Case Report

Migration of intrauterine device into the pelvic cavity: exploration strategy and management in African environment

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INTRODUCTION

IUD insertion is a simple medical procedure, but not without any risk. Migration after uterine perforation is one of the most uncommon complications regarding application of IUD.4 The management requires a rigorous approach based largely on medical imaging. MRI is currently the best way to locate the IUD; yet, in areas where this examination is not available, hysterography remains competitive as far as guiding the removal of IUDs safely is concerned.3 We hereby convey our experience in the management of uterine perforation and IUD migration in African environment.

CASE REPORT

The average age of patients was 34.6 years with a mean rate of 4. Three patients out of five were in a period of late postpartum, more than 3 months before delivery. The IUD was inserted by qualified staff in all cases (2 gynecologists and 3 midwives).

Figure 1: Uterine perforation by the copper IUD; (A) Hysterography (anterior/posterior) views showing the copper IUD outside the uterine cavity; (B) Laparoscopy outlining the IUD puncturing the uterine isthmus and through the pouch of Douglas.

All patients felt an unusual pain at the time they were fitted with the 380-TCu A. This pelvic pain persisted in...
one patient only, while another showed amenorrhea revealing pregnancy of 8 weeks. The diagnosis was made by ultrasound with the IUD located outside the uterine cavity. In 4 cases, we performed hysteroscopy (front and profile views) to better visualize the IUD (Figure 1-3).

Figure 2: Perforation - migration of the copper IUD; (2A, B); hysterography (anterior / posterior) and profile views showing the two horizontal arms of the copper IUD outside the uterine cavity (arrow), specifically behind the uterus; (2C, D); Laparoscopy outlining the inflammatory adhesion of the sigmoid colon to the posterior wall of the uterus; adhesiolysis helped reach the IUD by inserting a vertical arm into the myometrium.

Figure 3: Perforation - migration of the copper IUD; (A, B); Hysterography (anterior/posterior and profile) views. The copper IUD is right and rear of the uterus; it is also tilted; (C); Laparoscopy facilitate removal of the IUD seating between the right fallopian tube and the posterior part of the ipsilateral broad ligament.

The injection of iodinated contrast agent was limited to the uterine cavity. The latter showed IUD outside the cavity, front or back of the uterus. The IUD removal was performed by laparoscopy; exploration showed a mild inflammatory change located around the IUD; the adnexa of uterus, small intestine nearby and mesenteries were involved. No hemostasis action was taken after removal of the IUD.

DISCUSSION

The IUD is a long-term, reversible, effective and safe method of contraception. Used by about 100 million women, it is now the most widespread reversible contraceptive method in the world. In Senegal, the IUD represents 4.1% of all modern contraceptive methods in use; nurses and midwives are legally entitled, after special training, to insert IUDs and perform check-ups. 

Uterine perforation after IUD insertion is a rare accident; its incidence varies in the literature, 0.1 to 3/1000.3-7 The perforation can occur in two ways: immediately during insertion, following a technical failure of installation. It may be secondary to a partial myometrial perforation during installation. Intramyometrial migration begins with embedment of the IUD into the myometrium; inflammatory phenomena and uterine contractions will allow the IUD to continue its migration. This inflammatory reaction leads to a significant accumulation of enzymes and of lytic/lysosomal substances causing endometrial destruction and secondary migration of the IUD under the action of uterine contractions.7

Certain factors predispose to this migration: weakening of the myometrium by multiple pregnancies and cesarean scars; abnormal position, or size of the uterus; breastfeeding probably due to excessive uterine involution and endometrial atrophy as the consequence of lactation-induced hypoestrinism.10 This was observed in four of the patients (80%). Topographically, IUDs generally migrate into the peritoneal cavity (omentum, broad ligament, retropubic space), more rarely within an organ (ovary, proboscis, rectum, sigmoid colon, appendix, bladder), or exceptionally intravascular (stenosis of the iliac vein), sometimes in the subcutaneous fat.8

In case of ectopic IUD, pelvic examination is often not very successful. The symptoms can be reduced to the immediate pain caused by improper insertion of the device revealing iatrogenic perforation.4 Very often, uterine perforation by the IUD remains asymptomatic; the diagnosis is suspected in the absence of visualization of the retrieval strings at vagina level.8 Sometimes the puncturing is only detected at the stage of complications such as pelvic abscess, organ perforation like the bladder or digestive segment.2,6 Death as the result of digestive complication has been reported in the literature.8

The clinical diagnosis is not always easy, additional explorations are required to locate the intrauterine device. Pelvic ultrasound by transabdominal and transvaginal route is the first line examination in the event of doubt.5
This confirms the uterine migration by objectifying the uterine vacuity. This also contributes to highlighting a partial puncturing of the uterine wall by one of the IUD arms. Sonography can determine the exact position of ectopic IUD (intra-bladder, lateral or retro-uterine).\(^8\)

If there is good visibility, IUDs will appear, according to the view, as a linear structure (sagittal plane) or strongly hyperechoic or two orthogonal arms (axial plane).\(^8\) However, the limits of ultrasound scanning often cannot objectify the IUD when the device is in an intraperitoneal position. Hysteroscopy is the second-line examination when the IUD cannot be located intrauterinally by ultrasound.\(^5\) It will be performed under non-pregnancy state. In addition to having a wider field of vision than with ultrasound scanning, ingestion of iodinated contrast product followed by anterior/posterior and profile views gives a precise location of the IUD.

Yet, hysteroscopy cannot help confirm the intramyometrial location or any organ of the pelvic cavity internally. This is why we always combine hysteroscopy and ultrasound in the management strategy of this accident. CT scan and MRI have not been suggested in the case of our patients for reasons of cost and accessibility.

### Table 1: General characteristics of patients with migration of intrauterine device (IUD) into the pelvic cavity.

<table>
<thead>
<tr>
<th></th>
<th>Case 1</th>
<th>Case 2</th>
<th>Case 3</th>
<th>Case 4</th>
<th>Case 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>28</td>
<td>35</td>
<td>38</td>
<td>37</td>
<td>39</td>
</tr>
<tr>
<td>Parity</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Type of IUD</td>
<td>TCu 380 A</td>
<td>TCu 380 A</td>
<td>TCu 380 A</td>
<td>TCu 380 A</td>
<td>TCu 380 A</td>
</tr>
<tr>
<td>Antecedents</td>
<td>Postpartum (5 months)</td>
<td>Caesarean</td>
<td>Postpartum (11 months)</td>
<td>Postpartum (3 months)</td>
<td>any</td>
</tr>
<tr>
<td>Circumstances of discovered</td>
<td>Pelvic pain</td>
<td>Pregnancy 14 weeks</td>
<td>Fil not felt</td>
<td>Any</td>
<td>Metrorrhagia</td>
</tr>
<tr>
<td>Ultrasound</td>
<td>IUD retro-uterine position</td>
<td>IUD unseen</td>
<td>IUD IN pouch of Douglas</td>
<td>IUD retro-uterine position</td>
<td>IUD unseen</td>
</tr>
<tr>
<td>Hysteroscopy</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Delay between insertion of the IUD and diagnosis</td>
<td>1 week</td>
<td>3 months</td>
<td>15 days</td>
<td>4 months</td>
<td>5 months</td>
</tr>
<tr>
<td>Therapeutic measures</td>
<td>Laparoscopy</td>
<td>Laparoscopy</td>
<td>Laparoscopy</td>
<td>Laparoscopy</td>
<td>Laparoscopy</td>
</tr>
<tr>
<td>Location IUD</td>
<td>Pouch of Douglas</td>
<td>Between ovarian and pelvic left wall</td>
<td>Pouch of Douglas</td>
<td>Retro-uterine</td>
<td>Between the ovary and broad ligament</td>
</tr>
<tr>
<td>Adhesions</td>
<td>any</td>
<td>Between left ovary and pelvic wall</td>
<td>Between sigmoid colon and uterus</td>
<td>Between sigmoid colon and uterus</td>
<td>Between the ovary and broad ligament</td>
</tr>
<tr>
<td>Complementary Care</td>
<td>Any</td>
<td>Any</td>
<td>Cleaning</td>
<td>Cleaning</td>
<td>Tubal sterilisation</td>
</tr>
</tbody>
</table>

The World Health Organization and the International Planned Parenthood Federation recommend removing the IUD once the diagnosis is made because intra-abdominal IUD can cause the formation of adhesions, chronic pelvic pain, bowel obstruction or even secondary migration into a hollow organ.\(^5,9,11\) The removal of the IUD by laparoscopy has the advantage of being less invasive and more convenient than laparotomy. This should be provided in case of laparoscopy failure or digestive or vesicouterine complications.\(^2\)

**CONCLUSION**

Uterine perforation by the copper IUD is not an exceptional occurrence in our regions. In the absence of CT scan or MRI, ultrasound-hysteroscopy combination seems to be a good way of locating the IUD that must be part and parcel of the management strategy. Prevention requires compliance with the rules and techniques of IUD insertion.

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