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St. Paul's Hospital Millennium Medical College

INTRAUTERINE CONTRACEPTIVE DEVICE RELATED UTERINE PERFORATION AT ST. PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE: A 5 YEAR REVIEW

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Intrauterine contraceptive device related uterine perforation at St. Paul's Hospital Millennium Medical College: A 5-year review

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SUMMARY

Background: Reports of perforation risk related to intrauterine devices (IUCDs) inserted immediately post-partum and among non-post-partum individuals are rare. However, there have been reports of IUCD related uterine perforation, which can lead to significant morbidity and potential complications. Risk factors associated with increased risk of perforation at the time of IUCD insertion include clinician inexperience, stenotic cervix and immobile or retroverted uterus. Being postpartum and/or lactating may independently increase the risk for perforation. The incidence is reported in 1/1000. This research aims to retrospectively analyze the IUD related uterine perforation and associated factors over a 5-year period.

Objectives: To determine IUCD related uterine perforation managed at Saint Paul Hospital Millennium Medical College (SPHMMC).

Methods: The study was conducted at Saint Paul Hospital Millennium Medical College (SPHMMC) starting from December 1, 2023- April 30, 2024. Data was collected through chart review using a data extraction questionnaire and analyzed using SPSS version 25 statistical software. Simple descriptive statistical analysis was performed as appropriate.

Result: A history of prior uterine surgery was reported by 61.1% of participants, all of whom underwent cesarean delivery. IUCD insertion occurred exclusively in the postpartum period, with 44.4% inserted immediately postpartum (within 48 hours), 5.6% within six weeks, 47.2% between six weeks and six months, and 2.8% after six months. All individuals were breastfeeding at the time of IUCD insertion. The timing of uterine perforation diagnosis varied, with 33.3% diagnosed within six months of insertion, 22.2% within six months to a year, and 44.4% more than a year after insertion

Conclusion: This study demonstrates a generally positive experience with postpartum Copper IUCD insertion. However, cases of uterine perforation highlight the importance of long-term follow-up and monitoring. Enhanced patient education on risks and symptoms is essential for optimal outcomes. Removal was mostly achieved through minimally invasive techniques, though adhesions were common all IUDs except one were removed either laparoscopically or hysteroscopically

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List of Acronyms and Abbreviations

IUCD	Intrauterine contraceptive device
FP	Family planning
LARC	Long acting reversible contraception
LNG-IUS	Levonorgestrel-releasing intrauterine systems
OBGYN	Obstetrics and Gynecology
SPHMMC	St Paul's Hospital Millennium Medical College
WHO	World Health Organization
ODK	Open data kit

1. Introduction

1.1 Background:

Family planning enables people and couples to plan for and have the number of children they want, as well as the spacing and timing of their births. Involuntary infertility is treated, and contraceptive methods are used to achieve this. Contraception is the purposeful use of artificial or organic methods to avoid becoming pregnant. There are various forms of contraception. They may have a quick or lasting effect, be reversible or permanent. Depending on how they are used properly, the various contraceptive techniques have differing degrees of effectiveness (1).

There are three different forms of IUCD: levonorgestrel-releasing, copper-bearing, and inert. The indications for use have grown with the advent of the levonorgestrel intrauterine system in addition to copper IUCDs. IUCDs are recommended for any woman who requests the procedure, has received enough and pertinent counseling, and has no medical conditions that would prevent its usage. As long as the medical professional has properly determined that the client is not pregnant, it may be implanted at any point in the menstrual cycle. It can now be injected immediately after childbirth (within hours) and following a naturally occurring or surgically induced first trimester abortion (2).

A history of pelvic inflammatory illness, fibroids, congenital uterine abnormalities, pregnancy, and several sexual partners are common contraindications to its use. The methods of action include sperm migration and viability suppression, ovum transport speed modification, and ovum damage or destruction. There is evidence to support the idea that the main mechanism of action for preventing pregnancy is these pre-fertilization effects (2).

An intrauterine device (IUD) is regarded as a top-tier, extremely dependable, long-term, reversible contraceptive treatment that only needs single application. With an estimated 110 million users globally, including nearly half in China, the IUD is one of the most widely used contraceptive methods (3). 13.9% of the 1.16 billion married or in a union women around the world who are

between the ages of 15 and 49 use intrauterine contraception, demonstrating the widespread use of this technology. In China, where there are 269 million women between the ages of 15 and 49, the use of intrauterine devices is even higher at 40.6% (4).

Uterine perforation is an uncommon but feared complication of intrauterine contraception. The use of copper intrauterine devices (Cu-IUDs) has been the subject of the majority of earlier investigations on uterine perforation. The levonorgestrel-releasing intrauterine system (LNG-IUS), however, is becoming more and more accepted worldwide. According to estimates, there are 0.05–1 occurrences of uterine perforation for every 1000 IUD placements. The IUD may migrate into the intra-abdominal space and pelvis if uterine perforation takes place, leading to serious symptoms and complications (5).

The IUCD is placed directly into the abdominal cavity or travels there through an iatrogenic incision in the uterine wall since it is assumed that the majority of perforations happen at insertion, either via the uterine sound or the inserter. Regardless of the moment of insertion, breastfeeding and the immediately following post-partum period are proposed risk factors for uterine perforation (5).

Levonorgestrel-releasing intrauterine systems (LNG-IUSs) are a reliable and secure method of birth control that also treats menorrhagia, endometriosis, and endometrial hyperplasia. Concerns remain regarding the overall safety of intra-uterine devices (IUDs), particularly regarding potential serious complications associated with uterine perforation. Up until recently, there was no research on the relative risk of uterine perforation associated with LNG-IUS versus copper-IUCD (6).

Although using an IUD is normally safe, on occasion the device may move and cause serious problems. When an IUD migrates, it moves away from the uterine fundus, where it normally resides. IUD implantation can result in complications including abdominal pain, unusual bleeding, pelvic inflammatory disease, expulsion, retraction into the cervix or uterus, and uterine perforation (7).

1.2 Statement of the problem

IUCDs are a commonly used safe and effective methods. Overall, it seems that difficulties following IUD insertion are linked to anatomical and physiological aspects in addition to the doctor's experience. Nulliparous women appear to have a greater incidence of IUD insertion-related problems, if any factor is predictive. This also holds true for women who have only ever undergone Caesarean sections, and prior vaginal deliveries are linked to a lower frequency of insertion issues. According to the study's findings, postcoital IUD insertions do not carry a heightened risk of insertion failure or complications (8).

The possible side effects of IUCD include device failure, excruciating abdominal cramps, expulsion, complete or partial uterine perforation, menstrual disturbances, an increased risk of ectopic pregnancy, septic and spontaneous abortion in cases of pregnancy with IUCD in situ, and pelvic inflammatory disease (9).

There is a growing concern regarding the occurrence of uterine perforations associated with IUCDs. This rare but potentially fatal complication occurs with an incidence of 0.12 to 0.68 per 1000 insertions. The clinical presentation following perforation and migration is highly variable; many patients are asymptomatic and present with pregnancy or “missing strings.” A smaller number of patients present with acute symptoms of bowel obstruction or perforation (10). Despite its potential risks, there is limited research on the prevalence, risk factors, and consequences of IUCD-related uterine perforations.

This study aims to address this knowledge gap by conducting a comprehensive investigation into the risk factors, consequences and associated factors of IUCD-related uterine perforations. By understanding the extent of this problem, healthcare providers can improve patient safety by implementing appropriate preventive measures and ensuring informed decision-making when recommending IUCDs as a contraceptive option.

Yet, there is limited research exploring the risk factors and associated factors for IUCD-related uterine perforation, especially in low-resource settings where insertion techniques and device characteristics may differ. Therefore, this study aims to investigate the associated factors contributing to IUCD-related uterine perforation at SPHMMC over a period of 5 years duration, in order to improve patient safety and provider education around IUCD use.

1.3 Significance of the study

SPHMMC is a center for excellence for family planning and it is the site for FP fellowship training program which only exists at this institution in sub-Saharan Africa. Therefore, complex instances, such as missing IUDs and uterine perforation due to IUDs, are referred to and addressed at our own center. However, there is no information on factors associated with IUCD-related uterine perforations. Our research seeks to fill research gaps and produce new data from Ethiopia with implications for improving healthcare quality related to IUD related uterine perforation.

2. Literature review

A. Incidence:

Uterine perforation is a rare occurrence. In larger investigations, estimates vary between 0.4 and 1.6 for every 1,000 insertions. A 10-year prospective cohort study conducted nationwide in New Zealand reported 28 perforations among 17,469 Cu375 IUD insertions, representing an incidence of 1.6 per 1,000 insertions. The European Active Surveillance Study for Intrauterine Devices (EURAS-IUD) reported perforation rates of 0.68 per 1000 LNG-IUS insertions and 0.4 per 1000 Cu-IUD insertions at 1 year of follow-up (5). The same 5-year extended study reveals that copper-IUD users had a perforation rate of 1.6 per 1000 insertions while LNG-IUS users had a perforation rate of 2.1 per 1000 insertions (6).

B. Risk factor

IUD type, insertion technique, extremes in uterus posture, and insertion duration are all risk factors for uterine perforation. After being implanted in the uterus, the IUD can freely travel into a variety of locations (6). The IUD/intrauterine system (IUS) is placed directly into the abdominal cavity or travels there through an iatrogenic opening in the uterine wall since it is believed that the majority of perforations occur upon insertion, either via the uterine sound or the inserter (3). The method utilized to put the IUD could be another risk factor. If the recommended approach for an LNG-IUS is a withdrawal rather than a push-out, uterine perforation during insertion appears to be less likely to happen (12).

Other suggested risk factors for uterine perforation include breastfeeding and the immediate postpartum period. IUD perforation that occurs in the post-partum period may be caused by uterine involution and increased uterine contractility (5). IUD implantation, up to 6 months postpartum, increased the risk of uterine perforation, according to an analysis of the estimated hazards of the relative risks associated with the length of time between the last delivery and IUD insertion (13).

Time since delivery and breastfeeding are still separately related to perforation risk. Breastfeeding mothers had a 4.9 percent lower relative perforation risk than non-breastfeeding mothers. Women who had given birth >36 weeks before to insertion had a relative risk of 5.1, while those who had given birth 36 weeks prior to insertion had a relative risk of 6.8 per 1000 insertions. The equivalent

numbers were 3.0 and 1.2, respectively, for women who weren't nursing at the time of insertion (6).

Breastfeeding mothers have a 6- to 10-fold increased risk of perforation than non-breastfeeding mothers, according to two studies that were planned and powered to find differences in perforations. It has been demonstrated that insertion in lactating mothers, even after 6 weeks after birth, is a significant risk factor. The risk of uterine perforation may be impacted by rapid uterine involution and prolonged uterine contractility. Uterine perforation may thus easily go unnoticed as the insertion of an IUD in nursing women appears to be accompanied with less discomfort than interval insertions. The Dutch Society for Obstetrics and Gynecology's recommendations for intrauterine contraceptive devices state that inserting an IUD prior to the advised postpartum appointment scheduled for six weeks following delivery is a contraindication (12).

C. Patient presentation and diagnosis

Many people don't exhibit any symptoms, and perforation may be found during normal follow-up exams or in the course of an unwanted pregnancy. Abdominal pain and unusual bleeding patterns are examples of perforation symptoms. Perforation cannot be ruled out when the IUD threads are not visible during a checkup (5).

The period between insertions and perforation diagnosis did not significantly vary between groups in the EURAS-IUD 5-year extension study. Only a tiny percentage of holes (2% of LNG-IUS and 17% of copper-IUD) were discovered during or right after following implantation. The majority (around 69%) of holes were discovered within a year of insertion; the remainder were discovered between a year and five years later. The perforation was discovered in two LNG-IUS users after the ladies had given birth. The majority of early perforations were discovered after pain and/or bleeding symptoms. However, the perforation was asymptomatic in 29% of LNG-IUS and 17% of copper-IUD perforations (6).

Vaginal ultrasonography can detect IUDs, therefore this method alone is frequently sufficient to find the device. However, X-rays, computed tomography, or magnetic resonance imaging are other methods that can be used to find lost devices. Perforation must always be taken into consideration if the IUD/IUS cannot be located in utero, even though ejection is more typical (3).

D. Possible harm to patient

IUD extra uterine migration is a rare yet serious side effect. Up to 1.6 incidences of full thickness uterine erosion per 1000 IUD insertions have been documented. Following an earlier incident of iatrogenic uterine wall perforation during implantation, it is frequently recorded. Occasionally, despite a well-placed IUD, it can happen spontaneously. The peritoneal cavity, rectum, colon, omentum small bowel, and bladder are the most typical sites of migration. Gross hematuria and recurrent UTI can both be brought on by vesical foreign bodies (14).

IUDs typically migrate to the adnexa, appendix, bladder, colon, peritoneum, omentum, rectosigmoid, small bowel, and iliac vein. But there is also one case report from Indonesia which reports migration to the thoracic cavity. There are no previous studies about the IUD migration in the intrathoracic cavity (15).

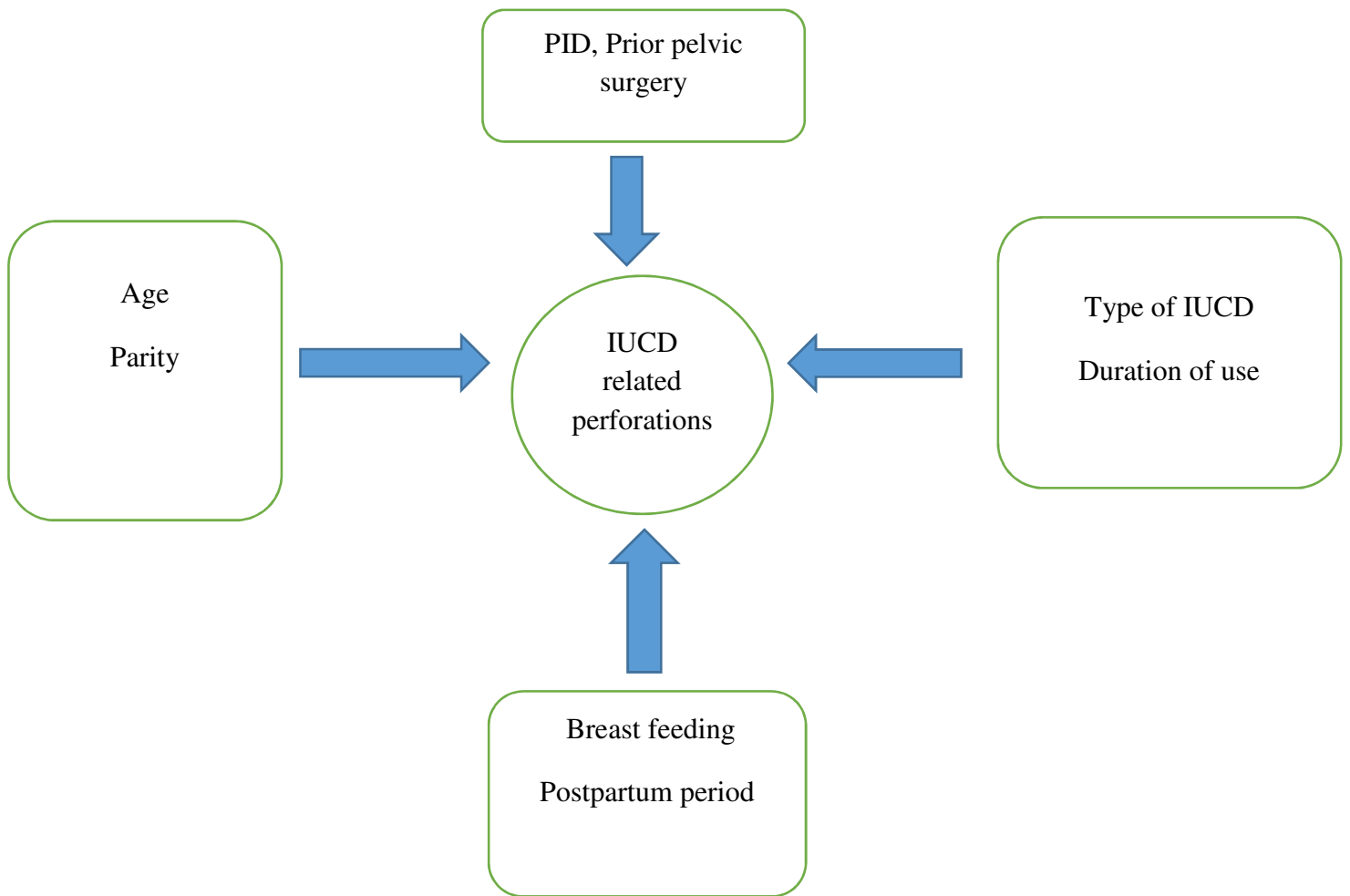
E. Management options

Approximately one-fourth of IUDs might be removed vaginally during a clinical assessment using hysteroscopy or direct viewing and removal. The laparotomy operation was uncommon (6).

F. Possible prevention

In light of this, the World Health Organization (2009) suggests starting intrauterine contraception 4 weeks after delivery (5). Nursing during the postpartum period: 45 patients (66%) had given birth in the 12 months prior to placement. Three months after giving birth, the device was implanted in 15 patients (22%) and 38 patients (55%) after six months. 23 women, or one-third of the group, had not given birth within the year before to insertion (3).

3. Conceptual framework



3. Objective

3.1. General objective

- To determine IUCD related uterine perforation managed at SPHMMC over a period of 5 years

3.2. Specific objectives

- To describe clinical characteristics of IUD related uterine perforation.
- To identify factors associated with IUD related uterine perforations.
- To see management of IUD related uterine perforation.

5. Methods and Materials

5.1 Study setting

The study was conducted at SPHMMC found in Addis Ababa, the capital city of Ethiopia. SPHMMC is found around Guelle sub city and the inpatient capacity is 700 beds and more than 2000 outpatient and emergency clients have been visiting the hospital facility daily. The infertility center for SPHMMC is found around 22, Addis Ababa Ethiopia. MICHU clinic is the first public center to provide IVF service and provide different laparoscopic diagnostic and surgical procedures.

5.2 Study design

A retrospective chart review was conducted to analyze IUD related uterine perforation and associated factors over a period of 5 years.

5.4 Source population and Study population

All women who had IUCD insertion anywhere and managed for any IUD related uterine perforation at SPHMMC.

5.5 Eligibility criteria

Inclusion criteria

All women who had IUCD inserted and complicated with perforation.

Exclusion criteria

There is no any exclusion criteria.

5.6 Sample size and sampling procedure

All women who had IUCD inserted and complicated with uterine perforation managed. No specific sample size calculation was made.

5.8 Study variables

5.8.1 Dependent variables

The occurrence of uterine perforation among women who have had an IUCD inserted.

5.8.2 Independent Variables:

- Age:
- Mode of delivery
- Parity
- Breastfeeding at the time of insertion
- Type of IUCD
- Duration of IUCD use
- History of prior uterine surgery
- Time of insertion

5.9 Data source

The data used is secondary data from retrieved patient charts of the study population.

5.91 Data collection procedures

Data was collected by two trained nurses from SPHMMC at MICHU clinic at 22. Data was collected from December 1, 2023- April 30 2024 after short and brief training given by the investigator for one day. First standard data extracting tool was prepared and converted to open data kit format by using Microsoft Excel. Data was collected by using ODK software which was installed on smartphones and tablets of data collectors. Phone call was made to the patients to retrieve data not available on the charts.

5.92 Data analysis procedures

Collected data by different data collectors was merged and exported to SPSS statistical software version 25.0 and processed for analysis after completeness checked. Simple descriptive statistical analysis and multivariate analysis was employed as appropriate.

5.93 Ethical considerations and consent

The study was conducted after an ethical approval letter was secured from the research committee of the OBGYN department as well as the institutional review board of the College and was conducted according to the institutional and ethical rules concerning research. The information obtained from the chart is kept strictly confidential. Verbal informed consent was obtained from study participants to obtain data which cannot be retrieved from the patient charts.

5.94 Methods of dissemination

The results of this research will be presented to the Obstetrics and Gynecology community in SPHMMC and invited guests. Soft and hard copies of the document will be submitted to the department and the college to show the gaps and strengths seen. Efforts will be made to publish the final results in peer-reviewed journals.

6: RESULT

The sociodemographic and patient characteristics are collected from 36 respondents with 100% response rate via a structured questionnaire.

6:1 SOCIODEMOGRAPHIC CHARACTERISTICS

The majority of the participants were aged between 20-30 years (52.8%), followed by 31-40 years (41.7%), and a smaller proportion aged 41-45 years (5.6%). All participants were married (100.0%), with most residing in urban areas (91.7%), while 8.3% were from rural areas. Copper IUDs were used exclusively by all participants (100.0%).

Regarding the mode of delivery, 55.6% had cesarean deliveries, while 44.4% had vaginal deliveries. Parity distribution showed that the majority (77.8%) had between 2-4 children, 13.9% were primiparous, and 8.3% had more than four children.

Table 1: Demographic characteristics of respondents (n: 36)

Variable	Response	Frequency (n:36)	Percent (100%)
Age Range	20-30	19	52.8
	31-40	15	41.7
	41-45	2	5.6
Marital Status	Married	36	100.0
Area of Residence	Urban	33	91.7
	Rural	3	8.3
Type of IUCD	Copper IUD	36	100.0
Mode of Delivery	Cesarean Delivery	20	55.6
	Vaginal Delivery	16	44.4
Parity Range	1	5	13.9
	2-4	28	77.8
	>4	3	8.3

6.2 PATIENT CHARACTERISTICS

A history of prior uterine surgery was reported by 61.1% of participants, all of whom underwent cesarean delivery. IUCD insertion occurred exclusively in the postpartum period, with 44.4% inserted immediately postpartum (within 48 hours), 5.6% within six weeks, 47.2% between six weeks and six months, and 2.8% after six months. All individuals were breastfeeding at the time of IUCD insertion, and no complications were reported during or immediately after the procedure.

The timing of uterine perforation diagnosis varied, with 33.3% diagnosed within six months of insertion, 22.2% within six months to a year, and 44.4% more than a year after insertion. Presenting complaints included abdominal pain (47.2%), asymptomatic cases (41.7%), and less commonly, vaginal bleeding or pregnancy (5.6% each). Removal of the IUCD was predominantly achieved through hysteroscopy (50.0%) and laparoscopy (47.2%), with laparotomy required in only 2.8% of cases. Intraoperative findings revealed adhesions in 63.9% of cases, and 16.7% encountered difficulties during removal. This data provides a comprehensive overview of IUCD outcomes and management.

Table 2: Patient characteristics of respondents (n: 36)

Variables	Responses	Frequency (n :36)	Percent (100%)
Any history of prior uterine surgery?	Yes	22	61.1
	No	14	38.9
What procedure was done?	Cesarean delivery	22	61.1
Was the IUCD inserted in the postpartum period?	Yes	36	100.0
When was the IUCD inserted?	Immediately post-partum (<48hrs)	16	44.4
	<6 weeks post-partum	2	5.6

	6 weeks - 6 months postpartum	17	47.2
	> 6 months postpartum	1	2.8
Were you breast feeding at the time of insertion?	Yes	36	100.0
Do you experience any complications during or after insertion of IUCD?	No	36	100.0
When was the uterine perforation diagnosed?	Within 6 mo after insertion	12	33.3
	Within 6mo-1yr after insertion	8	22.2
	>1yr after insertion	16	44.4
Presenting complaint	Asymptomatic	15	41.7
	Abdominal pain	17	47.2
	Vaginal bleeding	2	5.6
	Pregnancy	2	5.6
How was IUD removed?	Hysteroscopy	18	50.0
	Laparoscopy	17	47.2
	Laparotomy	1	2.8

Intra op finding and complication	Adhesion	23	63.9
	Difficulty removal	6	16.7

7. DISCUSSION AND IMPLICATION TO THE HEALTH SYSTEM

7.1: Demographic characteristic's

The distribution of respondents by age group shows a notable concentration in the younger demographics. Among the 36 total participants, the age group of 20 to 30 years accounts for 19 individuals, representing 52.8% of the total respondents. Following this, the 31 to 40 years age group comprises 15 respondents, which is 41.7% of the total. Lastly, only 2 respondents belong to the 41 to 45 years category, making up 5.6% of the survey population. Out of a total of 36 participants, 5 individuals (13.9%) have a parity of 1. The majority, 28 respondents (77.8%), fall into the 2 to 4 parity range. Lastly, there are 3 participants (8.3%) who have a parity greater than 4. Overall, this study suggests that most respondents have a parity between 2 and 4.

The demographic analysis of respondents based on marital status reveals that all participants in the survey are married, with a full representation of 36 individuals, which accounts for 100% of the sample. This indicates a homogeneity in marital status among respondents. In terms of area of residence, there is a significant urban majority, with 33 respondents (91.7%) residing in urban areas. In contrast, only 3 respondents (8.3%) live in rural areas. This distribution highlights a strong urban demographic within the studied population.

Concerning the type of intrauterine contraceptive device (IUCD) used, it is noteworthy that all 36 participants (100%) used a Copper IUD, indicating the availability of only copper IUD as compared to the other types of IUD.

Finally, the mode of delivery varies among participants, with 20 individuals (55.6%) having undergone cesarean delivery, and 16 respondents (44.4%) opting for vaginal delivery. This data reflects a near-equal distribution of delivery methods among the respondents, with a slight preference for cesarean delivery.

7.2: Patient characteristics

A notable 61.1% of participants reported a history of prior uterine surgery, with the majority having undergone a cesarean delivery. In contrast, only 38.9% had no prior uterine interventions. This prevalence of prior surgeries underscores the potential complications that may arise during subsequent reproductive interventions, particularly with IUCD insertion. It is crucial to consider that individuals with a history of uterine surgery might have unique anatomical considerations, which could impact both the insertion of the IUCD and its effectiveness.

All participants reported having the IUCD inserted in the postpartum period, with a systematic approach evident in the timing of insertions. A significant portion, 44.4%, had the IUCD inserted immediately within 48 hours after delivery, while 47.2% underwent insertion between 6 weeks to 6 months postpartum.. Furthermore, all participants indicated they were breastfeeding at the time of IUCD insertion, suggesting a focus on providing reliable contraceptive options for new mothers during this critical period.

A striking aspect of the study is that there were no reported complications during or after the insertion of the IUCD among the participants, which is certainly a positive outcome and suggests that the procedures were performed correctly and that appropriate care was taken. This lack of immediate complications may also indicate that by determining the appropriate timing for insertion, healthcare providers can potentially reduce risks associated with IUCD placement in individuals with a surgical history.

Regarding complications observed post-insertion, the diagnosis of uterine perforations varied. About 33.3% were diagnosed within 6 months, with others being identified later, indicating a potential lag in recognition of complications. That's why we need to properly counsel patient for danger signs and after insertion how to check for the IUD strings and seek professional help if the strings are not palpable or if they have symptoms. In some setups patients usually have follow up

4-6 weeks after insertion. Alarming, 44.4% were diagnosed more than a year after insertion; this signifies the importance of long-term monitoring and follow-up for individuals with IUCDs, particularly those with existing uterine conditions or histories of surgery. The presenting complaints also warrant attention, with 41.7% being asymptomatic while 47.2% reported abdominal pain, emphasizing the need for increased awareness among healthcare providers regarding symptomatology related to IUCD complications.

Additionally, the methods of IUCD removal were predominantly through hysteroscopy (50.0%) and laparoscopy (47.2%), indicating a preference for minimally invasive techniques. Only one individual necessitated a laparotomy, highlighting that while IUCD removals can pose challenges, they are often manageable through less invasive means. During these procedures, complications such as adhesions were frequently noted, occurring in 63.9% of cases, along with some instances of difficulty in removal (16.7%). This can further point to the complexities involved in managing patients with prior uterine surgeries and underscores the need for skilled hands in navigating potential complications during removal.

In conclusion, this study reflects the experiences surrounding IUCD insertion in a cohort with a significant history of uterine surgery for this study group. While the outcomes regarding insertion appear generally favorable, the subsequent management of complications underscores the necessity of vigilant follow-up and assessment. Education around potential risks, along with addressing presenting symptoms post-insertion, should be a priority for healthcare providers to ensure the best possible care for women utilizing IUCDs, especially those with relevant past surgical histories.

8 Strength of the study

This study is the first of its kind to be conducted in our setup. The absence of prior studies conducted in our particular setup underscores the novelty and originality of our research. It gives a tangible insight on the subject matter and will be a base for future studies.

9: Limitation of the study

- ✓ The study only included 36 respondents, which may not adequately represent the larger population. A limited sample size can reduce the generalizability of the findings to other groups or settings.
- ✓ All respondents were married and predominantly from urban areas, limiting the diversity of sociodemographic factors. This homogeneity may not reflect the experiences of unmarried women or those from rural backgrounds.
- ✓ The study only examined Copper IUCDs. Other types of IUCDs, such as hormonal ones, may have different insertion experiences, complications, and outcomes that are not accounted for in this research.
- ✓ Although the data provides information about complications and outcomes at varying intervals post-insertion, it lacks follow-up assessments over a more extended period to evaluate long-term effects and complications.
- ✓ Responses were collected via a structured questionnaire, which may lead to recall bias or inaccuracies in self-reporting. Participants might have different interpretations of questions, affecting the reliability of the data collected.
- ✓ The absence of a control group limits the ability to determine the causality and effectiveness of the interventions or management strategies.

10. Conclusions

The findings of this study reflect a generally positive experience with postpartum Copper IUCD insertion among a cohort of married women, many of whom had a history of prior uterine surgery.

The absence of reported complications during or immediately after insertion suggests that the procedure was performed with generally high safety. However, the occurrence of uterine perforations diagnosed post-insertion emphasizes the need for long-term monitoring and follow-up. While technical skills and proper timing of IUCD insertion appear important for favorable outcomes, significant gaps in symptom awareness and potential risks remain.

This study underscores that while IUCDs can be a reliable contraceptive option for postpartum women, especially those with surgical histories, healthcare providers must remain vigilant about ongoing patient education regarding potential symptoms and complications associated with IUCDs.

11: Recommendations

1. Healthcare providers should elevate awareness around the potential risks associated with IUCDs, especially for women with a history of uterine surgery. Continuous education should ensure that patients are informed of possible complications and the importance of reporting symptoms promptly.
2. Future research should involve larger sample sizes and a longitudinal approach, allowing for a more comprehensive assessment of complications related to IUCD insertion over time.
3. Further studies should aim to include a more diverse population, encompassing unmarried women, rural residents, and users of different types of IUCDs to better evaluate the generalizability of findings.
4. Establish standardized protocols for follow-up assessments after IUCD insertion to facilitate early diagnosis of complications and improve patient outcomes.
5. Future research should explore the outcomes and related complications of various IUCDs to provide a more comprehensive understanding of their effectiveness and risks in diverse patient populations.

6. Prior to IUCD insertion, counseling sessions that cover procedural details, possible complications, and what to expect post-insertion can enhance patient understanding and compliance.

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12. Annex

1 Questionnaire

St. Paul's Millennium Medical College Department of Obstetrics and Gynecology

Data extraction tool prepared for assessment of IUD related uterine perforation at SPHMMC.

The objective of this questionnaire/ data extraction tool is to extract factors and characteristics of IUD related uterine perforations that were managed at SPHMMC.

Part 1 Demographic data	
Age	
Marital status	1) Single 2) Married 3) Divorced 4) Widowed
Education level	1) Diploma 2) Degree 3) Masters
Area of residence	1) Urban 2) Rural
Type of IUCD used	1) Copper IUD 2) LNG-IUS 3) Not documented
Part 2 Clinical characteristics	
Parity	
Mode of delivery	1) Vaginal delivery 2) Cesarean delivery
Any history of previous uterine surgery	1) Yes 2) NO
If yes to the above question what procedure was done?	1) Cesarean delivery 2) Myomectomy 3) MVA

	4) If other specify
Was the IUCD inserted in the post-partum period?	1) Yes 2) No
If yes to the above question When was the IUCD inserted?	1) Immediately post-partum (<48hrs) 2) <6weeks post-partum 3) 6 weeks- 6 months postpartum 4) > 6mo postpartum
Were you breastfeeding at the time of insertion?	1) Yes 2) No
Did you experience any complications during or immediately after IUCD insertion?	1) No 2) Yes (please describe)
When was the uterine perforation diagnosed?	1) Immediately after insertion 2) Within 6 mo after insertion 3) Within 6mo-1yr after insertion 4) >1yr after insertion
Presenting complaint	1) Was asymptomatic 2) Abdominal pain 3) Vaginal bleeding 4) Pregnancy
Intra-op finding and complication	1) Adhesion 2) Difficulty in removal

