

## Thyroid Profile of Women Presenting With Abnormal Uterine Bleeding (AUB): A Cross Sectional Study Done At a Tertiary Care Hospital of Bihar

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### Abstract

**Introduction:** Fifty to twenty six percent of menstrual disorders are attributed to thyroid dysfunction. The objective of this study was to study the prevalence of thyroid disorders in patient with AUB and to study the menstrual pattern in patients with thyroid dysfunction. To determine the endometrial histopathology associated with different types of thyroid dysfunction. **Materials and Methods:** A hospital based cross sectional study was carried out by Department of Obstetrics and Gynecology, Darbhanga Medical College and Hospital, Laheriasri, Bihar, India. The study duration was between August 2020 to January 2021 for a period of 6 months and the participants were women attending gynecological OPD with complaints of abnormal uterine bleeding. The study was performed on a sample of 100 women selected on above criteria. This study was performed after obtaining approval from the institutional ethical committee. After obtaining a written informed consent from the participants, detailed history regarding the menstrual pattern, duration and quantity of bleeding during each cycle was noted. History suggestive of thyroid dysfunction was obtained. A complete clinical examination including examination of neck for thyroid swelling and a thorough gynecological examination was performed. All the information was tabulated and analyzed using SPSS 22 version with descriptive and inferential statistics (chi square test). A P value of <0.05 was considered statistically significant. **Results:** The age of the study participants ranged from 22 to 63 years. The mean age was 47.8 years with a SD of 12.7 years. Almost two-third of the women was in the peri-menopausal age group. %5 of the women with nullipara, another 14% was primipara and rest was multiparous. 57% had parity of  $\geq 3$ . Heavy menstrual bleeding was the most common menstrual abnormality found among 82% of the study participants, followed by postmenopausal bleeding and oligo/polymenorrhea. Clinical thyroid examination had positive finding only in 3 patients. **Conclusion:** Testing and treating for thyroid disorder would prove to be cost effective in patients with AUB particularly with non-structural causes as it would avoid many costly interventions done for AUB.

**Key Words:** Thyroid Profile, Abnormal Uterine Bleeding (AUB)

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### Introduction

The most common complaint with which women present for gynecological consultation is abnormal uterine bleeding which may be due to varied etiology ranging from structural causes like polyp, adenomyosis, leiomyoma and malignancy to non- structural causes like coagulation disorders, ovulatory disorders, endometrial and iatrogenic causes. Among them ovulatory dysfunction is secondary to endocrinological disorders like Poly cystic ovarian disease (PCOD), hyperprolactinemia and thyroid disorders. 15-26% of menstrual disorders are attributed to thyroid dysfunction[1]. Thyroid hormones exert their effect on the menstrual cycles either directly through ovarian specific thyroid hormone receptors or indirectly through their effect on SHBG, prolactin, GnRH and coagulation factors[2,3]. Alteration in the production and activity of thyroid hormones can cause menstrual abnormalities with hypothyroidism causing menorrhagia and hyperthyroidism presenting with menorrhagia followed by hypomenorrhea.

Hypothyroidism is generally associated with proliferative endometrium which is a consequence of relative oestrogen excess due to infrequent or absent ovulation. Even subclinical hypothyroidism which has a high prevalence as high as 9.5% in women is associated with mild disturbances in menstrual amount and duration[4,5]. Thyroid abnormalities are also highly prevalent in patients with PCOD and there is a fourfold increased incidence of autoimmune thyroiditis in patients with PCOD[6].

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It has been general practice to perform thyroid function tests in patients with menstrual irregularities only if there is obvious thyromegaly or if symptoms of thyroid disorders are present but menstrual irregularities may precede hypo or hyperthyroidism. Thyroid dysfunction is often overlooked, and unnecessary hormonal or surgical interventions are performed in patients with Abnormal Uterine Bleeding (AUB). Therefore, the awareness of prevalence of thyroid disorders in our population with complaints of AUB, the common menstrual pattern associated with different thyroid disorders and also the endometrial histopathology findings associated with different thyroid disorders will guide us in the management of abnormal uterine bleeding.

The objective of this study was to study the prevalence of thyroid disorders in patient with AUB and to study the menstrual pattern in patients with thyroid dysfunction. To determine the endometrial histopathology associated with different types of thyroid dysfunction.

### Materials and Methods

A hospital based cross sectional study was carried out by Department of Obstetrics and Gynecology, Darbhanga Medical College and Hospital, Laheriasri, Bihar, India. The study duration was between August 2020 to January 2021 for a period of 6 months and the participants were women attending gynecological OPD with complaints of abnormal uterine bleeding.

### Inclusion criteria

Women with AUB in the age group between 20-70 years

**Exclusion criteria**

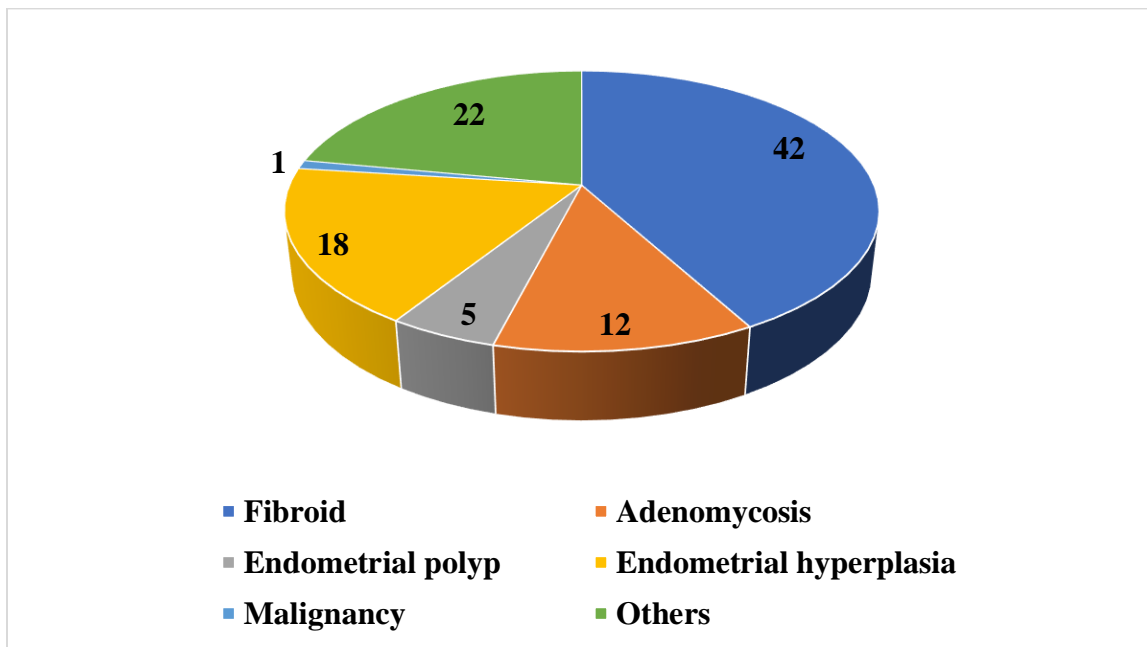
Unmarried women, known case of thyroid dysfunction, known case of carcinoma of cervix or endometrium, h/o child birth within a year, h/o abortion within 3months, h/o using exogenous hormones, patients with IUCD in-situ, known case of bleeding disorders.

The study was performed on a sample of 100 women selected on above criteria. This study was performed after obtaining approval from the institutional ethical committee. After obtaining a written informed consent from the participants, detailed history regarding the menstrual pattern, duration and quantity of bleeding during each cycle was noted. History suggestive of thyroid dysfunction was obtained. A complete clinical examination including examination of neck for thyroid swelling and a thorough gynecological examination was performed. Apart from performing investigation like Hb, platelet count, RBS and Pap smear a transvaginal ultrasound examination to note for any structural causes for AUB was performed. Thyroid function test (FT3, FT4, TSH) was performed in all study participants by collecting 5ml of venous blood. Patients were then categorized into euthyroid, hypothyroid, hyperthyroid, subclinical hypo or hyperthyroidism based on the results of thyroid function test. After

preliminary preparation all participants were subjected for an endometrial biopsy and the tissue obtained was sent for histopathological analysis. All the information was tabulated and analyzed using SPSS 22 version with descriptive and inferential statistics (chi square test). A P value of <0.05 was considered statistically significant.

**Results**

The age of the study participants ranged from 22 to 63 years. The mean age was 47.8 years with a SD of 12.7 years. Almost two-third of the women were in the peri-menopausal age group. %5 of the women with nullipara, another 14% were primipara and rest were multiparous. 57% had parity of ≥ 3. Heavy menstrual bleeding was the most common menstrual abnormality found among 82% of the study participants, followed by postmenopausal bleeding and oligo/polymenorrhea. Clinical thyroid examination had positive finding only in 3 patients. The most common pathology found was fibroid followed by endometrial hyperplasia and adenomyosis. [Figure 1]



**Figure 1: Pie distribution of cases based on the pathology for abnormal uterine bleeding**

In the present study, 74% of the patients with AUB were euthyroid. Among rest 26% who had some form of thyroid dysfunction, subclinical hypothyroidism was the most common thyroid dysfunction (19%) followed by hypothyroidism (5%). Rest 2% of patients had hyperthyroidism.

Heavy menstrual bleeding [HMB] was the most common menstrual disorder among our patients. Various menstrual complaints and their thyroid status has been shown in Table 1. In the present study no significant association was found between menstrual pattern and any

particular thyroid dysfunction. In the present study, statistically significant association was also not found between pathology causing AUB and thyroid dysfunction [Table 2]. The histopathological examination of endometrium showed different patterns ranging from a normal proliferative endometrium to adenocarcinoma of endometrium. In this study statistically, significant association was not found between histopathology of endometrium and any particular thyroid dysfunction [Table 3].

**Table 1: Association between various menstrual patterns in patients with thyroid disorders**

Menstrual problems	Thyroid status				P value
	Euthyroid	Hypothyroid	Subclinical hypothyroidism	Hyperthyroidism	
HMB	68	5	17	2	>0.05
Oligomenorrhoea	2	0	1	0	>0.05
Polymenorrhoea	2	0	0	0	>0.05
Polymenorrhagia	1	0	0	0	>0.05
Amenorrhoea	1	0	0	0	>0.05
Postmenopausal bleeding	0	0	1	0	>0.05

**Table 2: Association between various pathology behind AUB among patients with thyroid disorders**

Pathology behind AUB	Thyroid status				P value
	Euthyroid	Hypothyroid	Subclinical hypothyroidism	Hyperthyroidism	
Fibroid	30	4	7	1	>0.05
Endometrial hyperplasia	17	0	1	0	>0.05
Adenomyocosis	11	0	1	0	>0.05
Endometrial polyp	2	1	2	0	>0.05
Malignancy	1	0	0	0	>0.05
Non-structural causes	13	0	8	1	>0.05

**Table 3: Association between report of endometrial histopathology and their thyroid disorders**

Menstrual problems	Thyroid status				P value
	Euthyroid	Hypothyroid	Subclinical hypothyroidism	Hyperthyroidism	
Simple hyperplasia without atypia	31	4	9	1	>0.05
Secretary endometrium	21	0	5	0	>0.05
Shedding endometrium	15	1	4	0	>0.05
Proliferative endometrium	5	0	1	1	>0.05
Malignancy	1	0	0	0	>0.05
Chronic endometriosis	1	0	0	0	>0.05

### Discussion

The incidence of thyroid disorders among the study participants was 26% of which 5% were hypothyroid and 19% had subclinical hypothyroidism. This is less than 44% as concluded by a study from Delhi by Ajmani et al[7]. A high prevalence of thyroid disorders was also found by Abdul Hamid et al in their study of thyroid disorder among patients with AUB[8]. The most common abnormality in our study was subclinical hypothyroidism (19%). Khatiwada et al found that the prevalence of thyroid disorders in women with AUB to be 25.8% and the most common abnormality to be subclinical hypothyroidism[9]. Deshmukh et al who studied the association of thyroid disorders with AUB quoted an incidence of 30% and the commonest abnormality was subclinical hypothyroidism (18%) followed by overt hypothyroidism (9%) which is consistent with our study[10]. Heavy menstrual bleeding was the most common menstrual pattern encountered in our patients with AUB. Majority of the patients with subclinical hypothyroidism and overt hypothyroidism presented with HMB. Deshmukh et al reported a statistically significant association between menorrhagia and hypothyroidism[10]. 53.5% of hypothyroid women had menorrhagia and 58.6% of hyperthyroid women had oligomenorrhoea in a study by Javed Ali et al[11]. Fibroid uterus was the most common pathology found in our patients with AUB and the study did not reveal any significant association between the thyroid status and the pathology causing AUB. 22% of our patients had nonstructural causes for AUB among which 8% had subclinical hypothyroidism. A study by Bhavani et al found that there was an association between thyroid disorders and nonstructural causes for AUB which accounted for 76.3% when compared to 23.6% of structural causes[12]. They also found that among nonstructural causes of AUB, subclinical hypothyroidism was the commonest (15.38%) followed by overt hypothyroidism (14.2%)[12]. Present study did not reveal any significant association between thyroid dysfunction and endometrial pattern. Verma et al found that 74.3% of patients with hypothyroidism had proliferative endometrium[13]. Padmaleela et al found in their study that the common finding in endometrial biopsy both in hypothyroid (60%) and hyperthyroid (57.1%) cases was proliferative endometrium[14]. Cystoglandular hyperplasia was found in 13.3% of hypothyroid patients[14]. This is evidence to hypothyroidism causing anovulation and thereby unopposed estrogen action on the endometrium leading to hyperplastic changes in endometrium. Ajmani et al found that proliferative endometrium was most common endometrium in hypothyroid and in hyperthyroid women most of them had atrophic endometrium[7]. A high prevalence of anti TPO antibody was found by this author in patients with menstrual disorders as compared to controls[7]. A high prevalence of thyroid disorders was also found in patients with PCOD

thereby emphasizing early testing and treatment of thyroid dysfunction in young patients with PCOS[15].

### Conclusion

The prevalence of thyroid disorders is as high as 26% among woman attending the OPD. So, in woman presenting with AUB, thyroid function test should be mandatory even in the absence of clinical symptoms and signs of thyroid dysfunction. Testing and treating for thyroid disorder would prove to be cost effective in patients with AUB particularly with non-structural causes as it would avoid many costly interventions done for AUB.

### References

- Morana B, Zarbo R, Puglisi F, Zarbo G. Dysfunctional uterine bleeding medical therapies *MinerraGinecol*. 2003; 55(3):241-51.
- Doufas AG, Mastorakas G. The hypothalamicpituitary thyroid axis and the female reproductive system. *Ann N Y Acad Sci*. 2000; 900:65-76.
- Poppe K, Velkeniers B, Glinooer D. Thyroid disease and female reproduction. *ClinEndocrinol*. 2007; 66(3):309-21.
- Sharma N, Sharma A. Thyroid profile in menstrual disorders. *JK Science*. 2012;14(1):14-7.
- Abiraham R, Murugan VS, Pukazhvendan P. Thyroid disorders in women of Puducherry. *Indian J ClinBiochem*. 2009; 24(1):52-9.
- Janssen OE, Mehlmauer N, Hahn S, Offner AH, Garmer R. High prevalence of autoimmune thyroiditis in patients with polycystic ovary syndrome. *Eur JEndocrinol*. 2004; 150:363-9.
- Ajmani NS, Sarbhai V, Yadhav N, Paul M, Ahmad A, Ajmani AK. Role of thyroid dysfunction in patients with menstrual disorder in tertiary care center of walled city of Delhi. *J ObstetGynaecol India*. 2016; 66(2):115-9.
- Hamid AMSA, Borg TF, Madkour WAI. Prevalence of hyperprolactemia and thyroid disorders among patients with abnormal uterine bleeding. *Int J Gynecol Obstet*. 2015; 131(3):273-6.
- Khatiwada S, Gautam S, Singh S, Shrestha S, Jha P, Baral N, et al. Pattern of thyroid dysfunction in women with menstrual disorders. *Ann ClinChem Lab Med*. 2016; 2(1):3-6.
- Deshmukh PY, Boricha BG, Pandey A. The association of thyroid disorders with abnormal uterine bleeding. *Int J ReprodContraceptObstetGynaecol*. 2015; 4:701-8.
- Javedali, Karuna Kant Das, Konyak P. Study of relation of thyroid profile with abnormal uterine bleeding. *Sch J App Med Sci*. 2015;3(7D):2688-92.

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12. Bhavani N, Sathineedi A, Chippa S, Reddy VSP. A study of correlation between abnormal uterine bleeding and thyroid dysfunctions. *Int J Recent Trends Sci Tech.* 2015; 14(1):131-5.
  13. Verma SK, Pal A, Jaswal S. A study of thyroid dysfunction in dysfunctional uterine bleeding. *Int J ReprodContraceptObstet Gynecol.* 2020; 6:2035-9.
  14. Padmaleela K, Thomas V, Lavanya KM, Kiranmai D. Thyroid disorders in dysfunctional uterine bleeding among reproductive age group women: a cross sectional study in a tertiary hospital in Andhra Pradesh, India. *Int J Med pham Sci.* 2021; 04(01):41-6.
  15. Sinha U, Sinharay K, Saha S, Longkumer TA, Baul SN, Pal SK. Thyroid disorders in polycystic ovarian syndrome subjects. A tertiary hospital based cross sectional study from Eastern India. *Indian J EndocrMetab.* 2022; 17:304-9.

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