

Menstrual Disorders Following Tubal Ligation

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Abstract

This is a prospective case – control study that was carried out at Basrah Maternity and Child Hospital from 1st of January 2019 till 1st of June 2020.

Objective: The objective of this study is to find an association between menstrual disorders and bilateral tubal ligation.

Design: It is a case-control study of 30-45 years old women setting at Basra governorate.

Material and Method: Three hundred twenty four patients were included in the study of age [30- 45] years, they were divided into two groups. group one [156] with history of tubal ligation 1-3 years ago compared to a control group of [168] without tubal ligation a non-medical contraception was used.

Result: In group one menorrhagia was more common when compared with non-tubal ligation group [68.5% Vs 29.7] respectively and the difference was statistically significant.

Conclusion: Our findings show that menstrual disorders were more common in women tubal ligation. This study shows that tubal ligation may influences irregular menstruation and causes menorrhagia. In other words, tubal ligation is associated with an increased risk of menstrual disorders.

Keywords: Menstrual disorders; tubal ligation.

Background

Menstrual disorder is one of the problematic effects of tubal ligation, although the results of related studies have been inconsistent and inconclusive.^{1,2} Some women who have completing family planning choose tubal ligation (TL) as a method of contraception.³ The occurrence of abnormal bleeding after TL was first described by Williams et al.⁴ The amount of blood loss can range from slight spotting to

80 mL and the average being 30mL. Loss of more than 80mL of the blood is considered abnormal. It has been hypothesized that ligation may increase incidence of menstrual disturbances among women receiving TL. Several studies about the side-effects of TL on menstrual function have been conducted,^{5, 6} yet the existence of a post TL syndrome has been debated.

Abnormalities reports associated with TL surgery include the entire spectrum of menstrual disorders,

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such as: more frequent menstrual periods, irregular menstrual cycles, menorrhagia, metrorrhagia, spotting, dysmenorrhea and oligomenorrhea.⁷ However, some studies^{1,8} showed no increase in menstrual disorders in women undergoing TL as compared with a control. The usual duration of the menstrual flow is 3-5 days, but flows as short as 1 day and as long as 8 days can occur in a normal female.

Around the world, sterilization is the chosen option to more than 220 million couples desiring contraception.⁹ Sterilization was the most common method of contraception used in the United States, utilized by 47.3% of married couples.^{9, 10} Tubal ligation accounted for 30.2% and vasectomy for 17.1%^{9, 11} For those who have completed childbearing, sterilization using tubal ligation is a safe and effective contraceptive option. The aim of this study is to compare the occurrence of menstrual disorders at women with or without tubal ligation (TL), identify the type of menstrual disorder in women with tubal ligation, resolving the debate about menstrual disorder after tubal ligation.

Methodology

This is a prospective case control study conducted at Basra maternity and child hospital. The study was carried out from 4th of January 2019 till 1st of June 2020. 156 women underwent tubal Sterilization [1-3] year ago and to assess the effect of tubal sterilization on menstrual cycle. All been subjected for diagnostic curettage due to abnormal uterine bleeding compare to 168 healthy women using condom as a contraceptive, pills for 3 months where assigned as tubal ligation and non-tubal ligation group respectively.

All the patients were multiparas, of Age group between 30-45 years, there is no chronic medical

illness such as diabetic mellitus, hypertension, thyroid disorder, cardio vascular disease, no gynecological disease and there is at least three normal cycle before tubal ligation. We compared the distribution of social demographic characteristics, obstetrical as well as menstrual bleeding between the two studied groups and a validated pictorial blood loss assessment chart [PBAC] was also used for the evaluation of menstrual blood loss [MBL], which used to assess blood lost depending on certain criteria such as presence of clots, number of stain pads which should be of the same type. All our participants are volunteers and were studied, most MBL abnormalities where taken.

- Normal menstrual| blood loss: which a menstrual interval of 21-35 days and flow with duration of 7 days or less.
- Oligomenorrhoea: bleeding interval longer than 35 days.
- Polymenorrhoea: menstrual interval shorter than 21 days
- Menorrhagia: When PBLAC scored 2 100.
- Metrorrhagia: vaginal bleeding between the expected menstrual period
- Hypermenorrhoea: flow extend beyond 7 days
- Menstrual irregularity: Which is a menstrual interval shorter than 21 days and longer than 35 days, and amount of blood lost is varied.

All the statistical analysis where done by SPSS version 20 student- t - test, and chi square was performed and revealed statistical differences between studied groups. A P. value less than 0.05 was regarded to be statistically significant.

Result

Table 1: Comparison of socio-demographic characteristics between TL and Non TL groups

	TL [156]	%	NON-TL (168)	%	P Value	
Age	38.6±1.8		39.2±1.1		0.477	
AGE OF MENARCHE	12.6±1.8		12.9±1.1		0.574	
PARITY	6.3±2.3		7.1±1.8		0.267	
BMI [kg/m ²]	30.8±3.4		31.1±3.8		1	
Educational level	Illiterate	91	58.33333333	71	42.2619048	0.23
	Educated	65	41.66666667	97	57.7380952	0.46

		TL [156]	%	NON-TL (168)	%	P Value
PREVIOUS CONTRACEPTIVE METHODS	PILLS	110	70.51282051	88	52.3809524	0.23
	CONDOM	35	22.43589744	42	25	0.317
	OTHERS	11	7.051282051	36	22.6190476	0.17
MODE OF DELIVERY	NYD	92	58.97435897	132	78.5714266	0.072
	CS	64	41.02564103	36	21.4285714	0.005
SMOKING	YES	30	19.23076923	48	28.5714286	0.022
	NO	126	80.76923077	120	71.4285714	0.847

Table 1 shows the comparison of the socio-demographic characteristics between tubal ligation (TL) and non-tubal ligation groups (Non TL). Table 2

shows menstrual disorder between the two groups, and table 3 shows the histological comparison between tubal sterilization group and control group.

Table 2: Menstrual Disorder between the two groups

Menstrual pattern	TL [156]	%	NON-TL (168)	%	P Value
Oligomenorrhea	42	26.9230769	149	88.69047619	0.41
Polymenorrhea	21	13.4615385	23	13.69047619	0.763
Menorrhagia	107	68.5897436	50	29.76190476	0.001
Metrorrhagia	43	27.5641026	39	23.21428571	0.659
Dysmenorrhea	31	19.8717949	34	20.23809524	0.71
Hypermenorrh	55	35.2564103	20	11.9047619	0.05
Menstrual Irregularity	38	24.3589744	35	20.83333333	0.725
PBLAC	138	88.4615385	83.9	49.94047619	0.001

It was found that; menorrhagia was more in TL group when compared with non TL, PBAC also

was found elevated in the first group and they were statically significant.

Table 3: Histological comparison between tubal sterilization group and control group

		TL [156]	%	NON-TL (168)	%	P Value
Hysterectomy		26	16.6666667	14	8.33333333	0.058
Endometrial tissue result	Proliferative	50	32.05128205	48	28.5714286	0.756
	Secretary	61	39.1025641	48	28.5714286	0.763
	Others	45	28.84615385	52	19.047619	0.133
Mid luteal serum progesterone	< 1ng/ml	14	8.974358974	24	14.2857143	0.297
	1-10ng/ml	51	32.69230769	67	39.8809524	0.413
	>10ng/ml	91	58.33333333	77	45.8333333	0.239

There is no statistical difference between two studied group in regarding to endometrial tissue result and serum progesterone only there is

statistically difference in the rate of hysterectomy among tubal ligation groups.

Discussion

From the review of the literature we found an impact of TL on menstrual cycle characteristics in spite comprehensive, and they have been inconsistent.¹² Our findings suggest that patient with TL are more likely to develop menstrual abnormalities when compare with Non TL, and the difference was statistically significant. When we compare the study finding with other studies it shows a significant increase in the incidence of menstrual disorder. In women underwent tubal ligation when compared with control group, we found there is increase in the duration of the menstrual period [hypermenorrhea], and the amount of bleeding [menorrhagia], and these finding was in agreement with other studies done be.¹³ This can be attributed and explained that tubal ligation might cause damage to the ovary due to increase in the pressure in the utero-ovarian arterial loop.¹⁴

In contrast several other studies concluded that, the duration of bleeding, volume of menstrual flow, menstrual cycle length and cycle irregularity are similar in women with or without TL and these were confirmed by^{12,15}; although, as we mentioned it has been hypothesized that menstrual disorder are caused by the damage effect of tubal ligation on ovarian function through disruption of the ovarian blood supply.¹⁶ Menorrhagia identified as the most common bleeding disorder noticed after tubal ligation which was confirmed in our study by using PBLAC, we found a significant increase PBLAC score in women undergoing tubal ligation when compared with a non-tubal ligation, while several studies showed that there was no significant difference regarding menorrhagia between the tubal ligation and non-tubal ligation groups.¹⁷ In other study done by Wilcox et al. They reported heavy menstrual flow after five years following tubal ligation.¹⁸

Our study assessed the correlation between method of delivery and menorrhagia. Our finding indicated that menorrhagia more common in women with history of caesarian section (CS). Harlow et al¹⁵ concluded that menstrual irregularity, length of the menstruation, length of cycle and other menstrual disorders are similar in women with or without TL but women of CS and TL are more prone to having menstrual disorders and this can be attributed to that women with CS and TL may have endometrial defects at CS scar site and the weakness of uterine contraction as a cause of these menstrual disorders.¹⁵

Hysterectomy was noticed as a major indication of menstrual dysfunction or gynecological problems after TL which was also confirmed in our study when compared by other studies done.^{19, 20} Much of this could be explained by the fact that sterilization procedure has been performed for medical reasons and pre-existing gynecological problems contributed to the hysterectomy rate, regardless of whether sterilization produced the problem that led to hysterectomy, or once childbearing is no longer desired, so the presence of the uterus is much less important to many women and menstrual disorders are not tolerated as welling.

Conclusion

So our findings show that menstrual disorders were more common in women tubal ligation. There are still many important questions to be investigated about probable effect of tubal ligation on menstrual disorders. This study converges an important message that tubal ligation may influences irregular menstruation and causes menorrhagia. Hence women should be informed and instructed by health providers such as midwives and gynecologist regarding the advantage and disadvantage of tubal ligation.

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Conflict of Interest: None

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