

## Assessment of Thyroid Status of the Patient with Abnormal Uterine Bleeding: An Observational Study

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Conflict of interest: Nil

### Abstract

**Aim:** The present study was conducted to know the thyroid status of the patient with abnormal uterine bleeding.

**Methods:** The present study was conducted in the department of obstetrics and gynecology, outpatient department, DMCH, Laheriasarai, Darbhanga, Bihar, India from September 2021 to September 2022. The total number of cases studied as AUB was 500. The study population was, those women who presented to OPD with complaints of abnormal uterine bleeding (AUB). The study was done for the period of 12 months.

**Results:** In the present study, majority of the patients 50% were in the >40 years age group followed by 30% in the 31-40 age group. AUB was more common amongst multiparous women contributing to 58%. The most common menstrual disorder pattern seen in AUB was menorrhagia which was 52%. Next commonest was polymenorrhoea at 22%. The thyroid status was studied in all AUB cases and the percentage of thyroid abnormality was found in 50 cases (10%), including hypothyroidism and hyperthyroidism. Euthyroid, hypothyroid and hyperthyroid were 90%, 8% and 2% respectively. More number of hypothyroid cases were in >40 years age group and a smaller number of cases in <20 years age group. There was high association observed between age groups and thyroid type and it is found statistically significant ( $p < 0.001$ ). There was high association observed between types of menstrual disturbances and thyroid type and it was found statistically significant ( $p < 0.001$ ).

**Conclusion:** We found most of the women with abnormal uterine bleeding were euthyroid. In our study among hypothyroid patients most common complaint of abnormal uterine bleeding was menorrhagia, followed by polymenorrhoea, oligomenorrhoea and Hypomenorrhoea.

**Keywords:** Abnormal uterine bleeding, Hyperthyroidism, Hypothyroidism, Perimenopause, Thyroid disorder.

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### Introduction

Menstrual disorders pose a huge burden on gynecology OPD, accounting for approximately 20 % of attendance. [1] Thyroid hormones play an important role in normal reproductive physiology through

direct effects on the ovaries and indirectly by interacting with sex hormone-binding globulin. Thyroid dysfunction can lead to menstrual irregularities and infertility. [2] In India, thyroid disorders are among the

most common endocrine diseases. [3] Onset of thyroid disorders increases with age, and it is estimated that 26 % of premenopausal and menopausal women are diagnosed with thyroid disease. [4] Thyroid disorders are more common in women than in men and in older adults compared with younger age groups. [5] Hypothyroidism is associated with a wide spectrum of reproductive disorders ranging from abnormal sexual development, menstrual irregularities, and infertility. The impact of hypothyroidism on the menstrual cycle has been identified since the 1950s and leads to changes in cycle length and blood flow. [6]

Abnormal uterine bleeding (AUB) is one of the most common clinical presentations. [7] It occurs in 10-20% of women between 15-50 years of age. [8] This may significantly affect the quality of life, [9] results in time off work, [10] lead to surgical interventions including hysterectomy, [11] and ultimately have a significant impact on the health care system. [12] The causes of abnormal uterine bleeding are polyp, adenomyosis, leiomyoma, malignancy and hyperplasia, coagulopathy, ovulatory disorders, endometrial causes, iatrogenic, not classified. [13] Among them, the ovulatory disorder is the most common which occurs secondary to thyroid dysfunction. Many studies like Danese MD et al. and Douglas L Wilansky et al. any menstrual irregularity in non-pregnant women justifies screening for thyroid disorders. [14,15]

Thyroid disorders are more common in women than in men. Also, the female reproductive system is more closely associated with female reproductive system than male as evidenced by goitrous enlargement during menarche, pregnancy and menopause. Delayed puberty, precocious puberty, menstrual disturbances and infertility have been observed in association with thyroid disorders. [16] Thyroid dysfunction, both hypothyroidism

and hyperthyroidism can be associated with abnormal uterine bleeding. The earliest association of thyroid disorder with menstrual disturbance was noted by Basedov in 1840. He observed association of amenorrhea with hyperthyroidism. Hypothyroidism can cause AUB, including menorrhagia. Hyperthyroidism can result in oligomenorrhea or amenorrhea. [17,18]

The present study was conducted to know the thyroid status of the patient with abnormal uterine bleeding.

### Materials and Methods

The present study was conducted in the department of obstetrics and gynecology, outpatient department, DMCH, Laheriasarai, Darbhanga, Bihar, India from September 2021 to September 2022. The total number of cases studied as AUB was 500. The study population was, those women who presented to OPD with complaints of abnormal uterine bleeding (AUB). The study was done for the period of 12 months. The data was entered in excel spread sheet.

### Inclusion criteria

- All women from puberty to menopause presenting to outpatient with abnormal uterine bleeding (AUB).

### Exclusion criteria

- All other causes listed in PALM-COEIN Classification for AUB except thyroid dysfunction.
- Those who had other causes along with thyroid dysfunction.
- Those with subclinical thyroid dysfunction.
- Those with postmenopausal bleeding/ premenarchal uterine bleeding.

Complete history was noted down. General physical examination, systemic and pelvic examination was done with the intent of diagnosis for cause of AUB. Relevant investigation like complete blood count, USG, bleeding time, clotting time, FBS, S. prolactin and thyroid profile were

done. Thyroid test included serum TSH, T3 and T4.

Normal reference range was as follows:

- S. TSH - 0.45-4.5  $\mu$ U/ml
- S. Free T4 - 0.7-1.9 ng/dl
- S. Free T3 - 619 pg/dl

### Statistical analysis

All qualitative variables were presented with frequencies and percentages. The association between categorical variables was tested using Chi-square test. The data was analyzed using SPSS software (version 20).

### Results

**Table 1: Patient details**

Age group	Frequency	Percentage
<20	60	12%
21-30	40	8%
31-40	150	30%
>40	250	50%
<b>Parity</b>		
Nullipara	100	20%
Primipara	110	22%
Multipara	290	58%
<b>Compliants</b>		
Menorrhagia	260	52%
Polymenorrhea	110	22%
Oligomenorrhea	75	15%
Hypomenorrhea	55	11%
<b>Thyroid status</b>		
Euthyroid	450	90%
Hypothyroid	40	8%
Hyperthyroid	10	2%

In the present study, majority of the patients 50% were in the >40 years age group followed by 30% in the 31-40 age group. AUB was more common amongst multiparous women contributing to 58%. The most common menstrual disorder pattern seen in AUB was menorrhagia which was 52%. Next commonest was

polymenorrhea at 22%. The thyroid status was studied in all AUB cases and the percentage of thyroid abnormality was found in 50 cases (10%), including hypothyroidism and hyperthyroidism. Euthyroid, hypothyroid and hyperthyroid were 90%, 8% and 2% respectively.

**Table 2: Age and thyroid status**

Age	Euthyroid		Hypothyroid		Hyperthyroid		Total
	No.	%	No.	%	No.	%	
<20	80	17.78%	1	2.5%	2	20%	83
21-30	20	4.44%	5	12.5%	5	50%	30
31-40	120	26.66%	9	22.5%	2	20%	131
>40	230	51.12%	25	62.5%	1	10%	256
Total	450	100%	40	100%	10	100%	500

Majority of the hypothyroid cases were in age group >40 years accounting to 62.50%

(25 cases out of 40). The highest number of hyperthyroid cases was in age group of

21-30 years, 50% (5 out of 10 cases). More number of hypothyroid cases were in >40 years age group and a smaller number of cases in <20 years age group. There was

high association observed between age groups and thyroid type and it is found statistically significant ( $p < 0.001$ ).

**Table 3: Relation of thyroid status with menstrual disturbances**

Menstrual disturbance	Euthyroid		Hypothyroid		Hyperthyroid		Total
	No.	%	No.	%	No.	%	
Menorrhagia	235	52.22%	26	65%	0	0%	268
Polymenorrhea	100	22.22%	7	17.50%	0	0%	111
Oligomenorrhea	60	13.34%	3	7.50%	6	60%	73
Hypomenorrhea	55	12.22%	4	10%	4	40%	70
Total	450	100%	40	100%	10	100%	500

In hypothyroidism, menorrhagia was the commonest menstrual disorder pattern, accounting 65% of all menstrual pattern abnormality (26 of 40 cases). Next commonest was polymenorrhea at 17.50%. In hyperthyroid group, oligomenorrhea was commonest type of menstrual disorder pattern, which was 60%. However, hypomenorrhea was 40% in the patients. There was high association observed between types of menstrual disturbances and thyroid type and it was found statistically significant ( $p < 0.001$ ).

### Discussion

Abnormal uterine bleeding (AUB) is one of the most common gynecological complaint representing many underlying clinical conditions. It affects nearly 9-14% of woman between menarche to menopause, thereby affecting the quality of life and causing economic burden. [19] PALM-COEIN is a useful acronym provided by FIGO, 2018 to classify etiology of abnormal uterine bleeding (AUB). 1st portion describes structural disorders and second part describes non-structural disorders. [20] Thyroid disorders in general and hypothyroidism in particular is the common causes of menstrual disorders in women. Menarche, pubertal growth and development, menstrual cycles, fertility and fetal development, postpartum period, reproductive years, and postmenopausal years are profoundly influenced by the

thyroid status of women. It is recognized universally that menstrual disturbances may accompany and even may precede thyroid dysfunction.

In the present study, majority of the patients 50% were in the >40 years age group followed by 30% in the 31-40 age group. Laxmi et al [21] study showed in age group 41-50 at 45.9%. Mitali et al [22] also found that it was common in 5th decade. AUB was more common amongst multiparous women contributing to 58%. In this study, the most common complaint was menorrhagia which was present in 52% of cases. This result is quite similar to that of Moghal et al [23] which was about 41% and quite near to that of the studies of Pilli et al [24] about 34% and Sangeeta Pahwa et al [25] about 50%. The second most complaint was polymenorrhoea in 110 (22%) patients which are followed by oligomenorrhoea in 75 (15%) patients. This study was similar to a study carried out by Kaur et al [26] and Singh P et al [27] in which polymenorrhoea was second most complain accounting for 37.5% cases. Fakhar et al [28] observed menorrhagia in 45% followed by polymenorrhagia in 30% cases.

The thyroid status was studied in all AUB cases and the percentage of thyroid abnormality was found in 50 cases (10%), including hypothyroidism and hyperthyroidism. Euthyroid, hypothyroid and hyperthyroid were 90%, 8% and 2%

respectively. Kaur et al [26], Sharma et al [29] had similar incidence of hypothyroidism in cases of AUB. Authors had hyperthyroidism accounting for 3.44%. Almost similar incidence was also observed in studies done by Verma A et al at [30] 4%. In hypothyroidism, menorrhagia was the commonest menstrual disorder pattern, accounting 65% of all menstrual pattern abnormality (26 of 40 cases). This is probably related to anovulation that occurs in hypothyroidism. [30,31]

The most common type of abnormal uterine bleeding in this study was also menorrhagia. In another study done by Singh Pet al [27] out of 400 cases, 65% were euthyroid, 26% had hypothyroid, and 9% had hyperthyroidism. The most common type of abnormal uterine bleeding in this study was also menorrhagia followed by polymenorrhoea. In the study carried out by Kattel et al [32] thyroid dysfunction was present in 20% of abnormal uterine bleeding cases out of which 19% had hypothyroidism and 1% had hyperthyroidism. The most common type of abnormal uterine bleeding in this study was menorrhagia followed by metrorrhagia. [33]

In this study, there is high association observed between types of menstrual disturbances and thyroid disorder type and it is found statistically significant ( $p < 0.001$ ). It is noticed in many studies mentioned before and including this study, the incidence of AUB is in more towards perimenopause and hypothyroidism is frequent in older woman in general population, which includes perimenopausal period.

### Conclusion

Abnormal uterine bleeding (AUB) is one of the commonest gynecological complaints at gynecological OPD. It is manifestation of various heterogeneous etiology and it is clear that thyroid dysfunction is one of them. Though certain

abnormal menstrual patterns are common to specific type of thyroid disorder, it is not consistent and nor diagnostic of specific type of thyroid dysfunction. We found most of the women with abnormal uterine bleeding were euthyroid. In our study among hypothyroid patients most common complaint of abnormal uterine bleeding was menorrhagia, followed by polymenorrhoea, oligomenorrhoea and Hypomenorrhoea.

So, it is wise to order for thyroid profile irrespective of the pattern of menstrual abnormality. Importantly, as both AUB and thyroid dysfunction are more frequent during perimenopause, testing for thyroid dysfunction should be considered as first line of investigation for AUB in that period.

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