

Diagnosis and management of intra-abdominal, mislocated intrauterine devices

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Abstract

Purpose To evaluate the predisposing factors, diagnosis and surgical treatment options of patients with intra-abdominal, mislocated intrauterine devices (IUDs).

Methods The diagnosis and management of 18 patients with intra-abdominal, mislocated IUDs were analyzed in this retrospective study.

Results Trained midwives inserted ten (55%) of the IUDs, while six (33%) were inserted by general practitioners and two (11%) by specialist gynecologists. Ten (55.5%) of the patients were diagnosed by gynecological examination and ultrasonography (USG); abdominal X-ray, in addition, was required in the other eight (44.4%). Eleven patients (61%) were managed by laparoscopy, whereas laparotomy was required in seven (39%). For all patients, laparoscopy was performed initially. No complication was encountered in any of the patients.

Conclusion Persons who insert IUDs should receive adequate training before certification, because inadequate pelvic examination before insertion and inexperience of the inserting person might be predisposing factors for uterine perforation. If IUD strings are not visible during gynecologic examination, USG should be tried to locate the IUD and pelvic X-ray used only when USG fails to locate the IUD. Laparoscopy can be the first choice for removal.

Keywords Contraception · Intrauterine device (IUD) · Uterine perforation · Mislocated IUD · Laparoscopy

Introduction

Intrauterine devices (IUDs) are safe, highly effective and convenient. It has been estimated that 100 million women worldwide use IUDs. For the last 15 years, IUDs have been the most popular form of reversible birth control method in Turkey, e.g., copper-releasing IUDs and levonorgestrel-releasing intrauterine systems. IUDs have many proven advantages and are inserted free of charge in primary health-care centers all over Turkey as a means of providing reliable birth control [1].

The use of IUD is often accompanied by various complications, with the perforation of the uterus being the most dangerous. The rate of uterine perforation has been reported to range from 0 to 1.3 per 1,000 insertions. This complication is always initiated at the time of IUD insertion; the diagnosis is usually delayed. The gynecologic surgeon should acquire familiarity with the complications of, and proficiency in managing, perforated and ectopic IUDs by using modern surgical techniques that permit the patient's rapid return to health [2, 3].

In this study, our aim was to analyze retrospectively the predisposing factors, diagnosis and management of our cases of intra-abdominal IUDs.

Materials and methods

Eighteen patients with intra-abdominally placed IUDs, diagnosed at the Department of Obstetrics and Gynecology, Meram Faculty of Medicine Hospital, University of Selcuk, Konya, Turkey, between January 2003 and December 2008, were included in this retrospective analysis. The study was approved by the ethical committee of Selcuk University. We controlled the data of these patients from

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the electronic database of the hospital; the demographic characteristics, duration of IUD use, symptoms, diagnostic methods, the type of IUD and the surgical interventions were documented. But, the person who performed the IUD insertion, the place of insertion and the symptoms felt by the patients during insertion were not documented in our database. So, we contacted all of them by phone and inquired about the above points.

Results

Our hospital is a tertiary center where cases are referred to from other health centers. A total of 18 patients with mislocated IUDs were found between January 2003 and December 2008; 16 were referred to our hospital from other centers. The average age of patients was 29.8 years (range 24–46). The mean duration of usage of IUD was 15.7 months (range 0–60). The demographic characteristics, duration of IUD use, symptoms, diagnostic methods and the type of IUD are summarized in Table 1.

The patients were diagnosed by gynecological examination, ultrasonography (USG) and abdominal X-ray. The string of IUD was not seen in the gynecological examination of all the patients and a forceps was used to control if the string was inside the cervical canal. When the string could not be found, USG was performed. When the mislocated IUDs could not be ascertained by USG, abdominal X-ray was performed. Abdominal X-ray demonstrated that the IUDs were in the abdominal cavity. Ten (55.5%) of the



Fig. 1 The appearance of IUD on transvaginal ultrasonography (arrow)

patients were diagnosed by gynecological examination and USG (Fig. 1), while abdominal X-ray in addition was required in the other eight (44.4%).

Surgical removal was performed in all cases following the diagnosis of a mislocated IUD. In all cases, the primary surgical approach consisted of laparoscopy. The IUDs were removed by laparoscopy in 11 (61%) women (Fig. 2), whereas laparotomy was required in 7 (39%). In two cases, the IUD was embedded in the omentum necessitating laparotomy and partial omentectomy. In two women following laparoscopy, laparotomy was required because of massive adhesion formation. In three cases, laparotomy was performed after laparoscopic removal to repair the injury in the

Table 1 The demographic characteristics, duration of IUD use, symptoms, diagnostic methods and type of IUD

Cases (number)	Age (years)	Parity (n)	Duration of IUD use	Symptom (s)	Diagnosis	Type of IUD
1	34	3	2 years	Desire to conceive	USG	TCu-380A
2	25	2	1 year	None	USG	TCu-380A
3	33	3	1 week	Pelvic pain	USG	Mirena®
4	25	1	9 months	Pelvic pain	USG	TCu-380A
5	28	2	3 years	None	X-ray	TCu-380A
6	46	5	5 years	None	X-ray	TCu-380A
7	25	2	6 months	None	USG	TCu-380A
8	27	3	5 months	Pregnancy	USG	TCu-380A
9	33	3	1 year	Pelvic pain	X-ray	TCu-380A
10	24	1	8 months	Desire to conceive	USG	TCu-380A
11	25	1	6 months	None	USG	TCu-380A
12	26	2	1 year	None	USG	TCu-380A
13	29	2	18 months	None	X-ray	TCu-380A
14	30	1	1 year	Pelvic pain	X-ray	TCu-380A
15	39	4	2 year	None	USG	Mirena®
16	27	1	1 year	Desire to conceive	X-ray	TCu-380A
17	29	2	15 months	None	X-ray	TCu-380A
18	31	3	1 year	None	X-ray	TCu-380A

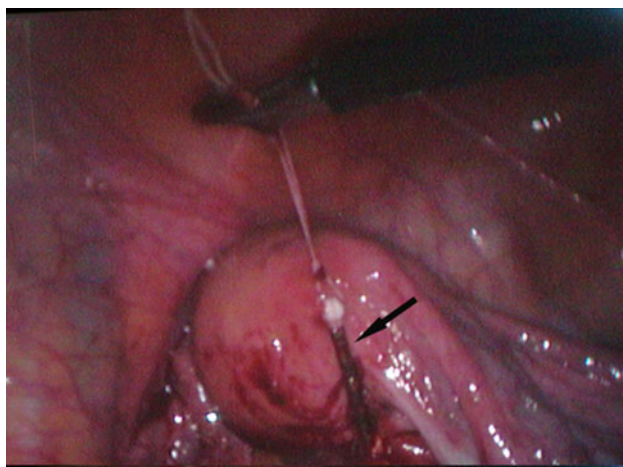


Fig. 2 The laparoscopic removal of IUD

ileal and rectal serosa. No complication was encountered in any of the patients.

All women were parous, and five patients had delivered once, six patients twice and seven patients three times or more. Midwives inserted ten (55%) of the IUDs, six (33%) were inserted by general practitioners and two (11%) by specialist gynecologists. Six (33%) of the procedures were performed in hospitals and 12 (66%) in primary health-care centers. All the patients when asked about symptoms during insertion stated that they had pelvic pain. Of the IUDs, 16 (89%) were of the TCu-380A type and 2 (11%) were of the Mirena® type. One patient presented with lower abdominal pain 1 week after IUD insertion, leading to early diagnosis. In 12 women, the intra-abdominal IUDs were found 1 year or later following insertion. One patient was pregnant at the time of diagnosis. In ten cases, the IUD strings were not visible during pelvic examination at a routine checkup. In three women, the strings were not visible when they asked for their IUDs to be removed in order to conceive, and four patients presented with pelvic pain. The type of treatment and intraoperative findings are shown in Table 2. Mean hospitalization time was 3 days in women treated with laparotomy and 1.5 days in women treated with laparoscopy. The postoperative course was uneventful in all patients.

Discussion

One of the serious, but rare, complications of intrauterine contraception is uterine perforation. Uterine perforation is common among women with ‘lost’ IUDs and can cause severe morbidity and mortality. It should be carefully managed, especially in women who experience pain during IUD insertion [4]. In our study, all the patients stated that they had severe pelvic pain during insertion. This leads to the

Table 2 Type of treatment and intraoperative findings

Cases (number)	Operation	Location of the IUD	Surgical intervention (s)
1	Laparoscopy	Douglas pouch	None
2	Laparoscopy	Douglas pouch	None
3	Laparoscopy	Douglas pouch	None
4	Laparoscopy	Douglas pouch	None
5	Laparoscopy	Omentum	None
6	Laparoscopy	Omentum	None
7	Laparoscopy	Posterior uterine wall	None
8	Laparoscopy	Posterior uterine wall	None
9	Laparoscopy	Adnexal localization	None
10	Laparoscopy	Adnexal localization	None
11	Laparoscopy	Rectal serosa	None
12	Laparotomy	Douglas pouch	Adhesiolysis
13	Laparotomy	Omentum	Partial omentectomy
14	Laparotomy	Omentum	Partial omentectomy
15	Laparotomy	Posterior uterine wall	Adhesiolysis
16	Laparotomy	Rectal serosa	Repair of injury
17	Laparotomy	Ileal serosa	Repair of injury
18	Laparotomy	Ileal serosa	Repair of injury

speculation that uterine perforation may occur during IUD insertion.

Miranda et al. [5] in their study suggest that laparoscopic removal of the intra-abdominal IUD must be the first choice of therapy. In a study by Ikechebelu et al. [6], a patient had laparoscopy performed to remove IUD without complication and went home on the same day. Our results support the idea that, in cases of extrauterine but intra-abdominal IUD, laparoscopy can be the first choice for removal.

Management of an intra-abdominal, mislocated IUD is controversial. Adoni and Ben Chetrit in their study concluded that removal of an IUD from the abdomen is not mandatory after uterine perforation. They found no bands of adhesions in 11 patients with intra-abdominal IUDs. Their study included seven copper-bearing and four unmedicated IUDs [7]. Markovitch et al. [8] studied three cases with intra-abdominal, copper-bearing IUDs and reported no adhesion formation and also recommended not to intervene surgically in asymptomatic patients. In contrast to these data, the World Health Organization has recommended that a displaced IUD should always be removed as soon as possible after the diagnosis has been established, regardless of its type and location [9]. The main reason for this recommendation is their potential for adhesion formation, which can cause chronic pain, intestinal obstruction and infertility. We observed varying degrees of peritoneal and omental adhesions in our patients. Other reasons to remove a retained intra-abdominal IUD are the possible migration of a mislocated IUD and injury to adjacent

structures; so, surgical removal may be more difficult after migration. A good example for this is a documented migration of an IUD into the iliac vein [10]. Roy et al. [11] also reported a unique case of retroperitoneal migration of an IUD. They managed this patient by laparoscopy. In our series, there were three patients in whom injury to adjacent organs occurred. In Turkey, gynecologists, midwives and medical practitioners insert IUDs. Midwives and practitioners perform this procedure after training and certification [12]. Midwives inserted ten of the IUDs of the patients in our study.

All mislocated IUDs were removed in our study. Although, laparoscopy is the preferred method of removing intra-abdominal IUDs, it is not always possible to retrieve a mislocated IUD by laparoscopy. In seven of our cases, laparoscopy was converted to open surgery. So, caution is required when trying to remove an IUD embedded within a tissue, because serious damage to the adjacent structures and bleeding may occur. Therefore, we recommend that the IUD should be removed under direct visualization of the entire device. Laparotomy is necessary when a mislocated IUD cannot be found by laparoscopy [6]. We had difficulties in locating one of the IUDs during laparoscopy, because it was embedded in the posterior uterine wall and did not perforate the serosa. Severe adhesions were found between the posterior uterine wall and the pelvic walls, so it could not be seen even by laparoscopy.

Conclusions

IUDs may be better inserted by professionals. Because professionals cannot be found everywhere, persons who are allowed to insert IUDs should have stricter rules of training and certification. Inadequate pelvic examination before insertion and inexperience of the inserting person might be predisposing factors for uterine perforation. Our data suggest that most of the uterine perforations by IUDs are initiated during insertion, so more attention should be paid to pelvic examination before IUD insertion. If pain or difficulty in insertion occurs, the location of IUD should be

controlled by ultrasound to be inside the uterine cavity. In the following visits, if the string of the IUD is missing, USG should be performed to locate the IUD. If insufficient, abdominal X-ray may be done to reach a definitive diagnosis. For those found to be inside the abdominal cavity, laparoscopy can be the first choice for removal.

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Conflict of interest statement None.

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