

## Incidence and Clinicopathological Assessment of Endometrial Carcinoma and their Precursor Lesions in a Tertiary Care Hospital

Amudhavalli Singaram<sup>1</sup>, Prathipa Krishnamurthy<sup>2</sup>, Rama Krishnaswamy<sup>3</sup>, Babiya Infant Arockiasamy<sup>4</sup>

<sup>1</sup>Assistant Professor, Department of Pathology, KAPV Government Medical College, Tiruchirapalli

<sup>2</sup>Assistant Professor, Department of Pathology, Chengalpattu Medical College, Chengalpattu

<sup>3</sup>Professor, Department of Pathology, Institute of Social Obstetrics & Govt. Kasturba Gandhi Hospital for Women and Children, Madras Medical College

<sup>4</sup>Assistant Professor, Department of Pathology, KAPV Government Medical College, Tiruchirapalli

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Corresponding author: Dr. Babiya Infant Arockiasamy

Conflict of interest: Nil

### Abstract:

**Introduction:** Endometrial cancer is the commonest gynaecologic malignancy in developed countries. Hyperplasia of endometrium with atypia carries increased risk of 29% of transforming to malignancy. There is morphological overlap between atypical hyperplasia and well differentiated carcinoma making their histological differentiation, a diagnostic problem especially in curetting specimens. This distinction has clinical significance and this study is aimed to observe the incidence, distribution and clinicopathological profile of endometrial hyperplasias and endometrial carcinoma in patients who attended Institute of Social Obstetrics & Govt. Kasturba Gandhi Hospital for Women and Children, Madras Medical College for a period of 3 years.

**Materials And Methods:** Total of 7229 cases were received for histopathological examination of these cases 3554 were endometrium specimens. 186 cases accounts for hyperplasias and malignancies of Endometrium. Among 186 cases of Endometrial hyperplasias and carcinomas, 135 cases were hyperplasias, 51 cases were malignancies.

**Observation and Results:** Hyperplasia of Endometrium showed a peak incidence in the age group of 41 to 50 years. Carcinoma endometrium had a peak incidence age group of 51-60 years of the 135 cases of hyperplasia, 12 cases were hyperplasia with atypia. Among the 51 cases of malignancy, majority are typical endometrioid type(36 cases-70.58%), 14 were villoglandular variant(14 cases- 27.45%), 1 case was carcinosarcoma (1.96%) Of the 51 cases, majority of the cases presented in grade 1 and stage I.

**Conclusion:** To conclude the incidence of endometrial carcinoma was lower in this study compared to western population.

Keywords: Endometrial Cancer, Endometrial Hyperplasias, Post-Menopausal Bleeding, Hyperplasia With Atypia.

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### Introduction

Endometrial cancer is the commonest gynaecologic malignancy in developed countries.[1] In developing countries like India, it is next to cervical cancer.[2] The incidence in developing countries is raising nowadays due to changes in life style.[3] It constitutes 6% of all cancers in women presenting as the seventh commonest cancer.[4,5] Endometrioid carcinoma is the commonest carcinoma of endometrium which occurs due to estrogenic stimulation unopposed by progesterone action. Endometrial hyperplasia is a well-known precursor of Endometrioid carcinoma.

Endometrial hyperplasia refers to non-physiological and noninvasive proliferation of the endometrium which results in the abnormal growth and shapes of

glands.[6] Hyperplasia of endometrium with atypia carries increased risk of 29% of transforming to malignancy[7]. There is morphological overlap between atypical hyperplasia and well differentiated carcinoma making their histological differentiation, a diagnostic problem especially in curetting specimens. This distinction has clinical significance, because over diagnosis may result in significant morbidity. This study is aimed to observe the incidence and distribution of endometrial hyperplasias and endometrial carcinoma in patients who attended Institute of Social Obstetrics & Govt. Kasturba Gandhi Hospital for Women and Children, Madras Medical College for a period of 3 years, and to study the

various clinicopathological factors of endometrial carcinoma including age of incidence, tumour size, gross appearance, histological type, tumor grade, stage, depth of infiltration, and lymphovascular invasion.

**Materials and Methods**

All patients with postmenopausal bleeding, with suspected endometrial lesions identified by hysteroscopy, endometrial biopsies, cuttings and all Proven malignancies identified by curettage and hysterectomy specimens were included in this study. Total of 7229 cases were received for histopathological examination of these cases 3554 were endometrium specimens. 186 cases accounts

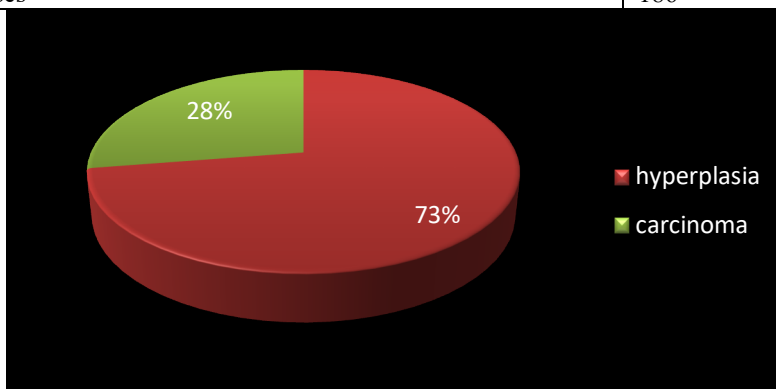
for hyperplasias and malignancies of Endometrium. Among 186 cases of Endometrial hyperplasias and carcinomas, 135 cases were hyperplasias, 51 cases were malignancies. Out of these 186 cases, 63 cases were hysterectomy specimens and 123 were curettage specimens.

**Observation and Results**

The distribution of hyperplasia of endometrium was 3.7% (135 cases), and that of malignant tumors was 1.43%(51 cases) among the total received specimens.(Table 1, chart 1). Atypical hyperplasia accounted for 12 cases, comprising 8.84% of hyperplasia(Table 2 ).

**Table 1: Frequency Of Hyperplasias and Carcinomas of Endometrium**

Histological diagnosis	No. of case	%
Hyperplasia(including without and with atypia)	135	3.7%
Malignancy	51	1.43%
Total number of cases	186	5.13%



**Figure 1: Frequency of Endometrial hyperplasia and Endometrial carcinoma**

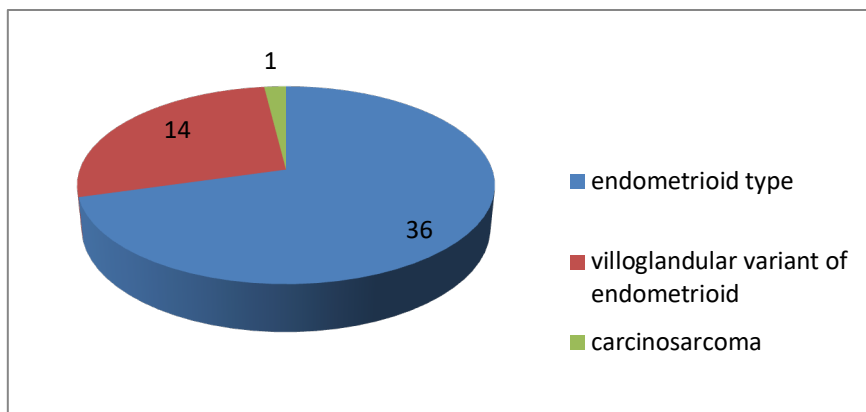
**Table 2: Distribution of Subtypes of Hyperplasia**

Types of Hyperplasia	No. of cases	Percentage
Hyperplasia without atypia	123	91.16%
Hyperplasia with atypia	12	8.84%
Total cases	135	100%

Among 51 cases of endometrial malignancies, 36 cases were endometrioid type constituting of 70.58% of malignancies. Villoglandular subtype constitute 27.45% cases of malignancies. 1 case of carcinosarcoma comprises 1.96% of endometrial malignancies. (Table 3 and Chart 2 )

**Table 3: Histomorphological Distribution of Malignancies of Endometrium**

Histological subtype	Number of cases	Percentage
Endometrioid	36	70.58%
Villoglandular	14	27.45%
Carcinosarcoma	1	1.96%
Total cases	51	100%



**Figure 2: Histomorphological distribution of endometrial carcinoma**

Hyperplasias of endometrium had a peak incidence in the age group of 41-50 years which accounted for 42.95% of cases, followed by age group of 31-40 years which constitutes 28.14%. The mean age is 46.03 years. (Table 4).

**Table 4: Age Wise Distribution of Hyperplasia of Endometrium**

Age group	Number of cases	Percentage
21 - 30 years	4	2.96%
31 - 40 years	38	28.14%
41 - 50 years	59	42.96%
51 - 60 years	26	19.25%
>60 years	8	5.92%
Total cases	135	100%

Among different types of hyperplasias, Atypical hyperplasia had a peak age of around 41-50 years.(Table 5 ) Malignancies of endometrium had a peak incidence of age around 51- 60 years accounting for 37.25%, followed by those with age more than 60 years which accounts for 31.37%. mean age is around 54.72 years. (Table 6 )

**Table 5: Age Wise Distribution of Subtypes of Hyperplasia**

Age group	Hyperplasia without atypia(%)	Atypical hyperplasia(%)	Total
21 - 30 years	4(3.25%)	-	4
31 - 40 years	35(28.45%)	3(25%)	38
41 - 50 years	54(43.9%)	5(41.66%)	59
51 - 60 years	24(19.51%)	2(16.66%)	26
>60 years	6(4.87%)	2(16.66%)	8
Total cases	123(100)	12(100)	135

**Table 6: Age Wise Distribution Of Malignancies**

Age group	Number of cases	Percentage
21 - 30 years	1	1.96%
31 - 40 years	5	9.80%
41 - 50 years	10	19.60%
51 - 60 years	19	37.25%
>60 years	16	31.37%
Total cases	51	100%

Among the 50 cases of Endometrioid carcinoma 38 cases were grade 1, 9 cases were grade 2 and 3 cases belongs to grade 3.(table 7 and chart 3)

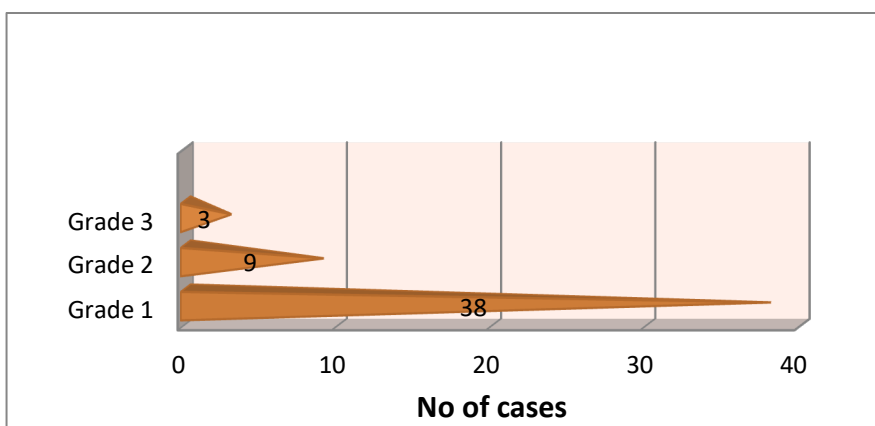


Figure 3: Distribution of Endometrial carcinoma according to histological grade

Table 7: Distribution of Grade Among Endometrial Carcinomas (Including Villoglandular)

Grade	Number of cases	Percentage
I	38	76%
II	9	18%
III	3	6%
Total cases	50	100%

In this study, among the 50 cases of endometrioid carcinomas, 27 cases were hysterectomy specimens, and 23 cases were curettage specimens. Among the 27 hysterectomy specimens, 19 cases showed invasion into superficial half of myometrium. 3 cases showed invasion into full thickness myometrium. 4 cases show no evidence of any infiltration into myometrium.(Table 8 ).

Table 8: Myometrial Invasion Among Endometrial Carcinomas

Myometrial invasion	Number of cases	Percentage
Superficial ½	19	70.37 %
Outer ½	4	14.81%
No invasion	4	14.81%
Total cases	27	100%

In this study, myometrial invasion was found in 19 cases of grade I carcinomas, 5 cases of grade II and 2 cases of grade 3.(Table 9)

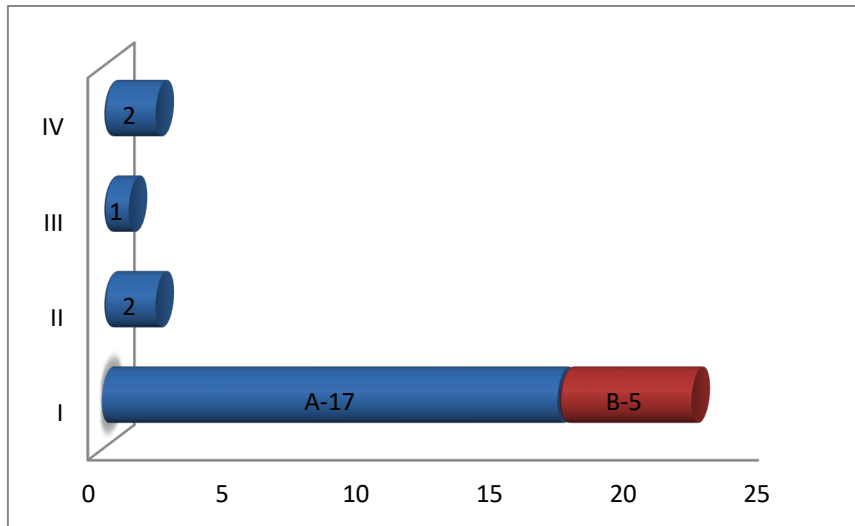
Table 9: Myometrial Invasion Among Histological Grade

Tumor grade	Myometrial invasion	Percentage
I	19	70.37 %
II	6	22.22%
III	2	7.40%
Total cases	27	100%

The distribution of endometrial carcinoma according to FIGO staging was given in the table. In this study, most of the cases were stage I category constituting 81.5% of cases. (Table 10 and Chart 4)

Table 10: Distribution Of Endometrial Carcinoma According To Figo Stage

Stage	No of cases	Percentage%
I	I a	63.0
	Ib	18.5
II	2	7.4
III	1	3.7
IV	2	7.4
TOTAL	27	100



**Figure 4: Distribution of Endometrial carcinoma according TO clinical stage**

In this study, involvement of cervix was found in 2 cases, omental deposits found in 2 cases,, peritoneal fluid deposits in 2 cases, pelvic node involvement in one case.(Table 11)

**Table 11: Distribution of Other Prognostic Factors With Endometrioid Carcinoma (Including Villoglandular Type)**

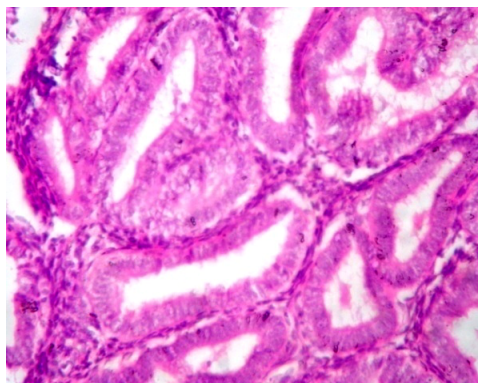
Prognostic factors	Number of cases
Cervix involvement	2
Omental deposits	2
Positive peritoneal cytology	2
Positive pelvic node	1



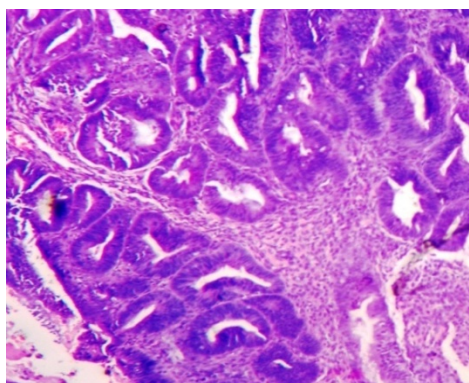
**Figure 1: HPE NO 1524/13 Endometrial carcinoma showing superficial myometrial invasion**



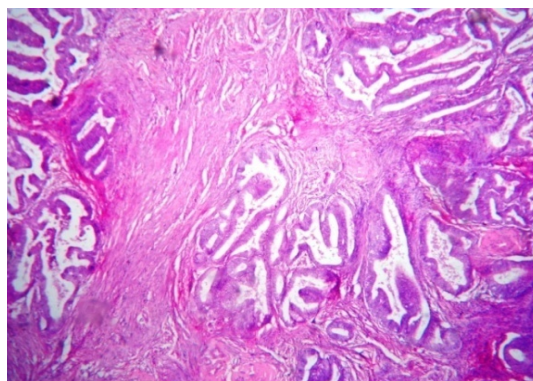
**Figure 2: HPE NO 1591/11 Endometrial carcinoma showing deep myometrial invasion**



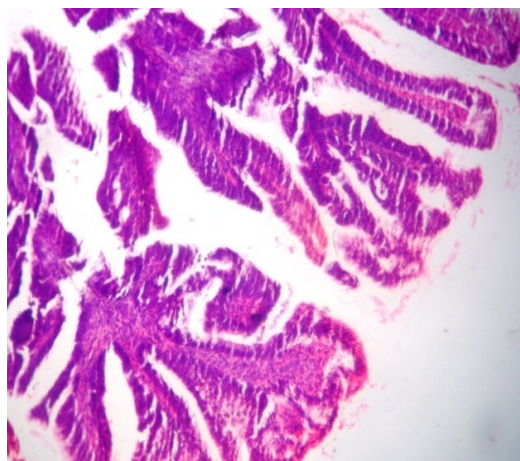
**Figure 3: Complex hyperplasia without atypia-crowding of glands with back to back arrangement.**



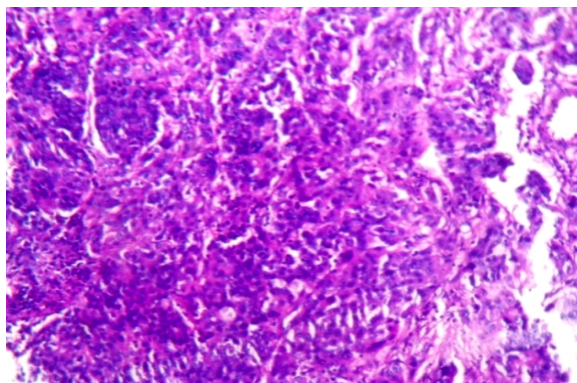
**Figure 4: Complex hyperplasia with atypia. Crowded glands with back to back arrangement.**



**Figure 5: Endometrioid adenocarcinoma Grade 1. Malignant glands infiltrating the myometrium**



**Figure 6: Endometrioid carcinoma – Villoglandular variant (grade I)**



**Figure 7: Endometrioid adenocarcinoma Grade 3. Tumour cells arranged in solid sheets**

### Discussion

Endometrial carcinoma occurs as 7th common cancer in females [5], constituting 6% of malignancies in females. The incidence is increasing in India due to change in life style like decreased physical activity, increased consumption of fat & oils, obesity, etc. [2,3] Adenocarcinoma of endometrium is the most common cancer of which endometrioid type is the commonest type. Endometrial hyperplasia is a well known precursor lesion for endometrioid adenocarcinoma and its identification by histopathological examination plays a role in reducing the morbidity and mortality. The overall incidence of hyperplasia

peaks around the age group of 41-50 years. Atypical hyperplasia peaks around 41-50 years

The most common type of endometrial cancer is endometrioid type constituting 70.5%, villoglandular which is a variant of endometrioid carcinoma constitutes 27.5%. This is almost similar to a study by Dhakal et al, where endometrioid subtype forms 81.3% of cases of endometrial cancers. [8]. The incidence of endometrial carcinoma peaks around 55-65 years with mean age as 54.7 years. A study by Plataniotis et al also showed preponderance of 90% cases above 50 years [9]. In a study by Sharon et al, the median age was 62 years [9].

**Table 12: Comparison of median age of Endometrial carcinoma**

Study	% of cases > 50 years	Median age
Plataniotis et al [9]	90%	63 years
Sharon et al [10]	-	62 years
Current study	63%	55 years

Majority of the tumours observed in this study are of low grade belonging to grade 1 and 2, together constituting 84% of cases. High grade tumours constitute 16% of cases. This is similar to study by Sharon et al<sup>10</sup>, where low grade tumours comprises 88%, and high grade comprises 12% of cases.<sup>10</sup>

**Table 13: Comparison of Grade of Endometrial carcinoma**

Study	% of high grade tumours
Sharon et al [10]	12%
Abeler et al [11]	26%
Current study	16%

In the current study, 70% cases showed invasion into superficial half of myometrium. 15% cases showed invasion into deep myometrium. 15% cases show no evidence of any infiltration into myometrium. According to Sharon et al [10], invasion into superficial myometrium was 50%, deep invasion was found in 30%, no invasion in 20% cases. Invasion into deep myometrium in the current study was less when compared to studies by Sharon et al [10], Abeler et al [11], Inoue et al [12] where the percentage of deep invasion are 30%, 26% and 30% respectively.

**Table 14: Comparison of myometrial invasion of Endometrial carcinoma**

Study	% deep myometrial invasion
Sharon et al [10]	30%
Abeler et al [11]	26%
Inoue et al [12]	30%
Current study	16%

The current study showed involvement of cervix in 6% of cases. This is less when compared to studies by Sharon et al [9], Abeler et al [10], Inoue et al [11], where the involvement of cervix is 20%, 23%, 18% respectively.

**Table 15: Comparison of cervix involvement in Endometrial carcinoma**

Study	%cervical involvement
Sharon et al [10]	20%
Abeler et al [11]	23%
Inoue et al [12]	18%
Current study	4%

To conclude the incidence of endometrial carcinoma was lower in this study compared to western population. Many patients with endometrial hyperplasia were in 5<sup>th</sup> decade and most of the cases with endometrial carcinoma were in the postmenopausal age group in the 6<sup>th</sup> decade. Most of the patients with carcinoma presented with complaints of postmenopausal bleeding, whereas those with hyperplasia had abnormal uterine bleeding.

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