Early Menstrual Characteristics in a Group of Sri Lankan Women with Endometriosis in the Western Province of Sri Lanka

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I. INTRODUCTION

Endometriosis is defined as the presence of active endometrial mucosa; which can be either glands or stroma, abnormally implanted in locations other than the uterine cavity. [1]

Endometriosis is a common, poorly understood and extremely debilitating benign gynaecological condition which affect both physically and psychologically. Despite extensive research, the aetiology of endometriosis remains elusive. Several theories exist that attempt to explain this disease, but none have been entirely proven. But these ectopic foci respond to cyclical hormonal fluctuations in much the same way as intrauterine endometrium, with proliferation, secretory activity, and cyclical sloughing of menstrual material leading to an altered inflammatory response characterized by neovascularization and fibrosis.

Endometriosis is classified under 4 stages depending on location, extent, and depth the implants, presence of adhesions and presence of ovarian endometriosis. However the severity or stage doesn't correlate with the symptoms of endometriosis.[2]

This condition has poorly understood pathophysiology, highly variable clinical presentation and unpredictable disease course. The associated pain, adhesion formation, and anatomic distortion are responsible for the clinical consequences of this disease. Endometriosis should be suspected when a patient presents with pain syndrome with or without infertility. Presence of fix retroverted uterus, thickening or nodularity in uterosacral ligaments, retro cervical region and recto vaginal septum with or without adnexal mass will further support diagnosis. However, to confirm the diagnosis laparoscopy will be mandatory.[1]

No cure exists except surgical or physiological menopause. But treatments are directed toward hormonal suppression, surgical excision, and symptom alleviation. However symptoms tend to recur regardless of treatment options.

This study was conducted to early identify the demographic, sexual, gynaecological and obstetric characteristics associated with endometriosis in a group of Sri Lankan women.

II. MATERIAL AND METHODS

This is a prospective cross sectional study conducted between June 2017 to August 2019 period at the Gynaecology wards of Colombo South Teaching Hospital Sri Lanka. Patients in Western province between ages of 19 to 45, who were diagnosed with endometriosis by laparoscopically were included into the study population with their informed written consent. Inclusion criteria were patients who are diagnosed with Endometriosis by laparoscopy and staged using rAFSC-score, incident cases, residents of Western province and age between 19-45 years. Data were collected by an investigator using an interviewer administered questionnaire. Basic socio demographic details of the participants, General health status, Menstrual history and Gynaecological history are main categories of collected data. Consecutive sampling strategy was utilized for the recruitment of the participants. Two hundred age match populations were included during study period. All data were entered into a data base in Statistical Package for Social Sciences (SPSS) 16 software for Windows. Association of menstrual characteristics in patients with endometriosis were calculated.

III. RESULTS

47.5% of the study population was between 26-35 years of age. 93.5% the participants were married and 95.5% were Sinhalese. In the population, 33.5% had been educated up to G.C.E. OL's, 54.0% up to G.C.E. AL's, 9.5% had a graduate degree, while only 1.5% of the study population had never attended school. 61.0% were housewives, and of the 39.0% who were employed, 18.0% were employed in Professional/Technical/Managerial sector.

No one in the population had a history of smoking. However 15.2% had their partner smoking at home which is mostly in the day time. 7% were engaged in regular exercises. Regarding the BMI of the patients, majority were in the normal range (36.0%) while 32.0% were overweight. Age, marital status and engaging regular exercises are significantly associated with the risk of having endometriosis.

Mean age of attended menarche was 2.7 years. 83.0% were more than 12 years when they attended menarche. 74.5% of the population mentioned 3-5 days as the menstrual duration.

13.0% had irregular menstrual cycles and the majority (42.3%) had the irregularity for around 1-3 years. The duration between 2 cycles was given as 21-35 days by 84.5%. The risk of menorrhagia is calculated by giving a point for each risk factor which are the presence of flooding, usage of dual protection and passage of clots. Two out of three points are taken as high risk of menorrhagia. Presence of irregular menstrual cycles, dysmenorrhea and risk of menorrhagia are risk factors associated with endometriosis which are statistically significant.

In the sexual history, pain during intercourse and the history of usage of contraception are significantly associated with endometriosis. In the obstetric history, the history of miscarriage and subfertility are risk factors for endometriosis which are statistically significant. Presence of pelvic pain and family history of endometriosis are significant risk factors for endometriosis.

Table 1. Socio-demographic risk factors for endometriosis

	Cases (percentage)	Controls (percentage)	Significance OR(95% CI)
Age			
Below 30 years	16(16.0)	37(37.0)	OR-0.324(0.166-0.635)
Above 30 years	84(84.0)	63(63.0)	X^2=11.321, p=0.001
Employment status			
Yes	41(41.0)	37(37.0)	OR-1.183(0.670-2.090)
No	59(59.0)	63(63.0)	X^2=0.336, p=0.562
Marital status			
Single	12(12.0)	1(1.0)	OR-13.500(1.720-105.932)
Married	88(88.0)	99(99.0)	X^2=9.995, p=0.002
Engage in regular exercises			
Yes	1(1.0)	13(13.0)	OR-0.068(0.009-0.527)
No	99(99.0)	87(87.0)	X^2=11.060, p=0.001
BMI			
Normal	38(38.0)	34(34.0)	OR-1.190(0.667-2.121)
Other	62(62.0)	66(66.0)	X^2=0.347, p=0.556

Table 2. Risk factors in menstrual history for endometriosis

	Cases (percentage)	Controls (percentage)	Significance OR(95% CI)
Age at menarche			
Before 12 years	15(15.0)	19(19.0)	OR-0.752(0.358-1.580)
After 12 years	85(85.0)	81(81.0)	X^2=0.567, p=0.451
Duration of menstruation			
More than 5 days	17(17.0)	14(14.0)	OR-1.258(0.583-2.715)
Less than 5 days	83(83.0)	86(86.0)	X^2=0.344, p=0.558
Presence of regular cycles			
Yes	93(93.0)	81(81.0)	OR-3.116(1.246-7.791)
No	7(7.0)	19(19.0)	X^2=6.366, p=0.012
Duration between 2 cycles			
Less than 21 days	4(4.0)	1(1.0)	OR-4.125(0.453-37.573)
More than 21 days	96(96.0)	99(99.0)	X^2=1.842, p=1.174
Dysmenorrhea			
Yes	76(76.0)	63(63.0)	OR-1.860(1.008-3.432)
No	24(24.0)	37(37.0)	X^2=3.986, p=0.046
Risk of menorrhagia			
High	5(5.0)	21(21.0)	OR-0.198(0.071-0.549)
Low	95(95.0)	79(79.0)	X^2=11.317, p=0.001

Table 3. Risk factors in sexual history for endometriosis

	Cases (percentage)	Controls (percentage)	Significance OR(95% CI)
Age at first intercourse			
Less than 30 years	73(73.0)	84(84.0)	OR-0.613(0.275-1.369)
More than 30 years	17(17.0)	12(12.0)	X^2=1.441, p=0.230
Pain during intercourse			
Yes	48(48.0)	22(22.0)	OR-3.844(2.046-7.224)
No	42(42.0)	74(74.0)	X^2=18.310, p=0.000
Sexual promiscuity*			
Yes	2(2.0)	1(1.0)	OR-2.159(0.192-24.230)
No	88(88.0)	95(95.0)	X^2=0.408, p=0.523
History of genital warts			
Yes	3(3.0)	2(2.0)	OR-1.515(0.248-9.270)
No	97(97.0)	98(98.0)	X^2=0.205, p=0.651

Have you ever used contraception Yes No	 24(24.0) 76(76.0)	 47(47.0) 53(53.0)	 OR-0.356(0.195-0.651) X^2=11.551, p=0.001

Table 4. Risk factors in obstetric history for endometriosis

	Cases (percentage)	Controls (percentage)	Significance OR(95% CI)
Age at first pregnancy* Less than 30 years More than 30 years	 67(67.0) 23(23.0)	 81(81.0) 15(15.0)	 OR-0.539(0.261-1.116) X^2=2.818, p=0.093
History of miscarriage Yes No	 11(11.0) 40(40.0)	 40(40.0) 50(50.0)	 OR-0.344(0.157-0.755) X^2=7.379, p=0.007
History of subfertility Yes No	 42(42.0) 48(48.0)	 16(16.0) 80(80.0)	 OR-4.375(2.221-8.618) X^2=19.482, p<0.001
Any of pregnancies ended up in LSCS Yes No	 9(9.0) 42(42.0)	 26(26.0) 64(64.0)	 OR-0.527(0.225-1.237) X^2=2.205, p=0.138

Table 5. Risk factors in gynaecological history for endometriosis

	Cases (percentage)	Controls (percentage)	Significance OR(95% CI)
Experience pelvic pain Yes No	 80(80.0) 20(20.0)	 64(64.0) 36(36.0)	 OR-2.250(1.189-4.258) X^2=6.349, p=0.012
Family history of endometriosis Yes No	 3(3.0) 97(97.0)	 0(0.0) 100(100.0)	 OR-2.031(1.762-2.340) X^2=3.046, p=0.081

IV. DISCUSSION

The demographic characteristics of the study population are summarized in the table 1. But the age below 30 years (OR-0.324(CI-0.166-0.635), marital status (OR-13.500(CI- 1.720-105.932)) and lack of engagement in regular exercises (OR-0.068(CI- 0.009-0.527)) were identified as high risk for developing endometriosis compared to controls. These values are statistically significant (p<0.05).

These study findings are compatible with studies previously done in Sri Lanka which identified age and lack of regular exercises as risk factors.[12] In addition, Eskenazi and Warner found that age is the only socio-demographic characteristic which is positively correlated with endometriosis [13]. Even though BMI was not significantly associated with endometriosis in our study, low BMI was stated as a risk factor in several studies[10, 14, 15]. In contrast, Hemmings *et al*. did not find any significant correlation between BMI and endometriosis[16].

Risk factors in menstrual history for endometriosis are stated in table 2. In our study, presence of irregular menstrual cycles, dysmenorrhea and menorrhagia are risk factors associated with endometriosis. These findings can be explained by the retrograde bleeding hypothesis as lower menstrual cycle's length and heavier bleeding could potentially increase the risk of retrograde bleeding. In consistent with our study, Calhaz Jorge et al.[14], who reported that women with moderate to severe bleeding flow showed an increase in the risk of endometriosis as compared with women with a mild flow. In addition, Mamduoh et al.[17] found that women with irregular cycles were three times more likely to develop endometriosis than women with regular cycles, which is consistent with our finding.

But in this study we could not find an association between length of menstrual cycles and endometriosis which in contrast to previous studies [4, 6, 10, 11]. On the other hand, Calhaz-Jorge et al.[14], Hemmings et al.[16] and Parazzini et al.[18] did not find any significant correlation between shorter menstrual cycle and endometriosis.

In table 3, risk factors in sexual history for endometriosis are summarized. In the present study, we identified pain during intercourse (dyspareunia) (OR-3.844(CI -2.046-7.224)) is a significant risk factor for endometriosis. However usage of contraception (OR-0.356(CI -0.195-0.651)) also significantly associated with endometriosis (P<0.05) in protective way. Similar findings were revealed in previous study[12] that 48.4% of women suffering from endometriosis had dyspareunia, as was reported (40%) by Salehpour et al.[22] in Iran.

Risk factors in obstetric history for endometriosis are elaborated in table 3. History of subfertility (OR 4.375(CI -2.221-8.618)) was identified as significant risk factor for endometriosis. It is a well identified factor in previous studies as high proportion of subfertility has been noted among patients with endometriosis [12, 19]. History of miscarriage (OR-0.344(CI -0.157-0.755)) also significantly associated with endometriosis.

Risk factors in gynecological history for endometriosis are discussed in table 4. Presence of pelvic pain is a significant risk factor for endometriosis (OR-2.250(CI -1.189-4.258)). The association between chronic pelvic pain and endometriosis is unclear because painful symptoms are common in women without this condition, and because asymptomatic forms of endometriosis exist [20]. The suggested pathways for pain include local inflammation, adhesions, and prostaglandin production by endometriosis [21].

In the present study, 80.0% of women with endometriosis had pelvic pain, which was similar to the frequency (79.1%) reported by Matalliotakis et al[4] while Salehpour et al.[22] reported its frequency as low as 13.3%. In contrast to that a study done in USA found no association between endometriosis and pelvic pain occurring during ovulation[3].

In our study, the presence of family history is identified as a risk factor for endometriosis (OR-2.031(CI -1.762-2.340). This finding was consistent with Mamdouh et al.[17], Matalliotakis et al.[4] and Kashima et al.[23]. Cramer and Missmer, in their review article, stated that there is good evidence showing that family history increases the risk of developing endometriosis[24].

V. CONCLUSION

Our study results revealed that advanced age, marital status and lack of regular exercises as socio demographic risk factors for developing endometriosis. In the menstrual history, irregular menstrual cycles, dysmenorrhea and menorrhagia are risk factors associated with endometriosis which were statistically significant. Dyspareunia, subfertility, pelvic pain and family history were also significant risk factors for developing endometriosis. However use of contraception and history of miscarriage give some protection against endometriosis. Therefore we recommend to do further studies on each of the risk factor in depth.

We highlight the need for further investigation of this chronic disease which has considerable morbidity and associated health care costs.

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