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Comparative study of histology of normal endometrium and of endometrium in dysfunctional uterine bleeding

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I. Introduction

Uterusisachild bearing organinfemales, whichprotectsand providesnutritiontoa fertilized ovum enablingittogrowintoafullyformedfetus. The uterus is pyriform in shape and is made up of three layers: -

1. Perimetrium– it is the outermost layer made up of peritoneum
2. Myometrium– Main thickness of uterine wall is made up of smooth muscle. This is the myometrium.
3. Endometrium– the innermost layer (corresponding tomucousmembrane)ofuterusiscalledtheendometrium.Itisthislayer which undergoes changes during menstrualcycle.

Constituents of the endometrium are asfollows:

a. The surface of the endometrium is covered by a liningepithelium.
b. The surface of the internal between surface epitheliumand myometrium. It contains numerous simple tubular glands (uterineglands), stroma and connective tissue.
c. The arteries that supply the endometrium tend to runverticallytowardsthesurface.

DYSFUNCTIONAL UTERINEBLEEDING -This term has been used to cover all forms of abnormal bleeding for which an organic cause cannot be found. It is classified according to whether it is ovulatory or anovulatory, The endometrial glands may develop mild cystic changes &inothersplacesmayappear disorderly with relativescarcityofstroma.In DUB in an anovulatory cycle – endometrium shows minimal glandular development and stromal heamorrhage.

II. Aims And Objectives -

Comparative analysis of histology of normal endometrium and of endometrium in dysfunctional uterine bleeding

III. Material And Methods –

Endometrial tissues were obtained by Dilatation & Curettage operation and by hysterectomy from operation theatre of Department of Obstetrics &Gynaecology, MGM Hospital, Jamshedpur. Tissue was fixed in 10% formalin and stained with heamatoxylin and eosin.In all cases histological features of endometrial glands, endometrial stroma and surface epithelium were studied. In histology by Haematoxylin and Eosin staining surface epithelium of endometrium, lining epithelium of endometrial glands, stromal cells, cytoplasm and nucleus within the stromal cells were studied both under low and high magnification.

IV. Observations –

Fifteen normal endometrial tissue and 15 endometrial tissue from dysfunctional uterine bleeding patients were included in the study.

Table-1 shows age distribution of cases of normal endometrium and cases of dysfunctional uterine bleeding. In group of cases with normal endometrium 3 patients were <20 years, 5 patients were between 21 to 30 years, 6 patients were between 31 to 40 years, 1 patients were between 41 to 50 years.

In group of cases with dysfunctional uterine bleeding 1 patients were <20 years, 3 patients were between 21 to 30 years, 7 patients were between 31 to 40 years, 4 patients were between 41 to 50 years. So maximum incidence of dysfunctional uterine bleeding were seen in the age group of 31 to 40 years and minimum

incidence were seen in the age group of <20 years.

TABLE–1: AGE DISTRIBUTION OF CASES

Age Group (years)	No. of cases of normal endometrium	No. of cases of DUB
< 20	3	1
21–30	5	3
31–40	6	7
41–50	1	4

Table-2 shows different pattern of bleeding in DUB cases. Menorrhagia was most common presentation. 10 patients had complain of menorrhagia. Metrorrhagia was seen in 2 patients whereas polymenorrhagia, oligomenorrhoea and menometrorrhagia were seen in 1 patient each.

TABLE–2 : BLEEDING PATTERN OF DUB CASES

Type of bleeding	No. of cases	Percentage
Menorrhagia	10	66.6 %
Metrorrhagia	2	13.3 %
Polymenorrhagia	1	6.6 %
Oligomenorrhoea	1	6.6 %
Menometrorrhagia	1	6.6 %

TABLE–3:ENDOMETRIAL PATTERN OF NORMAL ENDOMETRIUM AND DUB CASES

Types of endometrial pattern	Normal endometrium	Dysfunctional uterine bleeding (DUB)
Proliferative	10	5
Secretory	5	3
Cystoglandular hyperplasia	-	3
Irregular shedding	-	2
Chronic endometritis	-	1
Mixed endometrium	-	1

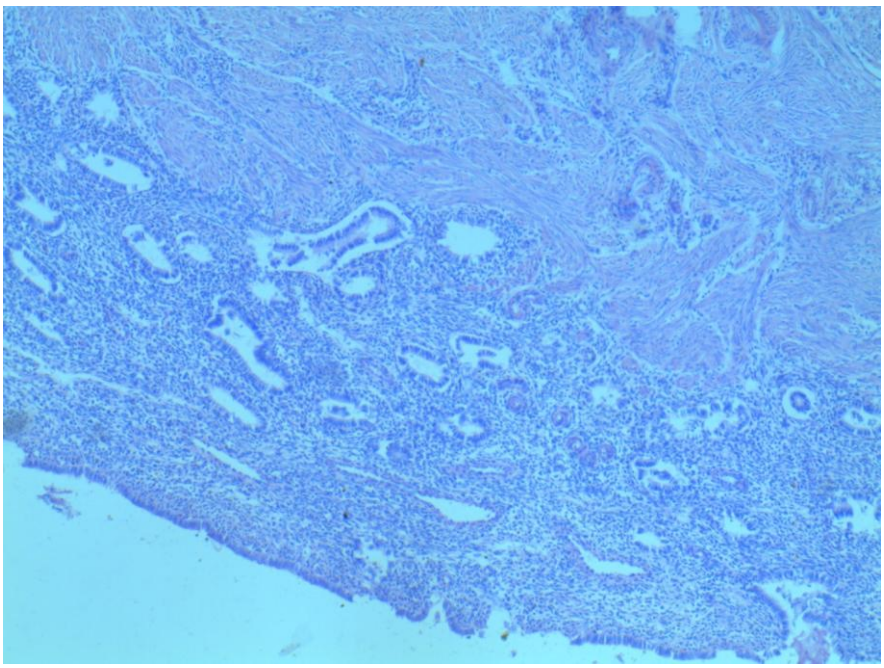

Plate 1: showing Endometrium with surface epithelium

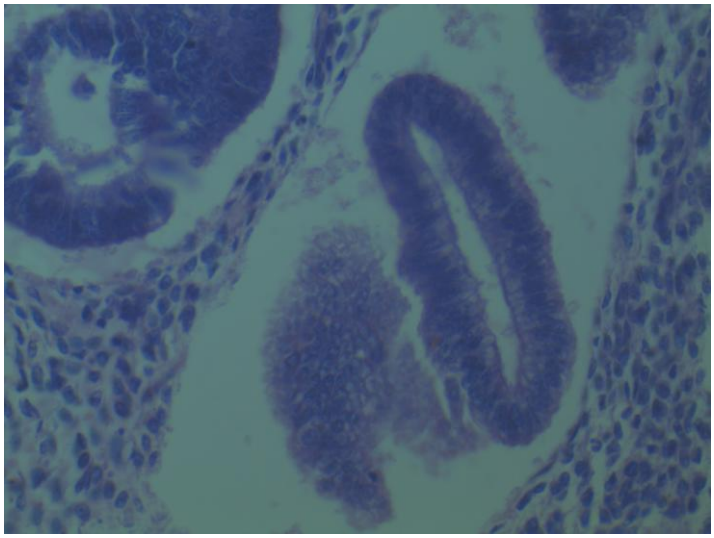

Plate 2: showing endometrial glands with nuclear pseudostratification and stroma with spindly stromal cells (Proliferative Endometrium)

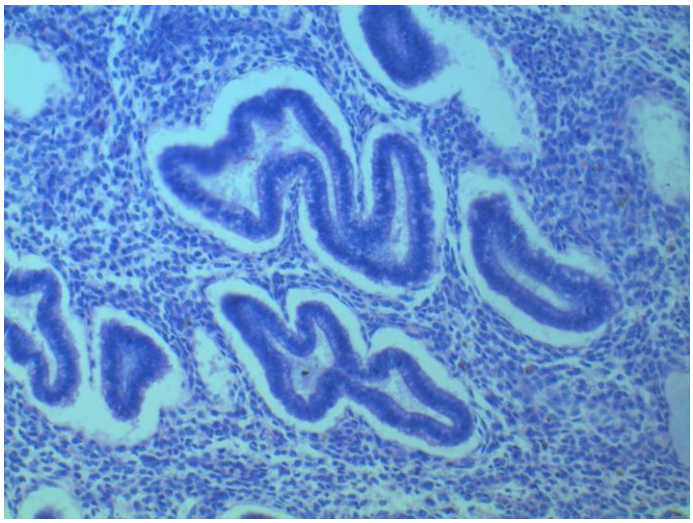

Plate 3: showing endometrial glands and loose stroma (Mid proliferative phase)

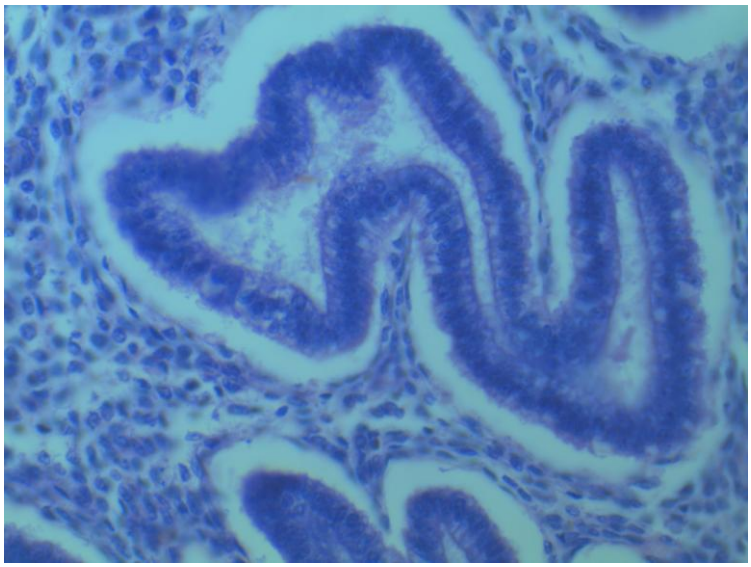

Plate 4: showing elongated nonsecretory endometrial glands with sharp luminal margin and round to oval nuclei with nuclear pseudostratification and loose stroma

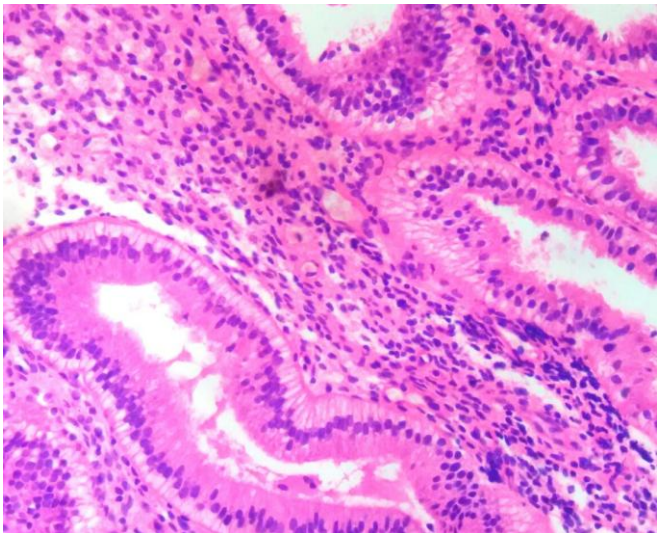

Plate 5 Endometrial glands showing subnuclear vacuoles with nuclear pseudostratification ,Early secretory phase

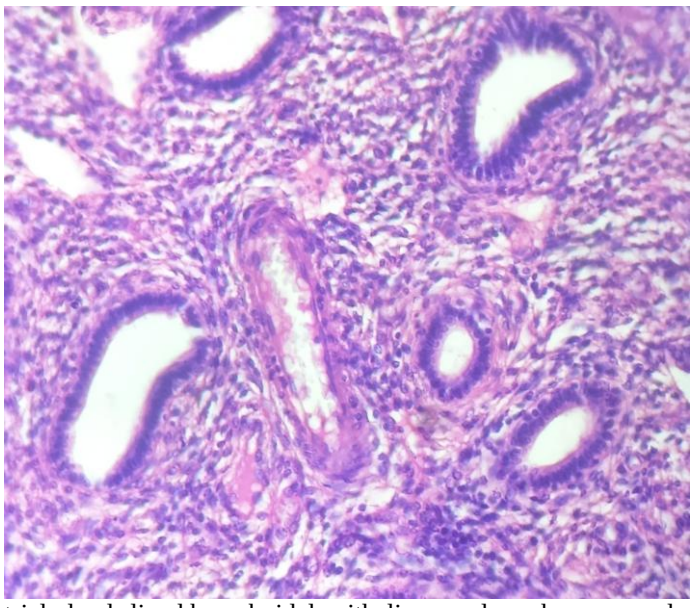

PLATE -6 Endometrial glands lined by cuboidal epithelium,nucleus shows pseudostratification ,Stroma mildly oedematous ,Showed spindly stromal cells,round to vesicular nucleus

V. Discussions :

The present study comprised of 15 normal endometrial tissues and 15 endometrial tissues from dysfunctional uterine bleeding patients undergoing obstetrical and gynaecological operations. In our study of cases with dysfunctional uterine bleeding, 1 patient was less than 20 years, 3 patients were between 21 to 30 years, 7 patients were between 31 to 40 years and 4 patients were between 41 to 50 years of age. Whereas in cases with normal endometrium 3 patients were less than 20 years, 5 patients were between 21 to 30 years, 6 patients were between 31 to 40 years and 1 patient was between 41 to 50 years of age.

So in my study most patients of dysfunctional uterine bleeding were in reproductive age group.

Mehrotra et al(1972) found maximum number of cases in 21-30 (48%) years age group. A few worker Kanakadurgamba et al (1964) reported 44%. Wagh&Swamy (1964) reported 39% and Dawn (1964) reported 37.9% in the age group between 21-30 years.

Whereas, foreign workers Sutherland (1949) reported highest incidence in age group 41-50 years. Few of the Indian workers such as Das and Chugh (1964), Bhattacharji (1964), Narula (1967) and Maheshwari et al (1996) have reported highest incidence in 31-40 years of age.

In the present study, high incidence of DUB was noted in 31-40 years, it was 47% which is found to be similar to the above observations.

The type of bleeding pattern with D.U.B has been taken as criterion for study in attempt to establish

incidence of D.U.B in relation to type of bleeding pattern. In the present study incidence of menorrhagia was 66.6%, metrorrhagia was 13.3%, polymenorrhagia was 6.6%, oligomenorrhoea was 6.6 % and menometrorrhagia was 6.6 %. In V.G. Mehrotra's series, the incidence of menorrhagia was 52%, metrorrhagia was 19.33%, polymenorrhagia was 26.0%, and postmenopausal bleeding was 2.67%. In the present study the highest incidence of menorrhagia (66.6%) was seen which is similar to the above observations.

In our study microscopic appearance of normal endometrium by haematoxylin and eosin stain showed proliferative phase of endometrium in 10 cases and secretory phase of endometrium in 5 cases.

In our study microscopic appearance of endometrium in dysfunctional uterine bleeding by haematoxylin and eosin stain showed feature of proliferative endometrium in 5 cases (33.3%), secretory endometrium in 3 cases (20%), cystoglandular hyperplasia in 3 cases (20%), irregular shedding in 2 cases (13.3%), chronic endometritis in 1 case (6.6%) and mixed endometrium in 1 case (6.6%).

Histological findings of proliferative and secretory endometrium in dysfunctional uterine bleeding were similar to features of normal endometrium.

Various types of endometrial hyperplasias have been described in the literature. The most common type is cystoglandular hyperplasia.

The incidence of endometrial hyperplasias has been quoted to vary between 15.5 % to 31.25% by different authors. The incidence of endometrial hyperplasia in the present study was 20 % which is agreeable with those of Sutherland et al (1950) -15.5%, Devi and Sutaria et al (1964) - 23.5%, and Mehrotra et al (1972) - 19 4%.

It was observed that the incidence of endometrial hyperplasia was more in patients with history of menorrhagia.

The incidence of irregular shedding of endometrium in Sutherland study (1950) was 1.5% and in Joshi and Deshpande (1964) study, it was 6.9%. In the present study irregular shedding of endometrium was seen in 13.3% of the cases.

In the present study the features of mixed endometrium was seen in 6.6% of cases. The incidence of mixed endometrium in a study by Baniecki et al (1928) was 7%, in Kistner et al (1964) study was 2.2% and in Traut and Kuder (1935) study, it was 11.3%. So incidence of mixed endometrium in our study was similar to above observations.

Sutherland and Bruce (1962) observed normal endometrium in dysfunctional uterine bleeding to the tune of 54.7% of cases, hyperplastic endometrium in 26.5% of cases, irregular shedding in 1.3% of cases and atrophic endometrium in 1% of cases.

Das and Chugh (1984) found 41.5% proliferative, 26.1% secretory, 30.6% hyperplastic and 1.8% atrophic in their series.

Roy and Chaudhary et al (1981) observed 60% of cases with proliferative endometrium, 27% with secretory endometrium, 5% hyperplastic endometrium, 4% with atrophic endometrium. There was no reported case with irregular shedding type of endometrium.

Thus the pattern of histology of endometrium in dysfunctional uterine bleeding in our study is more or less in accordance with above mentioned studies.

VI. Conclusion:

Dysfunctional uterine bleeding may occur at any age in a woman's life but is more common in late child bearing age.

Histological study reveals endometrial pattern in dysfunctional uterine bleeding in different cases, varying from normal proliferative and secretory patterns to irregular shedding, irregular ripening and cystoglandular hyperplasia patterns.

Histological study is helpful to exclude other organic pathology, which mimics dysfunctional uterine bleeding like endometrial polyp, chronic endometritis, endometrial carcinoma etc.

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