



## Original Research Article

## Thyroid disorders in patients with dysfunctional uterine bleeding

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## ABSTRACT

Thyroid hormone plays an important role in the regulation of menstrual cycle in women. Thyroid dysfunctions are frequently associated with dysfunctional uterine bleeding which is a type of abnormal uterine bleeding in absence of organic disease of the genital tract. This hospital based prospective study was carried out on 150 women in different age groups who presented with dysfunctional uterine bleeding in the Department of Obstetrics & Gynecology, F.M. Medical College & Hospital, Balasore, Odisha over a period of one year. Thyroid function test was done and was correlated with abnormal bleeding patterns and endometrial histopathological study. Out of 150 patients with dysfunctional uterine bleeding, 27 (18%) had hypothyroidism, 2(1.33%) had hyperthyroidism and 121(80.67%) were euthyroid. Majority i.e. 96 (64%) were in the age group of 26-35 years, out of which 21(21.87%) had hypothyroidism and one (1.04%) was hyperthyroid. Menorrhagia and metrorrhagia were the most common pattern of menstrual irregularities noticed among the patients having hypothyroidism (81.48%) . 52.04%, 30.62% and 17.34% patients had proliferative pattern, secretory pattern and endometrial hyperplasia respectively. 21.5% of proliferative endometrium, 23.33% of secretory endometrium and 17.64% of endometrial hyperplasia were seen in histopathological study of patients having hypothyroidism. Most of the patient with hypothyroidism i.e. 70.37% had normal endometrial thickness found during pelvic ultrasonography. Prevalence of thyroid disorders particularly hypothyroidism is quite common in patients having dysfunctional uterine bleeding. Therefore, thyroid function test should be done in all patients with menstrual irregularities to avoid unnecessary hormonal treatment and surgical intervention.

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## 1. Introduction

Dysfunctional uterine bleeding (DUB) is a quite common gynecological problem. Menorrhagia, metrorrhagia, polymenorrhoea, polymenorrhagia and oligomenorrhoea are the common menstrual pattern seen in patients with DUB. Thyroid dysfunction in women has been implicated in broad spectrum of menstrual disorders.<sup>1</sup> Both hypothyroidism and hyperthyroidism may result in menstrual disturbances. Increased menstrual flow found to be the most common reproductive system manifestation

of hypothyroidism. The menstrual irregularities in hypothyroidism are attributed to multiple factors like high TSH levels or altered GnRH pulses from hypothalamus causing decrease in pituitary gonadotropin secretion or defect in luteinizing hormone secretion with persistent follicle-stimulating hormone secretion. This results in chronic anovulation in hypothyroidism or luteal phase defects in less severe cases. Hypothyroidism also alters the peripheral metabolism of estrogen and decreases SHBG production, causing rise in serum estrogen level. This, in turn, causes abnormal feedback at the pituitary level.

Aim and objective of the study was to find out prevalence of various thyroid disorders in patients with dysfunctional

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uterine bleeding and to correlate with abnormal bleeding patterns and histopathological study of endometrium.

## 2. Materials and Methods

This hospital based, prospective study was carried out in the Department of Obstetrics & Gynaecology, F.M. Medical College & Hospital, Balasore, Odisha over a period of one year from December 2019 to November 2020. 150 patients with DUB in the age group of 15 to 40 years were enrolled in the study. DUB was diagnosed among cases of abnormal uterine bleeding on the basis of history, clinical examination including abdomino-pelvic examination, relevant laboratory investigations and ultrasonography. Detail menstrual history was taken and the menstrual abnormalities like menorrhagia, metrorrhagia, polymenorrhagia and puberty menorrhagia were noted. Pelvic ultrasonography including measurement of endometrial thickness was done in all cases. Histopathological study of endometrium was done in indicated cases. Women on intrauterine contraceptive device or with organic lesion in genital tract like polyp, fibroid, blood dyscrasias, etc., or with history of taking steroid medication were excluded from the study. Also, patients on drugs that raise the thyroid hormone concentration like tamoxifen, amiodarone, propranolol, glucocorticoids, lithium and potassium iodide were exempted from the study. After obtaining informed written consent, blood samples were collected and sent to the central laboratory for estimations of thyroid profile i.e. serum TSH, T3 and T4. Thyroid function tests were done by chemiluminescence assay. Thyroid function test results were correlated with menstrual irregularities and histopathological study of endometrium. Statistical analysis of the data was performed by using Microsoft Excel software.

## 3. Results

Out of 150 patients with dysfunctional uterine bleeding (DUB), 29 patients (19.33%) found to have thyroid disorders. 27 patients (18%) had thyroid profile in hypothyroid range and 2 patients (1.33%) had hyperthyroidism. 121 patients (80.67%) with DUB had normal thyroid function test [Table 1].

Majority i.e. 96 patients (64%) with DUB were in the age group of 26-35 years, out of which 21 patients (21.87%) had hypothyroidism and one patient (1.04%) had hyperthyroidism. Out of 12 patients (8%) who were in the age group of 36-40 years, 3 patients (25%) had hypothyroidism and one patient (8.34%) had hyperthyroidism. 42 patients (28%) were in the age group of 16-25 years, out of which 3 patients (7.14%) were found to be in hypothyroid state [Table 2].

Out of 150 patients with DUB, 81 patients (54%) had menorrhagia, 25 (16.67%) had polymenorrhagia, 36 (24%) had metrorrhagia and 8 (5.33%) had pubertal menorrhagia.

Among the patients having menorrhagia 17 (20.99%) had hypothyroidism and 1 (1.23%) had hyperthyroidism. Among the patients having polymenorrhagia, thyroid profile of 3 patients (12%) revealed hypothyroidism. Among patients having metrorrhagia type of bleeding 5 (13.88%) were found to have hypothyroidism and 1 (2.78%) had hyperthyroidism. Among patients presented with puberty menorrhagia 2 (25%) were found to have hypothyroidism and no one had hyperthyroidism [Table 3].

Out of 150 patients presented with DUB, D & C with endometrial biopsy was done for 98 cases. Histopathological examination (HPE) study of endometrium revealed proliferative pattern in 51 patients (52.04%), secretory pattern in 30 patients (30.62%) and endometrial hyperplasia in 17 patients (17.34%).

Out of 51 patients with proliferative endometrium, 11 (21.57%) had hypothyroidism. Among 30 patients with secretory endometrium, 7 (23.33%) were in hypothyroid state and 1 (3.33%) had hyperthyroidism. Among 17 patients with endometrial hyperplasia, 3 (17.64%) had hypothyroidism and 1 (5.88%) had hyperthyroidism [Table 4].

During pelvic ultrasonography, an endometrial thickness was measured for all patients having DUB. Out of 108 patients who had normal endometrial thickness (8-14mm), 19 (17.59%) were having hypothyroid range of thyroid profile and 1 (0.93%) with hyperthyroid range. 42 patients were having thickened endometrium (>14mm), among them 8 (19.04%) had hypothyroidism and 1 (2.39%) had hyperthyroidism [Table 5].

## 4. Discussion

Present study revealed out of 150 patients with dysfunctional uterine bleeding (DUB), 29 patients (i.e. 19.33%) found to have thyroid disorders. Whereas, Kattel P et al reported DUB accounted for 30.4% of thyroid dysfunction.<sup>2</sup> In the present study, thyroid profile of 18% of patients with DUB revealed hypothyroidism, 1.33% had hyperthyroidism and 80.67% were euthyroid. Ajmani N.S. et al reported hypothyroidism in 34% and hyperthyroidism in 8% of women with menstrual disorders.<sup>3</sup> Jinger S K et al found that 39% of patients with DUB were hypothyroid, 8% had hyperthyroidism and 53% were euthyroid.<sup>4</sup> Thakur M et al found that 13.9% patients with abnormal bleeding were hypothyroid, 1.2% had hyperthyroidism and 84.9% were euthyroid.<sup>5</sup> Subedi S et al reported hypothyroidism in 9.3% patients and hyperthyroidism in 1.3% patients with DUB.<sup>6</sup>

In this study, 64% patients with DUB were in the age group of 26-35 years, 28% were in the age group of 16-25 years and 8% were between 36-40 years of age. Subedi S et al reported 53.33% of patients with abnormal bleeding were between the age group of 35-45 years followed by 33.33% between the age group of 25-34 years.<sup>6</sup> Patel S B

**Table 1:** Thyroid profile among patients with DUB (n=150)

No of patients	Hypothyroidism	Hyperthyroidism	Euthyroid
150	27(18%)	2(1.33%)	121(80.67%)

**Table 2:** Age distribution of patients with DUB in relation to thyroid profile

Age (years)	No of patients (%)	Hypothyroidism	Hyperthyroidism	Euthyroid
16-20	12(8%)	2(16.66%)	0	10(83.34%)
21-25	30(20%)	1(3.33%)	0	29(96.67%)
26-30	51(34%)	11(21.56%)	0	40(78.44%)
31-35	45(30%)	10(22.23%)	1(2.22%)	34(75.55%)
36-40	12(8%)	3(25%)	1(8.34%)	8(66.66%)
Total	150	27	2	121

**Table 3:** Analysis of abnormal bleeding pattern in relation to thyroid status

Patterns of DUB	No of patients	Hypothyroidism	Hyperthyroidism	Euthyroid
Menorrhagia	81(54%)	17(20.99%)	1(1.23%)	63(77.78%)
Polymenorrhagia	25(16.67%)	3(12%)	0	22(88%)
Metrorrhagia	36(24%)	5(13.88%)	1(2.78%)	30(83.34%)
Pubertal menorrhagia	8(5.33%)	2(25%)	0	6(75%)
Total	150	27	2	121

**Table 4:** Correlation between Endometrial HPE study and thyroid dysfunction (n=98)

Endometrial Histopathology	No of patients	Hypothyroidism	Hyperthyroidism	Euthyroid
Proliferative	51(52.04%)	11(21.57%)	0	40(78.43%)
Secretory	30(30.62%)	7(23.33%)	1(3.33%)	22(73.34%)
Endometrial hyperplasia	17(17.34%)	3(17.64%)	1(5.88%)	13(76.48%)

**Table 5:** Endometrial thickness in relation to thyroid disorders

Endometrial thickness	No of patients	Hypothyroidism	Hyperthyroidism	Euthyroid
8-14 mm (normal)	108	19(17.59%)	1(0.93)	88(81.48%)
>14mm (thickend)	42	8(19.04%)	1(2.39%)	33(78.57%)
Total	150	27	2	121

et al reported 46% patients with abnormal bleeding were in the age group of 21 to 30 years.<sup>7</sup> Whereas, Doifode and Fernandes reported maximum number of patients belonged to age group of 31 to 40 years.<sup>8</sup>

In the present study, majority i.e. 21 out of 27 patients (77.8%) having DUB suffering from hypothyroidism were between the age group of 26-35 years. According to Gouri M et al most common age group for DUB was 26-30 years (22%).<sup>9</sup> Verma S K et al reported 38.4% of DUB with hypothyroidism were between the age group of 31-40 years.<sup>10</sup>

In the present study, menorrhagia was the most common complaint among the patients with DUB. Majority of patients i.e. 17 out of 27 (62.96%) having DUB with hypothyroidism had menorrhagia, followed by metrorrhagia (18.51%). Verma S K et al reported menorrhagia and metrorrhagia combinedly constituted 58.95% of the abnormal menstrual pattern in patients with

hypothyroidism.<sup>10</sup> According to Krishnaveni M the type of menstrual abnormality commonly seen in hypothyroidism was menorrhagia (63.33%).<sup>11</sup> Jadab K P et al reported that most common menstrual abnormality was menorrhagia (48%) followed by metrorrhagia and polymenorrhoea (14% each).<sup>12</sup> Singh L et al found that 44.4% cases with hypothyroidism presented with menorrhagia.<sup>13</sup> Douglas et al observed that 22.3% cases with menorrhagia had subclinical hypothyroidism.<sup>14</sup> Among two of our DUB patients with hyperthyroidism one had menorrhagia and other had metrorrhagia.

Our study revealed 21.57% of proliferative endometrium, 23.33% of secretory endometrium and 17.64 % of hyperplastic endometrium in patients with DUB having hypothyroidism. 3.33% of secretory endometrium and 5.88% of hyperplastic endometrium were seen among our hyperthyroid patients. Sharma et al reported 36.36% of proliferative endometrium, 36.36% of secretory

endometrium and 27.27% of atrophic endometrium in women with abnormal bleeding having hypothyroidism.<sup>15</sup> He also reported 42.84% of proliferative endometrium, 28.56% of secretory endometrium and 14.28% hyperplastic endometrium in his histopathological examination study in hyperthyroid patients.<sup>15</sup> Kaur T et al observed that 64.3% of DUB with hypothyroidism had proliferative endometrium, 14.3% had secretory endometrium and 21.4% had endometrial hyperplasia.<sup>16</sup>

## 5. Conclusion

To conclude our study, we found thyroid disorder particularly hypothyroidism is a common endocrine problem in patients with dysfunctional uterine bleeding. Most common age group affected was in between 26-35 years. Menorrhagia, metrorrhagia and polymenorrhagia were the common menstrual irregularities encountered in patients with DUB. So all patients presenting with DUB should be subjected to thyroid function test in addition to routine hematological investigations, ultrasonography of pelvis and endometrial histopathology study in indicated cases. Timely diagnosis and treatment of thyroid disorders in patients with DUB can prevent unnecessary surgical intervention and its complications.

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## 8. Conflicts of Interest

No conflicts of interest.

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