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EFFICACY OF HISTOPATHOLOGY TO TVS/TAS IN DIAGNOSING THE ABNORMAL UTERINE BLEEDING: A PROSPECTIVE CLINICAL STUDY

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ABSTRACT

Background: Abnormal Uterine Bleeding (AUB) refers to any bleeding that deviates from normal in terms of volume, frequency, regularity, and duration. Menorrhagia, polymenorrhea, metorrhagia, and oligomenorrhea are some of the words used to describe abnormal bleeding during menstruation.

Aim: The current clinical study's goals were to evaluate the effectiveness of TVS/TAS and histopathological results in individuals with AUB.

Methods: 102 participants with abnormal uterine bleeding between the ages of 21 and 85 made up this prospective clinical trial. In spite of baseline examinations and sonography results, all subjects received hysteroscopy, premenstrual dilatation, and curettage. Histological analysis was used to evaluate the acquired endometrial tissue.

Results: The findings indicate that 3.92% (n=4), 12.74% (n=13), 2.94% (n=3), 32.35% (n=33), 51.96% (n=53), and 54.90% (n=56) of the study participants had cervical carcinoma, endometrial carcinoma, cervical polyp, endometrial polyp, adenomyosis, and myoma, respectively. The study's tissue findings were categorized as follows: 1.96% (n=2), 10.78% (n=11), 5.88% (n=6), 0.98% (n=1), 2.94% (n=3), 3.92% (n=4), 15.68% (n=16), 11.76% (n=12), 25.49% (n=26), and 20.58% (n=21) subjects had cervical cancer, endometrial cancer, endometrial polyp, endometritis, atrophic endometrium, mixed, secretory, proliferative phase, endometrial hyperplasia, and normal epithelium, respectively.

Conclusion: The current study concludes that transvaginal/transabdominal ultrasounds should be a regular part of assessment and examination procedures since they are a cost-effective primary assessment tool for the detection of AUB. Histopathologic examination is the gold standard in cases of non-gravid females with AUB, despite the fact that the diagnosis and treatment of the condition might be complicated.

Keywords: myoma, non-gravid, adenomyosis, endometrial polyp, abnormal uterine bleeding (AUB).

INTRODUCTION

Due to incorrectly applied naming, a lack of research into standard techniques for categorizing and assessing AUB of various etiologies, and a lack of categorization, the diagnosis and treatment of AUB in non-gravid females of reproductive age are unclear. In contrast to chronic AUB, which is abnormal bleeding in volume, frequency, and/or duration from the uterine corpus that has been consistent for at least the previous six months, acute AUB is an episode of bleeding in non-pregnant females of reproductive age that requires immediate intervention to limit further blood loss.

For etiologies of AUB in non-gravid females of reproductive age, a 2011 categorization system called PALM-COEIN was applied in order to provide standard tests, diagnosis, and terminology for AUB. Based on PALM-COEIN (pronounced "pahm-koin"), this categorization method consists of nine categories: polyp, Adenomyosis, leiomyomas, malignancy and hyperplasia, coagulopathy, ovulatory dysfunction, endometrial, iatrogenic, and not yet classified. Generally, PALM group components are discrete and measured visually by imaging and histology techniques. The elements that comprise the COEIN group pertain to entities that cannot be identified through histopathology or imaging.²

When it comes to females with AUB, ultrasound is typically the first test conducted and is regarded as a suitable screening tool. Transvaginal ultrasonography is the first test carried out in cases with AUB, although even in the best of circumstances, it is not 100% sensitive due to the difficulties in detecting tiny lesions and polyps.

Nonetheless, office hysteroscopy is a viable option that offers the benefit of removing them in a one visit. TVUS, SIS, and hysteroscopy may not be helpful in subjects when hysteroscopy is not practical, such as teenage girls and virgins.³

The incidence of adenomyosis varies from 5 to 70%, which could account for discrepancies in the histopathologic diagnosis criteria. These standards have typically been predicated on the histopathologic assessment of the hysterectomy-derived depth of "endometrial" tissue below the endometrial-myometrial interface. The categorization system has limitations when it comes to diagnosing adenomyosis from hysteroscopy specimens due to differences in histopathologic criteria. Adenomyosis is also included in the classification scheme as sonographic and MRI-based diagnostic criteria are available.⁴

The International Federation of Gynecology and Obstetrics (FIGO) uses both surgical and pathological staging to classify endometrial cancer. An MRI is performed before to surgery in order to evaluate patients who may have deep myometrial invasion, enlarged pelvic nodes, or extrauterine extension of illness, all of which may have an impact on the scope of surgery. The term DUB was previously used in people without a locally or systemically identified etiology for AUB. Nevertheless, because DUB is not part of the classification scheme, it is not in use at the moment. Ovulation disorders, coagulopathy, and primary or secondary disturbances in local endometrial homeostasis have been revealed to be common causes of these patients in recent times.⁵

The goal of the current study was to determine the relationship between histopathologic results and sonography's utility as a diagnostic tool in individuals experiencing abnormal uterine bleeding.

MATERIALS AND METHODS

The goal of the current study was to determine the relationship between histopathologic results and sonography's utility as a diagnostic tool in individuals experiencing abnormal uterine bleeding. The participants with abnormal uterine bleeding who visited the institute's Department of Obstetrics and Gynecology made up the study population. A total of 102 participants in the age range of 30-78 years, including both genders, were involved in the study. The participants with adnexal pathology and AUB were excluded.

Following their final inclusion, the individuals underwent comprehensive examinations encompassing gynecological (per speculum, vaginal), systemic, physical, and general examinations, as well as a thorough history taking.

Investigations, both general and specific, were conducted in all subjects after this. In spite of baseline examinations and sonography results, all subjects received hysteroscopy, premenstrual dilatation, and curettage. Histological analysis was used to evaluate the acquired endometrial tissue.

Every study participant who was included gave their verbal and written agreement. Based on the results of the sonography, medical conditions, age, parity, and the desire for more pregnancies, the course of treatment was determined. After initial data collection, the data were statistically evaluated using SPSS software version 21 (Chicago, IL, USA), with one-way ANOVA used to formulate the results. The data were presented as a mean, standard deviation, percentage, and number. The significance threshold was maintained at $p < 0.05$.

RESULTS

The goal of the current study was to determine the relationship between histopathologic results and sonography's utility as a diagnostic tool in individuals experiencing abnormal uterine bleeding. A total of 102 participants in the age range of 30-78 years, including both genders, were involved in the study. Table 1 contains a list of the study individuals' demographic details. Sixty-seven percent ($n=63$) of the study individuals were between the ages of 41

and 50. There were 17.64% (n=18) study participants in the age range of 31 to 40, 11.76% (n=12) in the age range of 51 to 60, and 8.82% (n=9) in the age range of 61 to 72. In 12.74% (n=13), 20.58% (n=21), 32.35% (n=33), and 34.31% (n=35) of the research subjects, the menstrual patterns were PMB, IMB, HPMB, and HMB, respectively.

In terms of histopathologic results, the most prevalent finding observed in 18.62% (n=19) of the study participants was myoma. This was followed by Myoma+ Adenomyosis (16.66%; n=17), adenomyosis (14.70%; n=15), and Polyp+ Adenomyosis (12.74%; n=13) of the study subjects. Adenomyosis+endometrial carcinoma was found in 0.98% (n=1) research subjects, polyp+endometrial carcinoma was found in 1.96% (n=2) study subjects, and myoma+ polyp+ Adenomyosis was found in 7.84% (n=8) study participants. There were 1.96% (n=2), 3.92% (n=4), 5.88% (n=6), 0, 6.86% (n=7), 1.96% (n=2), and 5.88% (n=6) research patients with myoma+ cervical carcinoma, myoma+ endometrial carcinoma, myoma+ polyp, cervical carcinoma, and endometrial carcinoma, respectively (Table 2).

This study also evaluated the connection between histopathologic findings on ultrasonography and histopathology. A statistically significant ($p < 0.0001$) number of participants were judged to be normal on ultrasonography, although no normal sample could be observed histopathologically. With p-values of 0.32, 0.64, 0.83, 0.46, 0.84, 0.58, 0.55, 0.88, 0.51, 0.76, and 0.95 for Myoma+ polyp+ Adenomyosis, Adenomyosis+ endometrial carcinoma, Polyp+ endometrial carcinoma, Polyp+ Adenomyosis, Myoma+ cervical carcinoma, Myoma+ endometrial carcinoma, Myoma+ polyp, Myoma+ Adenomyosis, Endometrial carcinoma, Endometrial polyp, and Myoma, respectively, other findings were found to differ non-significantly between histopathology and ultrasonography (Table 3).

Cervical carcinoma, endometrial carcinoma, cervical polyp, endometrial polyp, myoma, and adenomyosis were evaluated as uterine pathologies in 3.92% (n=4), 12.74% (n=13), 2.94% (n=3), 32.35% (n=33), 51.96% (n=53), and 54.90% (n=56) of the study participants, respectively. Cervical carcinoma, endometrial carcinoma, endometrial polyp, endometritis, atrophic endometrium, mixed, secretory, proliferative phase, endometrial hyperplasia, and normal epithelium were the tissue findings in 1.96% (n = 2), 10.78% (n = 11), 5.88% (n = 6), 0.98% (n = 1), 2.94% (n = 3), 3.92% (n = 4), 15.68% (n = 16), 11.76% (n = 12), 25.49% (n = 26), and 20.58% (n = 21), respectively (Table 4).

DISCUSSION

The goal of the current study was to determine the relationship between histopathologic results and sonography's utility as a diagnostic tool in individuals experiencing abnormal uterine bleeding. A total of 102 participants in the age range of 30-78 years, including both genders, were involved in the study. Sixty-seven percent (n=63) of the study individuals were between the ages of 41 and 50.

The most frequent finding observed in 18.62% (n=19) of the study individuals was myoma, which was followed by Myoma+ Adenomyosis (16.66%; n=17), adenomyosis (14.70%; n=15), and Polyp+ Adenomyosis (12.74%; n=13) of the study subjects.

Adenomyosis+endometrial carcinoma was found in 0.98% (n=1) research subjects, polyp+endometrial carcinoma was found in 1.96% (n=2) study subjects, and myoma+ polyp+ Adenomyosis was found in 7.84% (n=8) study participants. 1.96% (n=2), 3.92% (n=4), 5.88% (n=6), 0, 6.86% (n=7), 1.96% (n=2), and 5.88% (n=6) study patients had myoma+ cervical carcinoma, myoma+ endometrial carcinoma, myoma+ polyp, cervical carcinoma, and endometrial carcinoma, respectively. These results were in line with those of studies published in 2013 by Rizvi G et al. and in 2007 by Espindola D et al., where the authors reported comparable results. This study also evaluated the connection between histopathologic findings on ultrasonography and histopathology.

A statistically significant ($p < 0.0001$) number of participants were judged to be normal on ultrasonography, although no normal sample could be observed histopathologically. With p-values of 0.32, 0.64, 0.83, 0.46, 0.84, 0.58, 0.55, 0.88, 0.51, 0.76, and 0.95 for Myoma+ polyp+ Adenomyosis, Adenomyosis+ endometrial carcinoma, Polyp+ endometrial carcinoma, Polyp+ Adenomyosis, Myoma+ cervical carcinoma, Myoma+ endometrial carcinoma, Myoma+ polyp, Myoma+ Adenomyosis, Endometrial carcinoma, Endometrial polyp, and Myoma, respectively, it was discovered that other findings did not differ statistically between histopathology and ultrasonography. The histopathologic findings presented by Woolcock AG et al. (2007) and Talukdar B et al. (2016) were in agreement with these results.

In addition, uterine diseases such as myoma, adenomyosis, cervical polyp, endometrial polyp, and endometrial carcinoma were evaluated in 3.92% (n=4), 12.74% (n=13), 2.94% (n=3), 32.35% (n=33), 51.96% (n=53), and

54.90% (n=56) of the study participants, respectively. The study's tissue findings were categorized as follows: 1.96% (n=2), 10.78% (n=11), 5.88% (n=6), 0.98% (n=1), 2.94% (n=3), 3.92% (n=4), 15.68% (n=16), 11.76% (n=12), 25.49% (n=26), and 20.58% (n=21) subjects had cervical cancer, endometrial cancer, endometrial polyp, endometritis, atrophic endometrium, mixed, secretary, proliferative phase, endometrial hyperplasia, and normal epithelium, respectively. The present study's outcomes aligned with the research conducted by Bhavani N et al. (2015) and Dueholm M11 (2006), which also showed comparable uterine diseases and tissue discoveries.

CONCLUSION

Within its limitations, the present study concludes that AUB was commonly seen in females of age 40-51 years with etiologic factors being pathologies (benign and malignant) to medical conditions. The most common AUB was chronic with histopathology showing normal endometrium to carcinoma endometrium. Compared to the sonography, histopathology was found to be more sensitive in the assessment and screening of subjects with AUB. However, the present study had a few limitations including a smaller sample size, geographical area biases, shorter monitoring period, retrospective nature, and single-institution nature. Hence, further longitudinal studies with a larger sample size and longer monitoring period are required to reach a definitive conclusion.

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TABLES

Characteristics	Percentage (%)	Number (n)
Age groups		
31-40	17.64	18
41-50	61.76	63
51-60	11.76	12
61-72	8.82	9

Menstrual Pattern		
PMB	12.74	13
IMB	20.58	21
HPMB	32.35	33
HMB	34.31	35
Total	100	102

Table 1: Demographic characteristics and Menstrual pattern in the study subjects

Histopathologic Findings	Percentage (%)	Number (n)
Myoma+ polyp+ Adenomyosis	7.84	8
Adenomyosis+ endometrial carcinoma	0.98	1
Polyp+ endometrial carcinoma	1.96	2
Polyp+ Adenomyosis	12.74	13
Myoma+ cervical carcinoma	1.96	2
Myoma+ endometrial carcinoma	3.92	4
Myoma+ polyp	5.88	6
Myoma+ Adenomyosis	16.66	17
Cervical carcinoma	0	0
Endometrial carcinoma	6.86	7
Endometrial carcinoma	1.96	2
Endometrial polyp	5.88	6
Adenomyosis	14.70	15
Myoma	18.62	19
Total	100	102

Table 2: Histopathologic findings in the study subjects

Histopathologic Findings	Histopathology	Ultrasonography	p-value
Myoma+ polyp+ Adenomyosis	9	5	0.32
Adenomyosis+ endometrial carcinoma	1	0	0.64
Polyp+ endometrial carcinoma	3	2	0.83
Polyp+ Adenomyosis	13	6	0.46
Myoma+ cervical carcinoma	2	1	0.84
Myoma+ endometrial carcinoma	5	2	0.58
Myoma+ polyp	7	3	0.55
Myoma+ Adenomyosis	17	15	0.88
Cervical carcinoma	0	0	-
Endometrial carcinoma	16	9	0.42
Endometrial polyp	4	3	0.76
Myoma	19	17	0.95
Normal	0	36	<0.0001

Table 3: Correlation of Histopathologic findings and ultrasonography in the study subjects

Findings	Pathology	Percentage (%)	Number (n)
Uterine Pathologies	Cervical carcinoma	3.92	4
	Endometrial carcinoma	12.74	13
	Cervical polyp	2.94	3
	Endometrial polyp	32.35	33
	Adenomyosis	51.96	53
	Myoma	54.90	56
Tissue results	Cervical Carcinoma	1.96	2
	Endometrial Carcinoma	10.78	11

	Endometrial polyp	5.88	6
	Endometritis	0.98	1
	Atrophic endometrium	2.94	3
	Mixed	3.92	4
	Secretary	15.68	16
	Proliferative phase	11.76	12
	Endometrial hyperplasia	25.49	26
	Normal Endometrium	20.58	21

Table 4: Pathologic findings in the study subjects with AUB