2006; Cilt: 3 Sayı: 1 Sayfa: 56- 61

MANAGEMENT AND OUTCOME OF İNTRA-ABDOMİNAL İNTRAUTERİNE DEVİCES

Mehmet GÜNEY, Baha ORAL, Fuat DEMİR, Demir ÖZBAŞAR

Süleyman Demirel Üniversitesi Tıp Fakültesi Kadın Hastalıkları ve Doğum Anabilim Dalı Isparta

SUMMARY

Objective: *To evaluate the diagnostic methods, management and treatment for intrauterine devices being displaced into the abdominal cavity.*

Design: *Retrospective clinical study*

Setting: *This retrospective study was conducted between 1980 and 2004 at the Süleyman Demirel University, Faculty of Medicine, Department of Obstetrics and Gynecology and Isparta Women's and Children's Hospital.*

Patients: *Eleven patients with displaced intra-abdominal intrauterine device*

Main Outcome Measures: Eleven patients with displaced intra-abdominal intrauterine device were evaluated with respect to the demographic characteristics, clinical manifestation, state of current IUD use, duration of IUD use and type of clinical management.

Results: *The mean age was 36.8±1.8 years, and the mean duration of IUD use was 61.82 ±75.93 months. The diagnostic method was ultrasonography in 5 cases, X-ray examination in 5 cases and cystoscopy in 1 case. The IUD location was the rectosigmoid in 4 cases (36%), the ligamentum latum in 2 cases (18%), the small bowel in 3 cases (27%), vesicouterine space in 1 case (9%) and the bladder in 1 case (9%). The type of IUDs was Cu-T 380A in 7 patients (63%), Lippes- Loop in 2 patients (18%) and Multiload 375 in 2 patients (18%). 45% of the patients were asymptomatic. Removal was performed by laparoscopy (n=8, 72%), laparotomy (n=2, 18%), laparotomy+cystostomy (n=1, 9%).*

Conclusions: *Although we removed all the intraabdominal intrauterine devices, the removal of an asymptomatic displaced IUD is controvertial. A surgical intervention may cause more adhesions rather than preventing adhesion formation.*

Key words: *contraception, intrauterine device, laparoscopy, laparotomy, uterine perforation*

ÖZET

İntraabdominal Rahimiçi Araçların Takip ve Sonuçları

Objektif: *Abdominal kaviteye deplase olmuş rahimiçi araçların (RİA) teşhis, takip ve tedavi yöntemlerini değerlendirmek.*

Planlama: *Retrospektif çalışma.*

Ortam: *Bu retrospektif çalışma 1980-2004 yılları arasında Süleyman Demirel Üniversitesi Kadın Hastalıkları ve Doğum Kliniği ile Isparta Kadın ve Çocuk Hastalıkları Hastanesi'nde yapıldı.*

Hastalar: *İntraabdominal RİA'lı 11 hasta.*

Değerlendirme Parametreleri: *İntraabdominal RİA'lı 11 hastanın demografik özellikleri, klinik bulguları, RİA kullanım süreleri ve klinik yaklaşım tiplerini araştırmak.*

Sonuç: *Ortalama yaş 36.8±1.8 yıl, ortalama RİA kullanım süresi 61.82 ±75.93 ay idi. Tanı yöntemi 5 olguda ultrason, 5 olguda X-ray, ve 1 olguda sistoskopi idi. RİA yerleşim yeri 4 (%36) olguda rektosigmoid, 2 (%18) olguda ligamentum latum, 3 (%27) olguda ince barsaklar, 1 (%9) olguda vezikouterin boşluk, 1 (%9) olguda mesane idi. RİA tipi 7 (%63) olguda Cupper-T 380 A,*

Adress for correspondence: Dr. Mehmet Güney Modernevler Mahallesi İstanbul Caddesi Karadayı Apartmanı Kat:1 Daire: 2, Isparta
Tel.: (0246) 223 87 84
Fax: (0246) 237 02 40
e-posta:mguney@med.sdu.edu.tr
Geliş tarihi: 24.1.06, kabul tarihi: 22.2.06

2 (%18) olguda Lippes-loop, 2 (%18) olguda Multiload 375 idi. Olguların % 45'i asemptomatik idi. RİA çıkarılması 8 (%72) olguda laparoskopi, 2 (%18) olguda laparotomi, 1 (%9) olguda laparotomi+sistostomi ile gerçekleştirildi.

***Yorum:** Her nekadar tüm intraabdominal RİA'ları çıkarmış olsak da asemptomatik deplase RİA'ları çıkarmak yoruma açıktır. Cerrahi yaklaşım adhezyon oluşumunu önlemeden ziyade arttırabilmektedir.*

***Anahtar kelimeler:** kontrasepsiyon, intrauterin araç, laparoskopi, laparotomi, uterin perforasyon.*

INTRODUCTION

The intrauterine device (IUD), as a widely used method of contraception, offers women convenient, reversible birth control that is as effective as surgical sterilization. Almost 108 million users world-wide in 1999 were reported[1]. The prevalence of IUD use differs greatly between regions and countries . Particularly in South-East and in the Middle-East prevalence ranges between 3% and 24%[2]. Today, only 1% of women in the USA use IUDs whereas the IUD accounted for about 10% of the contraceptive methods in the mid 1970s[2]. In Turkey the IUD is the most commonly used contraceptive method between 15 and 44 years of age. The prevalence of IUD use in Korea, Russia, and Germany is 49%, 33% and 6%, respectively[3]. Insertion of an IUD is one of the most commonly performed procedures in gynecologic practice. Perforation of the uterus is one of the most serious complications associated with the insertion of an IUD. Risks inherent to the use of an IUD include excessive uterine bleeding, perforation, infection, spontaneous or septic abortion with concurrent pregnancy. The incidence of uterine perforation has been estimated between 0.87 and 1.6 per 1000 insertions[4]. Perforation by IUDs can involve several adjacent organs such as bladder and rectosigmoid. This complication occurs most frequently at the time of insertion, but may also occur later. This varies according to the device used, the operator's experience, the thoroughness of the follow-up, the position of the uterus and time-span between delivery and insertion[5]. The actual incidence is likely to be higher because many perforations may be either asymptomatic or unreported. Eighty-five percent of perforations do not effect other organs, but the remaining 15% lead to complication in the adjacent visceral organs, most often the intestines and bladder[6]. IUD complications involving the bowels include bowel obstruction, bowel perforation, mesentery penetration6, bowel infarction[7], rectal strictures[8] and rectouterine fistula[9].

Ultrasound or pelvic x-ray showing the displaced IUD confirm the diagnosis. The accepted treatment of such a complication is surgical removal of the IUD either by laparoscopy or laparotomy. When an IUD is located in the abdominal cavity, it should be removed even in an asymptomatic patient. On the other hand the negligible findings at surgery in these patients raise the question of the need for surgical removal of an intraabdominal misplaced IUD.

In this study, eleven cases with displaced intrauterine devices in the abdominal cavity were evaluated retrospectively and the diagnostic methods, its management and treatment were discussed correspondingly. The inconsequential surgical findings in these patients raise the question of the requirement for surgical removal of an intraabdominally located IUD.

MATERIALS AND METHODS

This is a retrospective study conducted between 1980 and 2004 at the Süleyman Demirel University, Faculty of Medicine, Department of Obstetrics and Gynecology and Isparta Women's and Children's Hospital. Study is based on the hospital and operation files of 11 women with displaced intrauterine devices in the abdominal cavity. Eleven patients were analyzed with respect to the demographic characteristics, clinical manifestation, state of current IUD use, lenght of IUD use, and type of clinical management (Table I and Table II). We conducted a retrospective chart review of the medical records of 11 women who underwent either laparoscopy or laparotomy at our hospital. Information that was obtained from the medical records included patient age, gravidity, parity, gestational age, lenght of the hospitalization, previous uterine scar, previous dilation and evacuation, type of the operation, physical and gynecologic examination. If the IUD string was

not visible in the external os of the cervix, the patient had an transabdominal- transvaginal pelvic ultrasonography and a plain abdominal x-ray and hysterosalpingography if necessary. In some cases cystoscopy, rectosigmoidoscopy, laparoscopy, and exploration laparotomy were used in both the diagnosis and the treatment.

Table I: *Sociodemographic characteristics of the patients*

Characteristic	Mean	SD	Range
Age (years)	36.18	11.89	22.0-62.0
Parity	2.54	0.68	2-4
Insertion interval (months)	45.27	40.41	0-120
Duration of IUD use (months)	61.81	75.92	2-240

Table II: *Clinical features of the patients*

	n	%
IUD type		
Lippes-Loop	2	18
Cu-T 380	7	63
Multiload	2	18
Previous abortio		
Yes	7	63
No	4	36
Location of IUD		
Rectosigmoid	4	36
Right ligamentum latum	1	9
Left ligamentum latum	1	9
Intestines	3	27
Bladder	1	9
Vesicouterine space	1	9
Mode of removal		
Laparoscopy	8	72
Laparotomy	2	18
Laparotomy+cystostomy	1	9
Administrator		
Midwife	8	72
Physician	3	27
Adhesion		
Mild	6	54
Moderate	3	27
Severe	2	18
Uterine position		
Anteverted	2	18
Retroverted	6	54
Midpositioned	3	27

RESULTS

The sociodemographic characteristics and operation results of the patients are reported in Table I and II. In our study of 11 cases, the mean age was 36.8 ± 1.80 years (range 22-62 years). All of the patients were multiparous. The mean duration of IUD use was 61.82 ± 75.93 months (range 2-240 months). Insertion time was one month after medical abortus in 5 cases, 4 months following a vaginal delivery in 4 cases and 3 months after a cesaraen delivery in 2 cases. The diagnostic method was ultrasonography in 11 cases, X-ray examination in 3 cases and cystoscopy in 1 case. IUD insertion was performed by a physician in 3 patients (27.3%), by midwives in 8 patients (62.7%). Insertion was difficult and painful in 8 patients. The IUD location was the rectosigmoid (n=4, 36.36%), the ligamentum latum (n=2, 18.10%), the small bowel (n=3, 27.27%), the vesico-uterine space (n=1, 9.75%), and the bladder (n=1, 9.75%). Removal was performed by laparoscopy (n=8, 72.72%), laparotomy (n=2, 18.18%), and laparotomy+cystostomy (n=1 9.75%). 45.4% of the patients were asymptomatic while 27.2% (n=3) had pregnancy, 18.1% (n=2) had mild pelvic pain, and 9% (n=1) had pregnancy and cystitis. The type of the IUDs was Copper-T 380A in 7 patients (63.6%), Lippes-Loop in 2 patients (18.1%), and Multiload 375 in 2 patients (18.1%). The adhesion seen at the time of the operation was mild in 6 patients (54.5%), moderate in 3 (27.2%) patients, and severe in 2 (18.1%) patients. The position of the uterus seen at the time of operation was retroverted in 6 (54.5%) cases, midpositioned in 3 cases (27.2%), and anteverted in 2 (18.1%) cases. Pomeroy type of bilateral tubal ligation was performed in 2 patients at the time of laparotomy and bilateral ring was performed in 3 patients at the time of laparoscopy. Four unwanted pregnancies were terminated at the time of operation. 10 cases were discharged on the first postoperative day and one case was discharged on the fifth postoperative day without any complication. On follow-up there were no problems at postoperative 7th and 45th days.

DISCUSSION

It is difficult to determine a global IUD perforation rate from the analysis of the published studies but the perforation incidence seems to range from 0.87-1.6 per 1000 insertions[4]. The IUD is a safe and effective form of long-term contraception with well known complications. It is used principally in emerging

countries. Multicenter studies have demonstrated that 70-90% of every 100 women with IUDs who live in the developing countries use Cu-T 380[10]. Failure to locate the IUD strings may indicate expulsion, retraction into the cervix or uterus, or perforation of the uterus with an ectopic location. Devices inserted in the postpartum and the postabortion periods are more likely to be expelled. The incidence of spontaneous expulsion is reported to be between 0-25 %. Half of these expulsions will occur in the first 3 months after placement[11]. IUD follow-up examination should be performed carefully and in detail when the string of the IUD is no longer visible at the external os. Millen et al reported that, out of 100 "missing tail" IUDs, 69 were inside the uterus, 17 were expelled and 14 had perforated the uterus[12]. In 3 of our cases (n=27.2%) the string of the IUD was not visible at the external os.

The perforation incidence is directly related to the skill of the performing physician as well as to the size and configuration of the uterus (anteverted or retroverted) and to undetected anomalies of the uterus. For the succesful insertion of IUDs, the experience of midwives and physicians, skill and training are important[13]. In our study uterine perforation was performed by midwives in 8 (72.7%) patients and by physicians in 3 (27.2%) cases. There were no differences between midwives and physicians in some studies[14,15]. Uterine perforation is most commonly seen in retroverted uterus due to chronic infection. The position of the uterus was retroverted in 6 (54.5%) cases, midpositioned in 3 (27.2%) cases, and anteverted in 2 (18.1%) cases in our study. Although some perforations have signs and symptoms suggestive of perforation such as pelvic pain, bleeding, difficulty in insertion, second attempts, many seem appearently asymptomatic [16]. In our study, 7 (63.6%) patients were symptomatic and 4 (36.3%) were asymptomatic.

The displacement of the IUDs into the abdominal cavity is most commonly seen at puerperal period and postabortion period because of the contractibility and involution of the uterus. Anderson et al. reported that oxytocin and prolactin in breast-feeding women increase uterine contractions and make perforation easier. They found that 90% of women with IUD perforations had their IUDs inserted within 1 year after a full-term pregnancy and 62% had their IUDs inserted within 12 weeks after delivery13. Heartwell and Schlesselman, in a case controlled multicentric study, found that placement of the device during lactation was associated with a 10 fold greater risk of uterine perforation and a 2-3 fold greater risk for incarceration resulting in difficult removal of the IUD[17]. During lactation both the hypoestrogenic state which leads to endometrial atrophy[18]. and the hyperinvolution of the uterus[19]. may elevate the risk for uterine perforation. In our study, insertion time was 4 months following vaginal deliveries in 4 patients (36.3%), 3 months after a cesarean delivery in 2 patients (18.1%) an 1 month after medical abortus in 5 patients (45.4%). In all of our cases an increased risk of uterine perforation was present due to time of insertion.

The diagnosis of perforation is relatively easy when a high index of suspicion exists. Although most IUDs are radioopaque, in order to detect the exact localization, images from 2 or 3 directions should be taken. Moreover because uterus is not demonstrated on x-ray, it is impossible to distinguish between an IUD that is located in its correct position and one that has perforated the uterine wall, unless a radioopaque instrument is introduced into the uterine cavity. Pelvic and vaginal ultrasonography provides precise imaging of the uterus and its cavity, including the location of the IUD and its relation to the uterus[20]. Pelvic vaginal ultrasonography was performed in all of our cases. In 4 patients (36.3%) x-ray was performed. Other diagnostic methods are hysteroscopy, hysterography and laparoscopy. In some cases the diagnosis of migration of the IUD is confirmed by cystoscopy for vesical perforation and rectosigmoidoscopy for rectal or sigmoid perforation. Bacha et al reported of an IUD that has migrated into the bladder with secondary calcifications and was extracted by cystoscopy after performing balistic lithotripsy[21]. In one of our cases cystoscopic extraction failed and surgery had to be performed to remove the IUD. Proctoscopy was not performed in any of our cases.

Mc Kerna over a 6 -year- period reported of 67 women with translocated IUDs that were removed from the peritoneal cavity. In 40 of these patients (44%) removal of the IUD was performed by laparoscopy and in 24 of the patients laparotomy proved necessary. Three IUDs were removed per vaginum . Seventeen of the IUDs were Copper-T, and 46 were Lippes-Loop. The mean time interval between insertion and diagnosis of translocation was 7 months (range 24 hours-6 years).

77% of Lippes-Loop and 44% of Copper-T were successfully removed by laparoscopy[22]. In our study, laparoscopy was performed in 8 cases (72.7%), laparotomy was performed in 2 cases (18.2%) and laparotomy+cystostomy was done in 1 case (9.10%). Seven (63.6%) were Copper-T, 2 (18.1%) were Lippes-Loop and 2 (18.1%) were Multiload 375. The range of time interval was 2 months to 20 years. 100% (n=2) of Lippes-Loop and 77.7% (n=7) of Copper-T were removed by laparoscopy. The rates of successful laparoscopic removal of an IUD vary from 44% to 100% in the literature. Success is related to the number of cases encountered, the types of abdominal pathology and the surgeon's experience[623].

Most perforations occur at the time of insertion but partial perforation with subsequent delayed complete perforation may also occur. This situation although asymptomatic in most cases, may cause abdominal bleeding, excessive abdominal pain or undesired pregnancy. Perforation is most commonly seen through the posterior wall of the uterus with frequent involvement of the omentum and intestinal tract. In 9 (81.8%) of our cases omentum and intestinal tract was seen to be involved. If the IUD perforates outside the uterus, it can cause complications. Eighty-five percent of the perforations do not effect other organs, but the remaining 15% lead to complications in the adjacent visseral organs, most often the intestines. In one of our cases (9%) there was a bladder perforation. Adjacent organs were not affected in the remaining 10 cases. A lost IUD can be silent for many years. Removal of an IUD from the mesorectum 20-35 years after misdiagnosed displacement has been reported [24,25]. In our series four asymptomatic cases were present. Two displaced Lippes-Loop IUDs in our series retained asymptomatic for 14 years and 20 years, respectively. The World Health Organization (WHO) recommended that a displased IUD should always be removed after its diagnosis. The mean reason for this strict recommendation is potential damage of the IUD, as well as medico-legal problems[26,27]. Most practitioners believe that nonmedicated IUDs should be removed because they may cause bowel perforation and obstruction[20,28]. Other studies claimed that an IUD which does not contain copper should be left in place[29]. Actinomycosis infection due to perforated IUDs can also be seen in unperforated cases[25]. The relationship between the Copper IUD and adhesions are not clearly identified in the literature[30]. It is speculated that adhesions are especially due to infection at the time of perforation and do not increase as time progresses. Adhesions seen in our cases were mild in 6 (54.5%) cases, moderate in 3 (27.2%) cases, and severe in 2 (18.2%) cases.

In another study in which the abdominal adhesions caused by uterine perforations were evaluated, complications with third-generation IUDs (both copper bearing and medicated) were so rare and intestinal and bladder complications were negligible so removal of an IUD from the abdomen was not indicated as mandatory after uterine perforation[20]. Our results are in agreement with these inferences and support this perspective. It is proposed that adhesion formation occurs shortly after the uterine perforation and localized in the area of the IUD. This seems to prevent further displacement of the IUD. A surgical intervention may cause more adhesions rather than preventing adhesion formation[31,32]. Surgical procedures may also result in other intra- and post-operative complications. The removal of an asymptomatic displaced IUD is not currently indicated according to evidence-based medicine. Results from animal models will be helpful before making a conclusion. One limitation in our study is the small sample size which we evaluated. Further investigations with larger study population will contribute to this issue.

REFERENCES

1. Boudineau M, Multon O, Lopes P. Contraception par dispositif intra-uterin. In Encyclopedie Medico-Chirurgicale. Paris: Elsevier, 2001; 738: A- 09.
2. Hieu DT, Van HT, Donaldson PJ, Nga QL. The pattern of IUD use in Vietnam. Internat Fam Plann Persp 1995; 21: 6-10.
3. Thonneau P, Goulard H, Goyaux N.. Risk factors for intrauterine device failure: a rewiev. Contraception 2001; 64: 33- 7.
4. Harrison-Woolrych M, Ashton J, Coulter D. Uterine perforation on intrauterine device insertion: is the incidence higher than previously reported? Contraception 2003; 67: 53- 6.
5. Søgaard K. Unrecognized perforation of the uterine and rectal walls by an intrauterine contraceptive device. Acta Obstet Gynecol Scand 1993; 72: 55- 6.
6. Zakin D, Stern WZ, Rosenblatt R. Complete and partial uterine perforation and embedding following insertion of intrauterine

devices. I. Classification, complications, mechanism, incidence, and missing string. Obstet Gynecol Surv 1981; 36: 335- 53.

7. mith PA, Ellis CJ, Sparks RA and Guillebaud J. Deaths associated with intrauterine contraceptive devices in the United Kingdom between 1973 and 1983. Br Med J 1983; 287: 1537- 8.
8. Rogers K, Hughes LE. Rectal strictures associated with the intrauterine contraceptive device. Br J Surg 1982; 69:151- 2.
9. Patchell RD, Rectouterine fistula associated with the Cu-T intrauterine contraceptive device. Am J Obstet Gynecol 1976; 126: 292- 3.
10. Treiman K, Liskin L, Kols A, Rinehart W. IUD - An update. Population Reports. Series B, No. 6. Baltimore Johns Hopkins University School of Public Health, Population Information Programme; 1995.
11. Gorsline JC, Osborne NG. Management of the missing contraceptive device: report of a case. Am J Obstet Gynecol 1985; 153: 228- 9.
12. Millen A, Austin F, Bernstein GS. Analysis of 100 cases of missing IUD strings. Contraception 1978; 5: 485- 95.
13. Andersson K, Ryde-Blomqvist E, Lindell K, Odlind V, Milsom I. Perforations with intrauterine devices. Report from a Swedish survey. Contraception 1998; 57: 251- 5.
14. Vaillant HW, Cummins GTM, Richart RM, Barron BA. Insertion of Lippes Loop by nurse-midwives and doctors. Br Med J 1968; 3: 671- 3.
15. Newton JR, Barnes G, Cameron J, Goldman P, Elias J. Nurse specialists in family planning. Br Med J 1976; 1: 950- 2.
16. Mosher WD, Pratt WF. Contaceptive use in the Unıted States, 1973-1988, advance data from vital and health statistics: no. 182.Hyattsville, MD: National Center for Health Statistics, 1990.
17. Heartwell SP, Schlesselman S. Risk of uterine perforation among users of intrauterine devices. Obstet Gynecol 1983; 61: 31- 6.
18. Udesky IC. Ovulation in lactating women. Am J Obstet Gynecol 1950; 49: 843- 6.
19. El-Minawi MF, Foda MS. Postpartum lactation ammenorrhea. Am J Obstet Gynecol 1971; 111: 17- 20.
20. Tatum HJ, Connel EB. Intrauterine contraceptive devices. In: Filshie M, Guillebaud J, editors. Contraception science and practice. 1st ed. London: Butterworth & Co, 1989: 144- 71.
21. Bacha K, Ben AM, Ben HL, Ghaddab S, Ayed M. Intrauterine device migrating to the bladder. Prog Urol 2001; 11: 1289- 91.
22. McKenna PJ, Mylotte MJ. Laparoscopic removal of translocated intrauterine contraceptive devices. Br J Obstet Gynaecol 1982; 89: 163- 5.
23. Ferchiou M, Zhioua F, Hasnaoui M, et al. Laparoscopic surgery of an intraperitoneal intrauterine device. Rev Fr Gynecol Obstet 1995; 90: 409- 11.
24. Silva PD, Larson KM. Laparoscopic removal of a perforated intrauterine device from the perirectal fat. JSLS 2000; 4: 159- 62.
25. Phupong V, Sueblinvong T, Pruksananonda K, Taneepanichskul S, Triratanachat S. Uterine perforation with Lippes Loop intrauterine device-associated actinomycosis. Contraception 2000; 61: 347- 50.
26. WHO. Mechanism of action , safety, and efficacy of intrauterine devices. Geneva: World Health Organization, 1987: 48- 63.
27. International Planned Parenthood (IPPF). International medical advisory panel meetings. IPPF Med Bull 1987; 21: 3- 8.
28. Pirwany IR, Boddy K. Colonic fistula caused by a previously inserted intrauterine device. A case report. Contraception 1997; 56: 337- 9.
29. Adoni A, Ben Chetrit A. The management of intrauterine devices following uterine perforation. Contraception 1991; 43: 77- 81.
30. Robinson RE. Copper intrauterine devices in the abdomen. Br J Med 1978; 2: 1068- 71.
31. Roberts JM, Ledger WJ. Operative removal of intraperitoneal intrauterine contraceptive devices - a reappraisal. Am J Obstet Gynecol 1972; 112: 863- 5.
32. Markovitch O, Klein Z, Gidoni Y, Holsinkerg M, Beyth Y. Extrauterine mislocated IUD: is surgical removal mandatory? Contraception 2002; 66: 105- 8.