Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/0njhnr21

PREVALENCE OF THYROID DYSFUNCTION IN WOMEN WITH ABNORMAL UTERINE BLEEDING (AUB)

Dr Shabana Bano Soomro[1], Dr Sitara Sadia[2*], Dr Chaman Ara[3], Dr Lyla Shaheen Naz[4], Dr Shubana Tabasum[5]

[1]Assistant Professor, OBGYN Unit 3, Shaheed Muhtarma Benazir Bhutto Medical University, Chandka Medical College, Shaikh Zayed Women Hospital, Larkana, Pakistan
[2*]Post Graduate Resident, Department of Obstetrics and Gynaecology, Mardan Medical Complex, Mardan, Pakistan
[3]Assistant Professor, Department of Obstetrics and Gynaecology, Women Medical and Dental College, Abbottabad, Pakistan
[4]Senior Medical Officer, Department of Obstretics and Gynaecology, PAEC Hospital, Chashma Mianwali, Pakistan
[5]Medical Officer, Department of Obstetrics and Gynaecology, MCH PIMS, Islamabad, Pakistan

***Corresponding Author:** Dr Sitara Sadia,
*Post Graduate Resident, Department Of Obstetrics And Gynaecology, Mardan Medical Complex, Mardan, Pakistan. Email: Sitarasadia215@Gmail.Com

ABSTRACT

Background: To determine the prevalence of thyroid dysfunction among women presenting with AUB and assess its association with different bleeding patterns.

Methods: This cross-sectional study was carried out at Bacha Khan Medical College with affiliated hospital, and Shaikh Zayed Women Hospital Lark Gynae Department Shaheed Muhtarma Benazir Bhutto Medical University, Chandka Medical College, Larkana Pakistan from January 2023 to January 2024. A total of 61 women aged 18–45 years with AUB were enrolled. Detailed clinical histories were taken, and thyroid function tests (TSH, FT3, FT4) were performed. Data were analyzed using SPSS version 25. The Chi-square test was used to determine associations, with $p < 0.05$ considered significant.

Results: Out of 61 women with AUB, 36.1% had thyroid dysfunction. Subclinical hypothyroidism was observed in 16.4%, overt hypothyroidism in 13.1%, and hyperthyroidism in 6.6%. Menorrhagia was the most frequent bleeding pattern and showed a significant association with thyroid abnormalities ($p = 0.032$). Although thyroid dysfunction was more prevalent among women over 30 years, no statistically significant correlation with age was found.

Conclusion: A substantial number of women with AUB had underlying thyroid disorders, particularly hypothyroidism. Routine thyroid function screening should be considered in the evaluation of AUB to ensure timely diagnosis and treatment.

Keywords: Abnormal uterine bleeding, Thyroid dysfunction, Hypothyroidism, Menorrhagia, Subclinical hypothyroidism, TSH, Reproductive health

INTRODUCTION

Abnormal uterine bleeding (AUB) is one of the most frequent reasons for gynecological visits among women of reproductive age. It encompasses a wide range of menstrual irregularities, including excessive, irregular, or prolonged bleeding, which can significantly impair quality of life. While structural and hormonal causes are commonly investigated, the role of endocrine disorders such as thyroid dysfunction is often underestimated in clinical practice (1-3).

Thyroid hormones are essential regulators of metabolism and reproductive physiology. They influence the synthesis and clearance of sex hormones and play a vital role in maintaining normal endometrial function. Both hyperthyroidism and hypothyroidism can disrupt menstrual cyclicity, resulting in patterns like menorrhagia, oligomenorrhea, and amenorrhea. Despite these known effects, thyroid screening is not consistently integrated into the routine workup of AUB (4-7).

This study aims to evaluate the prevalence of thyroid dysfunction among women presenting with AUB and to explore the relationship between various bleeding patterns and underlying thyroid abnormalities (8-10). Understanding this association can enhance diagnostic accuracy and allow for non-invasive, cost-effective management strategies in affected women.

METHODOLOGY

This descriptive cross-sectional study was conducted in the Department of Obstetrics and Gynecology at Bacha Khan Medical College and its affiliated hospital and Shaikh Zayed Women Hospital Lark Gynae Department Shaheed Muhtarma Benazir Bhutto Medical University, Chandka Medical College, Larkana Pakistan over a one-year period, from January 2023 to January 2024. The primary objective was to assess the prevalence of thyroid dysfunction in women presenting with abnormal uterine bleeding (AUB). The study was conducted after receiving approval from the Institutional Review Board of Bacha Khan Medical College and Shaikh Zayed Women Hospital Lark Gynae Department Shaheed Muhtarma Benazir Bhutto Medical University, Chandka Medical College, Larkana Pakistan. All participants were briefed about the purpose and procedures of the study, and written informed consent was obtained.

A total of 61 women were enrolled in the study through non-probability consecutive sampling. Women of reproductive age (18–45 years) who presented with any pattern of abnormal uterine bleeding and consented to participate were included. Patients with known thyroid disorders, those already on thyroid medications, pregnant women, or those with bleeding disorders or systemic illness were excluded from the study to minimize confounding factors.

After obtaining informed consent, detailed clinical histories were recorded, including demographic information (age, marital status, parity, and residence), menstrual history (type and duration of AUB), and relevant systemic symptoms. A thorough general and gynecological examination was performed in all cases.

Each participant underwent laboratory investigations, including hemoglobin levels and thyroid function tests. The thyroid profile included serum Thyroid Stimulating Hormone (TSH), Free Triiodothyronine (FT3), and Free Thyroxine (FT4), analyzed through chemiluminescent immunoassay using standardized equipment in the hospital's diagnostic laboratory.

Thyroid dysfunction was classified as:

- **Euthyroid**: Normal TSH, FT3, and FT4 levels
- **Subclinical Hypothyroidism**: Elevated TSH with normal FT3 and FT4
- **Overt Hypothyroidism**: Elevated TSH with low FT3 and/or FT4
- **Hyperthyroidism**: Suppressed TSH with elevated FT3 and/or FT4

Data were entered and analyzed using SPSS version 25. Descriptive statistics such as frequency and percentage were used to summarize categorical variables. Quantitative variables were presented as mean and standard deviation. Associations between thyroid dysfunction and clinical variables (type of AUB, age group, BMI) were assessed using the Chi-square test, with a p-value <0.05 considered statistically significant.

RESULTS

In this study of 61 women presenting with abnormal uterine bleeding (AUB), the age distribution revealed that the highest proportion (41.0%) belonged to the 30–40 years age group, followed by 32.8% who were above 40 years of age. The majority were married (86.9%) and came from urban areas (55.7%). Multiparity was common, reported in 82.0% of participants, while 18.0% were nulliparous.

Table 1: Demographic Characteristics of Women with AUB (n = 61)

Variable	Category	Frequency (%)
Age Group (years)	<30	16 (26.2%)
	30–40	25 (41.0%)
	>40	20 (32.8%)
Marital Status	Married	53 (86.9%)
	Unmarried	8 (13.1%)
Residence	Urban	34 (55.7%)
	Rural	27 (44.3%)
Parity	Nulliparous	11 (18.0%)
	Multiparous	50 (82.0%)

Menstrual irregularities varied among participants, with menorrhagia being the most common complaint (36.1%), followed by metrorrhagia (23.0%) and polymenorrhea (16.4%). The least frequent were oligomenorrhea and hypomenorrhea. Regarding symptom duration, most women (41.0%) had AUB symptoms for 6–12 months. Nearly half of the participants (45.9%) were anemic with hemoglobin levels below 10 g/dL. Analysis of BMI showed that 45.9% of women had normal weight, while 26.2% were overweight and 18.0% obese.

Table 2: Clinical Features and AUB Patterns

Variable	Category	Frequency (%)
Type of AUB	Menorrhagia	22 (36.1%)
	Metrorrhagia	14 (23.0%)
	Polymenorrhea	10 (16.4%)
	Oligomenorrhea	9 (14.8%)
	Hypomenorrhea	6 (9.8%)
Duration of AUB	<6 months	19 (31.1%)
	6–12 months	25 (41.0%)
	>12 months	17 (27.9%)
Hemoglobin Level	<10 g/dL	28 (45.9%)
	≥10 g/dL	33 (54.1%)
BMI	<18.5 (Underweight)	6 (9.8%)
	18.5–24.9 (Normal)	28 (45.9%)
	25–29.9 (Overweight)	16 (26.2%)
	≥30 (Obese)	11 (18.0%)

Thyroid function testing revealed that 63.9% of women had normal thyroid function (euthyroid). However, thyroid dysfunction was detected in over a third of the participants. Subclinical hypothyroidism was observed in 16.4% of cases, overt hypothyroidism in 13.1%, and hyperthyroidism in 6.6%, indicating a substantial proportion of undiagnosed thyroid disorders among women with AUB.

Table 3: Thyroid Profile in Women with AUB

Thyroid Status	Frequency (%)
Euthyroid	39 (63.9%)
Subclinical Hypothyroidism	10 (16.4%)
Overt Hypothyroidism	8 (13.1%)
Hyperthyroidism	4 (6.6%)

A statistically significant relationship was observed between the type of AUB and the presence of thyroid dysfunction ($p = 0.032$). Among women with menorrhagia, 59.1% had thyroid dysfunction, suggesting a strong association between heavy menstrual bleeding and hypothyroidism. In contrast, the majority of women with metrorrhagia and other bleeding types were euthyroid, though some had underlying thyroid abnormalities.

Table 4: Association Between Type of AUB and Thyroid Dysfunction

Type of AUB	Thyroid Dysfunction Present	Euthyroid	p-value
Menorrhagia	13 (59.1%)	9 (40.9%)	0.032*
Metrorrhagia	5 (35.7%)	9 (64.3%)	
Polymenorrhea	4 (40.0%)	6 (60.0%)	
Oligomenorrhea	3 (33.3%)	6 (66.7%)	
Hypomenorrhea	2 (33.3%)	4 (66.7%)	

*Significant association at $p < 0.05$

Although the prevalence of thyroid dysfunction was slightly higher in women aged 30 and above, the difference across age groups was not statistically significant ($p = 0.298$). Thyroid abnormalities were present in 40.0% of women above 40 years, 36.0% in the 30–40 group, and 25.0% in those under 30, indicating the need for thyroid evaluation irrespective of age.

Table 5: Association Between Age Group and Thyroid Dysfunction

Age Group (years)	Thyroid Dysfunction Present	Euthyroid	p-value
<30	4 (25.0%)	12 (75.0%)	0.298
30–40	9 (36.0%)	16 (64.0%)	
>40	8 (40.0%)	12 (60.0%)	

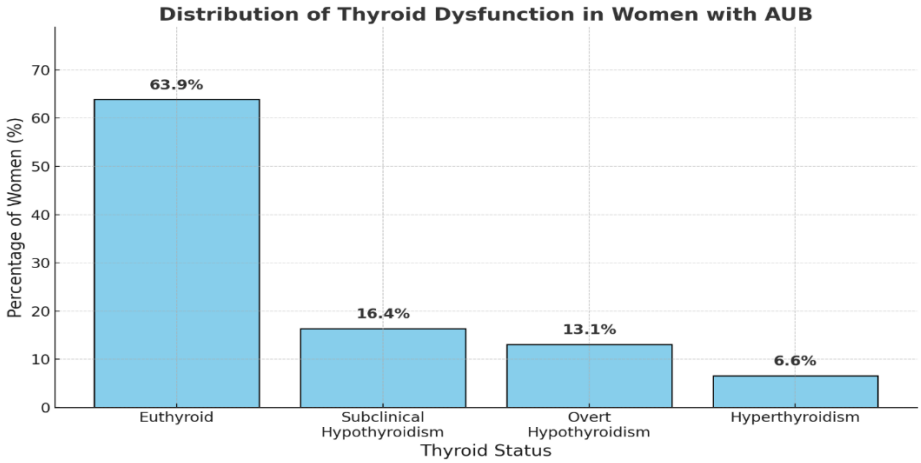

Figure 1

Bar graph showing the distribution of thyroid dysfunction among women with abnormal uterine bleeding (AUB).

DISCUSSION

The present study evaluated the prevalence of thyroid dysfunction among women presenting with abnormal uterine bleeding (AUB) and found that over one-third (36.1%) of the participants had some form of thyroid abnormality. Subclinical hypothyroidism was the most common disorder identified, followed by overt hypothyroidism and hyperthyroidism. These findings align with the growing recognition of thyroid dysfunction as a significant yet often underdiagnosed contributor to menstrual irregularities (11-13).

Our results support those of studies reported a prevalence of 31.4% thyroid dysfunction in AUB patients, with hypothyroidism being the predominant abnormality (14, 15). Similarly, studies found that 32% of women with AUB had thyroid-related abnormalities, underscoring the importance of thyroid screening in such cases. The present study reinforces the link between menorrhagia and hypothyroidism, as more than half of the women with menorrhagia were found to have underlying thyroid dysfunction (16, 17). This was consistent with the work of studies noted that altered thyroid hormone levels can significantly impact endometrial function and menstrual patterns (18, 19).

Although thyroid dysfunction was more commonly observed in women above 30 years of age, the association between age and thyroid status in our study was not statistically significant. This suggests that thyroid testing should not be limited to older women, as even younger age groups can be affected. This finding is consistent with research by study, who emphasized that thyroid disorders can present across a broad age spectrum in women with AUB (20).

The current study also observed a high rate of anemia among women with thyroid dysfunction and AUB, further complicating the clinical picture. The association between anemia and thyroid dysfunction has been previously documented by study , who found that hypothyroid women are at increased risk of iron-deficiency anemia due to chronic blood loss and reduced erythropoietin production (21).

The variation in the pattern of bleeding seen in the study, including metrorrhagia, polymenorrhea, and oligomenorrhea, also reflects the diverse ways in which thyroid dysfunction can disrupt the menstrual cycle. These findings align with those reported by study, who described thyroid hormones as essential regulators of reproductive health (22).

While the study adds valuable insights, it is limited by its single-center design and relatively small sample size. Future multicenter studies with larger populations could help validate these findings and explore the long-term benefits of early thyroid screening and treatment in AUB cases.

CONCLUSION

Thyroid dysfunction is a common and often overlooked cause of abnormal uterine bleeding. In this study, more than one-third of women with AUB had underlying thyroid abnormalities, particularly subclinical and overt hypothyroidism. Menorrhagia was significantly associated with thyroid dysfunction, emphasizing the need for routine thyroid screening in the evaluation of menstrual irregularities. Early diagnosis and appropriate management of thyroid disorders may help prevent unnecessary interventions and improve the quality of life in affected women.

REFERENCES

1. Kolli SN, Agrawal M, Khithani Y, Kotdawala KJJoEoM, Sciences D. Correlation of Thyroid Disorders with Abnormal Uterine Bleeding (AUB). 2020;9(7):398-402.
2. Joshi BR, Rizal S, Subedi SJJJotNMA. Thyroid dysfunction in patient with abnormal uterine bleeding in a Tertiary Hospital of Eastern Nepal: A descriptive cross-sectional study. 2021;59(239):635.
3. Maryam T, Rizwan N, Uddin S, Afsheen SJIJoM, research C. Abnormal uterine Bleeding in Patient Having Thyroid Dysfunction. 2020;8:196-200.
4. Rai A, Raina SJIlJRCOG. A study of prevalence of thyroid dysfunction in abnormal uterine bleeding. 2020;9:2905-9.

5. Chowdhury N, Mazumdar MSHJEASJMS. The Frequency of Thyroid Dysfunction and Abnormal Uterine Bleeding In North East Medical College and Hospital, Sylhet. 2021;4(7):160-3.
6. Shawl AS, Naz MJIJoR, Contraception, Obstetrics, Gynecology. Association between thyroid disorders and abnormal uterine bleeding in reproductive ages. 2020;9(9):3580-5.
7. Sahu HD, Varma AV, Karmarkar S, Malukani K, Khanuja A, Kesharwani P, et al. Endometrial histopathology in abnormal uterine bleeding and its relation with thyroid profile and endometrial thickness. 2023;15(4).
8. Shenoy H. Evaluating Patterns Of Abnormal Uterine Bleeding (AUB) In Thyroid Dysfunction At A Tertiary Care Centre In North Kerala, India.
9. Begum MJSIJOG. Association between Thyroid Disorders and Abnormal Uterine Bleeding in Reproductive Ages in a Private Medical College Hospital, Dhaka, Bangladesh. 2021;4(11):476-80.
10. Thakur M, Maharjan M, Tuladhar H, Dwa Y, Bhandari S, Maskey S, et al. Thyroid dysfunction in patients with abnormal uterine bleeding in a tertiary care hospital: a descriptive cross-sectional study. 2020;58(225):333.
11. Tamilarasi S, Minnalkodi S, Prasad GJIJoR, Contraception, Obstetrics, Gynecology. Thyroid disorders in patients with abnormal uterine bleeding in tertiary care hospital in Chengalpattu district. 2020;9(9):3847-52.
12. Nayak AK. Thyroid disorders in patients with dysfunctional uterine bleeding.
13. Koirala S, Pande K, Shrestha SJNMCJ. Correlation of abnormal uterine bleeding (AUB) with thyroid profile and endometrial biopsy. 2021;23(4):334-9.
14. Bedi M, Khosa SK, Das I, Khaira HK, Gupta KJJoSAFoMS. Evaluation of Thyroid Hormone Profile in Abnormal Uterine Bleeding. 2020;8(1):38.
15. Patil A, shivanand Shiragur S, Gobbur V, Mudanur S, Bidri S, Yaliwal R, et al. Association of Bleeding Patterns with Thyroid Dysfunction in Patients with Abnormal Uterine Bleeding: A Prospective Cross-sectional Study. 2022.
16. Vaidya R, Vinayachandran S, Devi S, Prejisha B, Lekshminath G, Sreedharan S, et al. Prevalence of abnormal uterine bleeding and its associated risk factors in women of perimenopausal age group-a retrospective study. 2022;16(12):9-13.
17. Nekkanti D. THE STUDY OF THYROID DYSFUNCTION IN PATIENTS WITH ABNORMAL UTERINE BLEEDING: SDUAHER; 2023.
18. Malik S, Musharaf S, Gupta NJEJoM, Medicine C. PATTERN OF ABNORMAL UTERINE BLEEDING IN HYPOTHYROID FEMALES OF REPRODUCTIVE AGE GROUP-A PROSPECTIVE STUDY. 2021;8(1):2204-9.
19. Sahu P, Mishra SJJoA, Sciences IM. Ayurveda management of Bulky Uterus & Abnormal Uterine Bleeding (AUB) associated with Hypothyroidism: A Case Report. 2023;8(11):233-6.
20. MacGregor R, Jain V, Hillman S, Lumsden MAJb. Investigating abnormal uterine bleeding in reproductive aged women. 2022;378.
21. Sharma K, Upadhyay P, Yogi JP, Fiza B, Sinha M. Role of thyroid hormone and serum prolactin in patients of polycystic ovary syndrome, abnormal uterine bleeding and dysmenorrhea. 2020.
22. Choudhury SA, Nath PJNIJO. Abnormal uterine bleeding; its prevalence, causes and management in a tertiary care hospital. 2020;7(1):52-7.