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ORIGINAL RESEARCH

Comparative study of cervical liquid-based cytology in IUCD vs non-IUCD users in Medical College & Teaching Hospital

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ABSTRACT

Background: The Intrauterine Contraceptive Device (IUCD) is a contraceptive inserted into the uterus, primarily utilizing copper or progesterone. While effective and widely used, IUCDs can cause side effects, necessitating cervical smear studies through Conventional Cytology or Liquid Based Cytology for monitoring potential complications. This study is undertaken to study the cervical cytology in IUCD users and to assess the risk of infections and Epithelial Cell Abnormality among IUCD users compared to non- IUCD users. **Materials And Methods**: 36 patients in case group and 36 patients in comparative group were enrolled fulfilling the inclusion and exclusion criteria, from September 2022 to June,2024 in Department of Pathology in coordinationwithDepartment of OBGY, MGM Medical College and Hospital, Aurangabad. Detailed history was procured fromDept of Gynecology and participants underwent per speculum and per vaginal examination. Samples processed with Liquid Based Cytology (LBC) technique were examined using 'The 2014 Bethesda System For Reporting Cervical Cytology'. **Statistical Analysis**- Statistical analysis involved Microsoft Excel and SPSS for data evaluation, using t-tests and Chi-square tests for significance.**Result And Observations:** Out of 36 Cases and 36 Comparative group, Majority, i.e, 47.22% in Case group and 44.44% in Comparative group, belonged to third to fourth decades of life. Majority of IUCD and Non-IUCD users, i.e, 58.33% and 55.56% respectively, were of Parity 2. In both the groups, study participants had regular menstrual history. Vaginal discharge was the main symptom in IUCD users, whereas, Non-IUCD users was mostly asymptomatic, which was a statistically significant finding**(P<0.001).** There was statistically significant difference between the two groups with respect to clinical complaints of vaginal discharge**(P<0.001)** and pain in lower abdomen**(P=0.03).** Statistically significant difference was found between the two groups with respect to characteristics of cervix on P/S examination. Healthy cervix and vagina were more common in Non-IUCD users (**P=0.03)**. Whitish discharge with or without foul smell were more common finding in IUCD users **(P=0.01).** On comparing the two groups with respect to cervical cytology, Non-IUCD users revealed more normal cytology as compared to IUCD users. Bacterial vaginosis and fungal infection by Candida were more in IUCD users as compared to Non-IUCD users. 2.78% IUCD users showed Actinomycosis infection, while there was no actinomycosis infection among Non-IUCD users. However, there was no statistically significant difference between the two groups with respect to cervical cytology. Among IUCD users, Normal cervical cytology was more common with the age group of 31-40 years (**P=0.04**) while inflammation was more prevalent among younger age group of 21-30 years(**P=0.03**). There was no statistical association between parity or menstrual history and cervical cytology **(P>0.05).** Bacterial vaginosis was more prevalent with longer duration of use of Cu-T, i.e.,>1 year of use**(P=0.04).** Infection by Actinomycosis was seen with > 2years of use of Cu-T. **Conclusion**: IUCD is safe to use as Contraceptive device, however, routine screening with cervical smear is recommended to detect infection with longer duration of use.

Keywords: IUCD users, Cu-T users, Cervical Liquid Based Cytology, IUCD and Non-IUCD users comparison

INTRODUCTION

Intrauterine contraceptive device (IUCD) is a method of contraception which is inserted into the uterine cavity and left in place for a specified duration. Modern IUCD is a small T-shaped device, containing either copper or progesterone.[1] It has a "body" that sits within the uterine cavity, small "neck" occupying the endocervical canal and a "tail" that is detectable either visually or felt at external os.[2]

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IUCD functions by impeding sperm survival and motility, thereby preventing fertilisation and implantation [3].

The use of IUCD is safe, effective, economic and reliable. Therefore, millions of women worldwide, are using IUCD as a method of contraception with Cu-T being the predominant choice among IUCDs in India[4].

However, use of IUCD can also entail various side effects such as cervical erosions, reproductive tract infections like Candidiasis, bacterial vaginosis, pelvic inflammatory diseases, as well as epithelial cell abnormalities (ECA) like low-grade and high-grade squamous intraepithelial lesion and squamous cell carcinoma[5].

Study of cervical smears are beneficial to detect the impacts of IUCD on cervix. These cervical smears can be made by using either conventional cytology sampling (CS) method or Liquid based cytology (LBC) technique[6].

In Conventional cytology sampling method, cells are taken from both the endocervix and ectocervix and smeared directly onto a glass slide for analysis. Whereas, in LBC method, samples are obtained using a brush, mixed thoroughly in a preservative vial, and then processed by an automated machine. Subsequently, a smear is prepared from the processed sample for examination.[6]

Although Conventional pap smear is cheap and widely available, it has certain disadvantages like-

i) A lot of cellular material is wasted during sample collection and slide preparation[6].

ii) Occasionally, significant part of the samples is unusable due to drying artifacts and overlapping debris. This may result in misinterpretation of abnormal cells present on the slide, especially due to hemorrhagic or inflammatory background.

LBC method is preferred over conventional cytology sampling due to the following reasons-

i) It meets the need to prepare samples over a short period of time.

ii) It has an advantage of collecting a large number of cells by the use of a specialised sample preparation device, thus preventing variation among samples and a thin monolayered smear with a clear background is made, thus reducing the number of unsatisfactory samples which is often seen with CS method. Also, cellular material is preserved for future studies[6].

iii) It can also be used for HPV testing. [7]

This study is undertaken to study the cervical cytology in IUCD users and to assess the risk of infections and ECA among IUCD users compared to non- IUCD users.

AIM

To study cervical cytology amongst IUCD & Non-IUCD users and to assess the risk of infections and epithelial cell abnormalities among IUCD users compared to non-users.

OBJECTIVES

1. To study various cervical pathologies on cervical smears with liquid based cytology amongst IUCD & Non-IUCD users.
2. To assess role of age, parity, menstrual history and duration of use of IUCD in cervical pathologies.
3. To compare the findings of cervical cytology between IUCD users and non-IUCD users.

MATERIALS AND METHODS

The present study was an analytical cross-sectional comparative study. The study commenced following the approval of the institutional ethics committee from September 2022 to June,2024 in Department of Pathology in coordinationwithDepartment of OBGY, MGM Medical College and Hospital, Aurangabad. 36 patients in case group and 36 patients in comparative group fulfilling the inclusion and exclusion criteria were enrolled.

Inclusion Criteria

- Case group- Women using Cu-T were included irrespective of duration of use.
- Comparative group- Women using either other modes of contraception or not using any contraceptive method.

Exclusion Criteria

- Women who were pregnant.
- Cases with inadequate smears.

Methodology

- Detailed history like age, menstrual history, parity, clinical features, use of contraceptive method, type of contraceptive use and duration of use of contraceptives was procured fromDept of Gynecology.
- Each study participant had undergone per speculum and per vaginal examination to look for condition of the cervix or presence of discharge.
- LBC technique was performed and the samples were sent to Department of pathology for examination.
- Standard procedure for LBC was carried out as per the following steps: –

1. The cervix was made completely visible after the introduction of a cervical speculum.
2. Cytobrush was inserted into the cervix and rotated 360^0 twice deep into the cervix.
3. The bristle head was then detached and dropped it into the EZIPREP preservative vial. Vial and vortex were closed to obtain a homogenous fixing.
4. Once the sample was received in lab, it was mixed well. Around 5ml of separator solution was taken to which 7ml of preservative solution was layered.
5. The sample was centrifuged at 1500-2000 rpm for 5minutes.

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6. The supernatant was discarded and the pellet was vortexed. 50-75µl of sample was loaded into the NANOCYT NEO machine and smear was made onto a Eziprep coated slide.
7. Staining was done using routine Papanicolaou stains.
8. Mounting was done with DPX and then observed under microscope.

- The study participants were categorized in Case and Comparative groups as per inclusion and exclusion criteria. The two groups were matched for age, menstrual status and parity.
- Cytology of cervix was reported according to '**The 2014 Bethesda System For Reporting Cervical Cytology**'[8].

Statistical Analysis

The collected data was entered in Microsoft Excel and analyzed using SPSS version 24.0.

Qualitative data were tabulated in the frequency and percentage form. Mean and SD was calculated for quantitative variables and proportions was calculated for categorical variables. Difference between two means was tested by Student's t-test. Qualitative data was compared by Chi square test and Fisher's exact test. P-Value of < 0.05 was considered statistically significant.

Also, data were represented in the form of visual impression like bar diagram, pie diagram, etc.

Microsoft word and Excel have been used to generate graphs, tables, etc.

OBSERVATIONS AND RESULTS

We analysed all the case and comparative study participants, important observations and results of which are presented below-

1. Out of 36 Cases and 36 Comparative group, majority, (47.22% in IUCD group vs 44.44% in non-IUCDgroup) of study participants were from the age group of 31-40 years followed by the age group of 21-30 years. Mean age of the study participants in IUCD group was 34.3 $\pm$ 6.7 years vs 33.3 $\pm$ 7.3 years in non-IUCD.
2. In both the groups, majority, (58.33% in IUCD group vs 55.56% in non-IUCD group) of study participants were second para followed by the para three in IUCD group and para one in non-IUCD group.
3. Majority (91.67% in IUCD group vs 94.44% in non-IUCD group) of study participants in both the groups had regular menstrual cycle.
4. Among Non-IUCD users, majority, 21 (58.33%) were using OC pills while 15 (41.67%) were not using any contraceptives.
5. On comparing both the groups, majority, 47.22% of IUCD users were having presenting complaint of vaginal discharge followed by 19.45% had pain in lower abdomen.

While, majority, 61.11% of non-IUCD users were asymptomatic. The two groups showed statistically significant difference with respect to presenting complaints ($p<0.05$), with vaginal discharge & pain in lower abdomen as significant complaints among IUCD users **(Table 1).**

Table 1: Comparison of two groups according to clinical complaints

Clinical complaints	IUCD group		Non-IUCD group		P
	No.	(%)	No.	(%)	
Vaginal Discharge	17	47.22	9	25	**<0.001**
Pain in lower abdomen	7	19.45	1	2.77	**0.03**
Menorrhagia	4	11.11	2	5.56	0.4
Vaginal Itching	4	11.11	2	5.56	0.4
Asymptomatic	4	11.11	22	61.11	**<0.001**
Total	**36**	**100**	**36**	**100**	-

6. In IUCD users, 47.22% cases revealed healthy cervix and vagina on P/S examination, while majority (52.78%) of cases showed either whitish discharge with or without foul smell (47.22%) or cervical erosion (5.56%) on P/S examination. In Non-IUCD users, 75% participants revealed healthy cervix and vagina on P/S examination, followed by 25% had whitish discharge with or without foul smell. Non-IUCD users did not show cervical erosion of P/S examination.

On comparing both the study groups, whitish discharge with or without foul smell and cervical erosions were more prevalent among IUCD group whereas, healthy cervix and vagina was more common with non-IUCD group. There was statistically significant difference between both the groups with respect to characteristics of cervix on per-speculum examination ($p<0.05$)**(Table 2).**

Table 2: Comparison of the two groups according to characteristics of cervix on P/S examination

Characteristics of cervix on Per-speculum	IUCD group		Non-IUCD group		P
	No.	(%)	No.	(%)	
Healthy Cervix and vagina	17	47.22	27	75	**0.03**
Whitish discharge with or without foul smell	17	47.22	9	25	**0.01**

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Cervical erosion	2	5.56	0	00	0.2
Total	**36**	**100**	**36**	**100**	**-**

7. In IUCD users, majority, i.e., 20 (55.56%) participants had inflammation on cervical cytology followed by, 08 (22.22%) were having normal cervical cytology, 04 (11.11%) had bacterial vaginosis, 03 (8.33%) were positive for candida and one (2.78%) for actinomyces. In non-IUCD users, majority of the study participants, i.e., 21 (58.33%) also had inflammation on cervical cytology, followed by 10 (27.77%) were having normal cervical cytology, 02 (5.56%) had bacterial vaginosis and candida infection each, and one (2.78%) was showing atrophy**.**

On comparing both the groups,

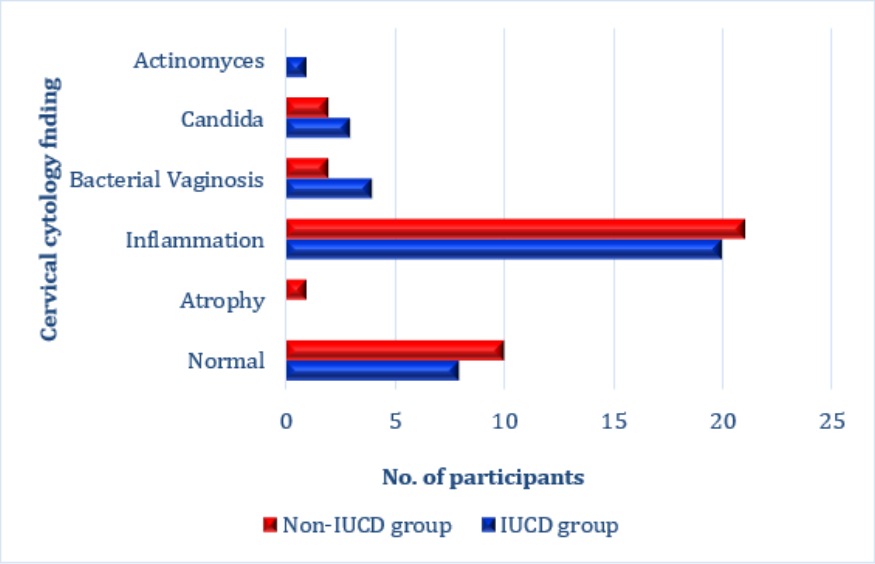
- ✓ Normal cervical cytology and inflammation were seen more in Non-IUCD users as compared to IUCD users.
- ✓ Bacterial vaginosis and fungal infection by Candida spp. were more in IUCD users as compared to Non-IUCD users.
- ✓ 2.78% IUCD users showed Actinomycosis infection, while there was no actinomycosis infection among Non-IUCD users.

Two groups were comparable with respect to cervical cytology but not statistically significant (p>0.05) **(Table 3,Graph 1).**

Table 3: Comparison of the two groups according to cervical cytology.

Cervical cytology	IUCD group		Non-IUCD group		P
	No.	(%)	No.	(%)	
Normal	8	22.22	10	27.77	0.6
Atrophy	0	00	1	2.78	0.5
Inflammation	20	55.56	21	58.33	0.9
Infection- Bacterial Vaginosis	4	11.11	2	5.56	0.4
Fungal Infection- Candida	3	8.33	2	5.56	0.6
Infection- Actinomyces	1	2.78	0	00	0.5
Total	**36**	**100**	**36**	**100**	--

Graph 1 shows that Inflammation was the most common finding in both the groups.



Graph 1: Distribution of both the groups according to cervical cytology findings

8. Among IUCD users,

- ✓ On analysing association of cervical cytology with age, we found that normal cervical cytology was significantly associated with 31-40 years age group **(p=0.04)** while inflammation was significantly more prevalent among younger age group of 21-30 years **(p=0.03) (Table 4).**

Table 4. Association of cervical cytology and age among IUCD users.

Cervical cytology	21-30 (n=12)		31-40 (n=17)		>40 (n=07)		P
	No.	(%)	No.	(%)	No.	(%)	
Normal	01	8.33	07	41.18	00	00	**0.04**
Inflammation	10	83.33	06	35.29	04	57.13	**0.03**
Infection-Bacterial vaginosis	00	00	03	17.65	01	14.29	0.3

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Fungal Infection-Candida	01	8.33	01	5.88	01	14.29	0.4
Infection-Actinomyces	00	00	00	00	01	14.29	0.2

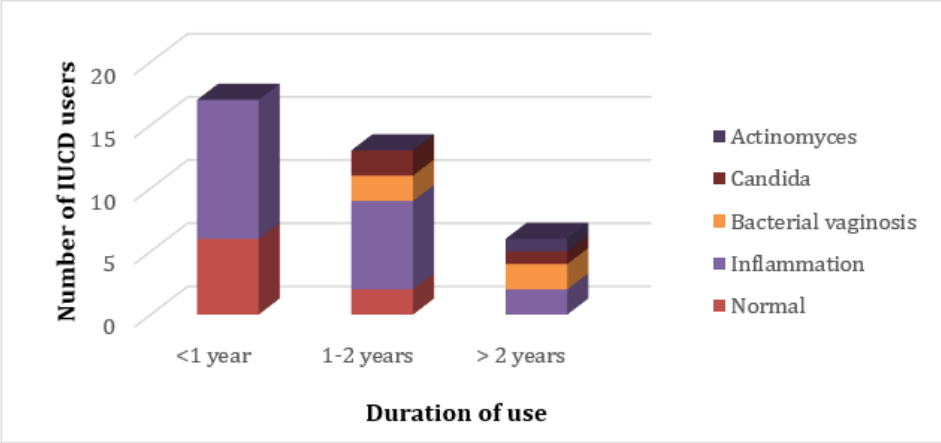
- ✓ On analyzing association of cervical cytology with parity, we found that it was not significantly differed among both the groups according to parity (p>0.05).
- ✓ On analysing association of cervical cytology with menstrual status, we found that it was not significantly differed among two groups according to menstrual status (p>0.05).
- ✓ On analysing association of cervical cytology with duration of use of Cu-T, we found that only bacterial vaginosis was significantly differed between the groups which was significantly more prevalent with longer duration of use of Cu-T i.e. > 1 year **(p=0.04).**

Infection by Actinomycosis was seen with > 2years of use of Cu-T. **(Table 5, Graph 2)**

Table 5: Association of cervical cytology and duration of use of Cu-T.

Cervical cytology	<1year (n=17)		1-2years (n=13)		>2years (n=06)		P
	No.	(%)	No.	(%)	No.	(%)	
Normal	6	16.67	2	5.56	0	00	0.2
Inflammation	11	30.56	7	19.44	2	5.56	0.4
Infection-Bacterial vaginosis	0	00	2	5.56	2	5.56	**0.04**
Fungal Infection-Candida	0	00	2	5.56	1	2.78	0.1
Infection-Actinomyces	0	00	0	00	1	2.78	0.1

Graph 2 shows that normal cervical cytology decreases with longer Cu-T use. Inflammation was more common within the first year. Actinomyces infection was minimal, i.e,1(2.78%) which occurred after 2 years of use of Cu-T.



Graph 2: Association of cervical cytology and duration of use of Cu-T.

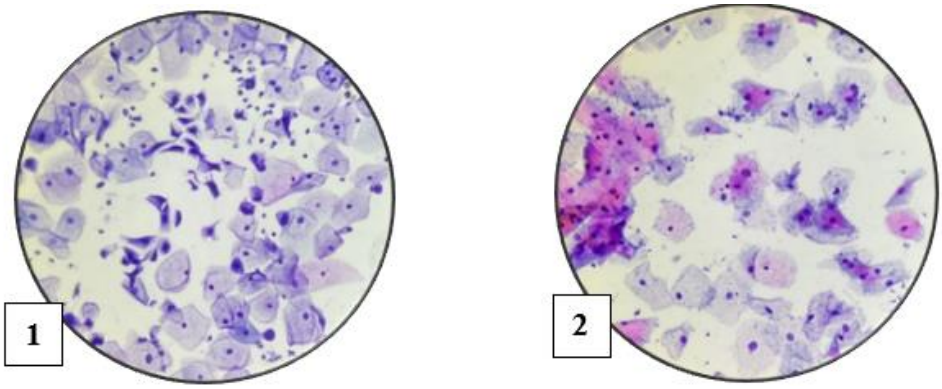


Figure1: **40X, Pap stain: Negative for Intraepithelial lesion or Malignancy**-Showing predominantly Intermediate epithelial cells along with few Parabasal cells. Endocervical cells with squamous metaplasia is also seen.

Figure 2: 40X, Pap stain: Shift in flora, suggestive of Bacterial Vaginosis-Showing Clue cells with coccobacilli.

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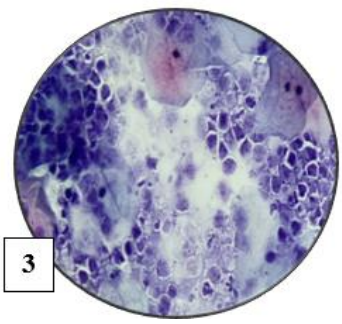

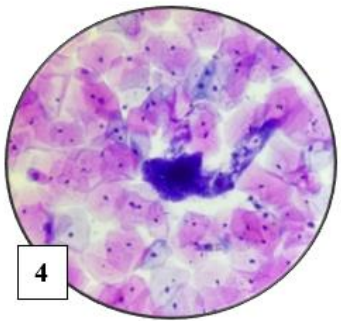

Figure3: **40X, Pap stain: Fungal organisms, morphologically consistent with Candida spp.-** Showing Buddying yeast of Candida spp.

Figure4: **40X, Pap stain: Bacteria, morphologically consistent with Actinomyces spp.-** Showing Cotton ball appearance of tangled clumps of filamentous organisms.

DISCUSSION

Contraceptives are used by women worldwide due to increased awareness regarding child spacing and family planning[1]. IUCDs are commonly preferred over other contraceptive devices among women. In addition to their benefits, they are source of infections and to a certain extent to cervical malignancies [9,10,11,12,13,14]. Liquid based cytology/Pap smear is one of the screening tool to assess the cervical cytology and to detect infections, inflammation and malignancies[5]. The two most common LBC methods-SurePath and ThinPrep have replaced the conventional smear method[15].

Reproductive tract infections are one of the complications caused by IUCD[16]. Most common infection among IUCD users is caused by Actinomyces[8]. Hormone-releasing IUCDs release progestins or progesterone into the uterus and cervix, thereby causing cancers [17].

- In the present study, majority, (47.22% in IUCD group vs 44.44% in non-IUCD group) of the study participants in both the groups were from the age group of 31-40 years. In a study by **Nirvana Rasaily Halder et al[5]**, most of the IUCD and Non-IUCD users belonged to age group 31-40 years, similar to the present study findings.
- In the present study, mean age of the study participants in IUCD group was 34.3 $\pm$ 6.7 years vs 33.3 $\pm$ 7.3 years in non-IUCD group. This is in line with study by **Mohamed Abd-AlfttahFarg et al[18]** where mean age of study participants in IUCD users was 37.5± 1.1 years vs 37.6± 1.1 years in Non-IUCD users.
- In the present study, majority, (58.33% in IUCD group vs 55.56% in non-IUCD group) of study participants in both the groups were second para followed by the para three in IUCD group and para one in non-IUCD group. Also, most (91.67% in IUCD group vs 94.44% in non-IUCD group) of study participants in both the groups had regular menstrual cycle. **Halder, et al[5]** , **Vanja Kaliterna[9]**and **Krishna Agarwal et al [16]** also reported similar parity in their study.
- In the present study, in IUCD group, majority, i.e, 47.22% were having presenting complaint of vaginal discharge followed by 19.45% had pain in lower abdomen, 11.11% each had menorrhagia, vaginal itching& were asymptomatic respectively. While, in Non-IUCD group, majority, i.e, 61.11% were asymptomatic followed by 25% had vaginal discharge, 5.56% each had menorrhagia & vaginal itching respectively and 2.77% had pain in lower abdomen. Presenting complaints of vaginal discharge & pain in lower abdomen were more common among IUCD users. The findings of the present study are in line with **Alka Patankar et al[19]** study which showed that Vaginal Discharge was the most common chief complaints amongst IUCD users. All the Non-IUCD users were asymptomatic by the defined study criteria, hence comparison between the two groups with respect to chief complaints could not be done. In a Study conducted by **Krishna Agarwal et al[16]**, most common presenting complaints among IUCD users was Backache(54%) whereas all the Non-IUCD users were again asymptomatic as per study inclusion criteria. **SR Nayak et al[20]** reported that the most common complaint among IUCD users was backache followed by menorrhagia**.(Table 6).**

Table 6:Comparison of present study with other studies with respect to Clinical Complaints

Studies	Cases	Comparative group
Krishna Agarwal et al (2004)[16]	Backache	Asymptomatic
SR Nayak et al (2007)[20]	Backache	-
Fatemeh Shobeiri et al (2014)[21]	Menorrhagia	Backache
Alka Patankar et al (2015)[19]	Vaginal Discharge	Asymptomatic
Present study	**Vaginal discharge**	**Asymptomatic**

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- In the present study, on per-speculum examination, majority, 17 (47.22%) each in IUCD group were having healthy cervix and vagina&whitish vaginal discharge with or without foul smell respectively, followed by 5.56% had cervical erosions. While, majority, 27 (75%) in non-IUCD group had healthy cervix and vagina followed by 25% were having whitish vaginal discharge with or without foul smell. Healthy cervix and vagina was the most predominant finding among non-IUCD group while whitish vaginal discharge with or without foul smell and cervical erosions were more predominant among IUCD group. Cervical erosions in case of IUCD users might be due to irritation to the cervix by the IUCD thread. This might be one of the cause of vaginal discharge[16].**(Table 7,8)**

In a similar study by **Alka Patankar et al[19],** healthy vagina was the most predominant finding among Non-IUCD user group than IUCD user group. Statistically significant proportion of study participants (8%) had cervical erosion amongst IUCD group when compared to Non-IUCD group (1.25%).

Krishna Agarwal et al[16] and few other studies also reported that cervical erosion was a significant finding in IUCD users as compared to Non-IUCD users.

Table 7: Comparison of present study with other studies with respect to statistically significant(P<0.05) characteristics of cervix on P/S examination

Studies	P/S examination
Nayar et al(1985)[22]	Cervical erosion
Krishna Agarwal et al(2004)[16]	Cervical erosion
Alka Patankar et al(2015)[19]	Cervical erosion
Present study	**Healthy cervix and vagina / whitish discharge**

Table 8: Comparison of present study with other studies with respect to P/S examination in both the groups

Studies	Healthy cervix and Vagina		White discharge		Cervical erosion	
	IUCD users (%)	Non-IUCD users (%)	IUCD users (%)	Non-IUCD users (%)	IUCD users (%)	Non-IUCD users (%)
Krishna Agarwal et al (2004)[16]	78	100	6	0	20	0
Fatemeh Shobeiri et al (2014)[21]	-	-	53	46.9	68	21.2
Alka Patankar et al (2015)[19]	51	68.75	43	31.25	08	1.25
Present study	**47.22**	**75**	**47.22**	**25**	**5.56**	**0**

- In the present study, all the cases were interpretated as "Negative for intraepithelial lesion or malignancy"[8]. There was no Epithelial cell abnormality detected in the present study which might be due to smaller sample size.

Normal cytology was more common in Non-IUCD Users(27.77%),similar to the study by **SR Nayak et al[20], Alka Patankar et al[19], Halder et al[5].**

Inflammation was more predominant in Non-IUCD users(58.33%). Studies by **Halder et al[5]** and **Rahime et al[23]**also showed similar findings.

Though the most common infection[8] in IUCD users is Actinomyces, in the present study, bacterial vaginosis was the most common infection among IUCD users(11.11%). **José Eleuterio Junioret al[24]**study showed that copper IUD is significantly associated with bacterial vaginosis and Actinomyces spp. infection than the controls.

Senay Erdogan-Durmus et al[25] studied the effects of intrauterine device on cervico-vaginal smears with liquid-based cytology technique and observed that IUCDs increase the frequency of genital infection most commonly with actinomyces & candida spp. by disrupting the genital flora which is in accordance with our study but we didn't find significant difference between case and comparative group, which might be due to smaller sample size.[Table 9 (a),(b), (c)]

Table 9(a): Comparison of present study with other studies: cervical cytology

Studies	Normal		Inflammation		Infections- BV	
	IUCD users(%)	Non-IUCD users(%)	IUCD users(%)	Non-IUCD users(%)	IUCD users(%)	Non-IUCD users(%)
Krishna Agarwal et al (2004)[16]	-	-	63	56	12	8
SR Nayak et al (2007)[20]	47.5	58	26.9	-	-	-
Rahime et al (2013)[23]	9.3	-	71.6	81	7	2.7
Alka Patankar et al (2015)[19]	6.18	21	75.2	68.4	5.15	0

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Halder et al (2019)[5]	5.26	7.25	75.42	85.50	12.94	4.46
Present study	**22.22**	**27.77**	**55.56**	**58.33**	**11.11**	**5.56**

Table 9(b):Comparison of present study with other studies: Cervical cytology

Studies	Infections- Candida		Infections-Actinomyces		Infection-Trichomonas vaginalis	
	IUCD users(%)	Non-IUCD users(%)	IUCD users(%)	Non-IUCD users(%)	IUCD users(%)	Non-IUCD users(%)
Krishna Agarwal et al (2004)[16]	14	12	0	0	12	4
SR Nayak et al (2007)[20]	-	-	-	-	73.4	-
Rahime et al (2013)[23]	7.3	3.9	4	0	1.8	1.5
Alka Patankar et al (2015)[19]	6.18	7.89	0	0	9.27	3.94
Halder et al (2019)[5]	4.13	2.05	0.56	0	1.69	0.74
Present study	**8.33**	**5.56**	**2.78**	**0**	**0**	**0**

Table 9(c):Comparison of present study with other studies: Cervical cytology

Studies	Epithelial cell abnormality	
	IUCD users(%)	Non-IUCD users(%)
Krishna Agarwal et al(2004)[16]	3	0
SR Nayak et al(2007)[20]	1.4	2
Rahime et al(2013)[23]	0.8	0.6
Alka Patankar et al(2015)[19]	0	0
Halder et al(2019)[5]	2.02	0.55
Present study	**0**	**0**

- On analysing association of cervical cytology with age, parity, menstrual status, we found that normal cervical cytology was significantly associated with 31-40 years age group (p=0.04) while inflammation was significantly more prevalent among younger age group of 21-30 years (p=0.03). But cervical cytology did not differ significantly according to parity & menstrual status (p>0.05).
- On analysing association of cervical cytology with duration of use of Cu-T, we found that only bacterial vaginosis was significantly differed between the groups which was significantly more prevalent among longer duration of use of Cu-T i.e. > 1 year (p=0.0007). There was no incidence of epithelial cell abnormality, even with increased duration of IUCD in the present study, owing to small sample size.

In a study conducted by **SR Nayak et al[20]**,it was seen that as the duration of use of Cu-T increases, the risk of infection also increases, with 35.4% incidence of infection with more than 3 years duration of use of Cu-T. The study also shown that risk of epithelial cell abnormality also increases with increase in duration of use.

In another study by **Sipra Bagchi et al[17]** in agreement with the present study found association of cervical cytology with duration of IUD use and reported that the incidence of normal cytology decreased (40%) with increased duration of use (up to 3 years). Incidence of inflammatory smear though first decreased up to 1 year (21.8%) but then gradually increased up to 2 years (37.0%) of use and then again decreased to 20.0% up to 3 years of use. ASCUS was found in only one case that used the device up to 2 years of use. LSIL was detected in 2 cases (20%) using IUD up to 3 years. Similarly, no case of high-grade intraepithelial lesion (HSIL) or invasive cancer was seen.

MaleneSkorstengaard et al[26] study, similar to the present study, found that there is no increase in the risk of cervical intraepithelial neoplasia in IUCD users.

CONCLUSION

To conclude, it is safe to use IUCD as there was no significant risk of cervical dysplasia or invasive carcinoma in IUCD users as compared to Non-IUCD users. However, there is small chance of infection by bacterial vaginosis, Candida spp. or Actinomyces with use of IUCD.

We recommend screening of IUCD users for bacterial vaginosis with longer duration of use of Cu-T.

Also, Liquid based cytology smears shed light on the flora, infectious diseases and epithelial cell abnormalities in the cervical region, hence a good screening tool for assessing cervical condition.

Conflict of Interest: Nil

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