



**ORIGINAL RESEARCH PAPER**

**Obstetrics & Gynaecology**

**ABNORMAL UTERINE BLEEDING -A PROSPECTIVE STUDY**

**KEY WORDS:**

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**ABSTRACT**

**Abnormal uterine bleeding (AUB)** is vaginal bleeding from the uterus that is abnormally frequent, last excessively long, is more than normal, or is irregular. Vaginal bleeding during pregnancy is excluded. Iron deficiency anemia may occur and quality of life may be negatively effected. The underlying causes may include ovulation problems, fibroids, growth of endometrium, uterine polyps, underlying bleeding problems, side effects from birth control pills, malignancy. More than one category of causes may apply in an individual case. The first step in work-up is to rule out a pregnancy or tumor. Medical imaging or hysteroscopy may help with the diagnosis. Treatment depends on the underlying cause. Treatment, may include NSAIDS, tranexamic acid, hormonal birth control, LNG IUS, gonadotropin-releasing hormone (GnRH) agonists, and surgery such as endometrial ablation or hysterectomy. AUB affects about 20% of reproductive aged women.

**INTRODUCTION**

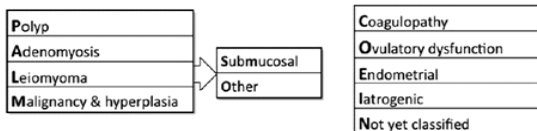
Menstruation is considered as normal when uterine bleeding occurs every 21-35 days and is not excessive, the normal duration of menstrual bleeding is between 2 to 7 days. Abnormal uterine bleeding occurs when either the frequency or quantity of uterine bleeding differs from that mentioned above or the women has spotting in between her menstrual period.

Perimenopause is "the period immediately prior to the menopause (when the endocrinologic, biologic and clinical features of approaching menopause commence) and the first year after menopause", which may be diagnosed retrospectively. The number of women seeking medical attention for peri and post menopausal bleeding has been increased.

Therefore accurate diagnosis of causative factor of AUB is of utmost importance in this age group so that appropriate management can be established.

**Causes of abnormal uterine bleeding (FIGO Classification): PALM**

**COEIN CLASSIFICATION:**



Evaluation of AUB ideally should start with medical history, discussion of possible contributing factors, and a detailed physical examination are usually necessary. A variety of diagnostic techniques are available for determining the cause of abnormal uterine bleeding and is traditionally based on histological diagnosis established through either Dilatation and curettage or Endometrial biopsy. Because these diagnostic procedures do not detect all endometrial abnormalities and D & C is an invasive procedure associated with surgical risks, expense, postoperative pain, and need for operative anaesthesia, other suitable substitutes were evaluated.

Hysteroscopy allows direct visualization of the uterine cavity and the abnormalities can be immediately biopsied. The combination of hysteroscopy and endometrial sampling appears to be superior to D&C alone in the assessment of the uterine cavity. However hysteroscopy is an invasive procedure that is associated with

discomfort and is generally performed under anaesthesia, more expensive and technically challenging than TVS or SIS.

Ultrasound is a procedure which uses high-frequency sound waves to produce a picture of the pelvic structures. This is the most commonly employed imaging method for the pelvic organs and does not involve the use of x-rays but it cannot differentiate between sessile & pedunculated lesions.

CT and MRI have limitations for evaluating intracavitary lesions because they need high medical expense due to the use of expensive equipment.

Abnormalities of the endometrium may be detected by a hysterosalpingogram (HSG). This entails the slow injection of an iodine-containing solution into the uterine cavity under x-ray guidance, so that the contours of the endometrium and fallopian tubes can be visualized, But it requires hospitalization which limits its use.

Transvaginal sonography can identify myomas and thickened endometrium but is unable to differentiate between the potential etiologies of thickened endometrium, polyps, submucous myomas, and homogeneously thickened endometrium.

So Intrauterine infusion of saline solution during TVS is a new diagnostic technique in which uterine cavity is distended, there by enabling visualization of the endometrial surface. Since Saline infusion sonography appears to be less painful for patient than in hysteroscopy and is performed quickly, it might be a useful, procedure and is also more accurate in diagnosing submucous fibroids and endometrial polyps in the patients of abnormal uterine bleeding than is TVS.

This present study was undertaken to compare the diagnostic accuracy of Transvaginal sonography and Saline infusion sonohysterography in women with abnormal uterine bleeding.

**AIMS AND OBJECTIVES**  
**Aims**

To evaluate the accuracy of Transvaginal Sonography (TVS) and Saline Infusion Sonohysterography (SIS) in diagnosing endometrial abnormalities in perimenopausal women with abnormal uterine bleeding.

**Objectives**

- The study is to be done in women of perimenopausal age 36-54 years with abnormal uterine bleeding and fulfilling the selective criteria.
- The history is taken and all these patients will undergo routine necessary examinations and has investigation done.

- All the selected patients are subjected to undergo the procedure of transvaginal sonography and saline infusion sonohysterography and the findings are noted.
- To compare the accuracy in diagnosing the uterine cavity abnormalities by saline infusion sonohysterography over transvaginal sonography.
- To see the statistical correlation between saline infusion sonohysterography over transvaginal sonography.

**MATERIALS AND METHODS**

The present study was conducted at the department of obstetric & gynecology RMMCH, Annamalai University. It included 60 patients who presented with abnormal uterine bleeding (ie) menorrhagia, metorrhagia, menometorrhagia who underwent diagnostic trans vaginal sonography and saline infusion sonohysterography recruited from the attendees of gynecological inpatients during the period from December 2011 to December 2013.

**Inclusion criteria:**

Perimenopausal women with abnormal uterine bleeding .

**Exclusion criteria:**

- Pregnant cases
- Women on any form of hormonal treatment
- Case with blood dyscrasias
- Acute vaginal infection or PID
- IUCD associated with menorrhagia
- Case with endocrinological disorder.

**Methodology**

60 patient who fulfilled inclusion and exclusion criteria were included in this study.

A complete, detailed history was obtained with regard to age of the women, parity index, bleeding patterns ,duration, any contraceptive use, associated gynecological symptoms like vaginal discharge, obstetric history, medical, surgical history, H/O exogenous drug /hormonal intake.

**RESULTS**

**Table (1) : Patient characteristic (Age)**

|     | Mean | Std. Deviation | Range | Minimum | Maximum |
|-----|------|----------------|-------|---------|---------|
| Age | 46.8 | 4.32           | 14    | 32      | 51      |

**Table (2) : Menstrual pattern of the patients**

|                 | Number of cases | Percent |
|-----------------|-----------------|---------|
| Menorrhagia     | 29              | 48.3    |
| Metorrhagia     | 17              | 28.3    |
| Menometorrhagia | 14              | 23.3    |
| Total           | 60              | 100.0   |

**Table (3) : Duration**

|               | Number of cases | Percent |
|---------------|-----------------|---------|
| Below 1 year  | 52              | 86.7    |
| 1 to 2 years  | 5               | 8.3     |
| Above 2 years | 3               | 5.0     |
| Total         | 60              | 100.0   |

**Table (4) : Menstrual History Present**

|            | Number of cases | Percent |
|------------|-----------------|---------|
| Irregular  | 28              | 46.7    |
| Regular    | 29              | 48.3    |
| Continuous | 3               | 5.0     |
| Total      | 60              | 100.0   |

**Table (5) : ET - Trans Vaginal Ultrasound**

|             | Number of cases | Percent |
|-------------|-----------------|---------|
| Below 10 mm | 45              | 75.0    |
| 11 to 20 mm | 11              | 18.3    |
| Above 20 mm | 4               | 6.7     |
| Total       | 60              | 100.0   |

**Table (6) : ET - Saline Infusion Sonohysterography**

|             | Number of cases | Percent |
|-------------|-----------------|---------|
| Below 10 mm | 40              | 66.7    |
| 11 to 20 mm | 13              | 21.7    |
| Above 20 mm | 7               | 11.7    |
| Total       | 60              | 100.0   |

**Table (7): Comparison of endometrial thickness (mm) measured by TVUS and SIS**

|      | TVUS   | SIS  |
|------|--------|------|
| No   | 60     | 60   |
| Mean | 11.6   | 13.8 |
| SD   | 4.42   | 4.92 |
| P    | <0.001 |      |

Double layer endometrial thickness was evaluated using TVUS and SIS. Regarding SIS, endometrial thickness ranged between 2 mm and 20.3 mm. The mean endometrial thickness SD was 13.8 4.92. TVUS revealed that endometrial thickness ranged between 3 mm and 22 mm with mean SD was 11.6 4.42.

**Table (8) : Findings according to Trans Vaginal Ultrasound**

|   | Number of cases | Percent |
|---|-----------------|---------|
| Normal endometrium (proliferative or secretory) | 30              | 50.0    |
| Polyp   | 7               | 11.7    |
| Hyperplasia                                     | 6               | 10.0    |
| Submucous fibroid                               | 7               | 11.7    |
| Intramural                                      | 7               | 11.7    |
| Atrophy   | 3               | 5.0     |
| Total   | 60              | 100.0   |

**Table (9) : Findings according to Saline Infusion Sonohysterography**

|                   | Number of cases | Percent |
|-------------------|-----------------|---------|
| Normal            | 20              | 33.3    |
| Polyp             | 12              | 20.0    |
| Hyperplasia       | 7               | 11.7    |
| Submucous fibroid | 11              | 18.3    |
| Intramural        | 6               | 10.0    |
| Atrophy           | 4               | 6.7     |
| Total             | 60              | 100.0   |

**Table (10): Diagnostic values of Sensitivity and specificity of TVUS and SIS for each intrauterine lesion**

|                          | Sensitivity | Specificity | PPV   | NPV   | DA    | P     |
|--------------------------|-------------|-------------|-------|-------|-------|-------|
| <b>Polyp</b>             |             |             |       |       |       |       |
| TVUS                     | 69.4%       | 75.6%       | 71.3% | 83.4% | 74.3% | <0.01 |
| SIS                      | 75.8%       | 78.4%       | 75.2% | 85.7% | 79.2% |       |
| <b>Hyperplasia</b>       |             |             |       |       |       |       |
| TVUS                     | 72.4%       | 65.8%       | 79.4% | 83.1% | 78.3% | <0.01 |
| SIS                      | 79.1%       | 72.4%       | 82.3% | 89.4% | 81.2% |       |
| <b>Submucous fibroid</b> |             |             |       |       |       |       |
| TVUS                     | 79.1%       | 81.3%       | 75.4% | 81.2% | 74.2% | <0.01 |
| SIS                      | 81.3%       | 91.2%       | 87.3% | 92.4% | 89.4% |       |
| <b>Intramural</b>        |             |             |       |       |       |       |
| TVUS                     | 75.1%       | 69.3%       | 76.9% | 86.2% | 71.3% | <0.01 |
| SIS                      | 83.3%       | 79.3%       | 84.2% | 92.2% | 88.9% |       |
| <b>Atrophy</b>           |             |             |       |       |       |       |
| TVUS                     | 42.6%       | 57.2%       | 62.6% | 71.2% | 45.9% | <0.01 |
| SIS                      | 76.3%       | 82.3%       | 79.4% | 84.3% | 79.2% |       |

TVUS, Trans Vaginal Ultrasound; SIS, Saline Infusion Sono hystero graphy; PPV, Positive predictive value; NPV, negative predictive value; DA, diagnostic accuracy.

**Table (11): Sensitivity and specificity of TVUS and SIS in detecting of endometrial polyps**

|                          | TVUS | SIS |
|--------------------------|------|-----|
| Total number of patients | 60   | 60  |
| True (+) ve              | 7    | 12  |
| False (+) ve             | 3    | 0   |

|                 |       |       |
|-----------------|-------|-------|
| True (-) ve     | 24    | 36    |
| False (-) ve    | 6     | 2     |
| Sensitivity (%) | 36.8% | 89.4% |
| Specificity (%) | 89.4% | 99.6% |

TVUS has detected endometrial polyp in 7 patients having the condition while SIS has detected polyps in 12 patients.

**SUMMARY**

The present prospective and comparative study was carried out at the department of obstetrics and gynecology at Rajah Muthiah Medical College, during a period from December 2011 to December 2013 in 60 women who fulfilled the inclusion criteria ,all the patients were subjected to Transvaginal sonography and saline infusion sonohysterography after proper counseling. The results were tabulated and analysed .To summarize.

The mean age + SD was 46.8 + 4.32 years and then the mean parity +SD was 6.42+ 2.84.

According to bleeding pattern the patients were

- 29 patients (48.3%) were menorrhagia
- 17 patients (28.3%) were metorrhagia
- 14 patients (23.3%) were menometorrhagia.

On per abdomen examination, 95% of women had normal findings with remaining 5% of the uterus was palpable .

On per vaginal examination 50% cases were normal,11. 7% showed 8 weeks size uterus, 28.3% had bulky uterus, 6.7% had 12 weeks size uterus ,and 3.3% had 14 weeks size uterus.

Endometrial thickness (double layer ) was evaluated using TVS and SIS .Regarding SIS, endometrial thickness ranged between 2mm and 20.3 mm .The mean endometrial thickness +SD was 13.8 + 4.92.TVS revealed that endometrial thickness ranged between 3mm and 22mm with mean + SD was 11.6 + 4.42.

TVS revealed 30 patients with normal endometrium, 7 patients with endometrial polyp, 6 patients with endometrial hyperplasia, 7 patients with submucosal fibroid,7 patients with intramural fibroid,3 patients showing atrophic endometrium.

SIS revealed 21 patients with normal endometrium, 12 patients with endometrial polyp,7 patients with endometrial hyperplasia,11 patients with submucosal fibroid,6 patients with intramural fibroid, 4 patients showing atrophic endometrium.

The mean +SD in TVS was 3.42+1.24 in detecting uterine pathology. whereas in SIS the mean +SD was 5.17+1.69.

Regarding SIS 20% women had complains of dull aching abdominal pain, 12.5% patients had complaints of vaginal discharge.

No such complications was met with TVS.

The predictive values of TVS were 76.9% , 68.2%, 62%, 83%, 72% as regarding sensitivity ,specificity, positive predictive value, negative predictive value and efficacy respectively.

The predictive values of SIS were 98.6%, 89.4%, 84%, 97%, 93% as regarding sensitivity ,specificity, positive predictive value, negative predictive value and efficacy respectively.

**CONCLUSION**

TVS is a simple minimally invasive low cost technique and it should be the first diagnostic method of choice in evaluating AUB.

The appropriate clinical place for SIS is a second line diagnostic procedure in the evaluation AUB if TVS findings are inconclusive. It is highly sensitive and specific, especially for diagnosing submucous myoma, endometrial polyps and thickened endometrium. It is an alternative to hysteroscopy with the additional advantage of evaluating myometrial and adnexal pathology besides being less invasive and cost effective.

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