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TALES OF WANDERING INTRAUTERINE DEVICE (IUD) STRINGS AND ITS MANAGEMENT: A CASE SERIES

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Abstract
Introduction: Intrauterine devices (IUDs) are effective contraceptive methods with a pregnancy prevention rate of 99%. Although generally safe, complications such as perforation and migration can occur, leading to significant morbidity if not addressed promptly. This case series aims to discuss the clinical presentations and management strategies for patients with missing IUD strings.
Methods: This study examined 10 cases of missing IUD strings presented at RL Jalappa Hospital between January 2022 and December 2023. Data was collected retrospectively, focusing on patient demographics, clinical symptoms, diagnostic findings, and management strategies. Diagnostic modalities included ultrasound and X-rays, while management varied from conservative approaches to surgical interventions based on the extent of IUD migration or perforation.
Results: Out of the 10 cases, 8 involved copper-T IUDs, and 1 case involved a levonorgestrel-releasing IUD (Mirena). Five cases with copper-T IUDs presented with perforation, requiring exploratory laparotomy and surgical removal. Two cases were managed conservatively with IUD removal through artery forceps under ultrasound guidance. One patient with a Mirena IUD required a total abdominal hysterectomy due to severe uterine bleeding and fibroid displacement. One patient with an extrauterine copper-T did not return for planned laparoscopic removal. Most patients experienced uneventful postoperative recoveries, with one patient lost to follow-up.
Discussion: The case series highlights the variable clinical presentations of missing IUD strings, ranging from mild discomfort to severe complications like bowel perforation. Timely diagnosis using ultrasound and appropriate intervention are critical for preventing further complications. Surgical removal was often necessary in cases of migration and perforation, while conservative methods were sufficient in cases without perforation. This underscores the need for individualized management.
Conclusion: Missing IUD strings can indicate migration or perforation, leading to potentially serious complications. Prompt recognition, appropriate imaging, and individualized treatment strategies are crucial for ensuring optimal outcomes. Patient education on IUD follow-up and vigilance in monitoring symptoms are essential to minimizing risks.
Keyword: intrauterine device, IUD migration, IUD perforation, missing IUD strings, copper-T, levonorgestrel IUD, exploratory laparotomy, hysterectomy, contraceptive complications

INTRODUCTION

Intrauterine devices (IUDs) are highly effective and commonly used contraceptives, with a pregnancy prevention rate of up to 99% [1]. While generally safe, IUDs may occasionally lead to complications such as perforation and migration, necessitating prompt management to prevent organ damage [2-5]. Herein, we present a case series detailing the clinical presentations and management strategies for patients with missing IUD strings.

Case Series:

Case 1: A 27years old P2L2A1 with last childbirth 4years back with history of IUCD (copper T) insertion 2years back presented to RL Jalappa hospital with complaints of pain abdomen and missing IUCD strings since 1week. On examination vitals were stable.Per abdomen examination right iliac fossa tenderness present. IUCD strings were not found through os on speculum examination. Cervical motion tenderness present with right forniceal fullness on vaginal examination.On ultrasound Copper-T was found to be in peritoneal cavity. Exploratory laparotomy was performed and Copper-T was found to be adherent to omentum with granulation tissue and pus formation around it. Healed perforated site was noted on uterine cavity. Copper-T along with omentum.Postoperative period was uneventful and was discharged.

Case 2: A 24years old P4L2D2 with last child birth 1 and ½ months back with history of copper T insertion 5days following vaginal delivery presented to RL jalappa hospital with complaints of pain abdomen and vomiting since 2days. On examination she had tachycardic and hypotensive. Gaurding and rigidity was present, diffuse tenderness present all over the abdomen on abdominal examination. IUCD strings was not seen through os on speculum examination. Ultrasound showed IUCD visualised outside the uterine cavity in the right adnexa, likely

piercing the adjacent bowel loops. Exploratory laparotomy was performed and copper-t was found to be perforated distal jejunum, perforation was seen near right cornu of uterus with gross hemoperitoneum with fecal matter. Copper-T was removed from the bowel and perforated site was repaired. Postoperative period was uneventful and was discharged.

Case 3: A 34years old P2L2 with last child birth with 5 and ½years back with history of IUC (copper-t) insertion 2years back presented to RL Jalappa hospital with complaints of lower abdominal pain and missing IUCD (copper-t) strings since 1month.On examination vitals were stable. Copper-T thread was not seen through os on per speculum examination. Ultrasound showed copper-t noted within endometrial cavity and seem piercing the fundal myometrium and extending outside the uterus. Pelvic x-ray showed T-shaped radio opaque structure noted within pelvic inlet. Exploratory laparotomy was performed and copper-t was identified which was adherent to posterior cornual end of the uterus and bowel adhesion released and copper-t was removed. She withstood procedure well and was discharged.

Case 4: A 28years old P1L1 with last child birth 4years back with history of interval IUCD (copper-t) insertion presented to RL Jalappa hospital with complaints severe pain abdomen, fever and burning micturition since 5days. On examination patient was febrile, tachycardic. Diffuse tenderness present all over abdomen on abdominal examination. Pervaginal examination right forniceal fullness present. IUCD that had moved to the right adnexa next to the right ovary, septations seen in the right adnexa, and 65 cm complicated lesions with internal echoes were all visible on the ultrasound. The IUCD was visible on an X-ray in the lower right pelvic area. Exploratory laporatomy was performed and moderate adhesions was present between right adnexa and the bowel, adhesions was released.55cm right ovarian complex cyst was present and IUCD was found completely embedded the right adnexa, Right oophorectomy was done along with removal of IUCD. Postoperative period was uneventful and was discharged.

Case 5: A 30years old P1L1A1 with last childbirth 3years back with history of IUCD (copper-t) insertion 2years back presented to RL Jalappa hospital with abdominal discomfort. On examination vitals were stable. There was pain in the lower abdomen during the abdominal exam. The IUCD threads were not evident during speculum examination. Cervical motion discomfort was found during a bimanual examination. IUCD was seen to be puncturing through the uterine serosa on an ultrasound. A pelvic x-ray revealed a coil in the pelvis. During an exploratory laparotomy, coil threads were observed in the Douglas pouch, and the IUCD was inserted through the sigmoid colon into the lumen. IUCD was removed, and the sigmoid colon deformity was fixed. After a trouble-free postoperative stay, the patient was released.

Case 6: A 30years old P1L1A1 with last child birth 2years back came with history of IUC(copper-t) insertion 6months back presented to RL Jalappa hospital with complaints of pain abdomen and vomiting. She also gave history of missing IUCD threads since 1week.On examination vitals were stable. Right iliac fossa tenderness was present on abdominal examination. Speculum examination IUCD threads were not visible. Bimanual examination was normal. Ultrasound showed presence of IUCD(Copper-t) within the uterine cavity, appendicular perforation with ilitis and colitis. Exploratory laparotomy was performed and appendicectomy, IUCD removal was done pervaginally by dilatation and evacuation. Postoperative period was uneventful and patient was discharged.

Case 7: A 36years old P2L2 with last child birth 6years back with history of IUCD (copper-t) insertion post-delivery presented to RL Jalappa hospital with complaints of missing IUCD strings. On examination vitals were stable. IUCD strings were not seen through os on speculum examination. Ultrasound showed coiling of IUCD strings within the endometrium. Copper-t was removed through artery forceps by giving traction to thread on opd basis.

Case 8: A 28years old P1L1 with last child birth 2years back with history of postpartum IUCD (copper-t) insertion presented to RL Jalappa hospital with complaints of missing IUCD strings since 10days.On examination vitals were stable. Speculum examination IUCD threads were not seen. Bimanual examination was normal. Ultrasound showed IUCD (copper-t) embedded within the endometrium without any perforation. On opd settings by USG guidance, IUCD removal was done by artery forceps.

Case 9: A 36years old P2L2A1 with last child birth 10years back with history of Mirena insertion 6months back presented to RL Jalappa hospital with complaints of heavy menstrual bleeding and missing LNG-IUS strings. On examination vitals were stable. On abdominal examination, no tenderness noted. On speculum examination LNG-IUS strings not seen through os, cervical erosions present. On bimanual examination uterus was bulky and right forniceal fullness present. Ultrasound showed large intramural IUD noted and seen displaced superiorly by intramural fibroid in posterior myometrium. Total abdominal hysterectomy was done in view of failed medical management for heave menstrual bleeding, and posterior intramural fibroid was noted, IUD was found embedded into myometrium. Patient underwent procedure well and was discharged.

Case 10: A 28years old P2L1A1 with last child birth 2years back with h/o IUCD insertion post-delivery presented to RL Jalappa hospital with c/o missing IUCD threads and pain abdomen since 15days. Ultrasound showed copper-t noted to be entirely extrauterine due to perforation, in the region of right adnexa. She was planned for laproscopic removal, but she failed to present for surgery.

Table 1: Case Details and Management of Intrauterine Device (IUD) Migration: A Case Series.

Case	Patient Details	Presentation	Diagnostic Findings	Management	Outcome
1	27-year-old, P2L2A1	Pain abdomen, missing IUD strings	Ultrasound: Copper-T in peritoneal cavity	Exploratory laparotomy, resection of affected tissue	Postoperative recovery, discharged
2	24-year-old, P4L2D2	Abdominal pain, vomiting	Ultrasound: Copper-T piercing bowel loops	Laparotomy, bowel repair, IUD removal	Postoperative recovery, discharged

Case	Patient Details	Presentation	Diagnostic Findings	Management	Outcome
3	34-year-old, P2L2	Lower abdominal pain	Ultrasound: Copper-T penetrating fundal myometrium	Laparotomy, IUD removal	Postoperative recovery, discharged
4	28-year-old, P1L1	Severe abdominal pain, fever	Ultrasound: IUD embedded in right adnexa	Laparotomy, oophorectomy, IUD removal	Postoperative recovery, discharged
5	30-year-old, P1L1A1	Abdominal discomfort	Ultrasound: IUCD in sigmoid colon	Laparotomy, sigmoid colon repair, IUD removal	Postoperative recovery, discharged
6	30-year-old, P1L1A1	Pain abdomen, vomiting	Ultrasound: IUCD in uterine cavity, appendicular perforation	Appendicectomy, IUD removal	Postoperative recovery, discharged
7	36-year-old, P2L2	Missing IUD strings	Ultrasound: Coiling of IUCD strings in endometrium	Ultrasound-guided IUD removal	Successful IUD removal
8	28-year-old, P1L1	Missing IUD strings	Ultrasound: Copper-T embedded in endometrium	Ultrasound-guided IUD removal	Successful IUD removal
9	36-year-old, P2L2A1	Heavy menstrual bleeding	Ultrasound: Intramural IUD displaced by fibroid	Total abdominal hysterectomy, IUD removal	Postoperative recovery, discharged
10	28-year-old, P2L1A1	Abdominal pain, missing IUD strings	Planned laparoscopy	-	Patient lost to follow-up

DISCUSSION

The presented cases underscore the importance of vigilant monitoring and prompt management of patients with missing IUD strings. While uncommon, IUD migration and perforation can lead to serious complications, necessitating surgical intervention.

The present study identified 10 cases of missing IUCD strings over a period of January 2022 to December 2023. Among these cases, the majority (8 out of 10) involved copper-T IUDs, while 1 patient had a levonorgestrel IUD. This distribution aligns with the prevalence of these types of IUDs commonly used in clinical practice.

Of the 8 patients with copper-T IUDs, 5 presented with perforation either of the uterus or intestine. This underscores the importance of prompt recognition and intervention in cases of missing IUCD threads, as perforation can lead to serious complications such as organ damage and infection [6]. Surgical intervention, particularly exploratory laparotomy, was necessary in these cases to remove the migrated IUCDs and address any associated complications [7].

In contrast, 2 patients with copper-T IUDs had the device removed by artery forceps as their strings were coiling within the endometrium without evidence of perforation. This highlights the variability in clinical presentation and the need for individualized management based on the specific circumstances of each case [8].

Furthermore, one patient with a levonorgestrel IUD underwent total abdominal hysterectomy due to failed medical management of heavy menstrual bleeding and for removal of the embedded IUCD. This emphasizes the importance of considering alternative management strategies, such as surgical removal, in cases where conservative measures are ineffective or contraindicated [9-10].

Our findings corroborate existing literature on the clinical consequences of missing IUCD threads and underscore the importance of thorough evaluation and appropriate management. The recommendations outlined in the Faculty of Sexual and Reproductive Healthcare (FSRH) Clinical Guidance for IUCDs provide valuable guidance for clinicians in the assessment and management of these cases.

CONCLUSION

IUD migration and perforation are rare but potentially serious complications that require timely recognition and management. A high index of suspicion, coupled with thorough clinical evaluation and appropriate imaging, is essential for optimal patient outcomes. Continued vigilance and patient education are paramount in minimizing the risk of IUD-related complications and ensuring safe contraceptive practices.

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