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## Study of abnormal uterine bleeding associated with thyroid disorders

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### Abstract

**Background:** Abnormal uterine bleeding from the vagina that usually occurs when ovary do not release egg and if it occurred during fertile years leads to various complication like anemia, Infertility etc. and among all causes one of the most common cause of abnormal uterine bleeding is disturbance in level of Thyroid hormones.

**Methods:** 100 female Patients of age group between 20-45 having complain of Abnormal uterine bleeding visited at Gynec OPD of our institute were included in this study. fasting blood samples was taken from all participants and samples were analyzed for Thyroid function test (TSH, T3, T4) at central laboratory of our hospital. Obtained data was analyzed statistically by using prizam software.

**Results:** The bleeding abnormality that is found most of the women is polymenorrhagia and menorrhagia. 32% of patients who were studied, had thyroid dysfunction, of which 18% of patients had subclinical hypothyroidism, 11% of patients had hypothyroidism and only 3% of patients had hyperthyroidism.

**Conclusions:** Our study concludes that thyroid dysfunction should be considered as an important etiological factor for menstrual abnormality especially during fertile years.

**Keywords:** Menorrhagia, abnormal uterine bleeding, thyroid dysfunction

### Introduction

Abnormal uterine bleeding is when bleeding occurs from vagina apart from regular menstrual period. Many pathological and physiological causes are responsible for this as per PALM-COEIN Classification including Endocrinal disorders etc<sup>[1, 2]</sup>.

Among them hormonal disturbance is the major cause of Abnormal uterine bleeding and that is due to decreased level of serum progesterone level and that lead to reduced synthesis of prostaglandin particularly PGF2 that is responsible for vasoconstriction of uterine bleed vessels<sup>[3]</sup>.

Thyroid hormone play important role in regulation of menstrual cycle as well as fertility. Both hypothyroidism and hyperthyroidism has a role in menstrual irregularity like menorrhagia, oligomenorrhoea and polymenorrhoea.

Usually ovulation occurs during 14th day of menstrual cycle and if there is anovulation (Absence of ovulation) then it is the most common cause of abnormal bleeding particularly during puberty and perimenopausal women.

Sometime psychological factor's like obesity, anorexia, severe exercise etc are responsible for AUB<sup>[4, 5]</sup>.

This abnormal uterine bleeding can be best diagnosed by taking personal and family history of the patient with good clinical examination. Estimation of various endocrine hormones like Thyroid Function test, Prolactin, Follicle stimulating hormone (FSH), Luteinizing hormone (LH) and hemoglobin is important for assessment of abnormal uterine bleeding.

Hence, The present study was done to see the association of thyroid dysfunction with abnormal uterine bleeding.

### Methodology

This study was conducted at Department of Obstetrics & Gynaecology, MGM medical college, Indore, M.P. India from year 2018-2019.

The study includes total 100 cases of AUB (Abnormal uterine bleeding) of age group between 20-45 year attended in our gynec OPD.

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**Exclusion criteria:** Patients with known case of thyroid disorder, IUCD/OC pills user, carcinoma of any organ, autoimmune disorder, and coagulation disorder were excluded from the study.

All these patients were subjected to routine investigations like complete blood count (CBC), bleeding time (BT), clotting time (CT) to rule out coagulation defect.

Then all patients were subjected to estimation of serum T3, T4, TSH.

T3, T4, TSH estimation done by Chemiluminescence method.

BT, CT done by manual method. (Capillary method) complete blood count of all participants done in fully automatic 3 part hematology cell counter along with Quality control material.

Based on TSH value all participants were categorized into four groups as follows:

1. Euthyroid
2. Subclinical hypothyroid
3. Hypothyroid
4. Hyperthyroid

Reference range of S.TSH is 0.5-5 micro-IU/ml, T4 4.4-12.5 microgram/dl and T3 0.9-1.95 ng/ml.

- 1) Euthyroid: No symptom of hypothyroidism, Normal thyroid function level
- 2) Subclinical hypothyroid: No symptom/Mild symptom of hypothyroidism, Mild elevation of S.TSH(Between 5-10 micro IU/ml) and Low level of T3/T4
- 3) Hypothyroid: All symptom of hypothyroidism, severe elevation of S.TSH(More than 10 micro IU/ml) and Low level of T3/T4

## Results

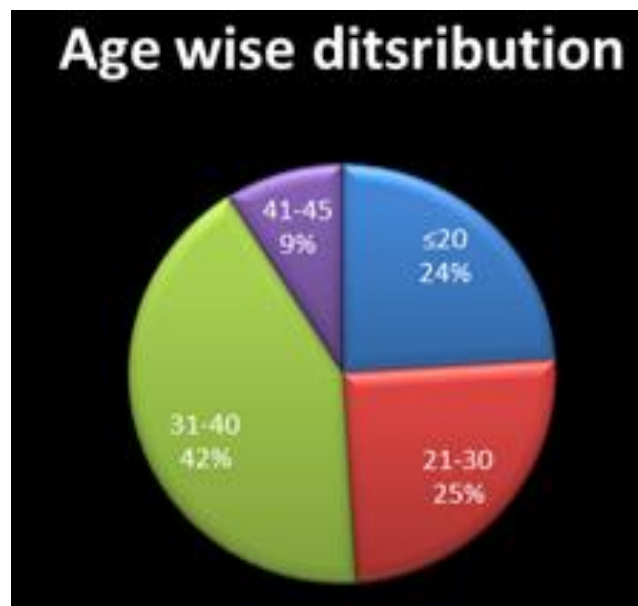
Dysfunctional uterine bleeding is one of the most frequently encountered condition in gynaecological practice.

The following tables will analyse (Table 1-4):

1. Age
2. Symptom of DUB
3. Parity
4. Association with thyroid dysfunction

**Table 1:** Age wise distribution of participants

| Age group (years) | No. of cases | Percentage |
|-------------------|--------------|------------|
| ≤20               | 24           | 24%        |
| 21-30             | 25           | 25%        |
| 31-40             | 42           | 42%        |
| 41-45             | 09           | 09%        |
| Total             | 100          | 100%       |



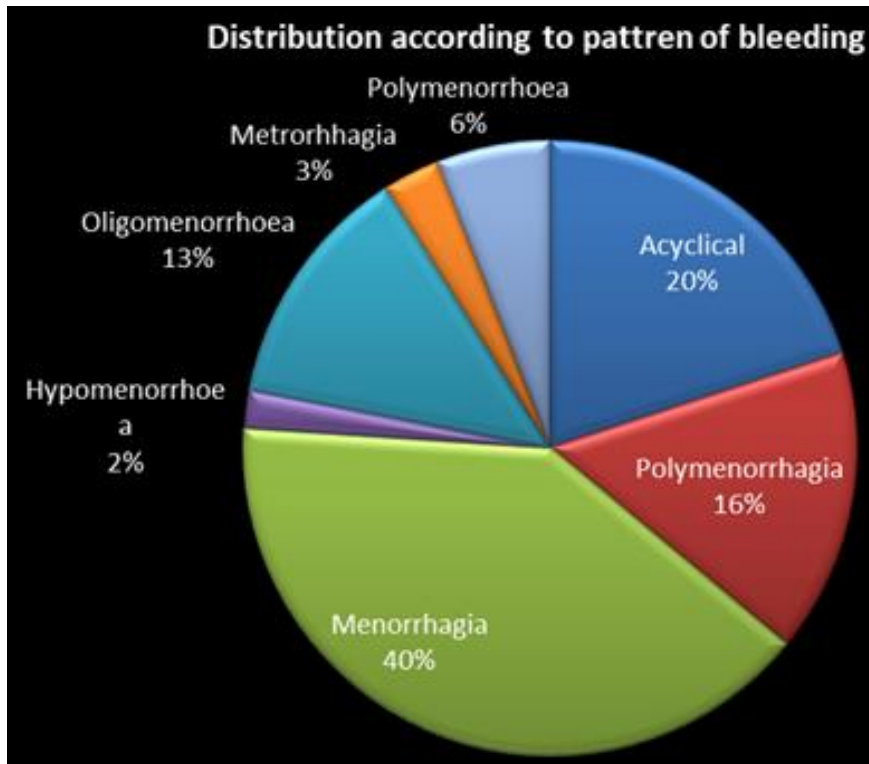
**Graph 1:** Graphical presentation of participant according to age

**Table 2:** Parity wise distribution of participants

| Parity    | No of patients | Percentage (%) |
|-----------|----------------|----------------|
| Unmarried | 17             | 17%            |
| 0         | 11             | 11%            |
| 1         | 10             | 10%            |
| 2         | 25             | 25%            |
| 3         | 19             | 19%            |
| 4         | 11             | 11%            |
| 5         | 07             | 07%            |
|           | 100            | 100%           |

**Table 3:** Distribution of participants according to Bleeding pattern

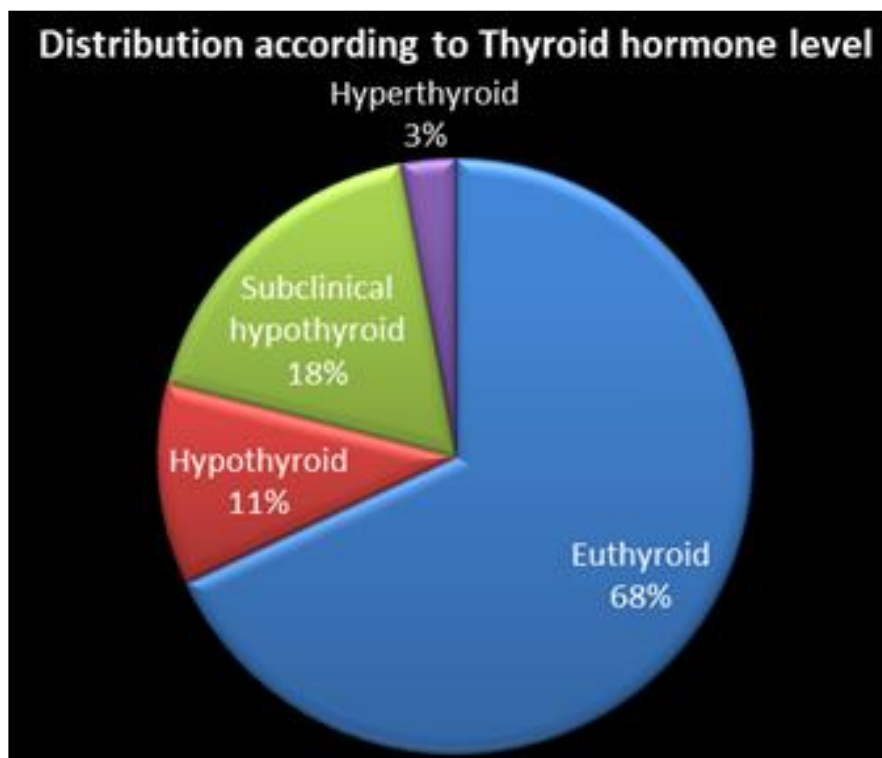
| Type of bleeding | No. of cases | Percentage |
|------------------|--------------|------------|
| Acyclical        | 20           | 20%        |
| Polymenorrhagia  | 16           | 16%        |
| Menorrhagia      | 40           | 40%        |
| Hypomenorrhoea   | 2            | 2%         |
| Oligomenorrhoea  | 13           | 13%        |
| Metrorrhagia     | 3            | 3%         |
| Polymenorrhoea   | 06           | 6%         |
| Total            | 100          | 100%       |



**Graph 2:** Graphical Distribution of participants according to Bleeding pattern

**Table 3:** Distribution of participants according to Thyroid function

| Thyroid function        | No. of cases | Percentage |
|-------------------------|--------------|------------|
| Euthyroid               | 68           | 68%        |
| Hypothyroid             | 11           | 11%        |
| Subclinical hypothyroid | 18           | 18%        |
| Hyperthyroid            | 3            | 3%         |
| Total                   | 100          | 100%       |



**Graph 3:** Graphical Distribution of participants according to Thyroid function

**Table 4:** Bleeding pattern in hypothyroid and hyperthyroid group

| Type of bleed   | No. of cases | Eu-thyroid | %     | Hypo-thyroid | %     | Subhypo-thyroid | %      | Hyper-thyroid | %      |
|-----------------|--------------|------------|-------|--------------|-------|-----------------|--------|---------------|--------|
| Acyclical       | 20           | 16         | 80%   | 2            | 11.1% | 2               | 11.1%  | -             | -      |
| Hypomenorrhoea  | 2            | 2          | 100%  | -            | -     | -               | -      | -             | -      |
| Menorrhagia     | 40           | 27         | 67.5% | 8            | 20%   | 5               | 12.5%  | -             | -      |
| Metrorrhagia    | 3            | 3          | 100%  | -            | -     | -               | -      | -             | -      |
| Oligomenorrhoea | 13           | 3          | 23%   | 8            | 61.5% | 2               | 15.38% | 2             | 15.38% |
| Polymenorrhagia | 16           | -          | -     | 14           | 87%   | 1               | 6.25%  | 1             | 6.25%  |
| Polymenorrhoea  | 6            | -          | -     | 3            | 50%   | 3               | 50%    | -             | -      |

## Discussion

Menstrual irregularity is a common gynecological problem and it affects 30% of the women during reproductive period. Many etiological factors are responsible for that and among them hormonal level changes is a profound cause of it<sup>[6]</sup>.

10% of cases occur in women who are ovulating, but progesterone secretion is prolonged because estrogen levels are low. This causes irregular shedding of the uterine lining and break-through bleeding. Some evidence has associated Ovulatory DUB with more fragile blood vessels in the uterus.

It may represent a possible endocrine dysfunction, resulting in menorrhagia or metrorrhagia. Mid-cycle bleeding may indicate a transient estrogen decline, while late-cycle bleeding may indicate progesterone deficiency.

Anovulation is the cause in majority of women having abnormal uterine bleeding that usually occurs during puberty and perimenopausal period. In such cases, women do not properly develop and release a mature egg. When this happens, the corpus luteum, which is a mound of tissue that produces progesterone, does not form. As a result, estrogen is produced continuously, causing an overgrowth of the uterus lining and consequent bleeding.

Abnormal Uterine bleeding is a frequent debilitating symptom in gynaecological practice resulting in need for repeated curettage and hysterectomy with its attendant morbidity and mortality. The aetiology of abnormal uterine bleeding is very diverse<sup>[7]</sup>.

Hypothyroidism one of the common causes of excessive menstrual blood loss and menstrual irregularities. The onset of hypothyroidism is so insidious that classic clinical manifestation may take months and years to appear. Furthermore menorrhagia may be the only presenting complaint in hypothyroid women<sup>[8]</sup>. In this study, we found an association in the occurrence of menorrhagia in hypothyroid women is high. In a study by Andrew D Weeks 2000, 56% had menstrual disturbances and the most common complaint was menorrhagia (36%).<sup>[9]</sup>

Col P Singh *et al.* 2007, in their analysis of menstrual dysfunction among hypothyroid women stated menorrhagia was seen in 32.4% of hypothyroid women<sup>[10]</sup>.

The overall prevalence of thyroid dysfunction in the present study was 29%. This correlates with other studies; Prentice *et al.* medical management of menorrhagia stated 36% of women with thyroid abnormalities had menstrual dysfunction<sup>[11]</sup>.

In another study by Wilansky *et al.* 1999 had 22% prevalence among patients with thyroid disorder

Our study concludes that thyroid disorder should be considered as an important aetiological factor for menstrual abnormality<sup>[12]</sup>. Thus biochemical evaluation T3, T4 and TSH estimations should be made mandatory in DUB cases to detect profound and subclinical thyroid dysfunction.

## Conclusion

Our study concludes that thyroid dysfunction should be considered as an important etiological factor for menstrual abnormality especially during fertile period while evaluating

cases of AUB. These patients with thyroid dysfunction, if given medical treatment, it is possible to avoid unnecessary hormonal treatment and costly surgical interventions.

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## Declarations

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Conflict of interest: None

Ethical approval: Taken prior to conduction of study.

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