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ORIGINAL ARTICLE

Role of Transvaginal Ultrasound in Management of Abnormal Uterine Bleeding

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ABSTRACT

Aim: To evaluate the transvaginal ultrasound in management of abnormal uterine bleeding.
Place and duration of study: Department of Radiology, Ghulam Muhammad Mahar Medical College Hospital Sukkur from 1st July 2021 to 31st December 2021.
Methodology: In this prospective study one hundred patients were enrolled. The patients were scrutinized on bases of their abnormal uterine bleeding and underwent transvaginal ultrasound. The clinical and demographic information was recorded and the sonographic results were evaluated.
Results: There was no significant difference of age with the number of their births. Menorrhagia was observed in 13% while 57(57%) had metrorrhagia and 30% were having menometrorrhagia. The abnormal uterine bleeding diagnosis was made and it was seen that 61% leiomyoma, 22% polyp, 12% adenomyosis and 5% endometrial adenocarcinoma cases were presented respectively. Within these cases endometrial adenocarcinoma had transvaginal scan sensitivity of 100% followed by leiomyoma as 93% transvaginal scan sensitivity in cases.
Conclusion: Transvaginal ultrasound is an efficient way of managing abnormal uterine bleeding.
Keywords: Uterine bleeding, Transvaginal, Ultrasonography

INTRODUCTION

Abnormal uterine bleeding (AUB) is major cause of women gynecologist visits and health concerns. Abnormal uterine bleeding results in an abnormal flow of bleeding than as followed in monthly menstruation with variations in the duration and length of bleeding. Abnormal uterine bleeding can comprise on various features and types as oligomenorrhea, menorrhagia, menometrorrhagia, polymenorrhagia as well as spotting.[1] Menorrhagia is termed as bleeding in regular time in large quantities.[2] Therapeutic treatment of AUB required evaluation of underlying causes through diagnostic tools. If the etiology of the AUB is not properly understood then this could result improper treatment of the condition and future complications.[3]

The timeline for AUB occurrence is not defined with benign pathological causes in majority of the cases. However, it is recommended to investigate the case completely for evaluation of any hidden causes which might be life threatening. Patient as well as the gynecologist likes to choose a method of investigation for AUB which is least invasive and cost effective. Transvaginal-ultrasound (TVS) plays a significant role in acquiring this goal[4,5]. TVS probes presents a pelvic image of high resolution by using special probes designed for complete organ view.[6] The most important patient satisfaction is non-requirement of the full bladder for TVS. This makes the method more acceptable by the AUB patient[7].

Transvaginal scan is carried out by inserting the probe with a protective gearing inside the cervix bringing an internal imaging for evaluation of the AUB. TVS requires TVS probes which are 5-7.5 megahertz while a transabdominal-transducer of 3.5 megahertz which captures the images digitally printable[8-10].

The present study was designed to assess the role of TVS in managing the AUB. This study will be able to analyze the actual functional ability of this test in producing reliable results for better evaluation of the sensitive condition of AUB.

MATERIALS AND METHODS

After IRB permission, this prospective study was conducted at Ghulam Muhammad Mahar Medical College Hospital Sukkur and 100 patients were enrolled. Patients having abnormal uterine bleeding with any of its types were included as study participants. while those patients having obstetric and gynecological conditions other than AUB as cause of bleeding or on hormonal treatment were excluded from this study. Each patient enrolled provided a written informed consent before participation. While this study itself was initially approved by the ethical clearance committee. The age of the patients was between 38-52 years. All the demographic and clinical information including anamnestic data, prima, gravida, age, menstrual-manifestations were entered in the case study sheets. TV ultrasound was conducted by using a 7-10-megahertz transducer. The thickness of the endometrium as 1cm from the uterus fundus was measured within eighth to eleventh menstruation day. The evaluation reports were generated with digital imaging for better demonstration of AUB condition and reason. Data was statistically analyzed by SPSS version 24.0 using Chi square test with p value <0.05 and likelihood.

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RESULTS

There was no significant difference of age of the AUB females with the number of their births. There was also no significant difference in the rural and urban resident patients in comparison with the age of the patients (Table 1). Menorrhagia was observed in 13% of cases while 57(57%) were having metrorrhagia and rest of the 30% were having menometrorrhagia on the TVS examination. The severity scores were defined as from menorrhagia to menometrorrhagia as 1 to 3 (Fig. 1). About 41% of the cases were those who were having linked risk-factors with liver stenosis presented in 10%, diabetes mellitus in 12%, arterial hypertension in 4% obesity in 30% respectively (Fig. 2). The AUB diagnosis was made and it was seen that 61% leiomyoma, 22% polyp, 12% adenomyosis and 5% endometrial adenocarcinoma cases were presented respectively. Within these cases endometrial adenocarcinoma had TVS sensitivity of 100% followed by leiomyoma as 93% TVS sensitivity in cases. Highest diagnostic accuracy was also seen in endometrial adenocarcinoma cases followed by leiomyoma. Whereas lowest diagnostic accuracy was presented in the adenomyosis cases. The likelihood could only be calculated for leiomyoma and adenomyosis cases (Table 2).

Table 1: Age distribution with prima and regional areas

Age (years)	Prima	Rural/urban	P value
38-41 (n=31)	36	16/20	0.27
42-45(n=35)	46	19/16	0.42
46-52 (n=34)	41	16/18	0.52
Total (n=100)	123	51/54	0.65

Table 2: AUB Diagnosis and TVS efficiency

AUB diagnosis	No.	TVS sensitivity	Diagnostic Accuracy	Likelihood ratio
Leiomyoma	61 (61%)	93 (93%)	77.6 (77.6%)	1
Polyp	22 (22%)	68 (68%)	66.5 (66.5%)	--
Adenomyosis	12 (12%)	8 (8%)	8.2 (8.2%)	<1
Endometrial adenocarcinoma	5 (5%)	100(100%)	100 (100%)	--

Fig. 1: AUB type at endometrial level

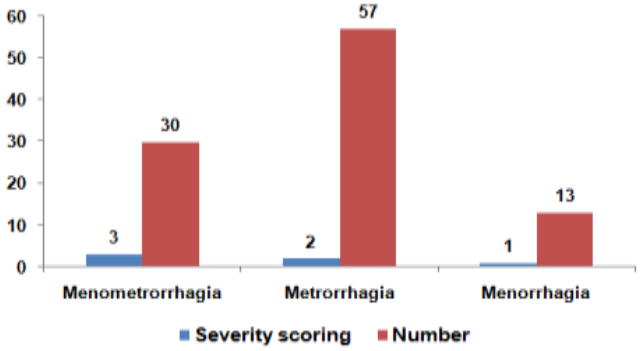
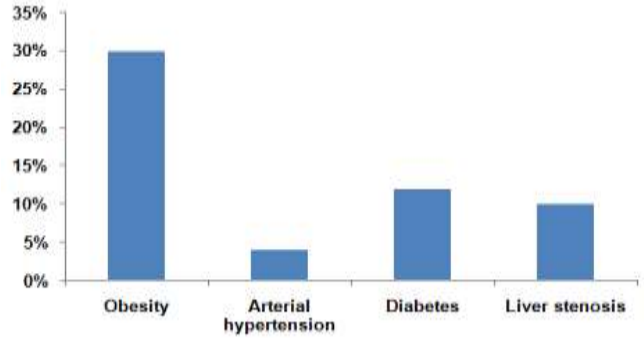


Fig. 2: Complications in patients suffering from AUB



DISCUSSION

Clinically characterized AUB is associated with the endometrial adenocarcinoma in ten percent of the AUB suffering women.[11] Therefore, it becomes mandatory that a serious focus be provided in evaluation of the AUB cases for proper diagnosis of the root cause leading to this condition.[12] Ideal diagnostic method is the one which has minimal invasion, with user friendly procedure, well tolerable and cost effective with high sensitivity value.[13] Unfortunately, there is not one single such method which could prove its efficiency is every defined aspect. However, comparing TVS method with biopsy generated AUB diagnosis the more efficient, accurate and sensitive method could be available for opting[14].

Present study was so generated for evaluating the role of TVS in management of AUB. Patients history seems to be very important while generating any conclusive assessment and needs to be properly recorded[15]. Age consideration is really important as older age is linked with higher risk of endometrial adenocarcinoma as reported in 90% of cases above the age of 50.[16] In the current study it was observed that endometrial adenocarcinoma was more prevalent in older women than in younger cases. Association of obesity has also been reported in various literature as directly related with increased risk of AUB.[17,18] Diabetes mellitus has also been linked with AUB reported by Soliman et al[19] which was also found in current research.

The diagnostic values and sensitivity showed TVS to be an efficient method in managing AUB[20] but this process has also been delivering many false positive results.[21] In such scenario this process could be opted due to its cost effectiveness as well as high sensitivity in few AUB types. However in many cases where its sensitive and diagnostic value is poor histopathological assessments may be required for between evaluations of AUB especially in the cases where a doubt of severity in medical condition involved is suspected.

CONCLUSION

Transvaginal ultrasound is an efficient way of managing abnormal uterine bleeding.

Conflict of interest: Nil

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