

The “Broken” IUD: Its Detection and Clinical Management

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Abstract

Background: The Intrauterine Contraceptive Device (IUD) can potentially be fractured upon its removal. The authors have collected a case series to illustrate this occurrence.

Material and Methods: Cases of possible IUD breakage that were discovered by clinicians within our Department of Obstetrics and Gynecology, which were collected to describe the related diagnosis and management issues dealt with, over the course of three years (2012-2014).

Conclusion: Though the safe and effective use of IUD contraception has been demonstrated in the United States, the possibility of its breakage should be recognized by clinicians.

Keywords

Copper IUD; IUD Emergency

Introduction

Intrauterine contraceptive device (IUD) use has been rising significantly in the United States and with its efficacy, this method has contributed to a decrease in undesired pregnancies in many populations.¹As we see a greater prevalence of use, practitioners will also encounter related complications with more frequency. We collected a case series of broken IUDs, all of which involved the ParaGard® T 380A copper IUD type, for the purpose of creating awareness and to illustrate our management of this not entirely rare clinical scenario, which can occur over a range of time following insertion.

Materials & Methods

All cases of IUD users who presented with problems identified as relating to a broken IUD were collected from physician members in our Department of Obstetrics and Gynecology, over the past 3 years, which populated this described case series, and who were ultimately referred to our Director of Gynecologic Ultrasound for more complete assessment. This clinical investigation and analysis described in this report was approved by the Advocate Investigational Review Board (IRB).

Results

The list of the individual cases can be seen in Table 1, revealing the details. Most of these described cases were managed with the help of sonographic imaging and/or hysteroscopy.

Table

Case	Case characteristics	Clinical presentation	Management
1	32 Y/O G2P21001 @ 9 Wks. GA IUD use for 6 years	Embedded arm broke while removal was attempted	Spontaneous expulsion and uncomplicated pregnancy
2	38 Y/O G2P2002 IUD use for 6 ½ years	Embedded arm broke while removal was attempted	Hysteroscopic removal of IUD's arm
3	48 Y/O G1P1001 IUD use for 10 years	Ring holding strings broke during removal of embedded IUD	Hysteroscopic removal of IUD
4	40 Y/O G2P2002 IUD use for 7 years	Embedded arm broke while removal was attempted in office	Hysteroscopic removal of IUD's arm
5	28 Y/O G3P2012 IUD use for 7 years	Embedded IUD on U/S with resistance on attempted removal	Hysteroscopic removal of IUD (unable to be completely removed)
6	31 Y/O G3P1021 IUD user for 7 years	IUD broke during removal in office	Hysteroscopic removal of IUD's arm
7	33 Y/O G3P1021 IUD use for 8 ½ years	Embedded arm broke while removal was attempted	Hysteroscopic removal of IUD's arm

Table 1: "Broken" IUDs

Discussion

The IUD is a very safe and supremely effective contraceptive method. Given its increasing rate of use, practitioners are bound to see its relatively infrequent complications with greater regularity. While our literature review revealed several case reports of IUD fractures, the majority are international and do not involve the specific models of IUDs available in the United States.²⁻⁶

A 1990 study investigated the forces necessary for *in vitro* fracture of the Copper 7, Nova T, and Multiload Copper 250 devices.⁷ That report found no statistical difference in the necessary forces between new and old devices. Chantler et al⁸ used electron microscopy to study the copper degradation in 811 Gravigard IUDs and determined that the rate of copper loss increased after 26 months of use, yet the pregnancy rate appears to be unchanged. In fact, a recent case report presented a ParaGard[®] T380 A device with a fractured copper sheath but an intact polyethylene core.⁹ The discontinuity of the outside copper sheath, as occurred in this case, "occasionally occurs" according to the manufacturer. That case

suggests that it is reasonable to check the device upon its removal, to ensure that no large pieces of copper are missing.

The largest case series described so far, includes three cases over a 9 month period at a single institution.¹⁰ These authors initiated a nationwide inquiry among members of the Society of Family Planning, and collected 15 responses via personal communications. Thirteen of those cases involved the copper IUD and two did not specify the type. The average duration of IUD use was 6 years (range was 1-10 years). As in our series, IUD fracture was noted to happen most frequently at the IUD arm, though rarely passage of the IUD stem has been described. Management strategies for removal of fractured portions included operative hysteroscopy, as well as office use of the IUD hook, alligator forceps, and suction curettage. Five cases had to be managed in the operating room and polyp forceps and manual vacuum were used for removal of the visualized IUDs, while the other three IUDs were not visible on hysteroscopy and were left in situ.

To our knowledge, this case series represents the largest one described from a single institution, suggesting that, while still rare, this complication is likely under reported. Broken IUDs, while uncommon, present a unique challenge to practitioners. Partial penetration or embedment of the IUD within the myometrium may make blind removal difficult. It is our experience that if excessive force is necessary to remove an IUD, there should be a heightened awareness of a possibly malpositioned or embedded IUD. This should especially be the case when working with the ParaGard[®] copper T 380A IUD. Our findings also suggest that the duration of Paragard[®] copper T 380A use may potentially influence the likelihood of fracture during removal, given that all of our cases ranged from 6-10 years of use. As such, particular care should be taken during in-office removals. That said, it is likely that fracture may be unavoidable in most cases. We have found that the use of high resolution 2 D and 3 D transvaginal ultrasound to be an excellent tool in initial diagnosis and precise localization. Subsequent operative hysteroscopy is a minimally invasive, safe, and effective mode of retrieval in such cases of an embedded IUD.

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Manuscript Information: Received: August 28, 2015; Accepted: October 28, 2015; Published: October 30, 2015

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Citation: Fernandez CM, Cabiya MA, Levine EM, Granberry K, Locher S. The "Broken" IUD: Its detection and clinical management. *Open J Clin Med Case Rep.* 2015; 1049

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