Role of Time In Intrauterine Device Complications

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Abstract:

Background: IUDs are considered as an and effective and inexpensive family planning method, but its use throughout the world is highly variable, may be due to the exaggerated fears of women from problems associated with it's usage making women perceived that IUD is an unsafe contraceptive tool.

Objective: To highlight the most probable complications of IUDs at the first year of its insertion and to verify the role of time in the course of these complications..

Method: a follow up study conducted in the family planning center in Mosul city. A total of 114 women that attend the center for IUDs insertion were followed up for a year, complications were recorded with all the follow-up visits till the end of the first year after insertion.

Results: response rate was 88%, after the first month of follow-up 90.09% of the study sample suffered from complications, menorrhagea was the main problem (46.53%) followed by lower abdominal pain (20.79%), vaginal discharge (15.84%), menstrual irregularities and dysmenorrhea seen in 3.96% and 1.98% respectively. After 6 month more women (64.36%) became adapted to their IUDs, menorrhagea still the commonest complication (20.79%), infections were detected among 4.94% of the women. Complications decreased to 11.88% with the end of the first year, menorrhagea (7.92%), and for both vaginal discharge and lower abdominal discomfort (1.98%). Partial expulsion and pregnancy each was experienced in one case, while uterine perforation and displaced IUDs were not documented in this study. The continuation rate of IUD was 93.06%.

Conclusion: IUDs have certain complications that decrease by time, repeated follow-up visits and proper case selection maneuver before IUD application.

Key words: Time and complications of IUDs.

Introduction:

The intrauterine device (IUD) is one of the most common methods of reversible contraception; today it is used by 85 to 100 million women or 10 % of all women at reproductive age throughout the world[1].

Although IUDs are inexpensive and effective family planning method, its use throughout the world is highly variable. Where as more than 25% of women use the IUD in some countries as Western Europe, Central Asia, Vietnam and Egypt, fewer than 1% rely on it in Brazil, Nepal, and most of Sub-Saharan Africa[2]. The first IUD was developed in 1909 by a German gynecologist, named Ernest Grafenberg. It was a ring-shaped device that wasn't widely used until the 1920s[3].

Because the IUD works locally, its use has few contraindications. Women with cardiac diseases, epilepsy, migraine, hypertension, or liver diseases can use the IUD without problems. The only absolute contraindications to its use are acute pelvic infections(current or during the past 3 months), pregnancy, unexplained genital bleeding, severely distorted uterine cavity and pelvic cancer[4, 5].

All copper devices have been shown to remain effective for at least four years and some are effective for 8 years up to 10 years or more (Tcu-380A), the inert devices (with no copper) may be used up to menopause and need not to be removed until then[6].

The aim of this study:

is to highlight the most probable complications of IUD at the first year of its insertion and to verify the role of time in the course of these complications.

Subjects & Methods:

In this prospective study, 114 women were chosen after proper case-selection avoiding patients with pelvic inflammatory diseases, sexually transmitted diseases, suspected pregnancy, distorted uterine cavity, recent uterine surgery, and previous genital or irregular bleeding. All the women were para-2 and above. Women with one child and nilliparous were excluded.

All the included women were (obviously) healthy, with no medical or recent pelvic surgical problems. Almost all women were at the end of menstruation or puerperal period to avoid the possibility of pregnancy. Uterine size and direction were checked through bimanual examination and uterine sounding before IUD insertion which was relatively under a sterile technique. The adequate uterine depth used in this study is between 6 and 9 cm. This is documented in patients form.

Study setting:

the study was conducted in the Family planning centre in Mosul city from January 2001 through April 2002.

The paraGard IUD type Tcu 380 A was used for all the study sample, this type of IUD was introduced in 1988, the device consists of 380 mg of copper covering portions of its stem and arms [4].

After IUD insertion the women were asked to come again for follow up in a month duration, then every 2 months till the end of the year. Each

woman has her special form that was filled by the same doctor at the time of insertion and during the follow-up period. The forma includes the following information: time of IUD insertion, parity, menstrual, gynecological and medical history, uterine size, and the presence of complications such as: perforation of uterus at time of insertion or there after, increased menstrual blood flow (menorraghea), menstrual irregularities including inter-menstrual spotting or bleeding, painful menstruation (dysmenorrhea), increased vaginal discharge, lower abdominal pain or discomfort, infections (vaginitis, cervicitis, endometeritis, and upper genital tract infections), expulsion (whether partial or complete) of IUD, displaced or missed IUD, and pregnancy (normal or ectopic). During the periodic follow-up visits, all symptoms and signs were registered. Statistical analysis (frequency, Percentage) was done and Chi square test was used to test for association.

Results:

Out of the 114 women studied, 13 women dropped from the sample and did not come to any of the follow up visits, 101 women were checked and followed making a response rate of 88%. The results of the follow-up were collected to be described in 3 instances; after one month, after six months, and after 12 months.

Table (1) indicated that 90.09% of the study sample suffered from complications within the first month after IUD applications. Menorrhagea was the main problem (46.53%), followed by lower abdominal pain (20.79%), vaginal discharge (leukorrhea i.e. excessive normal vaginal discharge) in 15.84%, menstrual irregularities seen in (3.96%) of women, dysmenorrhea in (1.98%). Partial expulsion of IUD was seen in one case only (ended with removal of the device), while perforation, infections, displaced IUD and pregnancy were not detected at this stage of follow-up.

Table (1) ; Complications of IUD after one month of IUD insertion.

Complications	No.	%
1. Perforation of uterus	0	0.0
2. Menorrhagea	47	46.53
3. Menstrual irregularities	4	3.96
4. Dysmenorrhea	2	1.98
5. Vaginal discharge	16	15.84
6. Lower abdominal pain	21	20.79
7. Infections	0	0.0
8. Expulsion (partial or complete)	1	o.99
9. Displaced (or missed IUD).	0	0.0
10. Pregnancy	0	0.0
Total	**91**	**90.09%**

Table (2) showed that menorrhagea still the commonest complication among the women within the six month after IUD insertion (20.79%), infections were detected among 4.94% of women, sever dysmenorrhea and normal pregnancy each was experienced in one case (and both ended with removal of IUD), more women (64.36%) accepted their IUDs at this stage of follow-up.

Table (3) verified that (11.88%) suffer from menorrhagea (one case ended with removal of IUD because of anemia), excessive vaginal discharge (leukorrhea) and lower abdominal discomfort at the end of the first year, and 88.11% of the women accepted their IUD at this stage of follow-up.

Table (2): complications of IUD within six months after IUD insertion.

Complication	No.	%
1. Perforation of uterus.	0	0.0
2. Menorrhagea.	21	20.79
3. Menstrual irregularities	1	0.99
4. Dysmenorrheal	1	0.99
5. Vaginal discharge	4	3.96
6. Lower abdominal pain	3	2.97
7. Infections	5	4.94
8. Expulsion (partial or complete)	0	0.0
9. Displaced (or missed IUD)	0	0.0
10. Pregnancy	1	0.99
Total	**36**	**35.64%**

Table (3): complications at the end of the first year.

complications	No.	%
1. Perforation of uterus	0	0.0
2.Mmenorrhagea	8	7.92
3. Menstrual irregularities	0	0.0
4. Dysmenorrheal	0	0.0
5. Vaginal discharge	2	1.98
6. Lower abdominal pain	2	1.98
7. Infections	0	0.0
8. Expulsion (partial or complete)	0	0.0
9. Displaced (or missed IUD)	0	0.0
10. Pregnancy	0	0.0
Total	**12**	**11.88**

Table (4) clarified that there is a significant decrease in the rate of occurrence of IUDs complications among women throughout the periodic follow-up visits to the end of the year($P<0.001$). Table (5) showed that 96 out of 101 women satisfied and continued with their IUDs till the end of the 1st year. Only 5 cases ended with removal of the IUDs, in 3 cases the IUDs removal were within 6 months after application because of menstrual irregularities, dysmenorrhea, and pregnancy. One women ended with removal of IUD after the 1st month follow-up owing to the partial expulsion of the device, the last woman can not tolerate anemia due to severe menorrhagea that necessitate the device removal at the end of the 1st year.

Table (4): Time schedule of complications

Complications	1st month		6 month		12 month	
	No.	%	No.	%	No.	%
1. Perforation of uterus	0	0.0	0	0.0	0	0.0
2.Mmenorrhagea	47	46.53	21	20.79	8	7.92
3. Menstrual irregularities	4	3.96	1	0.99	0	0.0
4. Dysmenorrheal	2	1.98	1	0.99	0	0.0
5. Vaginal discharge	16	15.84	4	3.96	2	1.98
6. Lower abdominal pain	21	20.79	3	2.97	2	1.98
7. Infections	0	0.0	5	4.94	0	0.0
8. Expulsion (partial or complete)	1	0.99	0	0.0	0	0.0
9. Displaced (or missed IUD)	0	0.0	0	0.0	0	0.0
10. Pregnancy	0	0.0	1	0.99	0	0.0
Total	**91**	**90.09**	**36**	**35.64**	**12**	**11.88**

χ^2 test = 70.8, d.f = 2 P-value<0.001

Table (5): causes and time of removal of the IUD

Causes of removal	No. removed	Time of removal		
		After the 1st month	within 6 months	End of the year
1. Perforation of uterus	0			
2.Mmenorrhagea	1			*
3. Menstrual irregularities	1		*	
4. Dysmenorrheal	1		*	
5. Vaginal discharge	0			
6. Lower abdominal pain	0			
7. Infections	0			
8. Expulsion (partial or complete)	1	*		
9. Displaced (or missed IUD)	0			
10. Pregnancy	1		*	
Total	**5**	**1**	**3**	**1**

Discussion:

Currently almost three out of every 5 women who use contraceptives in Egypt use

the IUD, while in USA 1.5% of women use IUD, the potential reason for this

difference is the negative perception of IUDs created as a result of complications associated with Dalcon Shield (IUD) which is introduced in 1975. That untested

badly designed IUD associated with a significant increase incidence of pelvic inflammatory diseases(PID), septic abortions, ectobic pregnancy, and even seventeen deaths within the first year usage and after 10 years ten thousand lawsuits had been brought against it[7,8]. Making many women perceived that IUD is an abortifacient and unsafe[9].

In El Salvador, the IUD usage is merely 2% which is mainly because of women fear resulting from rumors and myths they had heard, also because of inadequate providers experience with it[10]. Studies in India and Thailand repeatedly shown that discontinuing IUD use is the perception of its associated adverse effects especially bacterial vaginosis, PID[11, 12].

The present study showed that there was a gradual decrease in the rate of complications occurrence through out the 12 months period of follow up, 90.09% of the women complained of some adverse effects after one month. After 6 months (35.64%) of the women still complaining and only (11.8%) of them experienced some complications at end of the first year. This can be attributed to the fact that IUD is a foreign body in the uterus and needs time to be accepted. More cheerful results found in Pakistan where the complications detected in 93.34% of women after one month follow up and only 1.34% at the end of first year[13].

The commonest complication found in this study was menorrhagea which was seen through out the whole year of follow-up, while the menstrual irregularities were seen in 3.96% of the sample at the first month then 0.9% after 6 months and not documented at the end of the year. Similar results were reported in other studies which concluded that copper IUDs can increase menstrual flow which may be particularly severe in the first few months after insertion[14].other studies done in united States found that there is a greater risk of menorrhagea, spotting or irregular bleeding during the first few months after insertion of this device, the risk decrease significantly at 12 months post insertion [15].

The present study revealed that lower abdominal pain and dysmenorrhea were prevalent at the first month of follow up and started to decrease thereafter to the end of the first year. It can be due to slight uterine contraction and almost all cases were relieved with prostaglandin synthetase inhibiter, except one case of dysmenorrhea which continued and necessitate the removal of IUD at the 6 month follow-up. Copper IUDs can cause more sever cramps or dysmenorrhea that can relieved by pain reliever which can even reduce menstrual bleeding[14].

This study indicated that excessive vaginal discharge was noticed among 15.84% of women after the first month follow-up then decreased to 3.9% and 1.9% of women after 6 months and at the end of the first year. While a study in Pakistan showed that excessive vaginal discharge found in 22.33% at the 1st month follow-up then disappears[13].

The present study demonstrated that none of the women suffered from infections after the first month and the end of the first year follow-up, but revealed among 4.9% of women after the 6 month follow-up (all were treated accordingly and no case of PID was detected). This means that there is an increasing risk of infections mainly at the first few months after IUDs application, similar results were realized by other studies which suggested that most IUDs attributable infections appear to be related to insertion of the device and is highest in the first few months as bacteria transfer from vagina to the cervix to the uterus hitchhiking up the IUD string, with increase risk of vaginitis and cervicitis[16]. Where as other study concluded that there is a slight increased risk of infection at the time of insertion about 1:1000 that may be mitigated with appropriate control measures[14]. A study in USA found that the risk of PID is negligible with IUD insertion after appropriately screened women[16].

Partial expulsion of IUD noticed in this study only in one woman (0.99%) after one month follow-up (the device was removed promptly). This expulsion may be due to uterine contractions that can push the device downward causing partial or complete expulsion. Higher figure was recognized by other researchers who notified that approximately 5% of women expel the copper IUD during the first year of use (complete or partial expulsion)[14]. A study done in Romania indicated that the expulsion rate varies from less than 1 to more than 10 in the first year of use especially in first trimester after insertion[17]. Other study reported that the expulsion rate for the T380A is 5.7% during the first year, with a majority of expulsion occurring within the first month after insertion. Expulsion after the first year decrease to 2.5%[18].

This study found that failure rate of IUD (pregnancy) was 0.99%, noticed within 6 months after insertion (with removal of the loop once diagnosed). Similar results reported by CDC (1997) that IUD is probably the most effective in use internationally with a failure rate of <1% per year[19].

Fortunately displaced (missed) IUD and uterine perforation were not documented in any of the cases during the follow-up visits. Where as in a study done in Pakistan between 1994 and 1996 the prevalence of lost IUDs was 0.36%[20]. Other studies proved that uterine perforation (which is more likely to occur during insertion of the device) ranges from 0.1 to 0.3% and most frequently through the uterine fundus; is caused by failure to properly assess the uterine position and to

accurately define the cervical canal[21], a technique which was properly followed in this study.

The continuation rate of IUD after the end of the first year seen in this study was 93.06% in spite of the adverse effects accompanied it. Only 5 (6.945%) could not tolerate IUDs and ended with removal of the device at different times within the first year after application. In 3.03% of these cases the IUD removal was because of menstrual irregularities, menorrhagea that ended with anemia, and dysmenorrhea. Higher figures were seen in other study where the removal rate for bleeding or increased dysmenorrhea was 11.9% in the first year of usage (1). A study in USA estimated that 5% to 15% of women discontinue using IUD within one year because of these symptoms[21]. This higher continuation rate of IUDs seen in this study may be attributed to proper case selection before application of IUD which is a very important modality to decrease these complications.

It can be concluded from this study that IUDs are an effective contraceptive method with a failure rate of 0.99% and continuation rate of 93.06% within the first year of application. Also have certain complications that decrease by time, good counseling and repeated follow-up visits. It is of particular importance to have proper selection maneuvers before IUD application by adapting complete patient history and physical examination with assessing uterine position and cervical canal in order to avoid most of the device major complications.

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