

## RESEARCH ARTICLE

# Trends in Endometriosis among Laparoscopic Patients in Multiple Hospitals in Northern India: A 3-Year Review

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## ABSTRACT

### Objectives:

- To determine the prevalence of the disease, its pattern of incidence, major clinical features in multiple hospitals in the North Indian region over the period of 3 years.
- To determine the most affected age group and the grades of the disease in the region.
- To evaluate the commonly affected pelvic organs and surgical management offered.

**Data collection:** Records were collected from five different hospitals spread mainly over North Indian region that underwent laparoscopic procedures from January 2012 to December 2014. Total cases analyzed were 440 laparoscopic cases and 110 endometriosis cases.

**Design:** Retrospective analytic study.

**Patients:** All those patients who underwent laparoscopy of all ages referred to the above-mentioned hospitals during the period.

**Results:** Out of the 440 laparoscopic procedure done, 110 were confirmed cases of endometriosis (25%). The mean age of the studied population was  $30.6 \pm 5.62$  while 25 to 29 (40.0%) age bracket was the most affected. There was a yearly rise in the incidence of endometriosis with a range of 21 to 42% per 100 person-year population with a prevalence rate of 25%. The most commonly associated symptom was infertility (87.3%), followed by chronic pelvic pain (56.4%) and dysmenorrhea (34.5%). The ovary was the most affected organ (89.1%), grade II (mild) endometriosis the most common grade (35.5%), while cystectomy (30.0%) and excision of the endometriosis implants (19.1%) were the commonly performed surgical procedures.

**Conclusion:** Study shows that endometriosis is prevalent in this region and its major symptom is infertility and chronic pelvic pain, these facts should stimulate gynecologist to promptly examine women with symptoms suggestive of endometriosis laparoscopically with a view of offering early treatment and counseling.

**Keywords:** Chonic pelvic pains, Dysmenorrhea, Enigma subfertility.

**How to cite this article:** Umelo CC, Manchanda R. Trends in Endometriosis among Laparoscopic Patients in Multiple Hospitals in Northern India: A 3-Year Review. *J South Asian Feder Obst Gynae* 2015;7(3):167-170.

**Source of support:** Nil

**Conflict of interest:** None

**Date of received:** 10 September 2015

**Date of acceptance:** 20 November 2015

**Date of publication:** December 2015

## INTRODUCTION

Endometriosis was first described by Rokitansky in 1860. It is defined as the presence of functioning endometrial tissue outside the uterine cavity; commonest site being the pelvis. The exact prevalence of the disease is not actually known, however, prevalence estimates range from 2 to 10% within the general population but up to 50% in infertile women.<sup>1</sup> It occurs in approximately 70% of women with dysmenorrhea and dyspareunia, although not all women with endometriosis are symptomatic.<sup>2</sup>

The economic impact of endometriosis is important through direct health-related costs stemming from surgery and long-term medical treatments and indirect cost-related to loss of productivity. Endometriosis typically develops on pelvic structures including the rectovaginal septum, urinary bladder bowels, intestines, ovaries and fallopian tubes, but it may also be found in distant regions including the diaphragm; the lungs and very rarely, areas as far outside the abdominopelvic region as the brain. The ovaries are among the most frequent sites. Depending on the location, the disease may present with varied symptoms, the main symptoms are subfertility, chronic pelvic pain, dysmenorrhea and deep dyspareunia.<sup>3</sup> The gold standard for the diagnosis of endometriosis is laparoscopic pelvic examination and where appropriate peritoneal biopsy.<sup>4</sup>

Considering the current burden of endometriosis, the diagnostic challenges faced by gynecologist and the paucity of local data, the study aimed to study the trends of the disease in women who underwent laparoscopic surgery in this region.

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## MATERIALS AND METHODS

### Data Collection

Records were collected from five different hospitals spread mainly over north Indian region regarding to all patients that underwent laparoscopy (both diagnostic and therapeutic) during the period from January 2012 to December 2014. Only those cases were included in our study for whom the detailed documents required were available. During the period, a total of 440 laparoscopic patients and 110 laparoscopically diagnosed endometriosis patients were recorded and analyzed using statistical package for the social sciences (SPSS) 16 version.

Laparoscopic staging was based on the Revised American Fertility Society (AFS) scoring for endometriosis which divided the findings into four categories of severity:

- *Stage I (minimal)*: Involved a few endometrial implants, most often in the cul-de-sac.
- *Stage II (mild)*: Comprised of endometrial implants affecting one or both ovaries.
- *Stage III (moderate)*: Had moderate levels of endometriosis with implants in several reproductive areas and in one or both ovaries.
- *Stage IV (severe)*: Had widespread endometriosis implants throughout the pelvic area.
- *Patients*: All patients whose endometriosis were laparoscopically diagnosed during the period from January 2012 to December 2014 were retrospectively analyzed. Our study included patients of all ages referred to the above mentioned hospitals.

## RESULTS

Analysis of the data showed that the prevalence of endometriosis in the studied population was 25% with incidence range of (21–42%) per 100 person-year population. The trend in endometriosis over the studied period showed a relative yearly rise as shown in Table 1. This increase in incidence correlated with the corresponding yearly increase in the number of laparoscopic surgeries performed (Table 2) over the period.

Out of the 110 endometriosis cases studied, the mean age was  $30.6 \pm 5.62$  (Table 3), majority of the patients were within the age bracket of 25 to 29 (40.0%), followed by 35 to 39 years (22.7%) and the least was 45 to 49 (1.8%). Most of them were nullipara (66.4%).

**Table 1:** Morbidity statistics

Morbidity statistics	Percentage
2012 incidence rate	21.0
2013 incidence rate	27.0
2014 incidence rate	42.0
Prevalence rate	25.0

Analysis of the clinical symptoms (Table 4), showed that majority were subfertile (87.3%), followed by chronic pelvic pain (56.4%) while dysmenorrhea and menorrhagia were 55.5 and 34.5% respectively.

Regarding distribution of the disease in the pelvis (Table 4), ovaries were the most affected (89.1%), followed by the omentum (48.2%), POD (45.5%), fallopian tubes (38.2%) and the least being the uterus (33.6%).

Analysis of the grades of endometriosis showed that the highest grade was grade II (35.5%), then followed

**Table 2:** Distribution of yearly laparoscopic and endometriosis cases

Variables	Study year							
	2012		2013		2014		Total	
	n	(%)	n	(%)	n	(%)	n	(%)
Yearly laparoscopic cases	117	(26.6)	135	(30.7)	188	(42.7)	440	(100.0)
Yearly endometriosis cases	25	(22.7)	36	(32.7)	49	(44.5)	110	(100.0)

**Table 3:** Age and parity distribution

Age (years) and parity	n = 110	%	Mean ± SD
<b>Age</b>			
15–19	3	2.7	30.6 ± 5.62
20–24	11	10.0	
25–29	44	40.0	
30–34	24	21.8	
35–39	25	22.7	
40–44	1	0.9	
45–49	2	1.8	
<b>Parity</b>			
Nullipara	73	66.4	
Primipara	25	22.7	
Multipara	12	10.9	

**Table 4:** Distribution of symptoms and pelvic site affected

	Cases of endometriosis (n = 110)	
	N	%
<b>Symptoms</b>		
Dysmenorrhea	61	55.5
Menorrhagia	38	34.5
Abdominal pain	62	56.4
Subfertility	96	87.3
<b>Pelvic sites</b>		
Ovaries	98	89.1
Fallopian tubes	42	38.2
Uterus	37	33.6
Omentum	53	48.2
Pod	50	45.5
<b>Grades of endometriosis</b>		
Grade I	8	7.3
Grade II	39	35.5
Grade III	35	31.8
Grade IV	28	25.1

**Table 5:** Distribution of surgical treatment modality

Surgical treatment modality	n = 110	%
Cystectomy	33	30.0
TLH	2	1.8
TAH	1	0.9
Excision of endometriotic implants	13	11.8
Others	3	2.7
Cystectomy	21	19.1
Cystectomy, excision, TLH	1	0.9
Excision and TLH	1	0.9
Cystectomy and others	20	18.2
Cystectomy, excision and others	14	12.7
TLH and others	1	0.9

by grade III (31.8%), grade IV (25.5%) and the least was grade I (7.3%).

Based on the type of surgery (Table 5) done, analysis of the data showed that the single most performed surgery was cystectomy (30.0%), followed by Excision of endometrial implants (19.1), while the least surgery done was TLH. The 'other' surgeries in the table include cauterization, aspiration, fulguration and adhesiolysis.

## DISCUSSION

Endometriosis is a common benign gynecological condition; it is a chronic inflammatory, estrogen dependent disease.

This study shows that the prevalence of endometriosis among laparoscopic patients is high in this region, it also establishes the fact that the incidence of endometriosis is on the increase.

The mean age of  $30 \pm 5.62$ , the low incidence on extreme of ages and higher prevalence of endometriosis in women of reproductive age is in accordance with other studies by Farquhar et al.<sup>5</sup> The obtained 25% prevalence in this study is similar to 23% reported by Mehmud et al.<sup>6</sup> but higher than 16% reported in a study by Farquhar et al.<sup>5</sup>

The relative yearly increase observed in this study can be due to concomitant increase in the number of laparoscopic surgeries in the corresponding years.

Regarding parity, nulliparity has consistently been reported as having a strong association with endometriosis. The reported finding in this work is in agreement to a report by Kuohung et al.<sup>7</sup> It is impossible to determine whether nulliparity is a risk factor for the condition or if the women with endometriosis find it harder to conceive with the disease.

About three-fourth of the study cases presented with subfertility in this study, this also is in keeping with the report of Preciado et al.<sup>8</sup> It probably suggest that the main reason most of the patients presented to the hospital was due to subfertility evaluation. A significant number of

patients in addition to this had other signs and symptoms consistent with endometriosis which include chronic pelvic pains (56.4%), dysmenorrhea (55.5%). This is similar to a report by Bellelis et al.<sup>9</sup> It possibly suggest that patients' complaints were only considered when they were reported as being severe or incapacitating.

On the stages of endometriosis, the obtained frequency is similar to the report of Preciado et al.<sup>8</sup> but contrary to another study by Urooj et al.<sup>10</sup> However, the current staging system does not correspond well to pain and dyspareunia, and fecundability rates cannot be predicted accurately<sup>11</sup> but the high grades noted in this study appears to correlate with the patients' symptoms. The ovaries were the most affected pelvic organ in the study (89.1%), this is proportional to the worrisome level of subfertility noted in the study.

Majority of the of the patients had fertility conservative surgeries, more than one surgical modality were applied in most cases. The commonly performed surgeries included cystectomy (30.0%), followed by excision of endometriosis implants and the least surgery was TLH and others (0.9%). According to randomized control study, laparoscopic excision of the cyst wall of the endometrioma was associated with a reduced recurrence rate of symptoms of dysmenorrhea, dyspareunia and nonmenstrual pelvic pain, a reduced rate of recurrence of the endometrioma and with a reduced requirement for further surgeries than surgery to ablate the endometrioma for those women subsequently attempting to conceive. It was also associated with a subsequent increased spontaneous pregnancy rate in women who had documented prior subfertility. A further randomized control study demonstrated an increased ovarian follicular response to gonadotropin stimulation for women who had undergone excisional surgery when compared to ablative surgery.<sup>12</sup> Thus, the patients were offered the best and individualized surgical procedures.

## CONCLUSION

Study shows that endometriosis is prevalent in this region and its major symptom is subfertility and chronic pelvic, the grades of endometriosis in this study correlated with the clinical symptoms of the patients, these facts should stimulate gynecologist to promptly examine women with endometriosis symptoms laparoscopically with a view of offering early treatment and counseling.

## REFERENCES

1. Meuleman C, Vandenabeele B, Fieuws S, Spiessens C, Timmerman D, et al. High prevalence of endometriosis in infertile women with normal ovulation and normospermic partners. *Fertil Steril* 2009;92(1):68-74.

2. Simoens S, Dunselman G, Dirksen C, Hummelshoj L, Bokor A, et al. The burden of endometriosis: costs and quality of life of women with endometriosis and treated in referral centres. *Hum Reprod* 2012;27(5):1292-1299.
3. Kennedy S, Bergqvist A, Chapron C, et al. ESHRE guideline for the diagnosis and treatment of endometriosis. *Hum Reprod* 2005;20(10):2698-2704.
4. Kapoor D. Endometriosis. <http://emedicine.medscape.com/article/271899-overview>. Accessed on: June 23, 2012.
5. Farquhar CM. Extracts from the 'clinical evidence'. *Endometriosis*. *BMJ* 2000;320(7245):1449-1452.
6. Mehmud G, Akhtar T, Sadia S. Endometriosis: frequency and correlation between symptomatology and disease stage. *J Coll Physicians Surg Pak* 2007;17(4):199-202.
7. Kuohung W, Jones GL, Vitonis AF. Characteristics of patients with endometriosis in the United States and the United Kingdom. *Fertil Steril* 2002;78(4):767-772.
8. Preciado Ruiz R, Torres Calleja J, Zúñiga Montiel JA, Martínez Chéquer JC, Manterola Alvarez D, Garcia Luna. Incidence of endometriosis in infertile women: clinical and laparoscopic characteristics. *Ginecol Obstet Mex* 2005;73(9):471-476.
9. Bellelis P, Dias JA Jr, Podgaec S, Gonzales M, Baracat EC, Abrão MS. Epidemiological and clinical aspects of pelvic endometriosis—a case series. *Rev Assoc Med Bras* 2010; 56(4):467-471.
10. Khawaja U, Khawaja A, Gowani S, Shoukat S, Ejaz S, Ali F, Rizvi J, Nawaz F. Frequency of Endometriosis among Infertile women and Association of Clinical signs and Symptoms with Laparoscopic Staging of Endometriosis. *J Park Med Assoc* 2009;59(1):30-34.
11. Podgaec S, Dias Junior JA, Chapron C, Oliveira RM, Baracat EC, Abrão MS. Th1 and Th2 immune responses related to pelvic endometriosis. *Rev Assoc Med Bras* 2010;56(1):92-98.
12. Nada A. Laparoscopic Excision of Endometrioma. *WJOLS* 2008;1(2):44-48.