Perforation with the GyneFix® intrauterine implant: is there a common factor?

Thomas R Aust, MB ChB, *Research Fellow;* **John N Kirwan,** MRCOG, *Macmillan Fellow;* **J Jonathan O Herod,** BSc, MRCOG, *Consultant Gynaecological Surgeon and Oncologist, Department of Gynaecology, Liverpool Women's Hospital, Liverpool;* **James T McVicker,** MRCGP, MFFP, *Associate Specialist, Abacus Centre for Contraception and Reproductive Health, Liverpool, UK*

Correspondence: *Dr T Aust, Reproductive Medicine Unit, Liverpool Women's Hospital, Crown Street, Liverpool L8 7SS, UK. Tel: +44 (0) 151 708 9988. E-mail: tomaust@doctors.org.uk*

(Accepted 24th January 2003)

Journal of Family Planning and Reproductive Health Care 2003; **29**(3): 155–156

Abstract

This report describes an asymptomatic perforation with the GyneFix® intrauterine contraceptive implant. A review of all other reports of this complication has been performed. Analysis of these reports suggests prolonged amenorrhoea secondary to continuous progestogen use as a possible common predisposing factor.

Case study

A 22-year-old nulliparous woman underwent fitting of a GyneFix® intrauterine contraceptive device (IUD) at a family planning clinic. She had previously been using Depo-Provera® continuously for 4 years. Chlamydia screening at that time was negative and the procedure was carried out without incident by a clinician experienced in the insertion of this type of IUD. Two months later she returned to have the device removed in order to start a family but the threads could not be visualised. An ultrasound scan showed no evidence of the device within the uterus and an abdominal radiograph showed an extrauterine IUD in the midline above the pelvic brim (Figures 1 and 2).

One month later the woman was seen in the gynaecology outpatient department and her only complaint was mild left iliac fossa pain. She was listed for laparoscopic removal of the device.

At operation the GyneFix device was seen in an omental adhesion in the midline attached to the anterior abdominal wall. The omentum was dissected away revealing the GyneFix with its knot embedded in the abdominal wall. The device was retrieved laparoscopically and the patient was discharged home the same day.

Discussion

The GyneFix is a flexible, frameless, intrauterine contraceptive implant that is anchored to the fundal myometrium by a polypropylene knot and has been used in the UK since 1997. It was designed to reduce the incidence of common problems associated with IUDs, namely expulsion, bleeding and pain.

This is the sixth case report of a perforation with this device (Table 1). Overall, five of the devices were removed either laparoscopically or by laparotomy. The remaining device was thought to have been passed out of the abdomen via the intestines.[1] Copper IUDs such as the GyneFix are thought to predispose the patient to adhesions once inside the peritoneal cavity. It is this adhesion risk, coupled with the patients' concern about the presence of a foreign object free in their abdomen, which leads to the devices being retrieved in theatre. The manufacturers of GyneFix recommend that perforated devices should be removed.

Notably four of the six reports mention previous use of long-term progestogen contraception; two with Depo-Provera,[1] one with Norplant®[2] and one with the progestogen-only pill.[3] The other two cases do not state the type of contraception used.[3,4] One of the previous cases speculates as to whether prolonged amenorrhoea may cause myometrial hypoplasia and thus make perforation more likely.[3]

The manufacturers of the device list hypoplastic uterus as a contraindication to insertion but do not recommend routine scanning to determine fundal myometrial thickness. Their advice is to scan any patient in whom there is any

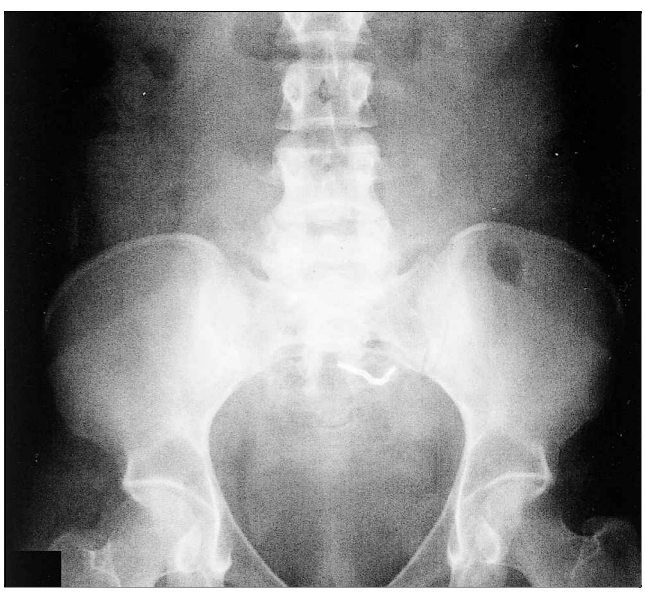

Figure 1 *AP abdominal radiograph showing the perforated GyneFix*

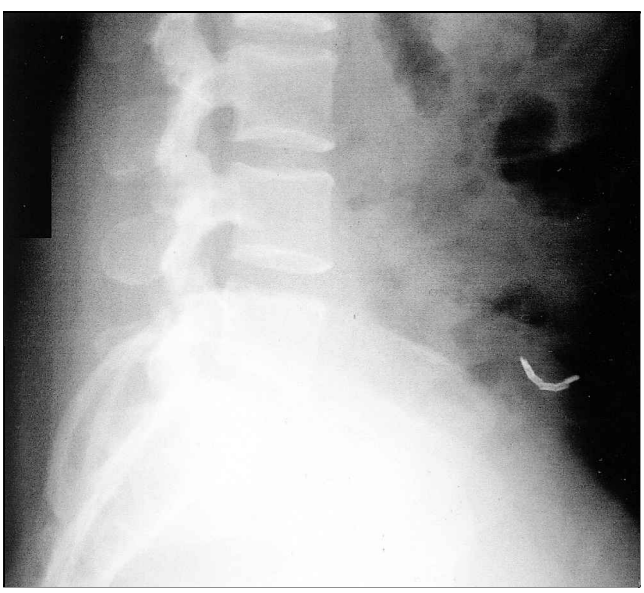

Figure 2 *Lateral abdominal radiograph. The six copper beads are clearly seen situated outside the pelvis*

Table 1 *Case reports of perforations with the Gynefix device to date*

Year	Authors	Time until removal	Mode of presentation	Previous progestogen used
1996	Vekemans and Verougstraete[4]	10 weeks	Pain	None stated
2000	Al-Kamil[2]	12 days	Pain	Norplant (4 years)
2001	Reuter and Krishnamurthy[1]	5 months	Cramps and pain	Depo-Provera
2001	Gandhi et al.[3]	11 days	Pain	Progestogen-only pill
2001	Gandhi et al.[3]	3 months	Pregnancy	None stated
2002	Aust et al.	2 months	Strings not visible	Depo-Provera

suspicion of perforation but in our case the perforation was asymptomatic and only the request to have the GyneFix removed allowed the diagnosis to be made.

Unlike most IUDs the GyneFix has to be anchored by penetrating a knot into the uterine muscle. It is possible that uterine hypoplasia after long-term progestogens could make these patients more prone to perforation with this particular device. A representative of the company that developed the GyneFix has suggested that the likely mechanism of perforation is that the anchoring knot is placed on the serosal surface of the uterus at the time of insertion and the device is pulled into the abdominal cavity by bowel action.[5] However, any theory on the mechanism of perforation can only be conjecture.

The design of the introducer was altered in 2001 to make GyneFix insertion a one-handed procedure, thereby freeing the other hand to provide traction on the tenaculum. This alteration was to make insertion easier and, it could be argued, to make perforation less likely. It is impossible to say which version of introducer was used in the previous cases (although they are likely to have been the older model) but one of the new introducers was used in the present case.

The GyneFix has been found to be a well-accepted form of non-hormonal contraception.[6] Routine ultrasound scanning of all patients undergoing GyneFix insertion would be impractical and would impede the convenience and acceptability of this device. However, one has to question whether a history of prolonged amenorrhoea should prompt caution or the assessment of fundal myometrial thickness before insertion. This is especially important as perforation may be difficult to diagnose and may only present when the patient becomes pregnant.

Statements on funding and competing interests
Funding. None identified.
Competing Interests. None identified.

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The impalpable Implanon®: a case report

Sue Stillwell, MRCOG, DCH, *Career Grade Trainee;* **Peter Sheppard,** MBBS, FRCR, *Consultant Radiologist;* **Steven Searle,** *Consultant,* MFPHM, MFFP, *Contraception and Sexual Health, Saltergate Health Centre, Saltergate, Chesterfield, UK*

Correspondence: *Dr S Stillwell, Saltergate Health Centre, Saltergate, Chesterfield S40 1SX, UK*

(Accepted 6th February 2003)

Journal of Family Planning and Reproductive Health Care 2003; **29**(3)**:** 156–157

Abstract
This is a case report of an Implanon® contraceptive device that was impalpable after insertion and a discussion of the management of the impalpable Implanon.

Case report

A 16-year-old girl currently using Depo-Provera® for contraception attended the family planning clinic with a view to a change of contraceptive method because of weight gain on Depo-Provera. She was informed of her contraceptive options and in particular the contraceptive implant, Implanon. Implanon is a single-rod, non-biodegradable, contraceptive implant containing 68 mg etonogestrel. The mode of action, insertion and removal method and side effects including menstrual disturbance were fully explained to her. She consented to insertion. Implanon was inserted using the standard method into the medial side of her right arm, 8 cm above the elbow in the biceps/triceps groove.[1]

After insertion the implant was impalpable. The patient was informed that it was possible that the implant was too deep to palpate or perhaps had not left the loading system. She was protected from pregnancy by her still active Depo-Provera.

An ultrasound of the patient's upper arm failed to detect the implant. X-ray was not utilised as Implanon is not radio-opaque. As the ultrasound department was not familiar with ultrasound use in the location of Implanon and deep insertion could not be confidently excluded, a magnetic resonance imaging (MRI) scan was recommended.

In the meantime a further Implanon was inserted, with the patient still under contraceptive cover from the Depo-Provera.

The MRI scan revealed a single device in the subcutaneous fat. Localisation was aided by placing an oil capsule on the skin, at the site of insertion. A surface coil is necessary for the best image quality.

Figure 1 shows the Implanon in axial section, as a low signal (black) structure, or signal void, just beneath the skin, with surrounding high signal (white) rim. Higher signal from the adjacent subcutaneous fat acts as contrast. Figure 2 is a coronal section using a fat suppression sequence (STIR). The Implanon has a low signal, and would be lost against the background low signal of subcutaneous fat, but is highlighted by a ragged high signal rim. This high signal represents the oedema following insertion, which persists for several days.

The patient was informed that she did only have one