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### RESEARCH ARTICLE

#### CLINICOPATHOLOGICAL STUDY OF POSTMENOPAUSAL BLEEDING.

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#### Abstract

Abnormal uterine bleeding is frequent in gynecological complaint and accounts approximately 5-10% of postmenopausal women. About 10% of women with postmenopausal bleeding have a primary or secondary malignancy. Common malignancies among them are endometrial cancer, cervical cancer or an ovarian cancer. The incidence of malignancy in postmenopausal period remains sufficiently high so it requires immediate investigation for early diagnosis, vigilant follow up and prompt treatment. **Aims and Objectives:** To ascertain etiological factors of postmenopausal bleeding and to investigate its clinical significance in terms of incidence of malignancy and histopathological evaluation. **Materials and Method:** A total 100 patients with postmenopausal bleeding per vaginum attending the outpatient department or admitted for evaluation under Obstetrics and Gynaecology Department, VSSIMSAR, Burla, Sambalpur, Odisha over a period of two years from November 2014 to October 2016 were selected and studied. **Results:** The average of PMB was 56.68 years with highest incidence of cases between 55-65 years (52%). The incidence of malignancy was 57% out of which carcinoma cervix was found to be the most common malignancy causing postmenopausal bleeding representing 46% of total cases and 81% of total malignancies. Carcinoma endometrium found in 12% cases among total malignancies, resulting in carcinoma endometrium : carcinoma cervix ratio to be 1:7. On histopathology, we found atrophic endometrium in 49% ,proliferative endometrium in 6% of cases and hyperplasia in 14% of cases. **Conclusion:** Carcinoma of genital tract is one of the most important cause of PMB, so early detection of the causes can be life saving. Endometrial sampling is a cost effective procedure to rule out endometrial carcinoma /detect in very early stage.

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#### Introduction:-

Menopause is defined by WHO as permanent cessation of menstruation resulting from the loss of ovarian follicular activity<sup>1</sup>.

Postmenopausal bleeding (PMB) is defined as bleeding from genital tract occurring after one year of menopause. Most common worldwide age group for attaining menopause is 45-55 years and the average age is 51 years<sup>2</sup>. For Indians it is 45-50 years.

Postmenopausal bleeding represents one of the most common reasons for referral to gynecological services, largely due to suspicion of an underlying endometrial malignancy<sup>3</sup>. A woman not taking hormone replacement therapy (HRT) who bleeds after the menopause has a 10% risk of having genital cancer and a further 10% risk of significant pathology<sup>4</sup>. Therefore, postmenopausal bleeding should always be investigated no matter how minimal or non-persistent. Women with abnormal postmenopausal bleeding include: <sup>5</sup>

- Women with bleeding after one year of amenorrhoea
- Women with bleeding after one year of continuous combined HRT
- Women with unexpected bleeding while receiving cyclic HRT

Postmenopausal vaginal discharge, which may be blood stained or purulent, is equally important like postmenopausal bleeding. Purulent vaginal discharge occurs in case of pyometra which is often seen in combination with endometrial cancer<sup>6</sup>.

Stage I endometrial carcinoma has a 5 year survival rate of 98%, so early discovery greatly improves the chances of cure. It is estimated that postmenopausal women with vaginal bleeding have a probability of endometrial carcinoma of approximately 10%<sup>7</sup>.

The chances of postmenopausal bleeding decreases with increasing age but the frequency of malignancy is increased with increased age and increased with increased interval between postmenopausal bleeding and menopause.<sup>8</sup>

Transvaginal ultrasonography (TVS) is the recommended first line non invasive procedure for assessing the endometrium in women with PMB. Measurement of endometrial thickness by TVS having a cut off of >4mm yields 98% sensitivity for detection of endometrial carcinoma <sup>9</sup>. Hysteroscopy and biopsy (curettage) is the preferred diagnostic technique to detect polyps and other benign lesions and to obtain endometrium for histopathological examination. Following such assessment reassurance can be given or further investigations or treatment can be discussed and rearranged<sup>10</sup>.

Etiology of postmenopausal bleeding in about 80-90% patients are benign like atrophic vaginitis, endometrial or cervical polyps, simple endometrial hyperplasia, infections, decubitus ulcer in cases of uterovaginal prolapse, neglected pessary and forgotten intrauterine contraceptive device.

Proper evaluation of PMB will isolate the benign conditions. Treatment of benign conditions with reassurance and early detection and treatment of malignant lesions will help a menopausal lady to lead a healthy life.

#### **Aims and objective:-**

- To ascertain etiological factors of postmenopausal bleeding
- To investigate the clinical significance of postmenopausal bleeding in terms of incidence of malignancy and histopathological evaluation.

#### **Materials and methods:-**

##### **Source of data:-**

The data was collected from patients with postmenopausal bleeding per vaginum attending the outpatient department or admitted for evaluation under Obstetrics and Gynaecology Department, VSSIMSAR, Burla, Sambalpur, Odisha over a period of two years from November 2014 to October 2016. A total of 100 cases who presented clinically with PMB varying from spotting per vaginum, scanty flow, moderate to profuse bleeding were included.

##### **Study design :-**

This study was a prospective study of the patients with postmenopausal bleeding attending the outpatient department or admitted for evaluation under Obstetrics and Gynecology Department, VSSIMSAR, Burla, Sambalpur.

A total of 100 cases who presented clinically with postmenopausal bleeding were selected. Written and informed consent was taken. They were evaluated by history, clinical examination and investigations like abdominal/transvaginal sonography, endometrial biopsy, fractional curettage, Papanicolaou smear and hysteroscopic guided biopsy if required was done for all subjects and the specimens collected was sent to the department of pathology for examination and reporting. Depending on the reports obtained, the data was recorded and analysed by descriptive statistics using percentages.

**Inclusion criteria:** Postmenopausal women with complaints of per vaginal bleeding.

**Exclusion criteria:-**

- ❖ Premature menopause (<40 yrs)
- ❖ Surgical menopause
- ❖ Radiation menopause
- ❖ Chemotherapy induced menopause
- ❖ HRT
- ❖ Anticoagulant therapy
- ❖ Coagulation disorders
- ❖ Injuries to genital tract

### Results:-

The present study “Clinicopathological study of Postmenopausal Bleeding” was carried out on 100 cases of postmenopausal women with complains of bleeding per vaginum, in the Department of Obstetrics & Gynaecology in VSSIMSAR Burla, Odisha from August 2014 to October 2016.

**Table No.1:-** Distribution Of Cases According To Age Of The Patients

SL NO	AGE GROUPS(YRS)	NO. OF CASES	PERCENTAGE(%)
1	40-44	2	2
2	45-54	33	33
3	55-64 Years	52	52
4	65-74 Years	1	11
5	≥ 75 Years	2	2

Maximum number of cases with postmenopausal bleeding were found in the age group of 55-64 years (52%)

**Table No. 2:-** Incidence Of Cases According To Residence

Sl. No.	Residence	No. Of cases	Percentage(%)
1	Urban	22	22
2	Rural	78	78

78% of total cases came from rural areas, whereas 22% of cases were from urban areas.

**Table No. 4:-** Distribution Of Cases According To Socioeconomic Status

SL NO.	CLASS (PRASAD'S)	NO. OF CASES	PERCENTAGE (%)
1	I	-	-
2	II	-	-
3	III	20	20
4	IV	50	50
5	V	30	30

Most of the patients belong to lower socioeconomic strata. 50% of cases were of Prasad's class IV.

**Table No. 5:-** Distribution Of Cases According To Parity

SL NO.	PARITY	NO. OF CASES	PERCENTAGE (%)
1	Nulliparous	5	5
2	Primiparous	5	5
3	Multiparous	61	61
4	Grand multiparous	29	29

61% of the patients were multipara and 29% of patients were grand multipara (parity  $\geq 5$ ). Whereas only 5% of cases were nullipara and primipara each.

**Table No. 6:-** Distribution Of Cases According To Pathological Types

SL NO.	ETIOLOGY	NO. OF CASES	PERCENTAGE (%)
1	Malignant	57	57
2	Benign	43	43

57% of cases were of malignant origin and rest 43% of the cases were benign.

**Table No 7:-** Distribution Of Various Malignant Cases According To Etiology

ETIOLOGICAL FACTOR	TOTAL CASES	CA CERVIX (%)	CA ENDOMETRIUM (%)	CA VAGINA (%)	CA OVARY (%)
AGE GROUP(YRS)					
40-44	-	-	-	-	-
45-54	18	14 (30%)	2 (29%)	1 (33%)	1 (100%)
55-64	32	26 (57%)	4 (57%)	2 (67%)	-
65-74	5	5 (11%)	-	-	-
$\geq 75$	2	1 (2%)	1 (14%)	-	-
Total	57	46	7	3	1
PARITY					
Nulliparous	4	1 (2%)	3 (43%)	-	-
Primiparous	1	-	1 (14%)	-	-
Multiparous	32	28 (61%)	2 (29%)	1 (33%)	1 (100%)
Grand multi	19	17 (37%)	-	2 (67%)	-
Total	57	46	7	3	1

Carcinoma cervix is most common 55-64years of age (57%) and is most common among multiparous and grand multiparous women accounting for almost 98% in total. Carcinoma endometrium is also most common in 55-64 years of age and is more commonly seen in nulliparous women (43%).

Carcinoma vagina has maximum incidence in 55-64 years (67%) and is more commonly seen in grand multiparous women (67%). Whereas carcinoma ovary seen in multiparous women and in 45-54 years of age.

**Table no. 8:-** distribution of malignant cases according to clinical presentation

CLINICAL PRESENTATION	CA CERVIX (%)	CA ENDOMETRIUM (%)	CA VAGINA (%)	CA OVARY (%)	TOTAL CASES
AUB	46	7	3	1	57
Vaginal discharge	33 (72%)	2 (29%)	2 (67%)	-	37
Pain abdomen	7 (15%)	1 (14%)	1 (33%)	1 (100%)	10
Mass abdomen	-	-	-	1 (100%)	1
Others	7 (15%)	-	2 (67%)	1	10

Vaginal discharge was the next most common complain after postmenopausal bleeding. Foul smelling, mucoid, watery or blood stained discharge were important clinical presentation of carcinoma cervix (72%). All cases of carcinoma ovary presented with mass and pain in abdomen.

**Table no. 9:-** Distribution Of Various Benign Cases According To The Etiology.

ETIOLOGICAL FACTOR	TOTAL CASES (%)	ATROPHIC ENDO±CERVICITIS	ATROPHIC ENDO+CIN	LEIOMYOMA/ ADENOMYOSIS	POLYPS (CERVICAL ENDOMETRIAL)	ENDOMETRIAL HYPERPLASIA	HSIL	OTHERS (SEC/PROLI/ ANOVU ENDO)	OVARIAN TUMOUR	NO TISSUE
<b>AGE GROUPS(YEARS)</b>										
40-44	2 (5)			1	1					
45-54	17(40)	7		4		2	1	3		
55-64	18(41)	5	2	2	2	3		1	1	2
65-74	6 (14)	3	1		1	1				
≥75										
TOTAL (%)	43	15 (35)	3 (7)	7 (16)	4 (9)	6 (14)	1 (2)	4 (10)	1 (2)	2 (5)
<b>PARITY</b>										
Nulliparous	1(2)			1						
Primiparous	4(9)	3		1						
Multiparous	30 (70)	10	1	5	3	5		3	3	
Grand multi	8 (19)	2	2		1	1	1	1		2
Total	43	15	3	7	4	6		4		2

Most commonly benign cases were seen between 45-64 years of age 81% and maximum cases were seen in multiparous women constituting 70% and grand multiparous 19%.

Atrophic endometrium (42%) was the most common histological finding associated with CIN and cervicitis in some cases. Endometrial Hyperplasia was seen in 14% of cases and leiomyoma & adenomyosis was seen in 16% of cases. Polyps seen in 9% of cases.

**Table No.10:-** Distribution Of Benign Cases According To Clinical Presentation

CLINICAL PRESENTATION	TOTAL (%)	ATROPHIC ENDO±CERVICITIS CIN	LEIOMYOMA/ ADENOMYOSIS	HYPERPLASIA	POLYPS/ HSIL	OVARIAN	OTHERS
Abnormal uterine bleeding	43 (100)	18	7	6	5	1	6
Vaginal discharge	6 (14)	3			3		
Mass abdomen	1 (2)					1	
Pain abdomen	4 (9)			1	1	1	1
Others	2 (5)			1			1

After abnormal uterine bleeding, the second most common associated clinical presentation in benign cases was vaginal discharge, whitish, watery or mucoid in nature seen in 14% of cases followed by pain in abdomen seen in 9% of cases.

**Table no. 11:-** distribution of cases according to pathological types in different age groups

SL NO.	AGE GROUPS (YEARS)	TOTAL NO. OF CASES	MALIGNANT (%)	BENIGN (%)
1	40-44	2		2(100%)
2	45-54	35	18 (51%)	17 (48%)
3	55-64	50	32 (64%)	18 (36%)
4	65-75	11	5 (45%)	6 (55%)
5	≥ 75	2	2 (100%)	

Malignancy was found in 64% in the age groups of 55-64 years followed by 51% in 45-54years and 45% in 65-75 years of age. However no malignant cases found less than 45years of age and in 100% of cases above 75years. Among benign cases 100% were found in age group of 40-44 years followed by 48% in 45-54 years age group, 36% in 55-64 years group and 55% in 65-75 years of age. No benign cases were found after the age of 75years.

**Table no. 12:-** incidence of different malignant causes of postmenopausal bleeding

SL NO.	MALIGNANCY	NO. OF CASES	PERCENTAGE(%)
1	Ca Endometrium	7	12%
2	Ca Cervix	46	81%
3	Ca Vagina	3	5%
4	Ca Ovary	1	2%
5	Ca Vulva	-	-

Carcinoma cervix was found to be the most common cancer amongst the patients presenting with postmenopausal bleeding in this study accounting 81% of the total causes. Carcinoma endometrium was seen in 12% of cases followed by carcinoma vagina (5%) and carcinoma ovary (2%).

**Table no. 13:-** incidence of different benign lesions of postmenopausal bleeding

SL NO.	BENIGN CONDITIONS	NO. OF CASES	PERCENTAGE (%)
1	Atrophic endometrium	18	42
	+Cervicitis	7	
	+Dysplasia	3	
2	Endometrial hyperplasia	6	14
3	Leiomyoma/adenomyosis	7	16
4	Endometrial polyp	3	7
5	Endocervical polyp	1	2.3
6	HSIL	1	2.3
7	Other endometrial pathology	4	9.4
	Secretory	1	
	Proliferative	2	
	Anovulatory	1	
8	Benign ovarian tumor	1	2.3
9	No tissue	2	5
	Total	43	100

Most common benign lesion associated with postmenopausal bleeding was atrophic endometrium (42%) followed by leiomyoma/ adenomyosis (16%) and endometrial hyperplasia 14%.

**Table no. 14:-** distribution of type of endometrial neoplasms

SL NO.	TYPE	NO. OF CASES	PERCENTAGE (%)
1	Malignant epithelial	1	14
2	Adenocarcinoma	5	72
	Well differentiated	2	29
	Serous papillary	2	29
	Poorly differentiated	1	14
3	SCC Keratinising	1	14

Adenocarcinoma of the endometrium (72%) was the most common histological type seen followed by epithelial and squamous cell keratinising 14% each.

**Table no. 15:-** endometrial hyperplasia distribution

SL NO.	TYPES OF HYPERPLASIA	NO. OF CASES	PERCENTAGE (%)
1	Simple cystic	3	50%
2	Complex	2	33%
3	Adenomatous	1	17%

Simple cystic hyperplasia was found in 50% of cases and complex hyperplasia seen in 33% of cases.

**Table no. 16:-** endometrial histology in postmenopausal bleeding

SL NO.	ENDOMETRIAL HISTOLOGY	NO. OF CASES	PERCENTAGE (%)
1	Atrophic	25	49
2	Proliferative	3	6
3	Secretory	1	2
4	Anovulatory	1	2
5	Cystic glandular hyperplasia	4	7.8
6	Complex hyperplasia	4	7.8
7	Adenomatous hyperplasia	1	2
8	Ca Endometrium	6	11.7
9	Insufficient tissue	6	11.7
	Total	51	100

In 51 cases endometrial sampling was done. Atrophic endometrium was the most common finding seen in 49% of cases followed by Ca endometrium in 11.7% of cases. Insufficient tissue was obtained in 11.7% of cases on curettage, indicating inactive endometrium. However some of these cases were associated with other uterine pathology like leiomyoma. Adenomatous hyperplasia was found in 2% of cases.

**Table no. 17:-** relation of malignancy to clear span

SL NO.	CLEAR SPAN (Years)	NO. OF CASES	BENIGN (%)	MALIGNANT (%)
1	1-2	27	18 (67%)	9 (33%)
2	3-5	18	8 (44%)	10 (56%)
3	6-10	28	9 (32%)	19 (68%)
4	11-15	16	4 (25%)	12 (75%)
5	16-20	9	4 (44%)	5 (56%)
6	>20	2	-	2 (100%)
	Total	100	43	57

Maximum benign cases presented within first 2 years after menopause. Incidence of malignancy increased as the clear span increased. 73% of the total cases had postmenopausal bleeding after two years of clear span out of which 66% were malignant.

**Table no. 18:-** duration of bleeding with reference to pathologic lesion

SL NO.	DURATION (MONTHS)	NO. OF CASES	BENIGN (%)	MALIGNANT (%)
1	<1	34	20 (59%)	14 (41%)
2	1-5	46	20 (43%)	26 (57%)
3	6-12	16	1 (6%)	15 (94%)
4	13-24	3	1 (33)	2 (67%)
5	>24	1	1 (100%)	

Duration of bleeding ranged from one day to 5 years. Incidence of malignancy was found maximum 94% in patients who consulted at hospital between 6-12 months of first appearance of postmenopausal bleeding. 80% of patients presented within first six months of appearance of postmenopausal bleeding among which 50% were malignant and 50% were benign.

**Table no. 19:-** medical history of patients

	HYPERTENSION	DM	OVERWEIGHT	HYPOTHYROIDISM
Age groups				
40-45	1			
45-54	9	3	3	5
55-64	15		3	
65-74	5	1	1	1
≥ 75	2	1	1	
Total	32 (32%)	5(5%)	8 (8%)	6 (6%)
LESIONS				
Endometrial hyperplasia	4		3	
Ca endometrium	3	2	4	1
Ca cervix	14			
Ca vagina	1	1	1	1
Benign conditions	10	2	1	4
Total	32(32%)	5(5%)	8(8%)	6(6%)

32 % of patients had hypertension, 5% of patients had Diabetes mellitus, 8% were overweight and 6% were having hypothyroidism.

**Table no. 20:-** prevalence of anemia in patients of postmenopausal bleeding

SL NO.	Hb LEVELS (gm%)	NO. OF CASES	PERCENTAGE (%)
1	< 6	1	1
2	6-7.9	8	8
3	8-10	54	54
4	>10	37	37

54% of patients had Hb levels between 8-10 gm% i.e. they were mildly anemic and only 1% of cases were severely anemic with Hb levels less than 6 gm%.

**Table no. 21:-** cervical cancer staging in case of postmenopausal bleeding

SL NO.	STAGE	NO. OF CASES	PERCENTAGE (%)
1	I A	1	2
2	I B	8	17
3	II A	12	26
4	II B	11	24
5	III A	4	9
6	III B	10	22
7	IV A	-	-
8	IV B	-	-

Maximum cases of carcinoma cervix presented in stage II A & II B (43%) followed by stage III B (22%). Only 2% of cases were in stage I A at the time of presentation.

**Table no. 22:-** distribution of types of cancer cervix

Sl no.	TYPES	NO. OF CASES	PERCENTAGE
1	SCC	45	98%
	Large cell kartinising	17	37%
	Large cell non keratinizing	22	48%
	Moderately differentiated	2	4%
	Poorly differentiated	2	4%
	Small cell non keratinizing	2	4%
2	Adenosquamous	1	2%

Squamous cell carcinoma of the cervix was the most common histological type found among carcinoma cervix cases (98%). Among SCC large cell was the most common type seen. Small cell SCC was seen in 4% of cases.

**Table no. 23:-** causes of postmenopausal bleeding

SL NO.	LESIONS	NO. OF CASES	PERCENTAGE(%)
1	Ca Cevix	46	46
2	Atrophic Endometrium	18	18
3	Ca endometrium	7	7
4	Leiomyoma/adenomyosis	7	7
5	Endometrial Hyperplasia	6	6
6	Polyps	4	4
7	Ca Vagina	3	3
8	Ovarian pathology	2	2
9	Others	5	5
10	Inconclusive	2	2
	Total	100	100

The most common cause of postmenopausal bleeding was found to be carcinoma cervix (46%) followed by atrophic endometrium (18%). Carcinoma endometrium accounted for 7% of the total causes . Here, the other causes include HSIL, proliferative, secretory and anovulatory endometrium.

### Discussion:-

Postmenopausal bleeding is generally regarded as ominous and serious symptom. It is an alarming sign of genital malignancy.

The primary aim is to identify and exclude atypical hyperplasia and endometrial carcinoma. The risk of endometrial carcinoma in women with postmenopausal bleeding rises with age from 1% at the age of 50 years to approximately 25% at the age of 80 years.<sup>11</sup>

By conducting this study in Department of Obstetrics and Gynaecology, VSS IMSAR Burla Sambalpur we have made an attempt to find out the common causes of postmenopausal bleeding in the western part of Odisha and the incidence of malignancy among them attending gynecology department both indoor as well as OPD from November 2014 to October 2016.

The age of patients ranged from 44-80 years with an average of 56.68 years (SD-6.73). The highest incidence of cases was between 55-65 years (52%) followed by 45-54 years. (Table no. 1). This age is lower than the mean age 64 year by Kour M et al (2010)<sup>12</sup> and 63.6 year by Nasira Sabiha Dawood et al (2010)<sup>13</sup>. The lower mean age in our study group may be due to higher incidence of cervical carcinoma which has early age of presentation.

In our study 78% of the patients were of rural areas (Table no. 2). Our hospital being the only tertiary centre in western Odisha, serves all the nearby rural areas.

In our study 76% of the patients were illiterate (Table no 3). Lack of education led to ignorance of spotting or staining after the menopause with the result of presentation after long period with advanced stages of cancer. Uneducated, rural population made the major proportion of cancer patients with inoperable stages.

Being a government hospital our institution serves mainly the lower social classes. In our study all patients belong to either class III, IV or V of Prasad's scale (Table no. 4).

In present study 32% and 8% of patients were having hypertension and overweight, respectively. 5% of women were suffering from diabetes mellitus. We found diabetes mellitus, hypertension and obesity to be associated with endometrial hyperplasia and Carcinoma endometrium, however this is a very small sample size to draw any conclusions. Our observation is comparable to a study conducted by Kavitha<sup>78</sup> (2013) et al in which hypertension was found in 36.6%, diabetes in 13.3% women & 43.3% of women were overweight.

In the present study we found the incidence of malignancy to be 57% (Table no. 6), which is in accordance with the studies mentioned, but in more recent studies this incidence is found to be lower.

While most of the earlier work showed an incidence of malignancy in patients presenting with postmenopausal bleeding ranging from 53% to 90%, figures greater than 50% are seldom found in the more recent literature, in fact most of the series state incidence lower than 35% as shown in following table :

Reference	Year	Place	Malignant cases (%)
Zweifel	1930	Scandinavia	87
Schulze	1933	Jamaica	68
Taylor and Millen	1938	New York	63.3
Te Linde	1940	Baltimore	53.3
Cheek and Davis	1946	Baltimore	36.1
Mc Fayden	1952	Canada	16
Brzezinsky and Bromberg	1954	Israel	11.3
Brewer and Miller	1954	Chicago	26.6
Sardi and Arrighi	1956	Israel	83
Israel and Weber	1956	Pennsylvania	33.5
Cope	1956	Italy	34.5
Lehto and Kinunen	1957	Helsinki	20.8
Majewski and Fritsche	1958	Germany	1.3
Woodruff et al	1958	Baltimore	16.2
Payne et al	1959	Pennsylvania	30
Benzil	1960	Italy	22.8
Latour and Pelletier	1961	Canada	23.1
Hainiouda	1966	Saudi Arabia	5.4
Pacheco and Kempers	1968	Mayoclinic	17.7
Keirse	1973	Belgium	23.7
Panda et al	1977	India	63.6

A decreasing trend in the incidence of malignancies is observed but in our study, we found a high incidence of malignancy especially of the cervical carcinoma. 57% incidence of malignancy found in our study is almost comparable to 63.6% incidence reported in 1977 study from India by **Panda<sup>11</sup> et al** & also comparable to 58.5% reported by **Ruchita<sup>12</sup>** (2014) and 52.86% reported by **Arati** (2013). These results reflect the lack of awareness leading to late presentation of the patients along with lack of facilities for early diagnosis of malignant diseases at rural and peripheral areas.

We found multiparity to be a high risk for postmenopausal bleeding. In the present study 56% of malignant cases were mutiparous and 33% were grand multipara. 61% of cases with carcinoma cervix were mutiparous and 37% were grand mutipara (Table no. 7).

In our study (Table no. 8) 33 patients of Carcinoma cervix i.e. 72% presented with watery, foul smelling or white vaginal discharge and 2 cases each of carcinoma endometrium and carcinoma vagina presented with vaginal discharge accounting for 29% and 67% respectively. Thus any vaginal discharge in a postmenopausal woman should arise a suspicion of malignancy. This correlates with the study done by Bornstein<sup>84</sup> et al (1995), who found 30% of postmenopausal women with abnormal vaginal discharge to harbor genital malignancy.

#### **Malignant causes of bleeding:-**

In our study we found carcinoma cervix to be the most common malignancy causing postmenopausal bleeding representing 46% of total cases and 81% of total malignancies.

Carcinoma endometrium found in 12% cases among total malignancies, resulting in carcinoma endometrium : carcinoma cervix ratio to be 1:7 which is in contrast to that found in other studies. The low incidence of cervical cancer in Western studies could be due to effective methods for screening and diagnosis of cervical carcinoma and its precursor lesions that has reduced the incidence of cervical carcinoma as a cause of postmenopausal bleeding in developed countries. On the other hand, in countries where effective cervical screening programme is not in place, especially in a developing country, cervical carcinoma still accounts for a majority of cases with postmenopausal bleeding.

In all studies carcinoma endometrium and carcinoma cervix were the commonest malignant causes. In postmenopausal women the anticipated ratio between endometrial and cervical carcinoma is 1:1. Most of the studies from other countries gave almost similar ratio. Norris<sup>13</sup> in 1935 noted that “after the menopause have been established the relative incidence of corpus carcinoma increases and practically parallels that of the cervix”.

Pacheco & Kempers<sup>14</sup> (1964) found the ratio of 16:1 between endometrial carcinoma and cervical carcinoma in their study. They explained it by lowered incidence of advanced cancer of cervix through widespread and thorough use of cervical smear. Also they selected cases only after 2 years of menopause. They suggested that since the cervical cancer develops at an earlier age than does endometrial cancer, they found small number of cervical cancers.

Rai<sup>15</sup> (2001) reported the ratio of endometrial carcinoma to carcinoma cervix to be 1:10 in India. In 1977 by Panda<sup>11</sup> et al carcinoma cervix as a cause of postmenopausal bleeding in 53% of patients comparable to its incidence of 46% in our study. This high frequency is attributed to the high incidence of undiagnosed cancer of cervix in this underdeveloped country. Effective methods for screening and diagnosis of cervical neoplasia and its precursor lesion have effectively eliminated it as a significant cause of postmenopausal bleeding in developed countries, but we are still far from that situation. Recent study by Epstein (2006), calculated ratio of carcinoma cervix to carcinoma endometrium to be 2:1.

We found Ca endometrium in 7% of cases and Ca ovary in 1% of cases which is similar to observed by Arati et al(2013) Ca endometrium was 9.28% and Ca ovary 3.57%.

We found adenocarcinoma endometrium in 5% of cases and SCC & malignant epithelial carcinoma of endometrium each in 1% of cases. Lidor<sup>16</sup> et al (1986) found it in 7% and Gredmark<sup>17</sup> et al (1988) found it in 8% of the cases. Carcinoma cervix was most common in age group 55-64 years accounting for 56.5% cases among total carcinoma cervix cases.

#### **Benign causes of postmenopausal bleeding:-**

Atrophic endometrium, leiomyomas/adenomyosis, endometrial hyperplasia and polyps were the most commonly found benign conditions, each constituting 18%, 6%, 7% and 4% respectively

Atrophic endometrium was the most common benign cause in this study, associated with CIN and chronic cervicitis in some cases (Table no. 13).

In present study, Clear span, the period between cessation of periods and occurrence of postmenopausal bleeding, ranged from one to 25 years. Lee<sup>18</sup> et al (1995) have reported this interval from one to 44 years and Ruchita<sup>19</sup> et al (2014) from one to 38 years. The patients with malignancies had a significantly longer clear span than cases with benign cause of postmenopausal bleeding. Similar results have also been observed in various studies( Lee<sup>18</sup> et al, Lidor<sup>16</sup> et al, Rucita<sup>19</sup> et al). In our study also incidence of malignancy increased as the clear span increased .73% of

the total cases had postmenopausal bleeding after two years of clear span out of which 66% were malignant (Table no. 17). This is in correlation with Payne<sup>20</sup> et al and Benzie<sup>21</sup>.

### **Endometrial Histology:-**

In our study we found atrophic endometrium in 49% of cases (Table no. 16).

This is similar to the findings observed by Ruchita<sup>19</sup>(2014) et al and Arati<sup>22</sup> (2013) et al. Pacheco and Kempers<sup>23</sup> (1968) found atrophic endometrium in 57% of cases (who have not taken estrogen therapy).

The cases showing a hormonal effect on the endometrium constitutes an interesting group. Such an effect could be due to estrogen administration, which was the most common benign cause of bleeding in some series (Payne<sup>20</sup> et al 1959, Hammouda<sup>24</sup> 2003, Karagas<sup>25</sup> et al 2000).

In our study we did not find even a single case of estrogen administration, but still proliferative endometrium was found in 6% of cases and hyperplasia found in 14% of cases. If no estrogens have been given, the possible involvement of a pathological ovarian process should be borne in mind.

Adenomatous hyperplasia, with or without atypia, is considered to be a precursor of carcinoma (Caspi<sup>26</sup> et al,1977) and was found in about 1% of women in the present study. The relatively low incidence of hyperplasia as the cause of bleeding could be due both to the strict selection of postmenopausal women and to the fact that none had been treated with estrogen replacement therapy.

In present study 2 cases were diagnosed as cystic hyperplasia of endometrium on curettage finding, however, on histopathological examination of the specimen showed as one having Ca endometrium and the other one leiomyoma with atrophic endometrium.

### **Stage Of Cervical Cancers:-**

At the time of presentation 2% of cases were in stage IA, 17% in I B, 26% in IIA and 55% were stage II B and above i.e. 55% of the total cases were inoperable at the time of presentation. This indicates an urgent need for widespread and thorough screening programme for cancer cervix in a developing country like India and especially in a peripheral set up like ours.

### **Causes Of Postmenopausal Bleeding:-**

In the present study the most common cause of postmenopausal bleeding was carcinoma cervix (46%) to be followed by atrophic endometrium (18%) and carcinoma endometrium (Table no. 23). These findings are similar to findings observed by Arati<sup>22</sup> et al (2013) where carcinoma cervix (40% of total) was the most common cause followed by atrophic endometrium (17.8%) and carcinoma endometrium accounted for 9.28%.

In the present study we made a prospective analysis of one hundred cases of postmenopausal bleeding who attended the department of Obstetrics & Gynecology V.S.S. I.M.S.A.R., Burla, Sambalpur both as out patients and in patients from November 2014 to October 2015.

Majority of the patients were in the age group 55-64 years (52%) and were multipara (61%).

Most of the patients were illiterate (76%), belonging to rural areas (78%) and to low socioeconomic status (80%). Incidence of malignancy was 57% and benign lesions was 43%.

Carcinoma cervix was the most common cause of postmenopausal bleeding followed by atrophic endometrium and carcinoma endometrium.

Carcinoma cervix was the most commonly encountered malignancy and was more found in 45-64 years of age group (87%) and in multiparous (61%) and grand multipara (37%).

Carcinoma endometrium had the maximum incidence in 45-64 years age group (86%) with more incidence among nulliparous (43%).

Carcinoma vagina was more frequently found in 45-64 years of age (100%) and in grand multipara (67%). Carcinoma ovary was more frequently found in 45-64 years age group (100%) and multiparous women (100%). Abnormal uterine bleeding was found in all cases of carcinoma endometrium, carcinoma cervix, carcinoma vagina and carcinoma ovary.

Foul smelling, watery, whitish or mucoid vaginal discharge was the second most important clinical presentation of carcinoma cervix.

All cases of carcinoma ovary presented with mass abdomen. Benign lesions were most commonly seen in 45-64 years (84%) and in multiparous women (65%).

After abnormal uterine bleeding, the second most common associated clinical presentation was whitish, watery, mucoid or foul smelling discharge (14%).

Incidence of malignancy gradually increased, as the age advanced. Incidence of malignancy was found to be 51% in 45-54 years age group, 64% in 55-64 years age group, 45% in 65-74 years age group and 100% above 75 years of age.

The incidence of malignant lesion underlying the bleeding increased with the postmenopausal clear span with 33% of malignant cases in less than 6 years, 55% in 6-10 years, 68% in 11-15 years, 56% in 16-20 years and 100% in more than 20 years.

Atrophic endometrium, leiomyoma of uterus, endometrial hyperplasia and polyps were the common benign pathology.

Endometrium was found atrophic in 49%, hyperplastic in 17.6%, proliferative in 6% and carcinomatous in 11.7%.

### **Conclusion:-**

With increased life span the incidence of postmenopausal bleeding is on rise. Since the incidence of malignancy is quite high, any bleeding in that age group should be evaluated in the line of malignancy unless otherwise proved. Patient characteristics like nulliparity, hypertension, diabetes mellitus, obesity etc should be taken into account in the diagnostic workup along with increased endometrial thickness >4mm by transvaginal sonography (TVS) while considering further investigations like endometrial sampling.

High cervical cancer preponderance stresses on need for better patient education for screening and early diagnosis. Although routine Papanicolaou smears are easily available and widely encouraged, our system depends on opportunistic screening of women who seek medical care and misses out on many women, especially the elderly and those in high risk groups, who may not be aware of serious implication of postmenopausal bleeding and significance of routine Papanicolaou smears. Hence, there is need to intensify cytology screening programmes and to increase the awareness in general population about the value of periodic gynecological examination and adoption of healthy and hygienic practices.

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