

Laparoscopic Evaluation of Women with Secondary Dysmenorrhea in Reproductive Age Group with Special Reference to Endometriosis

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ABSTRACT:

Background: The burden of dysmenorrhea is greater than any other gynecological complaint. The effects extend beyond individual women to society, resulting in an important loss of productivity annually. Thus, World Health Organization estimated that dysmenorrhea is the most important cause of chronic pelvic pain. Adenomyosis and endometriosis are the most frequent causes of secondary dysmenorrhea in young women. **Aim:** The aim of this study was to evaluate the causes of secondary dysmenorrhea by diagnostic laparoscopy and find out the prevalence of endometriosis as a cause of secondary dysmenorrhea. **Methodology:** A total of 35 women with persistent dysmenorrhea and negative imaging findings were subjected to diagnostic laparoscopy after proper investigations and informed consent. **Results:** In all 35 cases that underwent laparoscopy, 26 women had endometriosis (74.2%). There were 6 women diagnosed with PID (17.14%), one woman with adenomyosis, and two women with ovarian cysts. Among women with endometriosis, 53.8% had ovarian endometriomas, 76.9% had endometriotic lesions, and 34.6% had adhesions. Endometriosis was found maximum (42.9%) in the ovaries followed by POD (40%), uterosacral ligaments (17.1%), fallopian tubes (11.4%), bladder, and pelvic peritoneum 2.9% each. Histopathology was sent for 30 cases and only 24 cases reported back with biopsy reports. Biopsy-proven endometriosis and laparoscopically diagnosed endometriosis were analyzed and compared. The sensitivity of laparoscopy was found to be 77.78%, and the specificity 33.33%. **Conclusion:** Endometriosis should be suspected in women of the reproductive age group with secondary dysmenorrhea. Laparoscopy is the most reliable technique for the diagnosis of endometriosis. Laparoscopy should be combined with histopathological examination since endometriosis is likely to be overdiagnosed or underdiagnosed if only visual diagnosis is used.

Keywords: Dysmenorrhea, Endometriosis, Laparoscopy

INTRODUCTION:

Dysmenorrhea is the term for pain related to menstruation. The term primary dysmenorrhea describes cyclic menstrual pain without an identifiable associated pathology, whereas secondary dysmenorrhea frequently complicates endometriosis, leiomyomas, PID, adenomyosis, endometrial polyps, and menstrual outlet obstruction. Adenomyosis and endometriosis are the most frequent causes of secondary dysmenorrhea in young women. Endometriosis is characterized by the presence of endometrial tissue (glands and stroma) outside the uterine cavity and is the most common cause of secondary dysmenorrhea. Laparoscopy is the most reliable investigation for the diagnosis of causes of secondary dysmenorrhea. In our study, we evaluated the causes of secondary dysmenorrhea by diagnostic laparoscopy and tried to find out the prevalence of endometriosis as a cause of secondary dysmenorrhea.

METHODOLOGY:

This study was a hospital-based observational study conducted in the Department of Obstetrics and Gynaecology, Gauhati Medical College and Hospital, Assam, India after Ethical committee clearance and proper investigation, and informed consent. A total of 35 women with secondary dysmenorrhea in the reproductive age group with persistent dysmenorrhea and negative imaging findings were selected and planned for diagnostic laparoscopy from patients attending Gynae OPD of GMCH.

INCLUSION CRITERIA:

1. Age Group: 21-45 years
2. All married women with secondary dysmenorrhea with or without infertility

EXCLUSION CRITERIA:

1. Women with primary dysmenorrhea
2. Women with other medical problems/comorbidities

STATISTICAL ANALYSIS:

All data were analyzed using Microsoft Excel, Graph Pad Prism, and IBM SPSS V21. The study was approved by Institutional Ethical Committee vide number 190/2007/Pt-II/July-2021/TH-43.

RESULTS AND OBSERVATIONS:

This study was carried out in the Department of Obstetrics and Gynaecology, Gauhati Medical and Hospital for a period of 1 year from 1st July 2021 to 30th June 2022. A total of 35 women were included in the study who underwent laparoscopy. The data obtained was coded and entered into a Microsoft Excel spreadsheet and data was analyzed. The final observations and results were tabulated below.

Cases were divided into 5 age groups 21-25 years, 26-30 years, 31-35 years, 36-40 years, and > 40 years. The mean age was 32.05 years with a Standard Deviation (SD) of 5.28 years. In this study, two age groups were most common i.e. 26-30 years (28.6%) and 36-40 years (28.6 %).

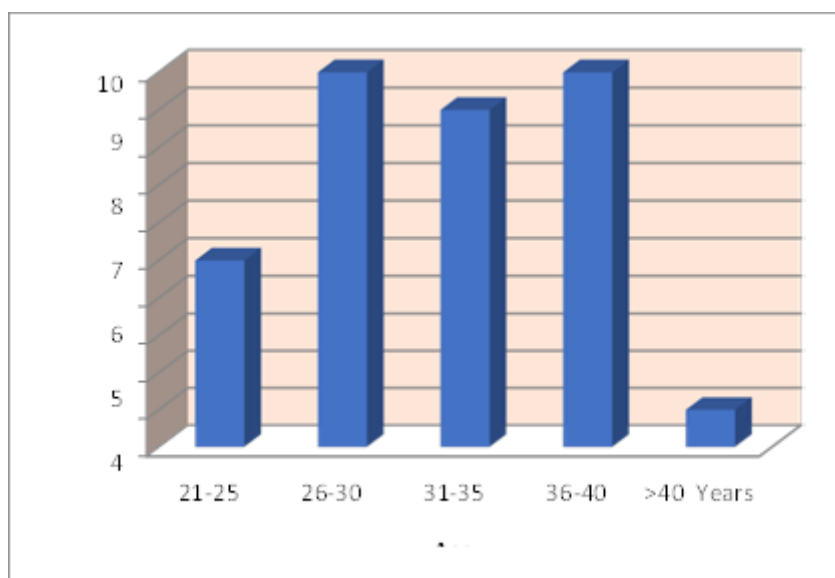


Fig 1: Bar diagram showing cases with secondary dysmenorrhea in different age groups

In this study, out of 35 cases with dysmenorrhea maximum of 26 cases had endometriosis (74.2%). Followed by 6 cases that had PID (17.14%), adenomyosis 1 case, and 2 cases of ovarian cyst.

LAPAROSCOPY FINDINGS	FREQUENCY	PERCENTAGE
Endometriosis	26	74.2%
PID	6	17.14%
Adenomyosis	1	2.85%
Ovarian cyst	2	5.71%
Total	35	100%

Table 1 shows different laparoscopy findings in cases with secondary dysmenorrhea

In this study, we diagnosed endometriosis visually via laparoscopy in 26 cases out of 35. We saw that 53.8% of cases had ovarian endometriomas, 76.9% had endometriotic deposits or lesions and 34.6% cases had adhesions. Out of 26 cases of endometriosis, 14 cases (53.8%) had ovarian endometrioma.

LAPAROSCOPY FINDINGS	FREQUENCY	PERCENTAGE
Ovarian endometrioma (Chocolate cyst)	14	53.8%
Endometriotic lesions	20	76.9%
Adhesions	9	34.6%

Table 2 shows the distribution of endometriosis findings in laparoscopy

In this study, out of 35 cases, a total of 26 cases (74.3%) were found to have endometriosis on laparoscopic evaluation.

They were classified according to ASRM Staging into 4 stages. The majority i.e.12 cases (46.2%) had stage 3 endometriosis.

ASRM Stage	No. of Cases	Percentage (%)
1	6	23.1%
2	2	7.7%
3	12	46.2%
4	6	23.1%
total	26	

Table 3 shows the endometriosis staging of cases according to The American Society of Reproductive Medicine (ASRM)

In this study, infertility was seen to be present at a maximum of 40% of patients with ASRM stage 1 endometriosis followed by 33.3% in stage 3 endometriosis. The p-value was 0.035 which is statistically significant.

ASRM STAGING	INFERTILITY			p-value
	Absent	Present	Total	
1	0(0%)	6(40%)	6(23.1%)	0.035
2	0(0%)	2(13.3%)	2(7.7%)	
3	7(63.6%)	5(33.3%)	12(46.2%)	
4	4(36.4%)	2(13.3%)	6(23.1%)	
Total	11(100%)	15(100%)	26(100%)	

Table 4 shows infertility in different stages of Endometriosis (ASRM staging)

In this study, out of 35 cases with secondary dysmenorrhea, 26 cases had endometriosis. It was found to be maximum in the age range of 26-30 years. Total of 8 cases i.e. 30.8% belonged to this age range.

ENDOMETRIOSIS

Age range	Nil	Present	Total
21-25	1(11.1%)	4(15.4%)	5(14.3%)
26-30	2(22.2%)	8(30.8%)	10(28.6%)
31-35	2(22.2%)	7(26.9%)	9(25.7%)
36-40	3(33.3%)	7(26.9%)	10(28.6%)
>40 Years	1(11.1%)	0(0)	1(2.9%)
Total	9(100%)	26(100%)	35(100%)

Table 5 shows the distribution of endometriosis in different age groups.

In this study, endometriosis was found to be maximum (42.9%) in ovaries followed by POD (40%), Uterosacral ligaments (17.1%), and Fallopian tubes (11.4%).

ENDOMETRIOSIS SITE	Frequency	Percentage
Ovaries	15	42.9%
POD	14	40.0%
Fallopian tubes	4	11.4%
Uterus	2	5.7%
Bladder peritoneum	1	2.9%
Pelvic peritoneum	1	2.9%
Uterosacral ligaments	6	17.1%

Table 6 shows the distribution of endometriosis in different sites.

In this study, out of 26 cases who were diagnosed with endometriosis, 15 cases (57.7%) had infertility.

INFERTILITY	ENDOMETRIOSIS		
	Nil	Present	Total
Absent	7(77.8)	11(42.3)	18(51.4)
Present	2(22.2)	15(57.7)	17(48.6)
Total	9(100)	26(100)	35(100)

Table 7 shows the number of endometriosis cases who had infertility.

In this study, out of 26 cases diagnosed with endometriosis maximum i.e.8 cases (30.8%) belonged to age group of 26-30years followed by 31-35years (26.9%) and 36-40years (26.9%).

AGE	ENDOMETRIOSIS		
	Nil	Present	Total
21-25 years	1(11.1%)	4(15.4%)	5(14.3%)
26-30 years	2(22.2%)	8(30.8%)	10(28.6%)
31-35 years	2(22.2%)	7(26.9%)	9(25.7%)
36-40 years	3(33.3%)	7(26.9%)	10(28.6%)
>40 Years	1(11.1%)	0(0)	1(2.9%)
Total	9(100)	26(100)	35(100)

Table 8 shows the distribution of endometriosis in different age groups.

In this study, out of 26 cases diagnosed with endometriosis, 34.6% of cases had adhesions.

ADHESIONS	ENDOMETRIOSIS		
	Nil	Present	Total
Nil	8(88.9%)	17(65.4%)	25(71.4)
Present	1(11.1%)	9(34.6%)	10(28.6)
Total	9(100)	26(100)	35(100)

Table 9 shows endometriosis cases with the presence of adhesions in laparoscopy.

Histopathology was sent for 30 cases out of 35. Of which 24 cases reported back with biopsy reports.

Laparoscopy	Histopathology		Total
	Positive	Negative	
Positive	14	4	18
Negative	4	2	6
Total	18	6	

Table 10 showing biopsy-proven cases of endometriosis.

In this study, 18 cases were laparoscopically diagnosed as endometriosis, 14 cases were biopsy-proven for endometriosis whereas 4 were not. Out of the 6 cases which were laparoscopically thought to be negative for endometriosis, 4 cases came out positive on biopsy and 2 were negative.

Hence in this study, the sensitivity of laparoscopy was 77.78% and the specificity 33.33%.



Fig 2: Laparoscopic intra-operative view of Chocolate Cyst

Fig 3: Laparoscopic intra-operative view of a black endometriosis lesion in the pelvic peritoneum.

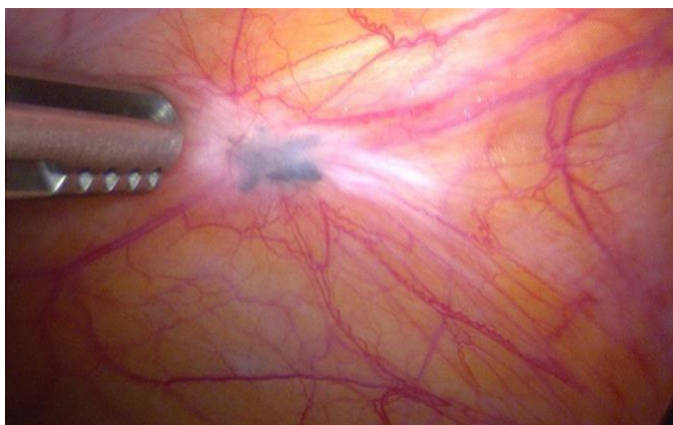


Fig 4: Laparoscopic view of a normal uterus with left-sided hematosalpinx, right ovarian chocolatecyst, and adhesions between left tube, bowel, and left abdominal wall.

Fig 5: Laparoscopic view of a uterus with right-sided chocolate cyst and multiple uterine fibroids.

DISCUSSION:

In this study, the mean age was 32.05 years with an SD of 5.2 years. Endometriosis was mainly seen in the age range of 26-30 years. Our study is comparable to studies done by Saghar Salehpour et al (28.6+/- 5.14 years) and Sonali Swain et al (31-35 years).

Sl. No.	STUDY	YEAR	AGE GROUP
1	Gordon D Davis et al	1993	16.6 +/- 1.4 years
2	Emmert et al	1998	17.3 years
3	Saghar Salehpour et al	2004-2005	28.6+/- 5.14 years
4	Mahesh J Fuldeore et al	2012	18-29years
5	Sonali swain et al	2016-2017	31-35years
6	Sara Mitchell Graton et al	2016-2017	40+/-7 years
7	Present study	2021-2022	32.05+/-5.2 years

Table 11 shows the comparison of age of women with secondary dysmenorrhea in different studies.

In this study, 26 out of 35 cases (74.2%) had endometriosis. This data is comparable to the study done by Carl Wood et al (1999-2001) who diagnosed endometriosis laparoscopically in 168 out of 215 cases(78.1%) and Saghar Salehpour et al (2004- 2005) 19 out of 30 cases had endometriosis (63%).

STUDY	Year	Total cases	Endometriosis
Walter et al	1997-1999	44	16 (36%)
Emmert et al	1998	105	32 (35.2%)
Carl Wood et al	1999-2001	215	168 (78.1%)
DP Almeida Filho	1994-2004	976	468 (47.95%)

Saghar Salehpour et al	2004-2005	30	19 (63%)
Afsana Ali et al	2009-2011	200	39 (19.5%)
Sara Mitchell Graton et al	2016-2017	96	30 (31.3%)
This study	2021-2022	35	26 (74.2%)

Table 12 shows the comparison of the prevalence of endometriosis in women with secondary dysmenorrhea.

Janette H Strathy et al (1982) found a majority 52.3% of stage II endometriosis on laparoscopic visualization. Emmert et al (1998) found a majority 32.4% of stage I endometriosis. Vineet V Mishra et al(2012-2013) found majority 66.1% of stage I endometriosis. Sujata Swain et al (2016-2017) found majority 46.2% stage II endometriosis followed by 28.8% stage I endometriosis. In our study, we found majority of stage III endometriosis (46.2%) followed by stage I &IV 23.1% each. Stage I &II patients were comparatively less in our study, most probably because patients turned up in the hospital only when they had severe symptoms i.e.in advanced cases. Also, patients who had less severe symptoms did not readily agree for laparoscopy and opted medical management.

STUDY	YEAR	STAGE I	STAGE II	STAGE III	STAGE IV
Janette H Strathy et al	1982	NA	52.3%	38.09%	9.52%
Emmert et al	1998	32.4%	2.8%	NA	NA
Vineet V Mishra et al	2012-2013	66.1%	21.66%	6.1%	6.1%
Sujata Swain et al	2016-2017	28.8%	46.2%	21.2%	3.8%
This study	2021-2022	23.1%	7.7%	46.2%	23.1%

NA: Not available

Table 13 shows the comparison of ASRM endometriosis staging in different studies.

Emmert et al 1998 found endometriosis maximum in POD i.e. 64.8% Vineet v Mishra et al 2012-2013 found endometriosis maximum in the uterosacral ligament. Sujata Swain et al 2016-2017 found endometriosis maximum in ovaries (67.3%) followed by POD. In our study, endometriosis was seen maximum in ovaries. This study is comparable to the study done by Sujata Swain et al (2016-17) where endometriosis is found maximum in the ovaries.

STUDY	YEAR	OVARY	POD	Uterosacral ligament	Fallopian tubes	Others
Emmert et al	1998	24.3%	64.8%	37.8%	NA	NA
Vineet V Mishra et al	2012-2013	18.8%	22.2%	36.1%	NA	Pelvic wall-31.1%
Sujata Swain et al	2016-2017	67.3%	NA	NA	NA	NA
Present study	2021-2022	42.9%	40%	17.1%	11.4%	

NA: Data not available

Table 14 shows the comparison of the distribution of endometriosis in different sites.

When biopsy-proven endometriosis was compared between present and other studies, it was concluded as follows: In this study, 75% of cases were biopsy-proven for endometriosis. Hence sensitivity of laparoscopy came out to be 77.8% and the specificity of 33.3%. In this study, the percentage of biopsy-proven cases was similar to the study done by Sara Mitchell Graton et al who found 74% biopsy-positive cases. In this study, the sensitivity of laparoscopy was 77.8% and the specificity was 33.3% which was almost similar to the study done by Saghar Salehpour et al where the sensitivity of laparoscopy was 88.8% and specificity of 47.6%

STUDY	YEAR	BIOPSY POSITIVE PERCENTAGE OF CASES	SENSITIVITY	SPECIFICITY
DP Almeida Filho et al	1994-2004	34.5%	97.68%	79.23%

Saghar Salehpour et al	2004-2005	42%	88.8%	47.6%
Sara Mitchell Graton et al	2016-2017	74%	90.1%	40%
Present study	2021-2022	75%	77.8%	33.3%

Table 15 shows the comparison of biopsy-proven endometriosis cases in different studies.

CONCLUSION:

Secondary dysmenorrhea is one of the most common gynecological complaints of women in the reproductive age group. Dysmenorrhea has a significant physical, behavioral, psychological, and social impact, affecting a large proportion of women of reproductive age. Endometriosis should be suspected in women of the reproductive age group who complain of dysmenorrhea or chronic pelvic pain. Laparoscopy is the most reliable technique for the diagnosis of endometriosis in women with secondary dysmenorrhea. It is preferred as it has both diagnostic and therapeutic use. In the same setting, therapeutic measures for endometriosis like cystectomy, simple drainage, adhesiolysis, bipolar coagulation, fulguration, etc. can be done. Also, the specimen can be sent for histopathological confirmation. Laparoscopy is invasive and has the usual side effects of a surgical procedure. In the present study, we found endometriosis is the most common cause of secondary dysmenorrhea in the reproductive age group. For diagnosis of endometriosis, laparoscopy should be combined with histopathological examination. It is likely to be overdiagnosed or underdiagnosed if only visual diagnosis is used.

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