

Surgical management of intrauterine devices migrated towards intra-abdominal structures: 20-year experience of a tertiary center

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Summary

Aims: To share surgical management experiences of intra-abdominal intrauterine devices (IUDs) in tertiary center. **Material and Methods:** A total of 27 patients were retrospectively analyzed. This retrospective study was conducted between September 1992 and April 2013 at Department of Obstetrics and Gynecology Tepecik Research and Training Hospital, İzmir, Turkey. Demographic findings, diagnostic methods, and operative notes of patients were obtained from the patient file. **Findings:** Of the 27 IUDs, nine (33.3%) were in omentum, four (15%) were in Douglas pouch, one in left sacrouterine ligament, one in uterovesical space and one in fundus posterior, six (22%) in left adnexial region, one in abdominal wall, one was subdiaphragmatic, one in ligamentum latum, and one in jejunum. Almost all of the patients had TCu-380 A IUDs. Seventeen patients (63%) were managed by laparoscopy, whereas laparotomy was required in ten (37%). Adhesions were found in 23 of 27 (85%) patients with varying degrees. In four cases the incision was extended due to adhesions. **Conclusion:** A missing string was the first finding of an intra-abdominal IUD. Pelvic ultrasonography, X-ray, and hysteroscopy methods should be performed in order to detect the localization of IUD in case of a missing string. Surgical approach should be the first treatment option for intra-abdominal IUDs.

Key words: Intrauterine device (IUD); Migration; Intra-abdominal structures.

Introduction

Intrauterine device (IUD) is a safe, effective, easily applicable, and commonly used method among non-permanent contraceptive methods. Approximately 175 million women are estimated to use IUDs worldwide [1]. In Turkey, 62.6% of women in reproductive are married and 15.7% of them use IUDs for contraception [2].

IUD has some rare complications including infections, irregular bleeding, contraception failure, and uterine perforation although it is applied easily. Uterine perforation is the most severe complication and causes severe mortality and morbidity [3, 4]. Incidence of uterine perforation is reported between 0.87 and 1.6 in 1,000 applications [2]. Although perforation usually occurs during insertion, it may rarely occur spontaneously during puerperium [5, 6]. Although perforation usually do not lead to abnormal symptoms, severe pain, and hemorrhage may occur rarely. IUD may be seen at any intra-abdominal localizations after perforation [7].

The most commonly used IUD is TCu-380 A in Turkey. These devices may lead to local peritoneal adhesions, abdominal pain, visceral perforation, infection, and infertility [8].

Pelvic ultrasonography, X-ray, and hysteroscopy are performed for detection of missing string. Detection rates reach 95.2% when pelvic sonography and X-ray are used together for mislocated IUDs [4].

Basic approach is removal of IUD by laparoscopic approach or by laparotomy when an IUD is detected out of the uterus. Some authors recommend to leave it in its place when extirpation may be dangerous due to the localization of IUD [8, 9].

The aim of our study was to evaluate surgical treatment methods in patients with intra-abdominal IUDs and to share the 20-year experience of the present tertiary center.

Materials and Methods

A total of 27 patients who were admitted to Tepecik Research and Training Hospital Obstetrics and Gynecology Clinic for IUD control between September 1992 and April 2013, and who were detected to have intra-abdominal IUDs were included in the study. The study was approved by the local Human Investigation Committee. Data of patients were recorded from patient files. Of the patients, 17 underwent laparoscopy and ten underwent laparotomy. Laparoscopy was switched to laparotomy in four patients. Hysteroscopy was performed in two patients as IUD was thought to be in intrauterine cavity and laparoscopy was performed thereafter. Incision was extended in four cases due to intensive adhesions.

Results

Mean age of the patients was 31.59 ± 7.8 years. Mean duration from IUD insertion to operation was 20.62 ± 43.21 months. Demographic characteristics and operation findings of 27 patients are given in Tables 1 and 2.

Table 1. — *Distribution of age, parity and duration of IUD use.*

	Mean	SD	Range
Age	31.59	7.8	20.0-50.0
Parity	2.75	2.06	1.0-9.0
Duration of IUD use (month)	20.62	43.21	0.5-144.0

Of the 27 IUDs, nine (33.3%) were in omentum, four (15%) were in Douglas pouch, one in left sacrouterine ligament, one in uterovesical space and one in fundus posterior, six (22%) in left adnexal region, one in abdominal wall, one was subdiaphragmatic, one in ligamentum latum, and one in jejunum. Two patients were planned hysteroscopic approaches, however IUD was out of the uterus. Almost all of the patients had TCu-380 A IUDs.

Seventeen patients (63%) underwent laparoscopy and the operation was switched to laparotomy due to intensive adhesions in four (23.5%). Operation was performed through a mini-laparotomy with a three to four cm incision in remaining ten cases (37%). Incision necessitated to extend due to adhesions only in seven cases. Varying degrees of adhesions were detected in 23 out of 27 patients (85%). No adhesions were detected in four patients (15%). One patient who was detected not to have adhesions had an IUD inserted 12 months ago and another had one inserted three months ago. Major complications (vascular or intestinal injury) occurred in no patients. IUD was removed from jejunum with a one-cm incision as it was in jejunum in only one case. Jejunum was repaired with primary sutures. Pomeroy method of tubal ligation was performed in the course of IUD extirpation in nine cases as they desired tubal ligation. A statistically significant difference could not be found between mini laparotomy and laparoscopic surgery in terms of operative time and postoperative duration of hospital stay. Mean duration of hospital stay was two days. Patients were uneventful in postoperative follow up.

Discussion

IUDs have been widely used since 1960. While the first used types were biologically inactive polyethylene lippes-loop IUDs, second generation copper and hormone-releasing IUDs which were developed in 1970s are used today. In Turkey, 62.6% of reproductive age women are married and 15.7% of them use IUDs as contraceptive method [4]. This ratio is 33% in China and 5.3% in developed countries [8].

IUDs are used widely as they are reversible, safe, inexpensive, effective, and easily applicable. However they also have side effects like increased menstrual bleeding, pain, infection, and perforation. These side effects are seen

Table 2. — *Distribution of delivery type, IUD localization and surgical method.*

	n	%	
Type of previous delivery	Normal	23	85
	Caesarean section	4	15
IUD localization	Omentum	9	33
	Douglas	4	15
	Adnexial region	6	22
	Others	8	30
Surgical method	Laparotomy	10	37
	Laparoscopy	17	63

more particularly within the first months following IUD insertion.

Risk of uterine perforation is in the ratio of 0.87/1,000 [4]. IUD type (copper-containing IUDs are more risky), application time (following delivery or curettage etc), uterine size, position, and experience of the operator are the factors affecting perforation rates. IUD may place at any site in the abdomen if perforation occurs [10].

Following the procedures during insertion of IUD would minimize perforation risk. Immediate laparoscopy may be applied if perforation is recognized during the procedure.

Most of the perforations are not recognized during insertion as in our study and women may stay asymptomatic for months. Therefore women who are inserted IUDs must be called for gynecologic examination 6-12 weeks after insertion and informed about coming for controls once in two years thereafter [11].

Transvaginal ultrasonography and direct graphies should be performed in case of a missing string and IUD should be considered to have fallen without noticing only after these examinations.

Current treatment of intra-abdominal IUDs is surgical removal however opposite opinions also exist. Adoni *et al.* detected no intra-abdominal adhesions in 11 patients who were detected to have intra-abdominal IUDs. Of these IUDs, four were normal and seven were copper IUDs. They reported that intra-abdominal IUDs were not needed to be removed [12]. Similarly, Markovitch *et al.* reported no adhesions in three cases and recommended not to remove IUDs in asymptomatic patients.

On the contrary to these opinions, World Health Organization recommends immediate surgical intervention due to risk of intensive adhesions, chronic pain, and even infertility when an intra-abdominal IUD is detected [13]. In the present study, varying degrees of adhesions were detected in 23 out of 27 patients (85%). Laparotomy was needed due to intensive adhesions in four cases. However according to another opinion, adhesions develop in the early period and these prevent migration of IUD, therefore operations would not be useful as they would further increase adhesions [5]. Beside adhesions, neighbouring organ injury due to mi-

grated IUD is dangerous and it may migrate to distant regions from which IUDs are more difficult to remove. IUDs which migrated to iliac vein, right iliac bifurcation, and retroperitoneal region are reported in literature. Therefore retroperitoneal region and abdominal wall should certainly be examined if IUD cannot be found during the operation.

Intra-abdominal foreign bodies precipitate also infection besides adhesion. None of the present 27 patients developed abscess formation however abscess formation is reported in the ratio of 15-20% in literature [12].

Finally, the patient's knowing that she carries a foreign body in her abdomen may lead to psychological and medicolegal problems. In the present patients, all intra-abdominal IUDs were surgically removed as they could lead to intra-abdominal organ perforations, infection, and chronic pelvic pain.

In conclusion, patients should be controlled with certain intervals after IUD insertion even if they have no symptoms and it should be kept in mind that a missing string may indicate an intra-abdominal IUD. Localization of IUD should be determined with ultrasonography and directographies. According to the results of the present study, diagnosed intra-abdominal IUDs should be removed surgically even if they are asymptomatic. However publications which do not support this result also exist. Further studies are needed in order to create a definite opinion about this issue.

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