Oligomenorrhoea and contraception despite extraterine location of the levonorgestrel intrauterine system: a case report

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Case report
A 34-year-old woman attended her general practitioner for contraception 6 weeks postpartum following an unplanned pregnancy. This was her fourth pregnancy and she was determined to avoid any further pregnancy. After adequate counselling, a levonorgestrel intrauterine system (IUS) (Mirena®) was inserted. The procedure was apparently painless and uneventful.

The benefits of the patient’s new IUS were soon to be noticed as her long-standing heavy periods became light and she did not become pregnant despite regular unprotected intercourse.

The strings of the IUS had never been felt since it was inserted. Failure to identify the strings during a routine cervical smear led to further investigation with a plain X-ray of the pelvis, which suggested the IUS was apparently intrauterine.

The patient’s periods remained light until 4 years after IUS insertion when she presented with a 6-month history of progressively heavy and prolonged periods. It was thought that the IUS was probably due for a change. The strings could not be found during pelvic examination. A pelvic ultrasound scan identified a bright reflective echo in the lower uterine body suggestive of the site where the IUS adjoins the strings. Careful exploration of the uterine cavity failed to yield the IUS, which was also not seen at hysteroscopy.

A subsequent laparoscopy revealed the IUS to be in the peritoneal cavity, adherent to the right ovarian fossa. A 3 cm simple right ovarian cyst was also noted. The IUS was retrieved laparoscopically with no difficulties (Figure 1). Bilateral tubal occlusion was performed as the patient had asked to be sterilised.

Discussion
Uterine perforation following insertion of an intrauterine contraceptive device (IUD) occurs with a frequency of 1 per 1000 insertions.1,2 The incidence of uterine perforation specific to insertion of the IUS is not known. Since its introduction in the UK in 1995, a considerable number of these devices are inserted in family planning clinics and general practice surgeries each year. Despite its uniquely designed inserter and the use of the withdrawal technique for insertion of the IUS, the incidence of uterine perforation may not be different from other IUDs. As with other IUDs, most perforations occur at the time of insertion,1 though the diagnosis may be delayed. Operator inexperience has been found to be the single most important risk factor for uterine perforation.1 Insertion of the IUD during the puerperium also carries an increase risk for perforation, especially in breastfeeding mothers.1 Abdominal pain and vaginal bleeding occurring during or shortly after insertion should alert one to the possibility of perforation. However, as highlighted by the present case, uterine perforation can be completely asymptomatic and may go unnoticed for several months or even years.

The missing IUD string must always be investigated, since it is the most frequent manifestation of the perforated device.3 Ultrasound scan and plain X-ray are the usual investigations performed with respect to missing IUDs. This case further highlights the difficulties that can be encountered in locating an extraterine device, especially when an ultrasound scan is employed for this purpose. A plain X-ray was also unsuccessful in identifying the extraterine location of the device in the present case.

Laparoscopic retrieval should be the preferred method when an IUD is translocated inside the abdominal cavity.4,5 However, a bioactive device such as the IUS leads to more adhesion formation and is more likely to penetrate the walls of the bowel or bladder,2 which may render laparoscopic retrieval difficult.

Despite the extraterine location of the IUS in the present case, the patient did not become pregnant. This could, however, purely be a chance event, but the sudden change in the patient’s monthly menstrual loss makes chance unlikely.

Another possibility is the long-term gradual migration of the IUS over a period of years, with complete translocation coinciding with the return of the patient’s heavy periods. However, it is also possible that the IUS may have continued to be effective despite its extraterine location.

The location of the IUS in the ovarian fossa could result in high concentrations of levonorgestrel in the vicinity of the ovaries due to local release, and high levels of levonorgestrel have been associated with anovulatory cycles.5 The release of 20 μg levonorgestrel per day in the uterine cavity is associated with very minimal systemic effects due to very low blood concentrations. Whether this
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applies when the IUS is located outside the uterine cavity is not known. It is possible that systemic absorption of levonorgestrel may be greater in this scenario and the Mirena IUS may continue to exert its effects in a similar way to levonorgestrel contraceptive pills and subdermal implants. It would have been interesting to know the blood level of levonorgestrel in the present case.

The outcome of this case report poses the interesting question of whether an extrauterine Mirena IUS can provide contraception.

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References