Diagnostic Methods and Management of Mislocated Intrauterine Devices

KAYIP RAHİM İÇİ ARAÇLARIN TANI YÖNTEMLERİ VE YÖNETİMİ

Mehmet HARMA*, Müge HARMA*, Hasan KAFALI*, Tuba YALTALI**, Nurettin DEMİR***

* MD., Assis.Prof., Dept. of Gynecology and Obstetrics, Medical School of Harran University,
** MD., Resident, Dept. of Gynecology and Obstetrics, Medical School of Harran University,
*** MD., Prof., Dept. of Gynecology and Obstetrics, Medical School of Harran University, Şanlıurfa, TURKEY

Summary

Objective: The aim of the study was to evaluate the patterns of complications, the method of diagnosis and the management of patients suffering from a mislocated intrauterine device (IUD).

Institution: Department of Obstetrics and Gynecology, Medical School of Harran University, Sanliurfa.

Materials And Methods: This survey involved 23 consecutive cases of lost IUDs between 1998 and 2002. The diagnosis was made by plain X-ray, ultrasonography, hysteroscopy, laparoscopy and laparotomy. The IUDs were removed by curette, hysteroscopy, laparoscopy, laparotomy and cystotomy.

Results: All 23 women were parous and >20 years of age when they had their IUD inserted. Ten (43.5%) of the IUDs had been inserted by a physician. In 13 (56.5%) women, insertion had been carried out by a non-physician (midwife or nurse). IUDs causing complications were diagnosed in 12 (52.2%) patients by ultrasonography, in 4 (17.4%) by hysteroscopy, in 4 (17.4%) by laparoscopy, in 2 (8.7%) by X-ray and in 1 (4.3%) by laparotomy. The IUDs were removed by curette after dilatation of the cervix in 12 (52.2%) patients. In 4 (17.4%) cases, removal of the device was accomplished by hysteroscopy. In 3 (13.0%) cases, laparoscopy was performed for removal. In 2 (8.7%) women, laparotomy was performed. Two (8.7%) women underwent cystotomy for removal.

Conclusion: The IUD is a safe and effective method for contraception and should be inserted correctly by non-physicians as well as physicians. Continuous training of inserters (i.e. physicians and non-physicians) will minimize the risk of IUD complications. The recognition and prompt treatment of a misplaced IUD is mandatory for the reduction of serious further complications.

Key Words: Intrauterine device, Complication, Diagnosis

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Özet

Amaç: Bu çalışmada Rahim İçi Araç (RİA)' ları kaybolan kadınlarda, ortaya çıkan komplikasyonları ve tanı metodlarını değerlendirerek hastaların tanı ve tedavilerine yönelik yönetimlerini incelemeyi amaçladık.

Çalışmanın Yapıldığı Yer: Harran Üniversitesi Tıp Fakültesi, Kadın Hastalıkları ve Doğum AD, ŞANLIURFA.

Materyal ve Metod: 1998 ve 2002 yılları arasında kliniğimize refere edilen, RİA'ları kaybolmuş 23 kadında, direkt röntgen grafisi, ultrasonografi, histeroskopi, laparoskopi, ve laparotomi ile saptanan kayıp RİA'lar, küret, histeroskopi, laparoskopi, laparotomi ve sistotomi ile çıkarıldılar.

Bulgular: Olguların hepsi (23) daha önce doğum yapmışlardı ve RİA takıldığında hepsi 20 yaşından büyüktüler. RİA'yı uygulayan personel 10 (%43.5) kadında doktor, 13 (%56.5) kadında ise doktor dışı sağlık personeli (ebe, hemşire) idi. Komplike olan RİA'larda kullanılan tanı yöntemleri ultrasonografi, histeroskopi, laparoskopi, direkt röntgen grafisi ve laparotomi olup tanı oranları sırasıyla %52.2, %17.4, %17.4, %8.7 ve %4.3 olarak bulundu. Kayıp RİA'lar 12 (%52.2) olguda küret kullanılarak, 4 (%17.4) olguda histeroskopi ile, 3 (%13.0) olguda laparoskopi ile çıkarıldı. İki (%8.7) olguya laparotomi yapıldı. Mesaneye penetre olan 2 (%8.7) RİA ise sistotomi yapılarak çıkarıldı.

Sonuç: RİA güvenilir ve etkin bir kontrasepsiyon yöntemidir. RİA'lar hekim dışı sağlık personeli tarafından da başarıyla uygulanabilir. Ancak her iki grup uygulayıcıların iyi ve sürekli eğitimli olmaları oluşabilecek RİA komplikasyonlarını azaltacaktır. Kayıp bir RİA'nın erken tanısı ve hızlı tedavisi, gelişebilecek daha ciddi komplikasyon oranlarının azaltılması için zorunludur.

Anahtar Kelimeler: Rahim İçi Araç, Komplikasyon, Tanı

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IUDs are widely used in developing countries and they are one of the most effective, safe, and economical methods of reversible contraception. A wide variety of IUDs were introduced and marketed in the late 1960s and early 1970s, and are used by nearly 100 million women worldwide (1).

The most common IUD complications are heavy bleeding and cramps, expulsion, complete or partial uterine perforation, infertility caused by pelvic inflammatory disease (PID), and increased risks for septic and spontaneous abortion in cases of pregnancy with an IUD in situ. A

missing tail may signify either unrecognized expulsion, retraction of the string into the cervix or uterus, enlargement of the uterus due to pregnancy, or perforation with the IUD in an extrauterine location. If the IUD's strings are not visible, attempts should be made to locate the device. Ultrasound or pelvic (antero-posterior and lateral) X-ray with some radiopaque marker or concomitant uterine sound in the uterine cavity showing the displaced IUD can confirm the diagnosis.

If extraction of the IUD is unsuccessful, direct visualization with hysteroscopy can be useful. When an IUD is identified perforating the myometrium, the acceptable treatment for such a complication is surgical removal of the device, by either laparoscopy or laparotomy, depending upon its location.

Materials and Methods

This study was conducted at the gynecology outpatient department of Harran University Hospital in Sanliurfa. The subjects were 23 women who had had a device inserted somewhere other than in our hospital and were referred to our clinic between June 1998 and December 2002. All of them were suffering from a lost IUD. All the patients' files contained detailed information regarding their demographic characteristics, reproductive history, complaints and findings at the time of referral, diagnostic methods, mode of retrieval, duration and type of removed device and IUD complications. The clinical staff who performed the insertion were categorized as 'physicians' (obstetrics and gynecology specialists and general practitioners) and 'non-physicians' (nurses and midwives). Patients' consequent contraceptive preferences were also determined. Displaced IUDs were diagnosed by pelvic X-ray, ultrasonography, hysteroscopy or laparoscopy.

Results

All 23 women were parous and >20 years of age when they had their IUD fitted. The age range was 22 to 46 years. Eleven (47.8%) patients were under 30 years old. Grand multiparous (≥5) women accounted for 5 (21.8%) of the women receiving IUDs, while 17 (78.2%) were within the range 1-4. None of the patients was nulliparous. Five women (21.8%) had 1 living child, and 17 (73.9%) had 2 to 8 children at the time of IUD insertion. The mean duration of IUD bearing time was 39.6 (2-131) months. Seven (30.4%) of the women had previously undergone a cesarean operation. None of the patients experienced pain or had difficulties at insertion.

The timing of IUD insertion, the reasons for IUD removal, the professional status of the IUD provider, tools for diagnosing IUD complications, methods of IUD retrieval, the locations of the penetrating IUDs, type of removed IUD and women's consequent contraception preferences after removal of the IUD causing complications are shown in Tables 1-8 respectively.

Table 1. Timing of IUD insertion

Time	Patients n (%)
1 year after term pregnancy	14 (60.9%)
12 weeks after delivery	8 (34.8%)
At cesarean section	1 (4.3%)

Table 2. Reasons for IUD removal

Findings and complaints	Patients n (%)
Misplaced device or missing string	8 (34.8%)
Accidental pregnancy	5 (21.8%)
Menstrual complaint	4 (17.4%)
PID	3 (13.0%)
Planned pregnancy	3 (13.0%)

Table 3. Professional status of IUD provider

Professional status	Patients n (%)
Physicians	10 (43.5%)
Non-physicians	13 (56.5%)

Table 4. Tools for diagnosing IUDs causing complications at initial examination

Diagnostic tool	Patients n (%)
Ultrasonography	12 (52.2%)
Hysteroscopy	4 (17.4%)
Laparoscopy	4 (17.4%)
X-ray	2 (8.7%)
Laparotomy	1 (4.3%)

Discussion

This study includes patients with IUDs causing complications. The true incidence of IUD complications is not known because only the cases referred to our institute have been investigated in this study. Information on the total number of insertions during the study period was not available because the patients came from different family planning centers and private practices.

The IUD is a highly effective, safe, long-lasting and cost effective form of contraception (2,3). Associated complications include bleeding, infection, pain, accidental pregnancies and uterine perforation. Perforation or missing IUD thread were the leading findings (34.8%) in our study. Accidental pregnancy (21.8%) was the second leading

Table 5. Methods of IUD retrieval

Method	Patients n (%)
Novak or sharp curette	12 (52.2%)
Hysteroscopy	4 (17.4%)
Laparoscopy	3 (13.0%)
Laparotomy	2 (8.7%)
Cystotomy	2 (8.7%)

Table 6. The locations of the penetrating IUDs

Site	Patients n (%)
Douglas pouch	3 (42.9%)
Urinary bladder	2 (28.7%)
Omentum	1 (14.2%)
Anterior abdominal wall	1 (14.2%)

Table 7. Type of removed IUD

Type of IUD	Patients n (%)
Copper-T	18 (78.3%)
Multiload 375	4 (17.4%)
Lippes Loop	1 (4.3%)

Table 8. Women's preferred method of contraception after removal of the IUDs causing complications

Further contraceptive preference	Patients n (%)
Oral contraceptive pills	12 (75.0%)
Tubal sterilization	2 (12.6%)
Implant	1 (6.2%)
IUD	1 (6.2%)

reason for IUD removal. IUDs have low rates of removal for bleeding and pain. Four (17.4%) of our cases had menstrual complaints (i.e. pain and bleeding); this was the third most common reason for IUD removal associated with complications. An IUD can be safely inserted at any time after delivery or abortion, or during the menstrual cycle (4). In our study, insertion was carried out in 14 (60.9%) patients one year after a full term pregnancy. Insertion can even be performed immediately after a vaginal delivery (5) or at cesarean section (6). In only 1 (4.3%) of our patients was the IUD inserted at cesarean section.

Patient selection for successful IUD use requires analysis of the menstrual history and risk of sexually transmitted diseases (STDs). Age and parity are not critical factors in the selection; the risk factors for STDs are the most important consideration (4). Meta-analysis of data from 12 randomized studies revealed that PID among IUD users is most strongly related to the insertion process and there is no relationship between IUD use and PID except in the immediate postinsertion period. IUD complications in 3 (13.0%) of our patients were associated with infection. Of these three, one had a tubal abscess after using an IUD for 18 months and one presented with PID having had her IUD inserted 2 months previously.

Uterine perforation is a serious complication but the incidence rate is usually low. The diagnosis of perforation is relatively easy when a high index of suspicion exists. It has been reported to range from 0 to 1.3 per 1000 insertions in large clinical studies (1,7-9). In our study, extrauterine mislocated IUDs were detected in 7 (30.4%) patients. Among these seven, in 2 (28.7%) patients IUDs subsequently penetrated the urinary bladder. Most perforations occur at the time of insertion and are thought to be associated with the insertion procedure (10). It is important to check that the position is correct by locating the string within a few weeks of insertion. However, in 1 (4.3%) woman, perforation was diagnosed as early as 2 months after insertion while in 6 (26.0%) perforations were discovered in >2 months (18-84 months).

First-generation IUDs (Lippes Loop and Saf-T-Coil) were bulky devices inserted using a blind technique and perforations were not unusual. However, modern, medicated IUDs are small and are inserted by special techniques based on calibration of the depth of the uterine cavity. Perforation rates for copper IUDs and progesterone-containing IUDs are 0.6/1,000 and 1.1/1,000 insertions, respectively (10,11). Uterine perforations were identified in 18 (78.3%) of our patients using a Copper-T and in 4 (17.4%) using a Multiload 375. In only 1 (4.3%) patient did perforation occur with a first-generation inert (Lippes Loop) IUD.

Uterine perforation can be classified as partial or complete. When partial perforation has occurred, the device may later transmigrate out of the uterus to adjacent structures (12,13). Common locations of migration are the peritoneal cavity, omentum, small bowel, ileum, appendix, sigmoid colon, rectum, and urinary bladder. In our study, IUDs were revealed in the Douglas pouch in 3 patients (42.9%) and at the anterior abdominal wall in 1 (14.2%). In 1 (14.2%) case, the IUD was found embedded in the omentum.

IUDs are easily identified by plain film, ultrasound, CT or MRI. Women with IUDs can be safely imaged by MRI, as neither migration nor a heating effect has been documented. The main modality used for diagnosis was ultrasonography (52.2%) in our cases.

If IUD strings cannot be located or extracted from the endocervical canal a Pap smear cytobrush, or a specially

designed instrument (helix) should be passed into the endometrial cavity after the administration of a paracervical block (14). The device can be removed using a Novak curette, hook, sharp curette or alligator type forceps directed to where the device was felt, after cervical dilatation. The IUD retrieval methods identified in our study were the following: in 12 (52.2%) cases a curette was used, in 4 (17.4%) hysteroscopy, in 3 (13.0%) laparoscopy, in 2 (8.7%) laparotomy, and in 2 (8.7%) cystotomy.

The insertion of an IUD in breastfeeding women is relatively easier, and is associated with a lower removal rate for bleeding or pain (5). Increased levels of ß-endorphins in breastfeeding women have been suggested as the reason for the decreased pain reaction (15). During full breastfeeding, estrogen levels are very low and the uterus is consequently small, which may affect the risk of uterine perforation (10). A copper IUD has long been considered an ideal contraceptive method for lactating women because it has no effect on the quality or quantity of breast milk (16-18). However, only 4 (17.3%) patients were breastfeeding at the time of IUD insertion.

Well-trained and skilled non-physicians (i.e. nurses, midwives, nurse practitioners, nurse-midwives, physician's assistants) can provide IUD services without higher complication rates as well (19-21). No differences were reported in the rates of perforation, infection, expulsion, or other complications compared with physicians. As our study clearly indicated, complication rates associated with physicians and non-physicians were similar (43.5% vs. 56.5%).

Our study revealed that after retrieving the lost IUD, 15 (93.8%) patients consequently preferred a contraceptive method other than an IUD, probably due to the unfortunate events resulting from complications.

The efficacy of modern IUDs is superior to that of oral contraception. A very low rate of minor side effects can be achieved with careful screening and a good insertion technique. Well-trained non-physicians, as well as physicians, can safely insert IUDs. When an IUD cannot be found or the IUD strings cannot be located, the clinician has to consider perforation of the uterus or embedment into the myometrium. Ultrasonography is the best method for locating a lost IUD. Mislocated IUDs should be removed, even in asymptomatic women.

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Yazışma Adresi: Dr.Mehmet HARMA
Harran Üniversitesi Tıp Fakültesi
Kadın Hastalıkları ve Doğum AD,
ŞANLIURFA
harmam@ixir.com