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Case report

The Management of a patient with a fragmented intrauterine device embedded within the cervical canal

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ABSTRACT

A 28-year-old woman presented with a malpositioned intrauterine device (IUD) that was fragmented and significantly entrenched within the cervical canal and myometrium. IUD malposition with concomitant device fragmentation and embedded segments, albeit rare, should be a consideration given the device's prevalence.

1. Background

Long-acting reversible contraceptive options comprise the intrauterine device (IUD) and hormonal implant [1]. Since IUD usage has increased over the past decade in the United States, rarer complications (e.g., uterine perforation, malposition) will presumably be identified [1–4].

Malposition has been reportedly identified in 10.4% of ultrasound scans involving women with an IUD [3] although in the absence of an extensive case series involving sonography for all patients with an IUD, the overall prevalence remains indeterminate. Studies have reported on malpositioned IUDs wherein the device was adjacent to or embedded in the lower uterine segment or upper cervix [5] but rarely within the cervical canal or with significant fragmentation [6–8].

2. Case

A 28-year-old (Gravida 1, Para 0, TAB 1) woman presented to our gynecology service with pelvic pain and menorrhagia in September 2017. Her medical history was significant for having a CuT380A IUD insertion (ParaGard®, currently CooperSurgical, Trumball, CT), 2 years previously at an outside physician's office.

The patient requested IUD removal; attempts to remove the IUD in the office by pulling on the threads were unsuccessful. Despite traction, the IUD was immobile; the cervix appeared to descend with traction on the threads. An ultrasound examination revealed that the IUD was primarily located within the cervix and that the two arms were embedded in the myometrium, at the level of the utero-cervical junction. The body of the IUD was located completely within the cervical canal. Moreover, an ultrasound evaluation indicated that the string and possibly tip of the IUD were not contiguous with the rest of the device.

Hysteroscopy revealed that the arms of the IUD were located at the level of the uterocervical junction (Fig. 1). Only 2 mm of each arm were visible as the rest was deeply entrenched in the myometrium; this signified that traction on the IUD would be unsuccessful in releasing it. Instead, a grasper was utilized to extract each arm by pushing it superiorly toward the uterine fundus. Once the arms were released, the body of the IUD was grasped and pulled down through the cervical canal. However, the tip of the IUD remained embedded within the endocervical canal, resulting in the rest of the IUD protruding into the vagina from the cervical os.

The hysteroscope was reinserted into the cervical canal, confirming that the distal portion of the body of the IUD was entrenched approximately 5 mm from the external os (Fig. 2). The fragment was bent at a 45° angle which created a “fish-hook” effect; traction on the IUD only further embedded the tip. The cervical stroma was also more dense and fibrous than the myometrium, which significantly complicated the release of the embedded portion of the IUD.

The grasper and polyp forceps were continually employed; ultimately, the tip was loosened from the surrounding fibrous tissue, thereby facilitating the extrication of the distal part of the IUD leg. However, further inspection revealed that the round tip of the IUD and string were detached from the rest of the IUD. Hysteroscopy indicated that the remaining round tip of the IUD and string from the IUD were also

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Fig. 1. Hysteroscopic image depicting the copper body of the IUD is in the endocervical canal and the two arms are almost completely embedded in the utero-cervical junction.

entrenched in the cervical stroma, but at a separate location from where the distal part of the IUD leg had been embedded. Ultimately, a tonsil and polyp forceps were utilized to successfully extract the final piece of the IUD and string.

A comprehensive inspection confirmed that all pieces of the CuT380A IUD were entirely removed (Fig. 3). A final hysteroscopic evaluation revealed a normal uterine fundus and tubal ostia. There were no intra-operative complications and the patient reported immediate relief from the pelvic discomfort she had been experiencing since the initial placement of her IUD.

3. Discussion

Malpositioned IUDs have been reported in the lower uterine segment and cervix [5, 9, 10] and albeit rarely, extra-uterine (the intestinal tract and urinary bladder) infiltration has also been described [11]. However, a fragmented IUD embedded within the cervical canal and myometrium is an extremely unusual event. In the present case, the body of the CuT380A IUD was located completely within the cervical canal and the string and possibly tip of the IUD were not contiguous with the rest of the device. The IUD was fractured prior to the device's removal; nevertheless, we do not exclude the possibility that additional fragmentation may have occurred during the extraction procedure.

When reviewing the literature, we were only able to identify a few case reports describing a broken IUD [6–8]. Wiebe [6] described an asymptomatic patient who had a fractured but well positioned Flexi-T copper IUD that was initially inserted 5 years previously. Additionally, the Society of Family Planning commented on 13 copper IUD fracture cases of which they were made aware via personal correspondence [8]. They indicated that in the aforesaid occurrences, a missing arm was primarily identified in the lower uterine segment or cervix.

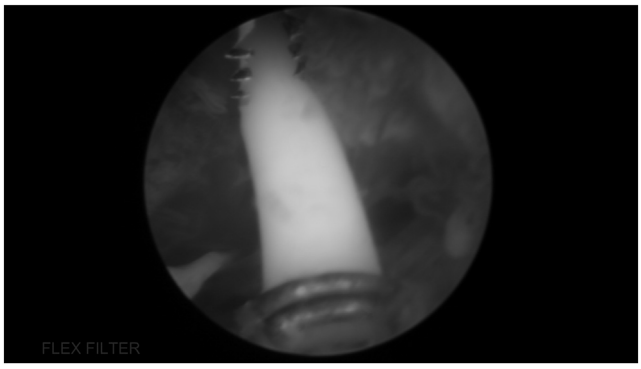

Fig. 2. Hysteroscopic image displaying the distal portion of the IUD embedded in the endocervical stroma and the grasper attempting to remove the segments or pieces.

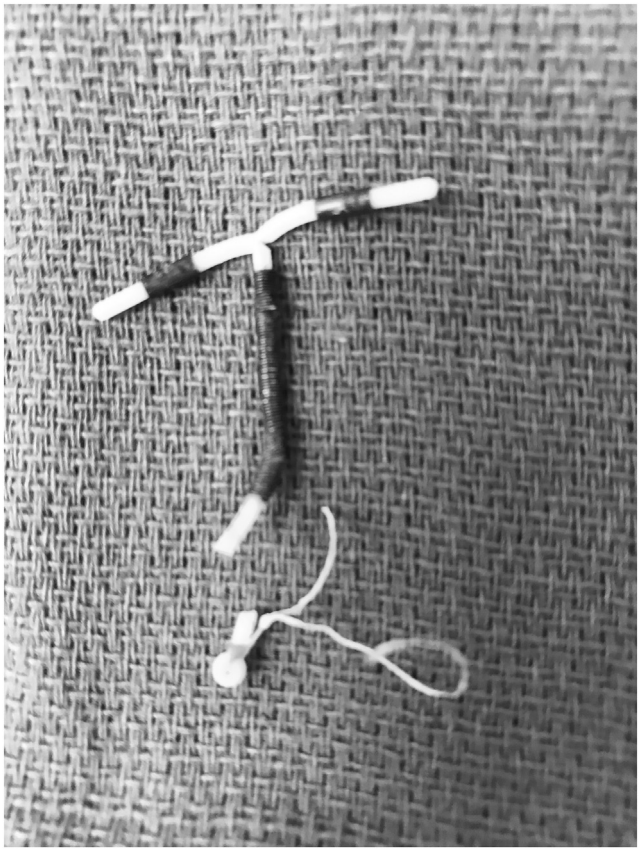

Fig. 3. A photograph depicting the IUD pieces following their retrieval.

A malpositioned IUD identified outside of the endometrial cavity necessitates immediate extraction; if the device is embedded, there is also an increased concern for developing fibrosis, stricture or a fistula [12]. Additionally, copper containing intrauterine devices, relevant to the current report, coincide with uterine perforation in 2.1 per 1000 insertions [13], which may significantly confound device removal [14].

When addressing a fractured IUD, initial detection of the device via diagnostic imaging (e.g., ultrasonography) or hysteroscopy is essential; if the IUD is identified deep within the myometrium, endoscopic management is advised [15]. Cervical priming with misoprostol may also be considered as the medication presumably facilitates transcervical procedures and mitigates the incidence of side-effects [16]. A fragmented IUD is an extremely unusual finding. Nevertheless, a physician should consider the potential for a malpositioned or broken IUD, especially when the device's removal is challenging.

Declarations of interest: none.

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