

A Prospective Study of Secondary Infertility in Women by Histopathological Endometrial Assessment

Soumya R Patil¹, Rajesh Patil²

How to cite this article:

Soumya R Patil, Rajesh Patil. A Prospective Study of Secondary Infertility in Women by Histopathological Endometrial Assessment. Indian J Obstet Gynecol. 2019;7(4 Part-1):537-540.

¹Senior Resident, Dept. of Obstetrics & Gynaecology, Gulbarga Institute of Medical Sciences, Gulbarga, Karnataka 585105, India.
²Professor, Department of Pathology, Mahadevappa Rampure Medical College, Sedam Road, Mahadevappa Marg, Gulbarga, Karnataka 585105, India.

Corresponding Author: Rajesh Patil, Professor, Department of Pathology, Mahadevappa Rampure Medical College, Sedam Road, Mahadevappa Marg, Gulbarga, Karnataka 585105, India.

E-mail: drrajeshpatil007@gmail.com

Received on 22.08.2019; Accepted on 15.10.2019

Abstract

Introduction: Worldwide Infertility rate prevails around 8-12% of all couples; approximately 80 million are infertile. Investigations for infertility are meant to intervene into the modifiable/treatable causes. In India 10-15% of couples are infertile. Therefore, the present study was undertaken to investigate the morphological patterns of endometrial tissue in women with primary infertility.

Materials and Methods: The study included 16 cases with complaints of infertility (secondary). The premenstrual D&C was done to obtain endometrial biopsy. The present prospective study was a descriptive study and the values are mentioned in percentages.

Results and Discussion: In present study a total of 16 cases were studied. Out of which 8 cases (50%) belonged to the 25-30 yrs age group. The predominant morphological pattern was that of secretory endometrium seen in 6 cases (37.5%) as opposed to proliferative, endometritic or tubercular pattern. The predominant menstrual pattern recorded was Regular; seen in 10 cases (62.5%) as opposed to irregular or menorrhagic patterns.

Conclusion: The endometrial biopsy has a great role in screening the cases of infertility as it helps to assess the information about ovulation, ripening of the endometrial tissue and other abnormal endometrial

reaction, hormonal imbalance. This is the only method to label the diagnosis of endometrial tuberculosis in an apparently healthy female.

Keywords: Endometrial; Infertility; Patterns.

Introduction

Infertility is defined as inability to conceive after one year of unprotected coitus.¹ Secondary infertility is failure to conceive after having borne a child or abortion. Worldwide infertility rate prevails around 8-12% of all couples, approximately 80 million are infertile. In India 10-15% of couples are infertile. The magnitude of the problem of infertility varies from place to place, country to country and is also the concern of infertile couple. The current problems contributing to infertility are delayed child-bearing to achieve acceptable socio-economic status; educational and professional needs. Investigating for infertility is to intervene into the modifiable/treatable causes.¹⁻³ Endometrial biopsy with routine hematoxylin and eosin staining is an important simple investigation because endometrial biopsy can be practiced in developing countries like India, where complex expensive immunological and hormone assay procedures are not easily available

and/or affordable. Therefore, the present study was undertaken to investigate the morphological patterns of endometrium in infertile women.

Materials and Methods

The present prospective study was carried out in the Department of OBG & Pathology, GIMS, Kalaburagi after the ethical approval from the Institutional Ethics Committee. The study included 16 cases with complaints of infertility (secondary) in the time period from January 2018 to January 2019. Patients who failed to conceive with prior history of conception were investigated as cases of secondary infertility. The exclusion criteria were infertility within one year of marriage, non cooperative patients and male factors causing infertility. Clinical details in the form of menstrual cycle, last menstrual period (LMP), age at marriage and obstetric history (in secondary infertility) were obtained. The procedure of Dilatation & Curettage (D&C) was explained and informed consent was taken. The premenstrual D&C was done to obtain endometrial biopsy. D&C was done any time in cases of Amenorrhea and prolonged bleeding. The

endometrial tissue was fixed in 10% formalin for 24 hours and routinely processed.^{5,6} Micronthick sections were cut and performed. Hematoxylin-eosin stain for morphology of endometrium-dating of endometrium (Noye's method) and Ziehl-Neelsen (ZN) stain for acid-fast bacilli in all suspected cases. The present prospective study was a descriptive study and the values are mentioned in percentages.

Results

In present study a total of 16 cases were studied. Study included various morphological patterns of endometrium in infertility patients belonging to secretory phase, proliferative phase and hyperplasia were documented in the present study. Majority of cases belonged to primary infertility. All secondary infertility cases have a previous history of conception. The youngest patient seen was 21 years old and eldest was 38 years in primary infertility cases with an average age of 26.9 years. The youngest patient seen was 28 years old and eldest was 38 years in secondary infertility cases with an average age of 30.6 years (Table 1).

Table 1: Age Groupwise Distribution of Primary and Secondary Infertility Patients

Type of infertility	Number (%)	Age group			
		18-25	25-30	30-35	35-40
Secondary	16 (21.05%)	-	8 (50%)	4 (25%)	4 (25%)

In secondary infertility group maximum cases 8 (50%) belonged to the age group of 25-30 years

We observed various pattern of endometrium in secondary infertility like secretory phase (36.66%), proliferative (anovulatory) endometrium was seen in (33.33%), tubercular (3.33%), cgh (13.33%), polyp (6.66%), and nonspecific endometritis (6.66%) (Table 2). Various menstrual pattern

were recorded (Table 3). Regular menstrual cycles were seen in majority of patients. The dating of endometrium was done for diagnosis of luteal phase defect as per Noye's criteria.⁵ The diagnosis of LPD was made as directed by Jones criteria which considers LPD as a lag by two or more than two days in the histological development of the endometrium.

Table 2: Morphological Patterns of Endometrium in Primary and Secondary Infertility

Type of endometrium	Secondary infertility	
	No.	Percentage
Secretory	6	37.5%
Proliferative	2	12.5%
Tubercular	2	12.5%
Cystic hyperplasia	2	12.5%
Polyp	2	12.5%
Non-specific endometritis	2	12.5%
Total	16	100%

Table 3: Menstrual Patterns of Endometrium in Primary and Secondary Infertility

Type of menstruation	Secondary infertility
Regular	10
Irregular	2
Menorrhagia	2
Polymenorrhoea	
Secondary amenorrhoea	1
Polymenorrhagia	1
Total	16 (100%)

Discussion

The cause of infertility may be difficult to determine but may include inadequate levels of certain hormones in both men and women, and trouble with ovulation in women. The simple and most accurate assessment of endometrium and ovulation can be done by endometrial evaluation. The secretory phase endometrium in premenstrual biopsy indicates that the cycle is ovulatory and

indirectly rules out all the cause of infertility related to ovulation. Earlier says basal body temperature was used to confirm the ovulation.⁴ Endometrial biopsy will give an opportunity to directly evaluate the target tissue and can assess the hormonal status, ovulation, regular ripening of the endometrium, abnormal endometrial reaction due to hormonal imbalance and diagnose some endometrial pathologies causing infertility⁵ (Tables 4 and 5).

Table 4: Comparison of Various Types of Infertility

Type of infertility	Present study	Najma Abbasi <i>et al.</i> ⁶ (1977)	Shirish S. Nandedkar <i>et al.</i> 2015. ⁷
Secondary	16 (21.05%)	53 (11%)	457 (19.89%)

Table 5: Comparison of Various Indian studies

Type of endometrium	Present study	Venugopal Shetty ⁴ (1959)	Georg Sillo-Seidl ⁵ (1971)	Najma Abbasi <i>et al.</i> ⁶ (1977)
Secretory	36.66%	72.54%	56%	71%
Proliferative	33.33%	24.5%	30%	23%
Tubercular	3.33%			4%
Cystic hyperplasia	13.33%			
Polyp	6.66%			
Non-specific endometritis	6.66%			
Total	100%			

Many studies highlighted the endometrial biopsy assessment is safe, easy and cost-effective means of assessment of endometrial maturation, confirmation of ovulatory cycle and assessment of corpus luteum adequacy. In a study by Ross GT *et al.* 8–20% of all infertile women have demonstrable functional and anatomical endometrial disturbances. Endometrial tissue is important in nidation of young fertilized ovum.⁸ In Indian studies by Venugopal Shetty (1959), Georg Sillo-Seidl (1971), and Najma Abbasi *et al.* (1977) showed similar pattern, causes, and age group distribution. In few studies glycogen and alkaline phosphatase content of the endometrium and stated that the biochemical changes run parallel to the histological changes that we commonly observe in the endometrium.

Conclusion

Endometrial biopsy has a great role in cases of screening the infertility as it helps to access the information about ovulation, ripening of the endometrium and other abnormal endometrial reaction, hormonal imbalance. This is the only method to label the diagnosis of endometrial tuberculosis in an apparently healthy female.

References

- Jonathan S Berek, RD Rinehart, PA Hillard, *et al.* Novak's Gynaecology, 13th Edn. Lippincott Williams & Wilkins. 2002.

2. Bhatia N. Updated and revised Jeffcoate's. Principles of Gynaecology International edition. Arnold Publishers (London, New Delhi); 2001.
3. VG Padubidri, SN Daftary. Shaw's textbook of Gynaecology, 13th Edn, Reed Elsevier India Pvt. Ltd, 1998.
4. Venogopal Shetty BM. Endometrium in subfertility (A Histochemical Study). J. of Obst. & Gyn. of India. 1959;10:139-41.
5. Georg Sillo-Seidl. The analysis of the endometrium of 1000 sterile women. J. of Obst. & Gyn. of India. 1971;21(4-6):462-6.
6. Najma Abbasi, Tyagi SP, Saxena K, *et al.* Histopathological study of endometrium in infertile women. J. of Obst. & Gyn. of India. 1977;27:376-82.
7. Shirish S. Nandedkar, Ekta Patidar, *et al.* Histomorphological Patterns of Endometrium in Infertility. J Obstet Gynaecol India. 2015 Oct;65(5):328-34.
8. Ross GT, Cargille CM, Lipsett MB, *et al.* Pituitary and gonadal hormones in women during spontaneous and induced ovulatory cycles. Recent Prog Horm Res. 1970;26:1-4.

