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Original Research Article

## Abnormal uterine bleeding in relation to thyroid dysfunction

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### ABSTRACT

**Background:** Abnormal uterine bleeding is an abnormal bleeding from the uterus in absence of any organic disease of genital tract and demonstrable extra genital causes. Thyroid dysfunction is marked by large number of menstrual abnormalities. This study is aimed at detecting thyroid dysfunction in patients with provisional diagnosis of AUB (abnormal uterine bleeding) and refer positive cases to physician for further management.

**Methods:** All patients from are from puberty to pre-menopausal age groups, presenting as menorrhagia, metrorrhagia, polymenorrhoea, polymenorrhagia, hypomenorrhoea, and acyclical bleeding. Onset, duration, amount of bleeding, complaints related to thyroid dysfunction was noted in detail. A thorough clinical examination including general physical examination, neck examination, systemic and gynecological examination was carried out, with special reference to thyroid dysfunction. A provisional clinical diagnosis of DUB was made. Patients with clinical signs and symptoms of thyroid disease were excluded. All these patients were subjected to routine investigations like Hb%, blood counts, urine routine, and bleeding and clotting time to rule out coagulation defects. Then all were subjected for serum T3, T4, and TSH estimation. Patients were then grouped into 4 categories: euthyroid, subclinical hypothyroid, hypothyroid, and hyperthyroid. Patients who had thyroid disease, on hormonal treatment, IUCD users, and bleeding disorders were excluded.

**Results:** Among 100 patients studied with abnormal uterine bleeding, patients were distributed according to age groups from puberty to perimenopause age. Majority of patients belongs to 31-40 years of age about 40% and the least age group were between 41-45 years of age.(7%). Among different parity status AUB was more common among para three patients(26%). Out of 100 patients, 32% of patients had thyroid dysfunction of which 16% of patients had subclinical hypothyroidism. 15% of patients had hypothyroidism and only 2% of patients had hyperthyroidism. The commonest bleeding abnormality in AUB were polymenorrhoea (30%) and menorrhagia (35%). All hyperthyroid cases were oligomenorrhoeic.

**Conclusions:** This study concludes that thyroid dysfunction should be considered as an important etiological factor for menstrual abnormality. The biochemical evaluation of T3, T4, and TSH estimations should be made mandatory in AUB cases to detect apparent and occult thyroid dysfunction.

**Keywords:** AUB, DUB, Hyperthyroid, Hypothyroid, Inter menstrual bleeding, Menorrhagia, Metrorrhagia, Polymenorrhoea, Thyroid, TSH

### INTRODUCTION

Abnormal uterine bleeding is a bleeding from the uterus in absence of organic disease of genital tract and

demonstrable extra genital cause. AUB accounts 10% of gynecological related complaints. Thyroid dysfunction is also marked by large numbers in relation to menstrual abnormalities.<sup>2</sup>

Regular cyclic menstruation results from the choreographed relationship between the endometrium and its regulating factors. Changes in either of these frequently results in abnormal bleeding. It affects upto one third of women of child bearing age.<sup>3</sup>

Normal reproductive behavior and physiology is dependent on having essentially normal levels of Thyroid hormone. Thyroid hormones play an important role in normal reproductive function both through direct effects on the ovaries and indirectly by interacting with sex hormone binding proteins.<sup>4,5</sup>

Diseases of thyroid gland are among the most prevalent disorders worldwide second only to diabetes.<sup>6</sup> Both hypo as well as hyper thyroidism are associated with variety of changes in reproductive function including delayed onset of puberty, anovulatory cycles and abnormally high fetal wastage.<sup>7</sup> Clinical experiences show increased menstrual flow to be the most common reproductive manifestation of hypothyroidism.

Although the occurrence of menstrual disturbances in hypothyroid women has been documented, the number of hypothyroid patients originally requiring treatment for menorrhagia has not been carefully elicited.<sup>8</sup> Moreover, majority of the cases have subclinical hypothyroidism and easily pass unrecognized. Danese et al recommended hypothyroidism is frequent enough to warrant consideration in older women.<sup>9</sup>

The introduction of serum thyroxine (T3) and thyroid stimulating hormone (TSH). Radio immunoassays has increased the sensitivity and specificity of thyroid function testing. The serum TSH assay has been shown to be a sensitive indicator of diminished thyroid function reserve, since TSH levels become elevated before circulating serum thyroxine levels fall below normal range.<sup>10</sup>

Hence the study is to evaluate the thyroid function in patients having abnormal uterine bleeding from puberty to premenopausal age groups. The objective of the present study was to evaluate and detect the thyroid dysfunction in patients with AUB, and to refer positive cases to physician for further management.

## METHODS

Present study is to establish the role of thyroid dysfunction in relation to menstrual disturbances. This study was carried out in the department of obstetrics and gynecology at vanivilas hospital, a tertiary care centre attached to Bangalore Medical College and Research Centre, Bengaluru.

100 women who were given clinically the provisional diagnosis of dysfunctional uterine bleeding. This is a prospective done from April-2017 to March-2018.

All patients from are from puberty to pre-menopausal age groups, presenting as menorrhagia, metrorrhagia, polymenorrhoea, polymenorrhagia, hypomenorrhoea, and acyclical bleeding. A detailed history was obtained with special reference to age and bleeding pattern, onset, duration, amount of bleeding, complaints related to thyroid dysfunction were noted.

A thorough clinical examination including general physical examination, neck examination, systemic and gynecological examination was carried out, with special reference to thyroid dysfunction. A provisional clinical diagnosis of DUB was made. Patients with clinical signs and symptoms of thyroid disease were excluded.

All these patients were subjected to routine investigations like Hb%, blood counts, urine. routine, and bleeding and clotting time to rule out coagulation defects. Then all were subjected for serum T3, T4, and TSH estimation. Patients were then grouped into 4 categories: Euthyroid, Subclinical hypothyroid, Hypothyroid, and Hyperthyroid. Patients who had thyroid disease, on hormonal treatment, IUCD users, and bleeding disorders were excluded.

## Inclusion criteria

- All cases provisionally diagnosed to have DUB from puberty to pre-menopause age groups.
- All patients who had major complaints of menstrual disturbances like menorrhagia poly menorrhea, polymenorrhagia, metrorrhagia, and intermenstrual bleeding.

## Exclusion criteria

- Patients who were on drugs or hormones, IUCD users, with overt clinical symptoms of thyroid dysfunction was excluded. History of bleeding disorders was also excluded.

## RESULTS

**Table 1: Distribution of patients according to age.**

Age in years	No. of cases	Percentage
<20 years	18	18
21-30 years	35	35
31-40 years	40	40
41-45 years	07	7
Total	100	100

Maximum number of cases were 40 between the age group of 31 to 40 years whereas the least no of cases were 7 between age group of 41-45 years.

Table 2 represents relationship AUB with parity. Among 100 cases of AUB, 11 were unmarried, 7 were nulliparous, 10 were para one, 25 were para two, para 3 were 26, while para four were 21. In this study maximum number

of cases were multiparous 26% while minimum no of cases were nulliparas.

**Table 2: Distribution of patients according to parity.**

Parity	No. of patients	Percentage
Unmarried	11	11
Nullipara	07	07
1	10	10
s2	25	25
3	26	26
4	21	21
	100	100

Table 3 shows bleeding patterns in AUB the commonest bleeding pattern is menorrhagia 35%, followed by polymenorrhoea 30%.

The least bleeding pattern is inter menstrual bleeding 2%. Patients with age less than 20 years, the most common

bleeding pattern was menorrhagia (55%) followed by polymenorrhoea (22.2%) and also polymenorrhagia (22.2%).

**Table 3: Distribution of patients according to symptoms.**

Type of bleeding	No. of cases	Percentage
Hypomenorrhoea	3	3
Menorrhagia	35	35
Intermenstrual bleeding	2	2
Polymenorrhagia	20	20
Polymenorrhoea	30	30
Acyclical bleeding	10	10
	100	100

In this study menorrhagia is the common bleeding pattern from puberty age groups to pre-menopausal age. The least bleeding pattern was intermenstrual bleeding (metrorrhagia) and acyclical bleeding.

**Table 4: Distribution of patients according to age groups and bleeding patterns.**

Age in years	No. of Cases	Hypo-menorrhoea	Menorrhagia	Metrorrhagia /inter menstrual bleeding	Poly menorrhoea	Poly-menorrhagia	Acyclical bleeding
<20	18	0	10 55.5	0	4 22.2	4 22.2	0 -
21-30	35	0	18 51.4	0	7 20	8 22.8	2 5.7
31-40	40	3 (75%)	18 45	1 2.5%	10 25	6 15	5 12.5
41-45	7	0	2 28.5	1 14.2%	2 28.5	1 14.2	1 14.2
Total	100						

Table 5 shows majority of cases were euthyroid (62%) whereas,16% of patients had profound hypothyroidism with high levels of TSH. 12% of the patients had sub clinical hypothyroid with the history of AUB, while only 2% of patients had hyperthyroidism, although they were clinically asymptomatic.

**Table 5: Distribution of patients according to thyroid function.**

Thyroid Function	No. of cases	Percentage
Euthyroid	70	62
Hypothyroid	16	16
Sub clinical hypothyroid	12	12
Hyperthyroid	02	2
Total	100	

Table 6 represents the relationship of parity to thyroid dysfunction in patients with provisional diagnosis of DUB. Thyroid dysfunction was commonest among unmarried patients about 54.5% followed by multiparous patients 42.8%. The thyroid dysfunction was least common in primipara patients with 20%. The difference

in thyroid function in individual type of parity is not statistically significant.

Table 7 shows the relationship of thyroid dysfunction to different age groups. Thyroid dysfunction was commonest in age groups between 31-40 years 30%. This shows thyroid dysfunction becomes common as patients age advances. Thyroid dysfunction was least common between 20-30 years of age groups. The difference in thyroid functioning in individual age groups is not statistically significant.

Table 8 explains the relationship of hypothyroidism, hyperthyroidism, and subclinical hypothyroidism to different types of clinically diagnosed AUB. Patients with menorrhagia,11.4% had hypothyroidism while in polymenorrhoea and polymenorrhagia patients 25% and 20% were hypothyroid respectively.

Patients who were subclinically hypothyroid were commonly presenting as polymenorrhagia and menorrhagia 66.6% and 74.2% respectively. The least combination was oligo/ hypomenorrhoea patients who had normal

thyroid function except one case of hyperthyroidism who is clinically normal.

**Table 6: Thyroid dysfunction in relation to parity.**

Parity	No. of cases	Euthyroid	Hypothyroid	Sub clinically pothyroid	Hyperthyroid	Total thyroid dysfunction	%
Unmarried	11	6	3	3	-	6	54.5
0	07	4	2	1	-	3	42.8
1	10	8	1	0	1	2	20
2	25	17	3	5	-	8	32
3	26	16	2	7	1	10	38.4
4	21	17	2	1	1	4	19
Total	100					33	

**Table 7: Thyroid dysfunction in different age groups.**

Age in years <20	No. of cases	Euthyroid	Hypothyroid	Subclinical hypo thyroid	Hyper thyroid	Total thyroid
21-30 years	35	25	6	3	1	10
31-40years	40	28	3	8	1	12
41-45 years	7	6	0	1	0	1
Total	100	74	10	14	2	26

**Table 8: Bleeding pattern in hypothyroidism and hyperthyroidism.**

Type of bleeding	No. of cases	Euthyroid	Hypo thyroid	%	Sub clinical hypo thyroid	%	Hyper thyroid	%
Hypomenorrhoea	3	2	66.6%	-	-	-	1	33.3
Menorrhagia	35	26	74.2%	4	11.4	5	14.5	-
Inter menstrual bleeding	2	2	100%	-	-	-	-	-
Polymenorrhoea	20	10	50%	5	25	5	25	1
Polymenorrhagia	30	20	66.6%	6	20	3	10	-
Acyclical bleeding	10	7	70%	-	-	3	30	-

**Table 9: TSH levels and different bleeding patterns.**

TSH levels	No. of cases	Hypo menorrhoea	Menorrhagia	Metrorrhagia	Poly menorrhoea	Poly menorrhagia	Acyclical bleeding
<0.39Mu/l	2	1	-	-	1	-	-
0.4-5.5Mu/l	67	2	2	26	20	10	7
5.7-50mu/l	25	1	1	8	8	5	3
>50Mu/l	6	-	-	4	2	-	-

Table 9 signifies the relation of TSH levels to different types of bleeding pattern. Patients with TSH levels of <0.39mu/l all of them presented with symptoms of oligomenorrhoea.

Patients with TSH levels moderately elevated 5.7-<50 as seen in subclinical hypothyroidism. Patients with TSH levels >50mu/l presented with inter menstrual and polymenorrhoea.

**Table 10: Age pattern in dub with thyroid dysfunction.**

Age in years	No. of patients	Percentage
<20 years	8	25
21-30 years	8	25
31-40 years	11	34.3
41-45 years	5	15.6

Table 10 thyroid dysfunction in relation to age pattern. According to this, thyroid dysfunction was seen more commonly in the age groups between 31 to 40 years which amounts to 34.3% which is less than 25 years at 25%. The least was seen in women between 41-45 years of age. The present study type of menstrual abnormality, hypothyroidism was seen in 17.2% of cases. C. D. Doifode study also shows menorrhagia/ polymenorrhoea as common bleeding pattern. In C. D. Doifode et al 2001 study also shows hypothyroidism in 28.1% of cases.

**Table 11: Hypothyroidism in different bleeding patterns.**

Study	No. of pts presenting with menorrhagia/ polymenorrhoea/ polymenorrhagia	Patients who had hypothyroidism
Present study	87 (74.2)	15 (17.2)
Doifode CD et al <sup>11</sup>	213	60 (28.1)

The present study type of menstrual abnormality, hypothyroidism was seen in 17.2% of cases. Doifode CD study also shows menorrhagia/ polymenorrhoea as common bleeding pattern. In Doifode CD et al study also shows hypothyroidism in 28.1% of cases.

**Table 12: Menorrhagia in hypothyroidism.**

Authors	Menorrhagia
Doifode CD et al <sup>11</sup>	63.30%
Singh et al <sup>7</sup>	44.40%
Willansky and Bernard <sup>8</sup>	100%
Present study	91.4%

This is one more study to compare that menorrhagia is the commonest symptom in hypothyroidism. Doifode CD shows 63.3% of menorrhagia. Cases among all DUB cases. Singh et al shows 44.4% of menorrhagic cases whereas, in Willansky and Bernard 1989 shows 100% menorrhagia as symptom. Present study also shows 91.4% of cases of menorrhagia as a common complaint in patients with hypothyroidism.

## DISCUSSION

This is prospective case control study done at Vanivilas Hospital, Bangalore Medical College and Research Institute, Bengaluru, from April 2017 to March 2018. In this study, 100 women were taken who had AUB from puberty to perimenopause age groups i.e. below 20 yrs, 21-30 yrs, 31-40 yrs, 41-45 yrs. Maximum number of patients in this study belongs to the age groups of 31-40 years. In present study, patients were grouped according to parity unmarried, nulliparous, para 1, para 2, para 3, para 4 and above. The commonest symptom was menorrhagia in 35 patients, polymenorrhoea in 30 patients, polymenorrhagia in 20 patients, and 10 patients had

acyclical bleeding. 2 patients had intermenstrual and oligomenorrhoea. In a study done by Charusheela D doifode et al 2001<sup>11</sup> also, maximum number of patients belonged to the age group 31-40 yrs. 15% were unmarried, 6.67% were nulliparous, 33.33% para 1, 15% were para 2, and 20% were para 3, patients who had menorrhagia were 63.3% and 23.33% had polymenorrhagia.

The maximum number of patients who had total thyroid dysfunction (54.5%) were unmarried. Least thyroid dysfunction was seen among para 4 and above (19.0%). While nulligravida (42.8%), para 1 (20%), para 2 were (32%) and 38.4% were para 3 patients who had thyroid dysfunction. In this study, thyroid dysfunction was common in the age groups of 31-40 years (30%), 16.6% in less than 20 years, 28.5% in 21-30 years and it was least in patients more than 40 years (14.2%).

In present study, commonest menstrual abnormality seen in hypothyroidism was polymenorrhoea (25%), followed by polymenorrhagia (20%), while 11.4% had menorrhagia. Subclinical hypothyroidism was seen in 14% of cases with polymenorrhagia of which 30% of patients were between 32-40 yrs. There were only 3 cases of oligomenorrhoea of which 2 were euthyroid and one had hyperthyroidism. In a study done by SINGH et al<sup>7</sup> 44.4% menorrhagia in hypothyroidism. In a study done by Wilansky and Bernard<sup>8</sup> 100% cases had menorrhagia in hypothyroidism. In present study sub clinical hypothyroidism was seen in 74.4% of menorrhagic cases. In study done by Jaydev Mukerjee et al<sup>12</sup> 100% menorrhagia. In present study 3 cases were oligomenorrhoea out of which only one was hyperthyroid. In study done by Kalyanimukerji et al<sup>13</sup> 10 cases of oligomenorrhoea, 6 pts had hyperthyroidism. Lakshminingh et al study<sup>7</sup> also shows hyperthyroid with oligomenorrhoea.

These results were consistent with most of the similar studies. Both subclinical and profound hypothyroid cases were the commonest thyroid dysfunction and menorrhagia was their commonest menstrual abnormality.

## CONCLUSION

This study concludes that biochemical evaluation of thyroid functioning should be made mandatory in all provisionally diagnosed cases of abnormal uterine bleeding to detect thyroid dysfunction.

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## REFERENCES

1. Davey da, Dewhurst, text book of Obstetrics and Gynecology. chapter 40, 5th ed, 1990; pp 590-600.

2. William J Butler. Normal and abnormal uterine bleeding. In: Telendes Operative Gynecology. 8<sup>th</sup> ed; 1996: 453-473.
3. Nicholson WK, Ellison SA, Grason H, Powe NR. Of ambulatory care use for gynecologic conditions; A national study. *Am J Obstet Gynecol.* 2001;184(4):523-30.
4. Topper YJ. Multiple hormone interactions in the development of mammary gland in vitro. In Proceedings of the 1969 Laurentian Hormone Conference 1970. pp. 287-308.
5. Poppe K, Glinoe D. Thyroid autoimmunity and hypothyroidism before and during pregnancy. *Human Reproduct Update.* 2003;9(2):149-61.
6. Mohanty S, Amruthlal W, Reddy GC, Kusumanjali G, Kanagasabapathy AS, Rao P. Diagnostic strategies for subclinical hypothyroidism. *Indian J Clinic Biochem.* 2008;23(3):279.
7. Singh L, Agarwai CG, Chowdhary SR, Mehra P, Khare R. Thyroid profile in infertile women. *J Obstet Gynecol India.* 1990;40:248.
8. Wilansky DL, Greisman B. Early hypothyroidism in patients with menorrhagia. *Am J Obstet Gynecol.* 1989;160(3):673-7.
9. Danese MD, Powe NR, Sawin CT, Ladenson PW. Screening for mild thyroid failure at the periodic health examination: a decision and cost-effectiveness analysis. *Jama.* 1996;276(4):285-92.
10. Ingbar SH, Wiwams RH. Text book of endocrinology. 7<sup>th</sup> ed; 1985:792.
11. Doifode CD, Fernades K. Study of Thyroid dysfunction in patients with DUB. *J Obstet Gynecol India.* 2001;51(2);93-5.
12. Mukherjee J, Chowdhary NR. A review of 70 cases of puberty menorrhagia. *J Obst and Gynaec of India.* 1986:121.
13. Mukherjee K, Ghosh AK. Thyroid prolactin related menstruation. *J Obstet Gynecol India.* 1985;35:549-2.

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