

Missing Implanon: Report of Two Cases

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ABSTRACT: Contraceptive practice is a major public health issue in Nigeria and other sub-Saharan African countries with high fertility rate. Among the available contraceptive methods, Implanon contraceptive implant is one that provides a highly effective, convenient, nonuser-dependent, reversible contraception. However, it is not without complications. These complications could be as a result of the inherent effect of the active drug or the process of insertion and removal. Here, we report two cases of missing Implanon: (1) as a result of siting the Implanon in an unusual location and (2) prolonged use of Implanon for >9 years before seeking removal. The Implanon remained unlocated in the first case but was removed in the second case.

KEYWORDS: Implanon, missing, nonpalpable, contraception

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Introduction

Contraceptive technology has been in existence for over a century, and millions of women have used this technology to delay space or limit their number of childbirth. Contraceptive implants are one among the newer forms of birth control methods. Implanon (also known as Etonogestrel-releasing implant) has been found to be a safe and effective contraceptive method with a Pearl index of 0.38.¹ Its primary mode of action is the prevention of ovulation, prevention of sperm penetration by altering the cervical mucus, and implantation by thinning the endometrium. It is easy to use, for long duration, and also reversible. Improvements in dysmenorrhea and ovulatory pain that are not associated with any identifiable pathological condition are some of its noncontraceptive benefits.

Implanon is a progesterone-only, long-acting, reversible method of contraception. It is a nonbiodegradable, Etonogestrel-containing, single, sterile, 4 cm × 2 mm rod implant for subdermal insertion. Other implants, such as Nexplanon, also exist. It is the newest single-rod, progesterone-only, contraceptive implant which is not yet available in Nigerian. Similar to Implanon, it contains 68 mg Etonogestrel, but has 3% barium sulfate in addition that makes it easy to be detected by conventional X-ray imaging.² Implanon is recommended to be inserted in the medial aspect of the upper nondominant arm 8–10 cm (3–4 in) above the medial epicondyle of the humerus/elbow from a preloaded inserter.³ It should be easily palpable after insertion if properly carried out. It offers effective contraception for 3 years. It is not user dependent, and its efficacy does not depend on repeated administration.

However, certain risks relating to the procedure of insertion and removal have been noted. The complications of Implanon are similar to other available implants. These complications include changes in menstrual pattern, excessive weight gain, acne, and mood swing. It has also been associated with increased incidence of ovarian cyst, headache, and skin atrophy. Changes in menstrual pattern have been noted as the single most common reason for the discontinuation of the Implanon. There is little or no increase in risk of venous thromboembolism, stroke, myocardial infarction, or adverse effect on bone mineral density associated with progesterone-only contraceptive.

Here, we report two cases of missing Implanon: (1) prolonged use for >9 years and (2) the insertion at an unusual site.

Case 1

A woman in her 30s, para 4, attended the gynecology clinic of Abuja Clinics Limited, Maitama, with the complaints of irregular menses for 3 months and the feeling that she was pregnant. She had used the same Implanon contraceptive implant for about 9 years, which was inserted at a separate clinic. She was counseled to remove or replace the Implanon after 3 years, but this was not achieved because it could not be located. Several attempts to locate the implant through repeated ultrasound scans as well as inspection and palpation of the arms by different gynecologists/surgeons at the clinic of insertion and many other clinics have resulted in failure. There was no visible scar or mark on her skin to reveal the site of



insertion. She tried to become pregnant 6 years postinsertion because of the pressure from her husband, but was unable to become pregnant. She had menstrual periods within the first 3 years of the Implanon insertion but did not suffer any other complications. Her menstrual periods were regularized prior to attending the clinic with the complaints. After getting confirmation that she was not pregnant, she decided to continue with contraception but with a different contraceptive method. There was nothing significant in her medical and surgical history, and she had no history of allergies. She had a blood pressure of 120/70 mmHg and a pulse of 72 beats/min (bpm). Her pelvic examination result was normal, and other aspects of her physical examination did not reveal any abnormalities. Ultrasonography did not reveal any foreign structure or implant, and other advanced imaging studies for the localization of the Implanon, such as magnetic resonance imaging (MRI) were considered too expensive.

Case 2

A woman in her 20s, para 2, attended the gynecology clinic of Abuja Clinics Limited, Maitama, requesting for the removal of her Implanon contraceptive implant. Unwanted and excessive weight gain and a desire to become pregnant were her reasons. She had the Implanon inserted at a separate clinic 14 months before presentation and six weeks after her last delivery. She had gained 20 kg postinsertion despite deliberate efforts to limit the weight gain by dieting and exercise. She also reported menstrual changes, such as spotting, irregular menses, and heavy and prolonged menstrual flow (lasting about 7–10 days), following the insertion of the Implanon. No other complication was recorded. She had visited other gynecologists at three other hospitals requesting for the removal of the Implanon, but none could palpate or locate it. There was no other relevant medical history. General examination results revealed the obesity of the woman with a weight of 110 kg and a body mass index (BMI) of 40.4 kg/m²; her blood pressure was 110/70 mmHg, and her pulse was 72 bpm. There was no abnormal finding on examination of the systems. Palpation for the implant 8–10 cm (4–5 in) above the medial epicondyle of the left arm failed to locate it. Ultrasonography of the left arm did not detect it either. The Implanon was later located on the medial aspect of the left arm about 2–2.5 cm (1–1.5 inches) superior from the medial epicondyle of the left elbow after several repeated examinations. A 1–2 cm faint scar located 2–2.5 cm superior to the medial epicondyle of the left elbow gave out its location. It was subsequently removed under local anesthesia using a 2-mm sized incision as an outpatient procedure.

Discussion

The complication reported here is nonpalpable or missing Implanon. Different reports have proved documented missing Implanon as a complication of Implanon contraceptive implant.⁴ In this report, the rods were deemed missing because

they were not palpated after repeated examinations by different physicians at different hospitals. We suspect that in case 1, the Implanon, being nonbiodegradable, might have been migrated to an unknown location because of the prolonged use, and in case 2, it is the abnormal siting of the Implanon. All the initial examinations including ours have been concentrated around the usual recommended site of insertion (ie, the medial aspect of the left arm, 8–10 cm from the medial epicondyle of the humerus), but Implanon cannot be palpated or located. Finally, the location of the Implanon was found by palpating around a 1–2 cm scar noted about 1.5–2.5 cm from the medial epicondyle of the humerus of her left arm. This location is unusual for the insertion of Implanon, and our literature search could not locate any report where the Implanon contraceptive implant is located in a similar site. The gynecologist who inserted the Implanon might have chosen this site because of the increased arm circumference of the patient as a result of her obesity but failed to inform her. From this case, it is suggested that the entire surface area of both right and left arms should be carefully examined repeatedly to locate the implant. In addition, any scar on either arm should be carefully explored when searching for any missing/nonpalpable contraceptive implant. It also brings to fore the need to inform the patients either verbally or in writing of any modifications made in choice of a site for contraceptive implant during their treatment.

Several factors, such as noninsertion, inserting deep into the muscle, and migration,⁴ have been associated with missing or non-palpable implant. Other factors associated with nonpalpable or missing Implanon implant include scarring, attempted removal, or significant weight gain.^{5,6} It is imperative to check the presence of Implanon in the applicator and to palpate the skin for the Implanon after insertion to avoid noninsertion. Deep implant insertions are more likely resulted in the insertion technique. If an implant is inserted too deeply, it may be difficult to remove and/or locate, and there is a greater potential for neurovascular injury, infection, and scar formation. On the other hand, Implanon sited too superficially can cause pain and altered sensation. The diagnosis of missing Implanon is usually made in clinic when there is a failure to palpate the implant. Ultrasound has been suggested to be the investigation of choice^{7,8} in detecting missing Implanon. However, ultrasound scanning failed to detect the implants in these patients' arms. Similarly, the inability of the ultrasonography to detect or localize the Implanon contraceptive implants has also been documented in other reports.^{9,10} Several studies have documented the use of real-time high-frequency transducer ultrasound and MRI scan for locating and, as a guide, removing the nonpalpable and intramuscularly placed implants.¹¹ The use of high-frequency linear probe and the need for expert radiologists are important prerequisites for locating the Implanon using ultrasound scan.⁷ Failure to detect implant by ultrasound scan could be as a result of noninsertion, too much pressure on the probe, ultrasound probe



with low frequency, obesity, and limited experience in dealing with sonographer on Implanon scan. MRI scan is regarded as a second-line imaging modality, but its use in our environment is limited by availability, affordability, and accessibility. The estimation of the serum level of Etonogestrel will help confirm if the implant is still in situ. This test is done only by Organon Laboratories Limited in France for free.

The management options for missing Implanon include surgical removal, surgical exploration and removal, and surgical removal under ultrasound or MRI guidance. Most removal failures or complications arise if the initial insertion is too deep¹² and if it is not properly located or palpated throughout its length.

The Implanon was not removed in case 1 since it could not be located both in our center and abroad. As an alternative, she has commenced with another form of contraception in order to meet her contraceptive need. It has been noted that the contraceptive efficiency of the implant cannot be guaranteed after 3 years. Women who had their Implanon left in situ may be at risk of prolonged contraception and prolonged adverse effects, especially allergy.

In case 2, the patient had surgical removal of the Implanon; as an outpatient, it was localized immediately. It was a small, very faint, 2-mm scar about 1.5–2.5 cm from the medial epicondyle of the humerus of her left arm that helped identify the site of the Implanon insertion. This scar can easily be overlooked or dismissed especially with other minor scars on her left arm. The marked weight gain and dark skin could have contributed in concealing the Implanon markings. However, there is no restriction on the use of progestogen-only contraceptive methods among obese women (BMI > 30 kg/m²). No increased risk of pregnancy has been demonstrated in women weighing up to 149 kg. However because of the inverse relationship between weight and serum Etonogestrel levels a reduction in the duration and efficacy of the contraceptive is a possibility.

No attempts were made in both the patients to remove or explore the Implanon(s) without localization. Attempting to remove an implant that is not palpable can cause scar, nerve damage, and blood vessel damage. This is an important precautionary step to avoid failed and repeated procedures that have been documented as one of the complications of Implanon removal.¹³ Other documented complications of removal of Implanon include deep insertions, fibrous adhesion, difficulty in finding the implant, broken implants, and migration.

The Implanon was worn about 6 years, longer than the recommended duration in case 1 because it had not been possible to locate it both here and abroad. The health implications of the continued use of this implant had been of great concern to her. It has been noted that the release rate decreases with time from ~60–70 µg/day to ~25–30 µg/day at the end of the third year.^{14,15} This calls for a continuous, adequate, and improved content and quality of counseling in such patients to avoid depression. Women who use a progestogen-only implant should be advised to return to their gynecologist

if they cannot feel their implant or it appears to have changed shape, they notice any skin changes or pain around the site of the implant, they become pregnant, or they develop any other condition that may contraindicate the continuation of method.

Careful adherence to the prescribed technique and confirmatory palpation of the implant by both physician and patient will reduce the incidence/occurrence of missing Implanon. Any change from the recommended site of insertion should be avoided, but when this happens, it should be communicated to the patient to reduce the insertion and removal difficulties.

It is our thinking that it is time to change from Implanon to Nexplanon use in our environment. Nexplanon is impregnated with barium sulfate to enable detection by X-ray, and the applicator has also been modified with safety measures to reduce the risk of deep insertion and to facilitate one-handed insertion. In a depressed economy as ours, it will also reduce the anxiety of women over a missing Implanon and possibly increase contraceptive acceptability. Although Nexplanon use – being a new product – will require training and retraining of staff involved in the insertion of implants, on the long run, it will allay fear and increase acceptability. Meanwhile, we posit that Implanon insertion should only be carried out by trained staff. In addition, training and retraining should be provided to radiologists on ultrasound detection of contraceptive implants.

Author Contributions

Conceived and designed the experiments: SUM. Analyzed the data: SUM, ICM. Wrote the first draft of the manuscript SUM. Contributed to the writing of the manuscript SUM, ICM. Agree with the manuscript results and conclusion: SUM, ICM. Jointly developed the structure and arguments for the paper: SUM, ICM. Made critical revisions and approved final version: SUM, ICM. Both authors reviewed and approved of the final manuscript.

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