

Vaginitis in Intrauterine Contraceptive Device Users

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Received 1 April 2014; revised 4 May 2014; accepted 11 May 2014

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Abstract

Objectives: This study aimed to assess clinical, microbial changes in IUD users and other contraceptive methods in referent to urban health centers in Hamadan city, Iran. **Methods:** Detailed history and gynecological examination were conducted on women (IUD users, n = 100) or other contraceptive methods (controls, n = 160) in the health centers. **Results:** Frequencies of the different vaginal pathogens, high indices of infection by bacterial vaginosis (12.0%) candida albicans (7.0%) and low indices of trichomoniasis (5.0%) were found in present study, but none of them in both groups was significant. Menorrhagia was more frequent among women with IUD than that among women without IUD (P < 0.05). A trend of erosion cervix and dysmenorrhea being more frequent among women with IUD was also found (P < 0.05). **Conclusions:** IUD is the safety in general; however, an increase occurred in the frequency of vaginitis.

Keywords

Intrauterine Device, Vaginitis, Microbial Agent, Erosion Cervix

1. Introduction

The insertion of intrauterine devices (IUD) is one of the most prevalent and effective reversible methods of contraception worldwide, and millions of IUDs are inserted yearly. However, it is used far less often than experts believe it should be. Basically, this is believed to be the result of the concerns of clinicians for the risk of complications linked to its use, particularly pelvic inflammatory disease (PID) and subsequent sequels [1] [2]. The most common medical reasons for early discontinuation of IUD are bleeding and/or pain along with genital in-

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fections [3]. Most studies have found an increased risk of pelvic inflammatory disease and its sequel, ranging from two-fold to nine-fold, among IUD users [4]. The incidence rate of PIDs among IUD users as reported from different studies depends heavily on the definition used and the means available for diagnosing PIDs. It varies by almost ten-fold from 1 per 100 to 1 per 1000 women in different publications [5]. Bacterial vaginosis is the most common vaginal infection among reproductive-age women and several studies have demonstrated a higher prevalence of this infection among IUD users in different countries [2] [6] [7]. It has been suggested that the presence of bacterial vaginosis in IUD insertion could also lead to an increased risk of complications in the first trimester of use [4]. Thus, screening and treatment for bacterial vaginosis prior to IUD insertion have been considered. Clinical, microbial monitoring of women using IUD is important for ascertaining their side effects, risk of genital tract infection and carcinogenic potential. This study aimed to assess clinical, microbial changes in IUD users and other contraceptive methods in referent to urban health centers in Hamadan city, Iran.

2. Materials and Methods

This study was carried out in urban health centers in Hamadan city, Iran. The institutional research board approval was obtained and all volunteers signed an informed consent prior to entering the study. This study comprised of study subjects (n = 100) using T-Cu-380A IUD who attended family planning clinic for routine follow up. The control subjects (n = 160) were women who had not had IUD and using other contraception methods such as; hormonal, barriers and surgery methods. The subjects were chosen randomly irrespective of their complaints. Data collection was on the base of questionnaire and gynecological examination. Detail history, clinical examination and gynecological examination *i.e.* per speculum and per vaginal examination were done in all the women. Per speculum examination was carried out to look for IUD, condition of vagina and cervix and for discharge. Vaginal discharge was collected from posterior fornix for Gram staining, KOH mount, wet mount and in a transport medium for culture and sensitivity testing. Bimanual examination was undertaken to rule out pelvic inflammatory disease. Data processing and statistical analysis were performed using SPSS 16.0.

3. Results

A total of 100 IUD users and 160 matched other contraceptive methods were studied. The type of IUD used was T-Cu-380A. The mean of duration of IUD use was 3.8 ± 1.9 years.

The general information about the selected subjects is presented in **Table 1**. A clinical sign was significantly different in both of groups ($P < 0.05$). Most women (56.5%) were within 20 - 29 years. Majority of women (56.9%) were in elementary level, and (93.0%) were housewives. About half of women (43.8%) surveyed had 3 and more children, and (50.7%) of women had positive clinical signs. No significant differences were observed between the two groups of women regarding selected socio demographic characteristics.

Chief complains of IUD users included menorrhagia (81.0%), erosion cervix (68.0%), dysmenorrhea (66.0%), dyspareunia (62.0%), backache (60.0%), vaginal discharge (53.0%), spotting (44.0%) and urinary problems (40.0%) had shown in **Table 2**. On per speculum examination, erosion cervix was significantly higher in IUD users compared to other contraceptive methods ($X^2 = 3.92$, $df = 1$, $P = 0.04$) (**Table 2**).

Table 3 had presented the principal clinical and laboratory finding among the study subjects. Vaginal discharge smear revealed comparable positively for trichomonas vaginalis. Gram stain findings of vaginal discharge were not significantly different in two groups except for lactobacilli and coagulase negative *staphylococci*. Gardnerella rate in IUD users and other contraceptive methods were 12% and 4.4%, respectively ($P = 0.11$). Vaginal discharge bacterial culture grew organisms in nearly all the IUD users and other contraceptive methods. However rates of individual organisms isolated was not significantly different. Sterile culture was significantly higher in IUD users compared to other contraceptive methods ($X^2 = 9.6$, $df = 1$, $P = 0.03$).

4. Discussion

The present study found that a significant proportion of women using IUD had gynecological symptoms and cervical erosion. There was no significant increase in cervicovaginal infection however the study did not at quantitative aspect of it. Aggarwal *et al.* had reported perceived symptoms in 100 IUD users as: no problems (20.0%), too much bleeding (18.0%), backache (54.0%), abdominal pain (34.0%), dysmenorrhea (14.0%), psychosexual problems (6.0%), dyspareunia (22.0%), vaginal discharge (46.0%) [3]. In addition, in follow-up study of 223 IUD users, women with and without bacterial vaginosis had been found to be abnormal bleeding (30.4%

Table 1. General characteristics of selected women.

Characteristic	IUD users (n = 100)	Other methods (n = 160)	P
Age (%)			
20 - 29	78.0	35.0	0.26
30 - 39	20.0	32.0	
≥40	2.0	33.0	
Age at marriage (%)			
≤20	94.0	80.0	0.16
>20	6.0	20.0	
Education (%)			
Elementary	45.0	68.8	0.98
College	44.0	8.1	
Graduate	11.0	23.1	
Occupation (%)			
Housewife	96.0	90.0	0.16
Employed	4.0	10.0	
No. of parity (%)^a			
1	47.0	20.0	0.00
2	19.0	26.3	
≥3	34.0	53.7	
Clinical signs (%)^a			
Yes	57.0	44.4	0.00
No	43.0	55.6	

^a: P < 0.05, Pearson chi-square.

Table 2. Percentage of clinical signs in IUD users and other methods.

Variable	IUD users	Other methods	P
Dysmenorrhea	46.0	40.0	0.20
Dysparroina ^a	62.0	38.7	0.00
Spotting ^a	44.0	34.4	0.00
Menorrhagia	81.0	15.6	0.26
Backache	60.0	58.7	0.55
Uriary problems	40.0	32.5	0.13
Vaginal discharge	53.0	46.9	0.02
Erosion cervix ^a	68.0	21.2	0.04

^a: P < 0.05, Pearson chi-square.

and 17.2%) and dysmenorrhea (34.8% and 13.9%), respectively [4]. Cervical erosion was present in a significant proportion of study subjects compared to controls. Other investigators were found to have cervical erosion in 3.3% - 20.0% of the women using IUD in different population [3] [4] [8]. Neale *et al.* had reported that women were significantly more likely to have developed an abnormal vaginal discharge 4 - 6 weeks after insertion of an IUD [9]. In relation to the frequencies of the different vaginal pathogens, high indices of infection by bacterial vaginosis were found in present study (12.0%), candida albicans (7.0%) and low indices of trichomoniasis (5.0%). These rates are similar to those observed by other authors [10] [11]. Auler *et al.* indicated that the presence of the biofilm on the surface of the IUD was as an important risk factor for recurrent vulvovaginal candidiasis [12]. In another study of 253 women (aged from 20 - 48 years) with abnormal vaginal discharges applied to gynecology outpatient clinic, it was found that *T. vaginalis* was detected in 13 of 114 IUD users

Table 3. Finding of clinical & laboratory examination in IUD users and other methods (%).

Variable	IUD users	Other methods	P
Gram stain of vaginal discharge			
Gram positive cocci	11.0	24.4	0.51
<i>Lactobacilli</i> ^a	5.0	10.6	0.01*
Gram positive bacilli	27.0	16.2	0.06
Gram negative bacilli	12.0	7.5	0.10
Gram positive gram negative cocco bacilli	11.0	9.4	0.07
Coagulase negative & <i>Staghylococci</i> ^a	15.0	7.5	0.01*
Yeast cells	7.0	4.4	0.51
Wet mount positive for <i>Trichomonas vaginalis</i>			
Vaginal discharge culture			
<i>Lactobacilli</i>	4.0	5.6	0.06
<i>Klebsciella</i>	1.0	0.62	0.08
<i>Diftroeid</i>	2.0	2.5	0.12
<i>E. coli</i>	12.0	5.0	0.10
<i>Kandida albicans</i>	7.0	5.0	0.10
<i>E. coli</i> & <i>Klebsciella</i>	6.0	0.0	0.22
<i>Staphylococcus epidermis</i>	12.0	11.9	0.06
<i>Staphylococcus aureus</i>	10.0	18.7	0.07
<i>Entrobacter</i>	8.0	9.4	0.13
<i>Gardnerella</i>	12.0	4.4	0.11
<i>Entrococci</i>	3.0	4.4	0.08
Sterile ^a	23.0	32.5	0.03*

^a: P < 0.05, Pearson chi-square

(14.70%) [13]. *T. vaginalis* is the cause of vulvovaginitis and women with abnormal vaginal discharges should be investigated for possible trichomoniasis. In our study, detection of a higher rate of *T. vaginalis* infection in IUD users means that IUD usage might increase the risk of *Trichomonas* infection. These data are compatible with those in other publications [11] [13]-[15]. Bacterial vaginosis is the most common vaginal infection among reproductive-age women and several studies have demonstrated a higher prevalence of this infection among IUD users in different countries [4] [6] [7] [9] [16]. Because of differences in populations studied and in diagnostic tests used, it is not surprising that estimates of disease prevalence have varied greatly from study to study.

These findings give some support that presence of IUD might facilitate changes in the vaginal ecosystem and possibility of BV in some IUD users. Therefore, screening women for these cervical infections before insertion is recommended by most guidelines.

Nevertheless, menorrhagia or dysmenorrhea are by themselves important complaints that can lead to discontinuation of the methods, and any possible therapies to correct these complaints are desirable. Thread of IUD tail being a source of constant irritation may be responsible for cervical erosion. It may provide a conduit for ascending infection from vagina. Though cervical erosion is not considered as something with serious implication but it may be responsible for vaginal discharge and other symptoms in the users [4]. The data support the hypothesis that IUD might change cervico vaginal environment, and suggest that women with IUD may be at a higher risk for vulvovaginal infection. The local irritative and inflammatory effect of intrauterine devices basically causes reactive and regenerative changes mostly in glandular cells. Intrauterine devices disrupt the genital flora and significantly increase the frequency of genital infection by creating a foreign body reaction. Therefore, screening women for these cervical infections before insertion is recommended by most guidelines.

5. Conclusion

In conclusion, influence of IUD use on the occurrence of vaginal flora changes has remained as a controversial

issue. The present study reiterates the safety of IUD in general; however the users had higher rates of menorrhagia, erosion cervix and dysmenorrhea. Thus these women require a regular follow-up for counseling and clinical examination.

Acknowledgements

The authors sincerely acknowledge the Hamadan University of Medical Sciences in Iran for their valuable support and participation.

Authors' Contributions

FS carried out the study design, participated in data collection and drafted the manuscript. MN participated in the design of the study and performed the statistical analysis. FS and MN conceived of the study, and participated in its design and coordination. All authors read and approved the final manuscript.

Competing Interests

The authors declare that they have no competing interests.

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