# Endometrial Thickness As A Test For Endometrial Cancer In Women With Abnormal Postmenopausal And Perimenopausal Vaginal Bleeding & Its Histopathological Correlation

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**Abstract:** Introduction: The menopausal & perimenopausal age are characterized by a deficiency of progesterone and relative hyperestrogenism leading to increased risk of carcinoma endometrium. Transvaginal ultrasonography is used to evaluate the thickness of endometrium in perimenopausal & postmenopausal women presenting with abnormal bleeding per vaginum & its histopathological classification was done. Material & Methods: This retrospective study was carried out in R D Gardi Medical College and Hospital, Ujjain. Seventy five cases were selected from May 2010 - May 2012 and studied in respect to age,parity,socio-economic status, and endometrial thickness in women with abnormal bleeding per vaginum & its relation to histopathology findings of endometrium obtained through D & C. Results:Out of seventy five cases, 49(65.5%) were in perimenopausal age group, and 26(34.5%) in postmenopausal age group. Endometrial thickness greater than 12mm was in 73.4% of perimenopausal and 25.3% of postmenopausal women. In perimenopausal women with abnormal bleeding,histopathology showed'Benign Hyperplasia'in 51%, 'Proliferative endometrium'in 26.5%, 'Secretary endometrium' in 4.08%, 'Atrophic endometrium' in 2.04%, 'Atypical Hyperplasia' in 10.2%, andcarcinoma in 6.12%.Whereas in postmenopausal women, Atypical Hyperplasia in 11.4%, carcinoma in 46.12%,benign hyperplasia in 7.6%, proliferative endometrium in 15.33%, secretary endometrium in 7.69%, and atrophic in 11.4%. Conclusion: In majority endometrial thickness by TVS may be helpful in planning investigation protocol and further management.[Roy P K et al NJIRM 2013; 4(1) : 144-148]

**Key Words:** Endometrial thickness, endometrial cancer, abnormalpostmenopausalbleeding

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**Introduction:** Endometrial cancer accounts for about 6% of all cancers in women .The menopausal & perimenopausal age are characterized by a deficiency of progesterone and relative hyper-estrogenism. This creates an environment favourable for the development of endometrial hyperplasia.The pathologic progression of hyperplasia to endometrial carcinoma can be arrested with early diagnosis and treatment for perimenopausal and postmenopausal bleeding.Transvaginal ultrasonography is used to evaluate the thickness of endometrium in perimenopausal (41-50yrs) and postmenopausal women (50yrs) presenting with abnormal bleeding per vaginum & its histopathological correlation[1]

**Aims & Objaectives:** The menopausal & perimenopausal age are characterized by a deficiency of progesterone and relative hyperestrogenism. This creates an environment favorable for the development of endometrial hyperplasia.The pathologic progression of hyperplasia to endometrial carcinoma can be arrested with early diagnosis and treatement forperi- and postmenopausal bleeding. Since Endometrial cancer accounts for about 6% of all cancers in women and in our population and as screening for endometrial cancer is rarely done where as, now a days transvaginal ultrasonography is routinely used to evaluate the thickness of endometrium, the aim of this study was to analyse available data in this hospital and look for any relationship between histopathology of endometrium and ultrasound findings.

**Material and Methods:** Retrospective study was carried out in R D Gardi Medical College and Hospital, Ujjain. Seventy five cases were selected from May 2010 - Aug 2012 and studied in respect to age, parity, socio-economic status, and endometrial thickness in women with abnormal bleeding per vaginum & its relation to histopathology findings of endometrium obtained through D&C

**Inclusion Criteria:** Age 41- 50 yrs&> 50 yrs having abnormal uterine bleeding, No urgency for surgery.

**Exclusion Criteria:** Age <41 yrs, Any local cause of bleeding P/V, Patients is on hormonal pills, Patients having any coagulation disorders.

**Diagnostic approach:**Ultrasound - Abdominal and Transvaginal ultrasound – uterus and adnexa and endometrium thickness noted. Endometrial Biopsy obtained through dilatation and curettage and histopathology carried out.

**Result and observations: Demographic distribution** (table-1)**:–Agewise distribution**:-The study population(n=75) with abnormal bleeding formed 65.5% inperimenopausal age n=49, and 34.5% in postmenopausal age n=26.Endometrial thickness more than 12mm was in 73.4% of perimenopausal age and 25.3% of postmenopausal age.

**Table 1: Demographic distribution**

| | **Perimenopausal age (n=49) (41-50yrs) Endometrial thickness** | | **Postmenopausal age (n= 26) (>50yrs) Endometrial thickness** | |
|---|---|---|---|---|
| | **<12mm** | **>12mm** | **<12mm** | **>12mm** |
| Age | 13 (26.6%) | 36 (73.4%) | 7 ( 9.3%) | 19 (25.3%) |
| Socioeconomicstatus | | | | |
| <5000 | 12(24.49%) | 32 (65.3%) | 10(38.46%) | 14(53.84%) |
| >5000 | 4(7.9%) | 1 ( 2.04%) | 1 (3.8%) | 1 (3.8% ) |
| Parity | | | | |
| <2 | 21 (42.8%) | 7 ( 14.2%) | 9 (34.6%) | 13 (50%) |
| >2 | 18 (36.7%) | 3 (6.12%) | 2 (7.6%) | 2 (7.6%) |
| Hypertension | - | 2 (4.08%) | 2 (7.6%) | 3 (11.5%) |
| Diabetes | - | 3 (6.12%) | 0 | 1 ( 1.3%) |
| Obesity | 2 (4.08%) | 1 (2.04%) | 0 | 2 (7.6%) |

**Socio-economicstatus**:-Annual income less than Rs 5000/- was in 68 cases i.e. 90.66% and 7 cases i.e. 9.33% had annual income above Rs 5000/-.

**Parity**:-Parity less than 2 was in 50 cases(66.66%) and more than 2 in 25 cases(33.33%).

**Hypertension**:-was found in 7 cases, 2(4.08%) in peri-menopausal and 5(18.9%) in postmenopausal.

**Diabetes**:-was in 3 cases (6.12%) in perimenopausal and 1(1.3%) in postmenopausal age group.

**Obesity**:- was in 3(6.1%) in perimenopausal and 2(7.6%) in postmenopausal age group.

**Clinical presentation and age wise distribution (**table -2)**:-**. Menorrhagia was the most common presentation and was in 44 cases 58.66%. Polymenorrhagia was present in 19 (25.3%), Acyclic bleeding in7 (9.3%) &Delayed irregular bleeding- 5 (6.67%).

**Table 2: Clinical presentation and age wise distribution**

| | **Perimenopausal age (41-50yr) (n=49) Endometrial thickness** | | **Postmenopausal age (>50yr) (n= 26) Endometrial thickness** | | **Total No (n= 75)%** |
|---|---|---|---|---|---|
| | **<12mm** | **>12mm** | **<12mm** | **>12mm** | |
| Polymenorrhagia | 3 (6.12%) | 6 (12.24%) | 5 (19.23%) | 5 (19.23%) | 19 (25.33) |
| Menorrhagia | 21 (42.86%) | 14 (28.57%) | 3 (11.54%) | 6 (23.08%) | 44 (58.67) |
| Acyclic bleeding | 2 (4.08%) | 1(2.04%) | 1 (3.85%) | 3 (11.54%) | 7(9.33) |
| Delayed irregular bleeding | | 2(4.08%) | 1(3.85%) | 2 (7.69%) | 5(6.67) |

Perimenopausal age:endometrial thickness less than 12mm was in 32 cases i.e 65.31%, Hyperplasia was present in 18 cases36.7%,Proliferative endometrium in 10 cases 20.4%, Secretary

endometrium in 1 case 2.04%, Atrophic endometrium in 1 case 2.04%, Atypical hyperplasia in 1 cases 2.04%, Carcinoma in 1 case 2.04%, Endometrial thickness more than 12 mm was in 17 cases i.e 34.69%, Hyperplasia was present in 7 cases14.28%, Proliferative endometrium in 3 cases 6.12%, Secretary endometrium in 1 case 2.04%, Atrophic endometrium in nil case, Atypical hyperplasia in 4 cases 8.16%, Carcinoma in 2 case 4.08%

Postmenopausal age-endometrial thickness less than 12 mm was in 10 cases i.e 38.46%, Hyperplasia was present in 1 cases3.84%, Proliferative endometrium in 1 case 3.84%, Secretary endometrium in nil case , Atrophic endometrium in 2 case 7.6% , Atypical hyperplasia in 1 cases 3.8%, Carcinoma in 5 case 19.2%, endometrial thickness more than 12 mm was in 16 casesi.e 61.53%, Hyperplasia was present in 1 case3.84%, Proliferative endometrium in 3 cases 11.53%, Secretary endometrium in 2 cases7.69%, Atrophic endometrium in 1 case3.8%, Atypical hyperplasia in 2 cases 7.6%, Carcinoma in 7 cases 26.92%,

**Demographic distribution**(table-1)**:–** Abnormal bleeding formed 65.5% in perimenopausal age , and 34.5% in postmenopausal age . Endometrial thickness more than 12mm was in 73.4% of perimenopausal age and 25.3% of postmenopausal age. Annual income less than Rs 5000/- was in 90.66% and 9.33% had annual income above Rs 5000/-.Parity less than 2 was in 66.66% and more than 2 in 33.33%. Hypertension was found in 4.08% in peri-menopausal and 18.9% in postmenopausal. Diabeteswas in 6.12% in perimenopausal and 1.3% in postmenopausal age group. Obesity was in 6.1% in perimenopausal and 7.6% in postmenopausal age group.

**Clinical presentation and age wise distribution (**table -2)**:-**. Menorrhagia was the most common presentation and was in 44 cases 58.66%. Polymenorrhagia was present in 19 (25.3%), Acyclic bleeding in7 (9.3%) &Delayed irregular bleeding- 5 (6.67%).

**Histopathological correlation (Table:3)**

Perimenopausal age-Hyperplasia -50.5%, Proliferative endometrium - 26.5%, Secretary endometrium-4.08%, Atrophic endometrium - 2.04%, Atypical hyperplasia -10.20%, Carcinoma - 6.02%.

Postmenopausal age- Hyperplasia -7.6%, Proliferative endometrium 15.38%, Secretary endometrium- 7.69%, Atrophic endometrium- 11.54%, Atypical hyperplasia -11.54%, Carcinoma - 46.12%.

Null hypothesis- We assume that endometrial thickness and its histopathological findings are not correlated. We reject null hypothesis and conclude that there is significant correlation between endometrial thickness and its histopathological findings

Age -41-50 yrs- $\chi 2_{cal}$= 17.44 -- $\Sigma((O- E)^2/E)$
Age - > 50 yrs- $\chi 2_{cal}$ = 6.02 -- $\Sigma((O- E)^2/E)$
Since $\chi 2_{cal} > \chi 2_{tab}$

**Table 3 : Histopathological correlation**

| | **Perimenopausal age (41-50yr) (n=49) Endometrial thickness** | | **Postmenopausal age (>50yr) (n= 26) Endometrial thickness** | |
|---|---|---|---|---|
| | **<12mm** | **>12mm** | **<12mm** | **>12mm** |
| Hyperplasia without atypia | 18 (36.73%) | 7 (14.28%) | 1(3.84%) | 1 (3.84%) |
| Proliferative | 10 (20.41%) | 3 (6.12%) | 1(3.8%) | 3(11.53%) |
| Secretary | 1( 2.04%) | 1 (2.04%) | 0 | 2 (7.69%) |
| Atrophic | 1(2.04%) | 0 | 2( 7.6%) | 1 (3.8%) |
| Atypical hyperplasia | 1 ( 2.04%) | 4 (8.16%) | 1 (3.8% ) | 2 (7.6%) |
| Carcinoma | 1( 2.04%) | 2( 4.08%) | 5 (19.2%) | 7 ( 26.92%) |

**Discussion:** During perimenopause, menstrual cycles may become shorter, then longer, and blood flow may vary from month to month. The main causes are erratic hormone levels and decreased frequency of ovulations.

Fewer ovulations result in hormone changes that cause the endometrium to thicken more than usual before it sloughs off, resulting in heavier, erratic, and prolonged periods. Bleeding in a postmenopausal woman is abnormal and should be investigated right away. About 10% of postmenopausal women who experience bleeding have endometrial cancer — that arises in the uterine lining, or endometrium.[1]

In almost all cases, bleeding is the first sign. (There is no screening test.) If it's discovered and treated early, it's highly curable.[6] Bleeding may signal a condition called endometrial hyperplasia — the overgrowth of cells lining the uterus. It's not cancer but in some cases results in the growth of cells that could turn into cancer (atypical hyperplasia)[12] After measuring endometrial thickness by TVS we took endometrial biopsy to correlate it with various parametres like age, parity, socieconomicstatus,diebetes ,hypertension & its histopathological findings[3]. The epidemiological problem of detection bias occurs when the evidence needed to diagnose a particular disease is sought more intensively in the group of people exposed to a particular agent than in the comparative group, who did not receive the agent.[4] The bias can occur during community surveillance before hospitalization, during the ordering of diagnostic tests for hospitalized patients, or during the interpretation of the tests.[2] In postmenopausal women with endometrial cancer, detection bias is produced because of the dilation and curettage (or other diagnostic tests) ordered when bleeding occurs as a side effect of estrogen therapy[2].

In study, done by Mutter et al[7] and Kurman et al, majority of cases of endometrial hyperplasias and EIN lesions were seen in 5 th decade of life [5] Study done by Kurman et al[8], Baak et al[9], Baak et al[10] and Hecht et al[11,] Seventy eight cases (39%) of EIN lesions were re-diagnosed from two hundred cases of WHO classified endometrial hyperplasia[6] Above results was relatively similar to study done by Hecht et al[4]

**Conclusion:** These results suggest that endometrial strip thickness may be helpful in identifying underlying pathology. Histopathologically majority of endometrium in perimenopausal age group were in proliferative phase and in postmenopausal women it showed frank malignancy. So endometrial thickness by Ultrasound could result in considerable time and cost saving so that patients may be advised early staging and plan of management with little risk and much benefit to patients.

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