

Impact of tubal sterilization on women's health

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Summary

In this study we aimed to investigate the possible health effects of tubal sterilization on women who had chosen this method. A total of 127 women who had tubal sterilization between 2000-2005 were asked about their satisfaction with the method; their regrets and complaints, the effects of the tubal sterilization on their sexual life and their actual health. While 95% of the women were satisfied with the operation, only 76.9% of the patients would recommend this method to other woman. Although 23.1% reported changes in their sexual life after the sterilization, 30% reported changes in their menstrual cycle and 35% reported lower abdominal pain, two-thirds of the women did not state any significant complaint. Women who underwent the procedure at least two years before had fewer complaints; high school graduates and more educated women reported more changes in their sexual life. Women who had tubal sterilization were mostly satisfied with the method and were willing to recommend it to another woman.

Key words: Female sterilization; Sexual function; Complaints; Satisfaction.

Introduction:

Women's contraceptive use and choices are largely affected by their satisfaction with the specific methods. They are also influenced by their personal subjective experience and the impact on their quality of life as well as sexual activity during the use of the contraceptive methods concerned. Anxiety regarding possible adverse effects of the contraceptive methods on their quality of life and sexual function is one of the common concerns [1]. Tubal sterilization is one of the most popular family planning methods in Turkey and worldwide [2, 3]. Many data exist in the literature about the postoperative outcomes of this method including satisfaction, complications and complaints [1, 2, 4, 5]. Moreover there are several reports on quality of life and sexual function in women after sterilization [6-8]. It has been proposed that the improved satisfaction and quality of life could be due to reduced fear of unwanted pregnancy, and hence, the resulting reduced psychological stress and improved sexual experience, as well as improved cycle control and alleviation of menstrual-related complaints [9].

The objectives of the current study were to investigate the possible effects of tubal sterilization on the health of Turkish women who had chosen this method.

Methods

The data of women who had undergone tubal sterilization (laparoscopically and during cesarean section), during the last five years in our clinic were investigated retrospectively based on the hospital records. Demographic characteristics and operation type were noted. Prospectively, with the help of a telephone questionnaire, women were asked about their satisfaction with the method, their regrets and complaints, the effects of the tubal ster-

ilization on their sexual life and their actual health, if there was any change in their menstrual cycle and whether they would recommend this method to other women. The data were analyzed statistically using SPSS 11.5, Fisher's exact test was used for cross analysis where $p < 0.05$ was considered significant.

Results

A total of 127 women had tubal sterilization between 2000-2005 in our university hospital. Out of 127 women, 104 had bilateral tubal ligation during cesarean section, 22 had laparoscopic tubal ligation and one had mini-laparotomy. The obstetrical characteristics of the patients and the results of our questionnaire are shown in detail in Tables 1 and 2. The mean age of the patients was 35.9 ± 3.6 (min. 27; max: 45); mean value of gravidity was 4.2 ± 1.9 and parity was 2.9 ± 1.1 . Forty patients could be reached by phone. Nine (23.1%) of the patients stated that they were regretful after the operation; 95% were satisfied with the operation, and 76.9% of the patients would recommend this method to another woman. Of the women, 23.1% reported changes in their sexual life after the sterilization, 30% reported changes in their menstrual cycle and 35% reported lower abdominal pain. However two-thirds of the women did not state any significant complaint. Women who were 36 years and over reported more lower abdominal pain ($p = 0.048$, Fisher's exact test); women operated on two years before or more had fewer complaints ($p = 0.047$, Fisher's exact test); high school graduate and higher educated women reported more changes in their sexual life ($p = 0.036$, Fisher's exact test) and women with an income more than 1,000 NTL (NTL = new Turkish Lira, \$1 = 1.3 NTL) reported more changes in their menstrual cycles ($p = 0.002$, Fisher's exact test).

The significant relationships of patient characteristics with complaints after tubal sterilization are shown in Table 3.

Table 1. — Characteristics of patients who had tubal sterilization.

Characteristics	Number of participants	
	n	%
No. of patients	127	
Age	27-45 years (mean age 35.9 ± 3.6)	
Operation type		
Bilateral TL* during CS**	104	
Laparoscopic TL	22	
Mini-laparotomy	1	
Patients reached by phone	40	31.49
Education	40	
Primary school	21	52.5
Secondary school	8	20.0
Higher education	11	27.5
Monthly income (NTL = new Turkish Lira, \$1=1.3 NTL)		
501-1000	25	62.5
≥ 1001	15	37.5
Years of tubal sterilization		
≤ 2 years	23/40	57.5
≥ 3 years	17/40	42.5
Self decision	28/40	70.0
Husband's permission	37/39	94.5
Last contraceptive method	38/40	
Coitus interruptus	12	9.4
Oral contraceptive	5	3.9
Condom	4	3.1
IUD	11	8.7
None	6	4.7
Counseling before the operation	37/40	92.5
Knowing that the method is irreversible	37/40	92.5
Easy and no adverse effect	37/40	92.5
Still have complaints	11/39	28.2
Satisfied with the method	38/40	95.0
Regretful	9/39	23.1
Recommend	30/39	76.9
Changes in sexual life	9/39	23.1
Positive changes	4/9	
Negative changes	5/9	
Lower abdominal pain after the operation	14/40	35.0
Changes in menstrual cycle	12/40	30.0
Effect on general health status	5/40	12.5
Negative	1	
Having other health problems	21/23	91.3

*TL: Tubal ligation; **Cesarean section.

Table 2. — Obstetrical characteristics of women who had tubal sterilization.

N = 115	Gravidity	Parity	Living child
Mean	4.2	2.9	2.8
Standard deviation	1.9	1.1	1.0
Minimum	1	1	1
Maximum	9	6	6

Discussion

The vast majority of women are satisfied with the decision to undergo sterilization [8]. The fact that regret can occur underscores the importance of counseling and adequate individual deliberation before the procedure. In addition to the difficulty and expense associated with sterilization reversal, women should thoroughly understand the permanence of the procedure [2]. Actually most

Table 3. — Relationship of patient characteristics with complaints after tubal sterilization.

Women		p*
≥ 36 years	Lower abdominal pain after the operation	0.048
Two years after operation	Still having a complaint related to TS**	0.047
High school and higher education	Changes in sexual life	0.036
Monthly income > 1000 NTL	Changes in menstrual cycle	0.002

* p values were calculated by Fisher's exact test; ** Tubal sterilization.

studies show no effect or improvement of sexual satisfaction after sterilization [1, 6, 8-10]. Our data is in agreement with the literature about the effect of tubal ligation on sexual life. We found that sexual activity is mostly unaffected after tubal ligation. However there were women who reported negative changes (5/9, 55%) and positive changes (4/9, 45%) in their sexual lives. A retrospective survey of 308 Portuguese women after sterilization revealed that sexual satisfaction, frequency and interest had either improved or remained the same, and the majority reported a good or very good quality of life [10]. Another prospective study of 87 Hong Kong Chinese women who were followed up to one year after sterilization reported a significant improvement in mental health following sterilization, and that their sexual satisfaction and frequency were not adversely affected [8]. A further cross-sectional study of 236 Portuguese women in Brazil reported no significant difference in terms of quality of life and sexual relationship measures [7]. Nevertheless, there are still scanty data in the literature addressing the impact of contraceptive methods on quality of life and sexual function [9]. Costello *et al.* [6] investigated the effect of tubal sterilization on sexual interest and pleasure. They included 4,576 women in their prospective, multicenter cohort study. Over 80% of the study women reported no consistent change in either sexual interest (80.0%) or pleasure (81.7%) after tubal sterilization in their study. Except for women with post-sterilization regrets all other women reported either an increased or no change in their sexual desire after sterilization. They concluded that tubal ligation is unlikely to result in changes in sexual interest or pleasure.

In another study it was found that among women who had had an emergency cesarean section tubal ligation was offered and of 301 patients 241 accepted, and 96% of the patients were happy with the outcome [11]. Women were far more likely to regret declining a tubal ligation (40%) than regret accepting one (2.5%) in their study. In the present study 23% (9/39) of the women were regretful after having this procedure. Likewise in another study, among 100 women who were followed after tubal sterilization, 31 patients were regretful and attempted to have a pregnancy by invitro fertilization or reversal microsurgery [12].

Although failure is a rare event, it can occur many years after the procedure [2]. None of the patients in our

study that we contacted had a pregnancy after the operation. Westhoff *et al.* reviewed the frequency, effectiveness and clinical sequelae of tubal sterilization with a focus on the U.S. experience. Among 700,000 annual bilateral tubal sterilizations (TS) performed, they found that the method was highly effective and safe. They suggested that evidence for hormonal or menstrual changes due to TS is weak [1].

An association between tubal sterilization and menstrual cycle changes does not seem valid for changes noted up to two years after the procedure. Data are unclear and inconsistent among studies observing women more than two years after tubal sterilization [13].

In 2002 Harlow *et al.* evaluated the relation between tubal ligation, change in menstrual cycle characteristics, and early follicular phase hormones. They analyzed the data of 976 premenopausal women and compared women with and without a history of tubal ligation. They found no significant change in menstrual cycle characteristics or hormone levels among the women [14]. Thirty percent of our study population reported menstrual cycle changes. However as we could not evaluate the details of these changes, we could not note the severity of the changes. Another study found that there was generally no significant difference in the quality of life and sexual function parameters after tubal sterilization, use of oral contraceptives or intrauterine devices [9].

Complications during and post procedure are rare [5]. In agreement with the literature, there were no complications due to the procedure among the 127 patients in our study. Data consistently show that in experienced trained hands, tubal sterilization is safe and highly effective regardless of the approach or occlusive method. Attention to the subtleties of the technique seem to be the most important in ensuring procedure safety and efficacy [1, 2, 6].

In conclusion, although being an irreversible and invasive method, women who have had tubal sterilization are mostly satisfied with the method and are willing to recommend it to other women.

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