

## Thyroid Dysfunction in Patient with Abnormal Uterine Bleeding in A Government Medical College/Government General Hospital, Srikakulam, Andhra Pradesh

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Conflict of interest: Nil

### Abstract:

**Introduction:** Thyroid hormone is known to affect reproductive biology. Abnormal uterine bleeding is one of the common presentations in gynecology outpatient departments and thyroid dysfunction is known to affect its progression. This study aims to find the prevalence of thyroid dysfunction in diagnosed cases of abnormal uterine bleeding in patients in Government Medical College, Govt. General Hospital, Srikakulam, A.P.

**Methods:** A Descriptive cross-sectional study was conducted in patients diagnosed with abnormal uterine bleeding in a Government General Hospital, Srikakulam, A.P from January 2023-December 2023. On basis of inclusion and exclusion criteria, 120 cases of abnormal uterine bleeding were included in the study. A blood sample was taken and a thyroid function test was done by chemiluminescence assay on an automated analyzer. Convenient sampling method was used for sample collection. Statistical analysis was done using Statistical Package for the Social Sciences version 17. Point estimate at 95% Confidence.

**Results:** Out of the total cases of abnormal uterine bleeding, 27(22.5%) had thyroid dysfunction, among total cases, 93(77.5%) were euthyroid. The mean age of the patients was 35.5years. Among thyroid dysfunction, 8(6.7%) were hypothyroid, 15 (12.5%) were subclinical hypothyroid, and 4 (3.3%) were hyperthyroid.

**Conclusions:** Thyroid dysfunction was common among patients with abnormal uterine bleeding; with subclinical hypothyroid is being the most common type.

**Keywords:** Hypothyroidism, Menorrhagia, Thyroid Function Tests.

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### Introduction

Abnormal uterine bleeding (AUB) is any uterine bleeding with deviation from normal volume, duration, regularity or frequency. AUB constitutes about 30% of gynaecology related complaints. A variety of menstrual disabilities are identified to be associated with thyroid dysfunction. Both hypo as well as hyperthyroidism is associated with a variety of changes in reproductive function including delayed onset of puberty, anovulatory cycles and abnormally high foetal wastage. Clinical experience show increased menstrual flow to be the most common reproductive system manifestation of hypothyroidism.

**Aims:** To find out Thyroid dysfunction in cases of abnormal uterine bleeding

### Objectives

1. To evaluate and detect the thyroid dysfunction in patients with abnormal uterine bleeding (all

age groups) - especially in menorrhagic patients.

2. To correlate different menstrual patterns with varieties of thyroid dysfunction

### Methods

This is a Prospective study that was carried out in the department of Gynecology at Government Medical College/GGH Srikakulam for 12 months from January 2023 to December 2023.

Present study is aimed to establish the role of thyroid dysfunctions in relation to menstrual disturbances. This study was carried out in the department of Obst & Gynaecology, Government Medical College, and Srikakulam. 120 women who were given clinically the provisional diagnosis as abnormal uterine bleeding during the period from January 2023 to December 2023 were selected for the study.

**Criteria for Selection of cases:**

1. All cases provisionally diagnosed to have abnormal uterine bleeding from puberty to premenopausal age groups.
2. All patient with major complaint of menstrual disturbances e.g. Menorrhagia, polymenorrhoea, polymenorrhagia, metrorrhagia, metrorrhagic, metrorrhagia, oligo and hypomenorrhoea.
3. Patients who were on drugs or hormones, IUCD users, with overt clinical symptoms of thyroid dysfunction, history of bleeding disorders were excluded.
  - A detailed history was obtained with special relevance to age and bleeding pattern.
  - Onset, duration, amount of bleeding, complaints related to thyroid dysfunction was noted in detail.
  - A thorough clinical examination including general physical examination, neck examination, gynecological, and systemic examination was carried out, with special reference to thyroid dysfunction.
  - A provisional clinical diagnosis of AUB was attained. Patients with clinical signs and symptoms of thyroid disease were excluded.
  - All these patients were subjected to routine investigations like hemoglobin percentage, blood counts ,urine examination for albumin, sugar, microscopy, bleeding time , clotting time,(to rule out coagulation defects).
  - Then all patients were subjected for serum T3, T4 and TSH estimation.

T3 and T4 were assayed by competitive chemiluminescent immunoassay.

TSH was estimated by ultrasensitive fully automated ADVIA centaur, Bayer USA chemiluminescent system using two-sites and which, and chemiluminescent immunoassay.

The following were noted.

- Level of T3.
- Level of T4.
- Level of TSH

Patients were then grouped into 4 categories

- Euthyroid
- Subclinical Hypothyroid
- Hypothyroid
- Hyperthyroid

Patients found to have thyroid dysfunction were referred to physician for further management.

Inclusion criteria for selection of patients were diagnosed case of AUB.

Exclusion criteria were patients on thyroid medication, under hormonal treatment, contraceptive devices, pregnant patients, bleeding disorders, abortion history with in three months, patient with known liver disease and known cases of cancer of genital organs

**Table- Normal Values****Table 1:**

| Findings                                     | Interpretation           |
|--|--------------------------|
| ALL T3,T4 and TSH within normal range        | EUTHYROID                |
| T3-<2.5pg/ml, T4-<0.89ng/dl,TSH->5.12iu/ml   | HYPOTHYROID              |
| T3 &T4 with in normal range & TSH >5.12IU/ML | SUBCLINICAL HYPOTHYROID  |
| T3 >4.16pg/ml, T4 >1.76ng/dl &TSH <0.34IU/ML | HYPERTHYROID             |
| T3&T4 Normal range, &TSH<0.34 IU/ML          | SUBCLINICAL HYPERTHYROID |

**Results**

Out of total cases of abnormal uterine bleeding 27 {22.5%} had thyroid dysfunction, among total cases 93 {77.5} were euthyroid. The mean age of the patient was 35.5 years. Among the thyroid dysfunction 8 [6.7%] were hypothyroid, 15[12.5%] were subclinical hypothyroid, and 4 [3.3%] were hyperthyroid. The patients from the age group 31-40 years were more common, 34 [28.3%] followed by age group <20 years,27[22.8%] .

**Table 2: Age Wise Distribution of Occurrence of AUB**

| Age Group | Percent |
|-----------|---------|
| <20 years | 22.5%   |
| 21-30     | 28.3%   |
| 31-40     | 36.7%   |
| 41-45     | 12.5%   |

**Table 3: Distribution based on thyroid function status**

|              | Frequency | Percent |
|--------------|-----------|---------|
| Euthyroid    | 93        | 77.5%   |
| Hypothyroid  | 8         | 6.7%    |
| Subclinical  | 15        | 12.5%   |
| Hyperthyroid | 4         | 3.3%    |
| Total        | 120       | 100%    |

**Table 4: Thyroid dysfunction and AUB**

|                | Euthyroid |      | Hypothyroid |      | Subclinical |      | Hyper |      | Total |
|----------------|-----------|------|-------------|------|-------------|------|-------|------|-------|
|                | No.       | %    | No.         | %    | No.         | %    | No.   | %    | No.   |
| Acyclical(MPH) | 11        | 64.7 | 4           | 23.5 | 2           | 11.8 | 0     | 0    | 17    |
| Hypomenorhea   | 6         | 100  | 0           | 0    | 0           | 0    | 0     | 0    | 6     |
| Menorrhagia    | 30        | 75   | 2           | 5    | 8           | 20   | 0     | 0    | 40    |
| Metrorrhagia   | 4         | 100  | 0           | 0    | 0           | 0    | 0     | 0    | 4     |
| Oligomenorhea  | 16        | 69.6 | 2           | 8.7  | 1           | 4.3  | 4     | 17.4 | 23    |
| Polymenorrhagi | 20        | 95.2 | 0           | 0    | 1           | 4.8  | 0     | 0    | 21    |
| Polymenorrhoe  | 6         | 66.7 | 0           | 0    | 3           | 33.3 | 0     | 0    | 9     |
| Total          | 89        | 74.2 | 9           | 7.5  | 19          | 15.8 | 3     | 2.5  | 120   |

In the present study it was observed that thyroid dysfunction was commonest in acyclical MPH with 23.5% presenting with hypothyroidism and 11.8% presenting with sub clinical hypothyroidism followed by polymenorrhagia where in 33.3% had sub clinical hypothyroidism. The difference in thyroid

function in comparison to age group was observed to be statistically significant chi square=37.72 p=0.004. Patient who were hyperthyroid presented with oligomenorrhagia Sub clinical hypothyroidism had menorrhagia and polymenorrhagia as most common bleeding pattern.

**Table 5: TSH levels and different bleeding patterns**

| TSH Level mlU/L | Acyclical MPH | Hypomenorrhoea | Menorrhagia | Metrorrhagia | Oligomenorrhoea | Polymenorrhagia | Polymenorrhoea | No of cases |
|-----------------|---------------|----------------|-------------|--------------|-----------------|-----------------|----------------|-------------|
| <0.39           | 0             | 0              | 0           | 0            | 4               | 0               | 0              | 4           |
| 0.4 -           | 11            | 6              | 30          | 4            | 16              | 20              | 6              | 93          |
| 5.7 -           | 2             | 0              | 8           | 0            | 1               | 1               | 3              | 15          |
| >50             | 4             | 0              | 2           | 0            | 2               | 0               | 0              | 8           |
| <b>total</b>    | 17            | 6              | 40          | 4            | 23              | 21              | 9              | 120         |

TSH levels were compared in relation to different bleeding pattern.

Patients with TSH<0.39ml U/L presented with oligomenorrhoea.

Inpatients with TSH levels between 5.7-50mlU/subclinical hypothyroidism majority of patients 53.3% presented with menorrhagia,

followed by 20% who had polymenorrhagia and 13.3% had acyclical MPH. Inpatients with profoundly elevated TSH levels>50mlU/L, 50% patients had acyclical MPH. 25% each had oligomenorrhagia and menorrhagia respectively Comparison of bleeding patterns with TSH was found to be statistically significant chi-square = 37.73, p=0.004.

**Table 6: T3 levels and different bleeding patterns**

| T3 Levels    | Acyclical MPH | Hypomenorrhoea | Menorrhagia | Metrorrhagia | Oligomenorrhoea | Polymenorrhagia | Polymenorrhoea | No of cases |
|--------------|---------------|----------------|-------------|--------------|-----------------|-----------------|----------------|-------------|
| <=60         | 2             | 0              | 2           | 0            | 2               | 0               | 0              | 6           |
| 61-200       | 15            | 6              | 38          | 4            | 18              | 21              | 9              | 111         |
| >200         | 0             | 0              | 0           | 0            | 3               | 0               | 0              | 3           |
| <b>total</b> | 17            | 6              | 40          | 4            | 23              | 21              | 9              | 120         |

T3 levels were compared in relation to different bleeding pattern. Patients with T3<60ng/dl, 33.3% each presented with a cyclical MPH, oligomenorrhagia and menorrhagia respectively. In patients with T3 levels>200ng/dl all patients had oligomenorrhagia In patients with T3 levels between 61-200ng/dl,34.2% had menorrhagia,18.9% had polymenorrhagia ,16.2% had oligomenorrhagia Comparison of bleeding patterns with T3 was not found to be statistically significant chi square=17.64,p=0.127.

Table 7:

| T4 levels    | Acyclical IMPH | Hypomenorrhea | Menorrhagia | Menorrhagia | Oligomenorrhea | Polymenorrhagia | Polymenorrhea | No of case |
|--------------|----------------|---------------|-------------|-------------|----------------|-----------------|---------------|------------|
| <4.5         | 2              | 0             | 2           | 0           | 2              | 1               | 0             | 7          |
| 4.6-12       | 15             | 6             | 38          | 4           | 17             | 20              | 9             | 109        |
| >12          | 0              | 0             | 0           | 0           | 4              | 0               | 0             | 4          |
| <b>total</b> | 17             | 6             | 40          | 4           | 23             | 21              | 9             | 120        |

T4 levels were compared in relation to different bleeding pattern. Patients with T4<4.5 microgram/dl, 28.6% each presented with a cyclical MPH, oligomenorrhea and menorrhagia respectively.

In patients with T4levels>12microgram/dl, 100% had oligomenorrhea. In patients with T4 levels between 4.6-12microgram/dl,34.9% had menorrhagia, 18.3% had polymenorrhagia, 13.8% had acyclical MPH and 15.6% had oligomenorrhea.

### Discussion

Abnormal uterine bleeding is one of the common finding among females of reproductive age. Among the wide spectrum of causes, from structural causes like polyps, leiomyoma etc. to non-structural causes, thyroid dysfunction is found as occult cause which may be readily missed out. Thyroid dysfunction, since being common in women and has been known to affect all events right from menarche to menopause, cannot be overlooked while treating any forms of menstrual disturbances.<sup>9</sup>

Our study consisted mainly of women from age group 31-40(36.7%) and age group 21-30(28.3%). In this study, 22.5% of total cases of AUB had thyroid dysfunction. Rest 77.5% of total cases of AUB were euthyroid. Out of cases with thyroid dysfunction, Subclinical hypothyroid was most common followed by hypothyroid and hyperthyroid.

In the present study it was observed that thyroid dysfunction was commonest in Acyclical MPH with 23.5% and presenting with hypothyroidism and 11.85 presenting with sub clinical hypothyroidism, followed by polymenorrhea where in 33.3% had subclinical hypothyroidism.

Patient who were hyperthyroid presented with oligomenorrhea.

Subclinical hypothyroidism had Menorrhagia and hypomenorrhea as most common bleeding pattern.

### Summary

120 cases clinically diagnosed as AUB selected from MIMS hospital Vizianagaram over a period of 18months were studied Study was aimed to evaluate and detect thyroid dysfunction in patients with provisional diagnosis of AUB and patients

showing thyroid dysfunction were referred to physician for further management.

1. In the present study thyroid dysfunction was commonest in 31-40 years
2. Thyroid dysfunction was commonest in nulliparous-3.3
3. 7.5% Commonest bleeding pattern was menorrhagia (33.3%)
4. The predominant thyroid dysfunction was subclinical
4. Hypothyroidism 12.5%, hypothyroidism in 6.7% and 3.3% were hyperthyroid
5. Hypothyroid patients can also present with oligomenorrhoea but it should be kept in mind that hyperthyroid patients predominantly Present with oligomenorrhoea
6. oligomenorrhoea was seen in patients with TSH value<0.39mIU/L or when profoundly high Le,>50mIU/L on the other hand menorrhagia was mostly seen in patients with TSH values(5.7-<50mIU/L)moderately elevated

### Conclusions

Our study concludes that thyroid dysfunction should be considered as an important etiological factor for menstrual abnormality. Thus biochemical evaluation of T3, T4 and TSH estimations should be made mandatory in AUB cases to detect apparent and occult thyroid dysfunction. These patients with thyroid dysfunction if given medical treatment avoid necessity of hormonal treatment or surgical intervention.

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