

Original research article

An Observational Study To Evaluate The Histological Patterns Of Endometrium In Infertile Women In An Attempt To Find Out The Cause Of Infertility**Dr. Vandana¹, Dr. Pallavi Mehra², Dr. Kannu Priya³, Dr. N.K.Bariar****¹ PG Student, Department of Pathology, Patna Medical College and Hospital, Patna, Bihar, India.****² Assistant Professor, Department of Pathology, Patna Medical College and Hospital, Patna, Bihar, India.****³ Dr.Kannu Priya,Senior Resident, Department of Pathology, Patna Medical College and Hospital, Patna, Bihar, India.****⁴ HOD, Department of Pathology, Patna Medical College and Hospital, Patna, Bihar, India.****Corresponding Author: Dr. Vandana****Abstract****Aims:** To evaluate the histological patterns of endometrium in infertile women in an attempt to find out the cause of infertility.**Materials and Methods:** The present study was conducted on women attending the Department of Gynaecology and Obstetrics at Patna Medical College Hospital, Patna, with complain of failure to conceive after regular and unprotected intercourse with husband. Gross examinations of the samples were done following the guideline described by standard textbook of surgical pathology. Paraffin blocks were made; Hematoxylin and Eosin (H&E) stained histological slides were prepared and examined under microscope.**Results:** Menstrual problems were seen in 38% of patients. Anovulatory infertility was present in 58% cases. Simple hyperplasia without atypia was seen in 8% cases and tuberculous endometritis was present in 3% cases.**Conclusion:** In the present study Anovulatory cycles accounted for significant numbers of cases.**Keywords:** Infertility; Endometrium, Hyperplastic, Tuberculous**Introduction**

Every married woman nurtures a deep felt desire to become a mother, unfulfillment of which is not only a cause of distress to the woman but also to her entire family. The barren marriage is a problem as old as the history of mankind.

Sterility is an old age problem and the incidence of sterility is about 8-15% of all married couple due to factors involving both male and female partner.¹

WHO defines, Infertility as the failure to become pregnant after 1 year of unprotected intercourse and it affects approximately 10-15% of couple.² Infertility can be primary, where couples have never conceived previously or secondary where couples have had a pregnancy, although not necessary a successful one.³

It is generally a tragedy to a married couple in Indian society to be Childless. This may lead to familial unhappiness, familial tension, social disgrace, marital upset, dissolution of marriage, adoption, mental and psychic trauma and various types of ill health.

Female infertility may occur due to disturbances involving any part of genital system or parts of the central nervous system that control the ovaries hormonally. Endometrium is the mirror of hypothalamus, pituitary, and ovarian function as well as bed and bread of the early

developing embryo. It is the soil for the fertilized ovum to be implanted and is the end product of the hormonal complex and thus reflects the dysfunction of the complex in morphological abnormalities beside the local disease.^{1,4}

To clarify the causes of infertility, an impressive array of diagnostic tests are available to clinicians. Almost all functional disturbances involved in infertility result in morphological changes in the endometrium since hormone levels fluctuate depending upon various biorhythms, the histological examination of the endometrial biopsy is the most reliable parameter for evaluating the cause of infertility. Hence the present study was conducted with the aimed at evaluating the histological patterns of endometrium in infertile women in an attempt to find out the cause of infertility.

Materials and Methods

The present study was conducted on women attending the Department of Gynaecology and Obstetrics at Patna Medical College Hospital, Patna, with complain of failure to conceive after regular and unprotected intercourse with husband..The study protocol was reviewed by the Ethical Committee of the Hospital and granted ethical clearance.

Methodology

Patients suffering from primary infertility were included in the study. Endometrial samples were collected between days 21 to 23 of menstrual cycle of each patient. The endometrial samples obtained from patients suffering from diseases other than infertility such as DUB or postmenopausal bleeding was excluded from the study.

Gross examinations of the samples were done following the guideline described by standard textbook of surgical pathology. Paraffin blocks were made; Hematoxylin and Eosin (H&E) stained histological slides were prepared and examined under microscope.

Endometrium for the study is obtained either by endometrial biopsy or curettage which was done by the gynaecologist and sent to the department of pathology in 10% formalin. Dating of the endometrium, the criteria described by Dallenbach Hellweg⁵ were applied. The histopathological observations were done in the Department of Pathology at Patna Medical College Hospital, Patna.

Statistical Analysis

The recorded data was compiled and entered in a spreadsheet computer program (Microsoft Excel 2010) and then exported to data editor page of SPSS version 19 (SPSS Inc., Chicago, Illinois, USA). Descriptive statistics included computation of percentages.

Results

Table 1: the duration of marriage after which case come for investigation

Duration of Marriage in years	No. of cases	Percentage (%)
2 to 5	58	58
6 to 9	23	23
10 to 14	11	11
15 to 20	7	7
More than 20	1	1
Total	100	100%

Table 2: the type of endometrium in case of primary sterility

Types of endometrium	No. of cases	Percentage (%)
Normal Secretory Endometrium	31	31
Ovulatory Defect	58	58
Non specific Endometritis	6	6
Tuberculous Endometritis	5	5
Total	100	100

Table 3: the type of defect of ovulation

Types of Ovulatory defect	No of cases	Percentage (%)
Secretory deficiency of endometrium	18	31.03
Anovulatory endometrium	28	48.28
Hyperplastic endometrium	8	13.79
Hypoplastic endometrium	3	5.17
Atrophic endometrium	1	1.73
Total	58	100

Table 4: The Type Of Secretory Deficiency

Type of secretory deficiency	No of cases	Percentage (%)
Uniform deficiency	10	55.55
Patchy deficiency	8	44.45
Total number of case with secretory deficiency	18	100

Table 5: The Type Of Anovulatory Cycle

Type of endometrium	No of cases	Percentage (%)
Proliferative phase	11	37.5
Secretory deficiency	17	62.5
Total number of case with anovulatory cycle	28	100

Table 6: The Histological Type Of Endometrium In Case Of Non Specific Endometritis

Type of endometrium	No of cases	Percentage (%)
Secretory phase of endometrium	1	16.65
Anovulatory cycle of endometrium	2	33.35
Hyperplasia of endometrium	1	16.65
Deficient secretory phase of endometrium	2	33.35
Total	6	100

Table 7: The Type Of Tuberculous Endometritis

Type of endometrium	No of cases	Percentage (%)
Proliferative phase	3	60
Secretory deficiency	2	40
Total number of case of endometrial tuberculosis	5	100

Discussion

The present study was conducted on 100 women, who were not conceiving and living with their husband and not using contraceptive devices after their marriage. Their husbands were having normal seminal analysis.

Such cases were selected carefully and their endometrial biopsy was taken at premenstrual period and observation of endometrial histopathology was done. The character of the stroma,

the glands and the vessels were observed in details and the findings were correlated with the day of menstrual cycle.

The present study shows that, maximum numbers of cases come for investigation at 2 to 5 years of marriage. This is because the couple as well as whole family starts worrying if conception does not occur within 1 to 2 years of marriage. This is because early marriage and early baby is still prevalent in our country.

Out of total 100 cases of endometrial biopsy, 31 cases showed normal secretory endometrium, 58 cases showed abnormality in secretory activity due to ovulatory defect, 6 cases showed non-specific endometritis and 5 cases showed tuberculous endometritis.

In present observation the incidence of infertility with normal secretory is near to the reports of Charles Stevenson. The cases having infertility with normal secretory endometrium give other clinical features. Out of 31 cases, 15 cases have oligomenorrhoea as associated complain. 5 cases have menorrhagea. 2 cases have leucorrhoea and 1 case has diabetes mellitus.

Incidence of ovulatory defect in our observation was found to be 58% which is much more than previous report.⁶ This is due to they may have included other organic defect of genital tract in their report.

In our observation 18% of total case and 30.51% of ovulatory defect cases shows secretory deficiency of endometrium. The defect could be attributed to the lack of sufficient ovarian hormone (progesterone) in these cases. In the present investigation anovulatory endometrium were found in 28 cases (28%) out of which 11 cases show active proliferative phase and 17 cases show inactive proliferative phase. This was found in agreement with the incidence rate of 22.5% observed by Najima Abbasi et al.⁶ Zavar et al.⁷ reported novulatory infertility in 28.2% cases.

Incidence of primary sterility with tuberculous endometritis was 5 cases out of 100 cases in our observation. Out of 5 cases of endometrial tuberculosis 3 cases were associated with anovulatory cycle and show proliferative phase of endometrium. Histopathologically 2 cases were associated with secretory deficiency of endometrium. 2 cases out of 5 cases give the past history of pulmonary tuberculosis. Tuberculous endometritis and cystoglandular hyperplasia formed a minor cause of infertility in present study and it was found comparable with previous studies.⁸⁻¹⁰

Conclusion

Observation of endometrial histopathology in case of primary sterility has been found to be important method of investigation. Most common cause primary sterility is due to ovulatory defects. In ovulatory defects endometrium shows persistence of proliferative phase or deficient secretory activity.

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