagnosis of hyperplasia and endometrial cancer. TVS can be used as routine first step diagnostic technic but hysteroscopy followed by histopathology should be considered as gold standard for evaluation of abnormal vaginal bleeding.

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