

# A study on clinicoradiological correlation in patients with intrauterine contraceptive device



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## ABSTRACT

The aim of this study was to present the spectrum of radiological findings in patients with intrauterine contraceptive device (IUCD). The study was conducted over a period of 14 months (June 2022–August 2023) in the Department of Radiodiagnosis, M.L.B. College, Jhansi. A prospective study was conducted in the Department of Radiology in MLB Medical College Jhansi in 120 cases with IUCD, referred from various departments. These patients were primarily evaluated on transabdominal and transvaginal sonography (3D, 4D) (ultrasound machine-Medison sono Ace-X8, Vivid T8, and Hitachi Aloka SSDF-31), which is the first-line imaging for the evaluation of IUCD position. Out of 120 cases, in 100 cases, findings were confirmed on USG and the rest cases require further radiological modalities such as X-ray, CT scan, and MRI which were used accordingly the presenting symptoms of the patient and findings of ultrasound. As in one of our case, X-ray pelvis has shown completely inverted IUCD.

**Key words:** Intrauterine devices; Contraceptive devices; Female; Ultrasonography

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## INTRODUCTION

Intrauterine contraceptive device (IUCD) is commonly used form of reversible, long-acting contraceptives worldwide. The contraceptive effects of IUCDs are multifactorial, and they produce chronic inflammatory changes of endometrium and fallopian tubes, have spermicidal effects, inhibit fertilization, and create an inhospitable environment for implantation. Mainly three generations of IUCD are available nowadays. Radiologist and radiological modalities play a pivotal role in identifying accurate position of IUCD and the various complications associated with them.<sup>1-5</sup>

### Aims and objectives

The aim of this study was to present the spectrum of radiological findings in patients with IUCD.

## MATERIALS AND METHODS

The study was conducted over a period of 14 months (June 2022–August 2023) in the Department of Radiodiagnosis, M.L.B. College, Jhansi, in 120 cases with IUCD.

### Inclusion criteria

- Patients present with complaint of acute and chronic pelvic pain, irregular bleeding, missed strings, and other menstrual abnormalities with IUCD *in situ* and those who want IUCD removal.

### Exclusion criteria

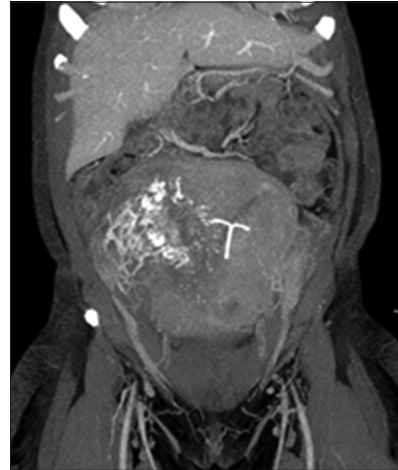
- Asymptomatic patients with IUCD *in situ* were excluded from the study.

### Address for Correspondence:

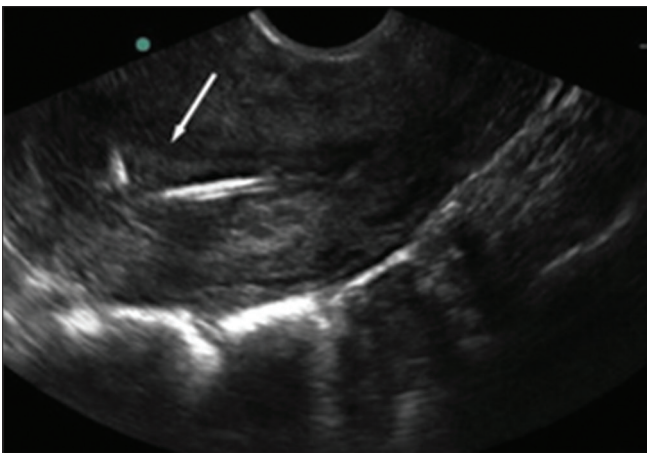
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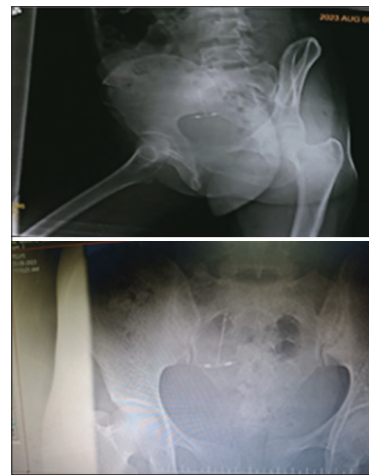
**Figure 1:** Transabdominal sonography showing partially expelled intrauterine contraceptive device



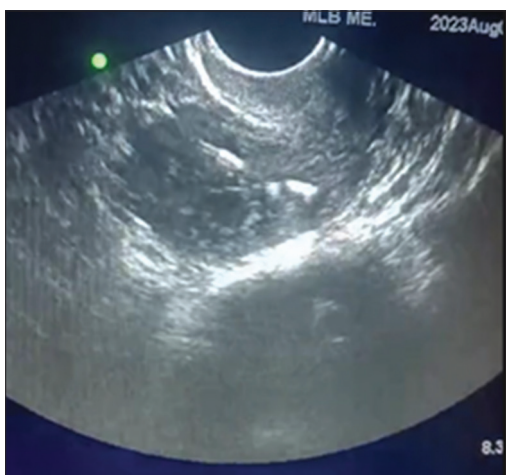
**Figure 4:** CT scan showing embedded intrauterine contraceptive device in postpartum female



**Figure 2:** Transvaginal sonography showing displaced intrauterine contraceptive device



**Figure 5:** Anteroposterior and lateral view pelvis X-ray showing completely inverted embedded intrauterine contraceptive device



**Figure 3:** Transvaginal sonography showing embedded intrauterine contraceptive device

**Table 1: Total cases in study**

Cases	%
Total cases (120)	100
1. Normally placed IUCD (75)	62.5
2. Mal-positioned IUCD (45)	37.5

IUCD: Intrauterine contraceptive device

## RESULTS

A prospective study was conducted in the Department of Radiology in MLB Medical College Jhansi in 120 cases with IUCD, referred from various Departments. These patients were primarily evaluated on transabdominal sonography and transvaginal sonography (3D, 4D) (ultrasound machine-Medison sono Ace-X8, Vivid T8, and Hitachi Aloka SSDF-31), which is the first-line imaging

**Table 2: Epidemiology of malpositioned IUCD**

Mal-positioned IUCD	%
1. Expulsion (15)	12.5
2. Displacement (25)	20.8
3. Perforation (5)	4.2

IUCD: Intrauterine contraceptive device

**Table 3: The total displaced IUCD**

Displaced IUCD (25)	20.8%
Displaced IUCD with pregnancy (5)	4.2%

IUCD: Intrauterine contraceptive device

**Table 4: Demographics report of Expulsed IUCD**

Expulsed IUCD (15)	12.5%
1. Complete expulsion (5)	4.2%
2. Partial expulsion (10)	8.3%

IUCD: Intrauterine contraceptive device

**Table 5: Total perforated IUCD**

Perforated IUCD (5)	4.2%
1. Embedded (5)	4.2%
2. Complete perforation (0)	0.0%

IUCD: Intrauterine contraceptive device

for the evaluation of IUCD position. Out of 120 cases, in 100 cases, findings were confirmed on USG and the rest cases require further radiological modalities such as X-ray, CT scan, and MRI which were used accordingly the presenting symptoms of the patient and findings of ultrasound. As in one of our case, X-ray pelvis has shown completely inverted IUCD.

Table 1 shows Total cases in study 120 in which In normally placed IUCD were 75 (62.5%) and mal-positioned IUCD (45) 37.5%.

Table 2 shows the Epidemiology of malpositioned IUCD Expulsion 15 (12.5%), Displacement 25 (20.8%) and perforation 5 (4.2%).

Table 3 shows the total displaced IUCD In normal female 25 (20.8%) displaced IUCD with pregnancy 5 (4.2%).

Table 4 shows the demographics report of expelled IUCD 15 (12.5%) In which complete expulsion 5 (4.2%) and partial expulsion 10 (8.3%).

Table 5 shows the total perforated IUCD were perforated IUCD 5 (4.2%) in which embedded 5 (4.2%) and complete perforation 0.

In our study transabdominal sonography showing partially expelled intrauterine contraceptive device (Figure 1). Transvaginal sonography showing displaced intrauterine contraceptive device (Figure 2). Transvaginal sonography showing embedded intrauterine contraceptive device (Figure 3). CT scan showing embedded intrauterine contraceptive device in postpartum female (Figure 4). Anteroposterior and lateral view pelvis X-ray showing completely inverted embedded intrauterine contraceptive device (Figure 5).

## DISCUSSION

In our study, we found that the maximum number of mal-positioned IUCD were comes under displaced IUCD f/b expulsion, although in our study, the number of completely perforated IUCD was zero. In the case of perforated IUCD, we have to see and rule out all the complication related to it such as adhesions, abscess, and perforation of bowel.

Ultrasonography is helpful in identifying patients with mal-positioned IUCD.

In cases of perforated IUCD and IUCD associated with complications such as abscess, CT scan has a specific role, in our case, two cases were studied on CT scan.

## CONCLUSION

Radiological investigations play a pivotal role in the identification and management in patients experiencing any symptoms related to IUCD so as to prevent further complications and permit early management.

## ACKNOWLEDGMENT

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**DY, RC-** Definition of intellectual content, literature survey, prepared first draft of manuscript, implementation of study protocol, data collection, data analysis, manuscript preparation and submission of article, concept, design, clinical protocol, editing, and manuscript revision, design of study, statistical analysis and interpretation, review manuscript, literature survey, and coordination.

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