

# Urological Complications and Management of Migrated/Dislocated Intravesical Copper-T

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## ABSTRACT

**Aim:** To diagnose and to find a management strategy for urological complications of Copper-T.

**Method:** It was a descriptive study conducted from May 2016 to May 2020 in Jinnah Hospital and KEMU/Mayo Hospital Lahore. The study was conducted in collaboration with Gynea/Obs department of both hospitals. Ethical issues and written informed consent were taken into account. Diagnosis was made on the basis of history, abdominal and PV examination, routine lab tests, urine culture and sensitivity, ultrasound KUB, X-ray KUB, CT-/MRI KUB, Transvaginal Ultrasonography, hysterosylphingography and cystoscopy. All relevant data was recorded.

**Results:** 7 cases of migrated Copper-T into the urinary bladder were diagnosed and included in the study. Age range was 21-38 years. In all cases IUCD was copper-T, as it is most commonly used in Pakistan. 1/7 (14.2%) cases was from Mayo Hospital, rest of 6/7 (85.7%) cases were from peripheral hospitals. In-Situ duration of copper-T was 1-8 years. In 2/7 (28.5%), no stone or encrustation was found. In 5/7 (71.4%) cases, encrustation or stone formation was found on copper-T. In 5/7 (71.4%) cases Copper-T was removed endoscopically. In 2/7 (28.5%) Copper-T was in embedded in bladder wall and the size of the stone formed over it was large so open cystostomy was needed to remove the stone and the Copper-T. History of previous C-Section found in 6/7 (85.7%) cases. In only 1/7 (14.2%) cases, we found history of occasional episodes of urinary incontinence.

**Conclusion:** Copper-T insertion is still most popular cost effective with least complications mechanical method of reversible contraception worldwide. Penetration into the urinary bladder is rare, but is there. Woman who have undergone Copper-T insertion with previous history of C-Section are more prone to get their Copper-T migrated into the urinary bladder, so a careful follow up is needed in such cases. High index of suspicion is needed in diagnosis of such cases. Cystoscopic retrieval is safe, effective and minimal invasive approach is the main stay of treatment to manage a migrated Copper-T. However removal by open cystostomy can be adopted in more complicated cases.

**Keywords:** Copper-T, IUD, Uterine Perforation, Litholapaxy, Endoscopic Retrieval, Cystostomy.

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## INTRODUCTION

Intrauterine devices (IUD) are popular and cost effective methods of reversible mechanical contraception used world wide<sup>1</sup>. IUD have low complication rate<sup>2</sup>. Copper-T is the most commonly used IUD, other IUD's are Dalkon Shield and Lippes Loop. About 150 million woman use IUD's mainly in developing countries<sup>3</sup>. IUD insertion, although safe, is not free from complication. Perforation is most serious but a rare complication of Copper-T. After perforation Copper-T moves from its normal position in fundus of the uterus to abdominal cavity or into the organ adjacent to the uterus. Perforation incidence is between 1.9 to 3.6/ 1000 insertions<sup>4</sup>. However true incidence of perforation might be higher due to asymptomatic nature of perforation. About 30% of perforation are found when there is pregnancy<sup>5</sup>. The exact mechanism of uterine perforation and IUD's migration are not clear<sup>6</sup>. The migrated IUD/Copper-T can cause complications like VVF, Bowel Perforation, hematuria, hydronephrosis and even

deterioration of renal function<sup>7</sup>. However the factors which increase the changes of uterine perforation following IUD insertion, are multiparous female, previous C-Section scar, unusual position of the uterus, recent pregnancy and insertion by unexperienced health care provider<sup>8</sup>. Migration of the IUD's/ Copper-T to urinary bladder with secondary stone formation is yet more rare<sup>9</sup>. The incidence of bladder perforation following IUD insertion is less than 5/1000 insertions<sup>10</sup>. Bladder stones are uncommon in females, and that accounts for about 5%<sup>11</sup>. Therefore foreign bodies should be considered when assessing the female with bladder stones. IUD's can act as lithogenic foreign body to act as a nidus for stone formation<sup>12</sup>. In fact vesical stone in female who had history of IUD insertion should make suspicion of migration. The patient with migrated IUD or Copper-T to urinary bladder can cause irritative symptoms, recurrent UTI, Pelvic pain, hematuria, secondary bladder stones and even dyspareunia<sup>13</sup>. A missing string of copper-T at PV examination is an indication of displacement, urine perforation or expulsion. The string should protrude 2 to 3 cm through the External Cervical Os. According to WHO recommendation, any translocated IUD following uterine perforation within the abdomen should be

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removed weather symptomatic or asymptomatic irrespective of location<sup>14</sup>. An IUD that has been migrated to the bladder causing urinary symptoms or stone formation makes its removal necessary.

## MATERIAL AND METHODS

It was a descriptive study conducted in collaboration with Department of Gynae/Obs from May 2016 to May 2020 in Jinnah Hospital and KEMU/Mayo Hospital Lahore. Ethical issues were taken into account and informed written consent was taken. All relevant data was recorded. Diagnosis was made on the basis of history, abdominal/PV examination, routine lab tests, urine culture and sensitivity, Ultrasound KUB and pelvis, X-ray KUB, CT-and MRI KUB, transvaginal usg, hysterosylphengography and cystoscopy. Except one case, all cases were referred from Gynae/Obs department. All these cases which were included in the study had ungergone insertion of Copper-T.

## RESULTS

In 4 years we diagnosed 7 cases of migrated copper-T into the urinary bladder. Age range was 21-38 years. In all cases IUD used was copper-T as it is cheap and easily available and commonly used. All females were multiparous.

Table 1: Presenting symptoms of migrated Copper-T (n=7)

Presenting Symptoms	n	%age
Frequency of maturation	7	100
Dysuria	5	71.4
Repeated attacks of UTI	5	71.4
Interrupted urinary stream	3	42.8
Terminal Hematuria	5	71.4
Exercise Induced Hematuria	1	14.2
Episode of Urinary incontinence	1	14.2
Dyspareunia	1	14.2

Table 2: Showing the duration of In-situ Copper-T n=7

Duration of Copper-T	No. of cases
8 years	3
5 years	2
1.5 years	1
1 year	1

Table.3: Complications associated with perforated Copper-T into the urinary bladder (n=7)

Complications	n	%age
Stone/encrustation	5	71.4
Terminal Hematuria	5	71.4
Repeated attacks of UTI	5	71.4
Episodes of incontinence	1	14.2
Dyspareunia	1	14.2
Exercise induced hematuria	1	14.2

In 1/7 (14.2%) case was from mayo hospital, rest of 6/7 (85.7%) cases were from peripheral hospitals. In-Situ duration of copper-T was 1-8 years. In 2/7 (28.5%) no encrustation or stone formation seen on copper-T. In 5/7 (71.4%) encrustation or stone formation was found on copper-T. In 5/7 (71.4%) cases Copper-T was removed endoscopically uneventfully. In 2/7 (28.5%) cases the Copper-T was embedded in the bladder wall and

associated with large secondary bladder stone which needed open cystostomy for retrieval.

In 6/7 (85.7%) cases history of previous C-Section was found. In only 1/7 (14.2%) case, we found occasional episode of urinary incontinence. In 1/7 (14.2%) case we found history of exercise induced hematuria. 1/7 (14.2%) we found history of dyspareunia. Actual incidence might be high as high as in our social setup it is difficult to elicit history of dyspareunia. Table.1 shows symptoms of migrated copper-T to the urinary bladder, frequency of mitoration, dysuria, repeated attacks of UTI and terminal hematuria were the most common presenting symptoms. Table.2 shows In-Situ duration of copper-T. Minimum was 1 year and maximum was 8 years. Table.3 shows complications associated with intravesical migrated Copper-T. Encrustation/Stone formation, terminal hematuria, repeated attacks of UTI were the most common complication in our study.

## DISCUSSION

Intrauterine device is cheap, regular, popular and most commonly used method of reversible mechanical contraception especially in developing countries like Pakistan. Copper-T migrating to the urinary bladder is an uncommon complication but must be kept in mind when a female patient complains of chronic lower urinary tract symptoms<sup>15</sup>. Intravesical migration of IUD is not a new phenomena, it has been reported in many studies<sup>16</sup>. Sometimes we need a high index of suspicion in diagnosis of such cases. The exact mechanism of migration is unknown but history of previous C-section, multiparous woman with history of Copper-T insertion, repeated attacks of UTI, terminal hematuria and missing string on PV examination raise the suspicion of migrated Copper-T. Keeping in the view the potential severe complication of intravesical migrated of Copper-T, it is important to confirm the proper place of the device in the uterine cavity as soon as possible after its insertion<sup>17</sup>. It is therefore recommended to palpate the string regularly and immediate ultrasonography to affirm the correct position in mandatory<sup>18</sup>. Such cases are commonly referred from Gynecological department to the urology as the urinary sign and symptoms do not relieve. Even exercise induced hematuria has been found as the only presenting symptom in intravesical migrated Copper-T. However it should be a diagnosis of exclusion after ruling out other causes of hematuria. According to one report pregnancy helps in erosion of uterine wall by IUD and favour penetration<sup>19</sup>. In our study we found 1/7 cases with history of exercise induced hematuria. Incidence of uterine perforation during insertion is from 0-1.6/10,000 cases<sup>20</sup>. Exact mechanism of uterine perforation is not clear however proposed mechanism indicates that bleeding at the time of insertion should be considered a warning sign. Second proposed mechanism of uterine perforation is gradual pressure necrosis of uterine wall by IUD. Migration and perforation may or may not be facilitated by uterine contraction<sup>21</sup>. 80% of uterine perforation are free in peritoneal or pelvic cavity, however IUD may migrate into adjacent organs leading to bowel obstruction, peritoneal perforation, appendicitis, vesical calculus formation, obstructive nephropathy, fistulus

communication, menouria, intraperitoneal adhesion leading to infertility<sup>22</sup>. Even the dyspareunia can be the only presenting symptoms. Gradual dyspareunia in a woman with a Copper-T can raise the suspicion of intra-vesical migrated Copper-T<sup>23</sup>. In our study we found 1/7 case who gave history of dyspareunia. Endoscopic extraction is main stay of treatment. It is accompanied with litholapaxy. In our study we removed Copper-T endoscopically uneventfully in 5/7 cases. Open surgery is needed in complicated cases only. In our study we had to open the bladder in 2/7 cases as the Copper-T was embedded in bladder wall and associated with secondary large bladder stone.

## CONCLUSION

Copper-T insertion is still most commonly used mechanical method of reversible contraception. Its intra-vesical migration is rare but it is there and a high index of suspicion is needed in diagnosis. Precaution must be observed during the insertion and a regular follow-up must be maintained especially in a woman who has undergone previous C-Section and insertion should be by an experienced person. Secondary bladder stone in females needs detailed investigations. Endoscopic retrieval is the mainstay of the management however removal by open cystostomy can be adopted in more complicated cases.

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