

Ultrasound Localization and Removal of Impalpable ‘Lost Implanon’: Case Report

Palpe Edilemeyen ‘Kayıp İmplanon’un Ultrasonografi ile Lokalizasyonu ve Çıkartılması

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ABSTRACT Implanon™ is a single rod shaped semi-rigid, non radio-opaque, progesteron released and highly effective long-term contraceptive method which inserted in subcutis of the upper arm. Insertion and removal of Implanon™ is usually a simple procedure but where the Implanon™ is impalpable, the removal of the Implanon™ can be difficult. Our patient had been inserted Implanon™ 3 years before and she told us that the procedure was done easily without any problem. At our examination, Implanon™ was impalpable. Afterwards, ultrasound (US) was performed, US showed that Implanon™ has migrated nearly 10 cm cranially and was located above the muscle; 5-7 mm deep from the skin. We planned to remove the Implanon™ in the operating room. A 5mm incision was made where we marked at US, then we reached the Implanon™ below the fascia muscularis and removed it. US-guided localization and removal of impalpable Implanon™ rods is safe, practical and highly successful.

Key Words: Implanon™ (3-keto-desogestrel); ultrasonography

ÖZET İmplanon™; çubuk şeklinde (tek), yarı sert, radyo opak olmayan, progesteron salgılayan, üst kolda cilt altına yerleştirilen uzun süreli kontrasepsiyon sağlayan güvenilir bir yöntemdir. İmplanonun™ takılması ve çıkartılması genel olarak kolay bir işlemdir ancak palpasyonla hissedilmeyen İmplanonun™ koldan çıkartılması güç olabilir. Hastamız İmplanonun™ 3 yıl önce sorunsuz ve kolay bir müdahale ile takıldığını söyledi. Muayenemizde palpasyonla implant hissedilemiyordu. Bunun üzerine yüzeysel doku ultrasonografisi (USG) yapıldı ve implantın, giriş noktasının yaklaşık 10 cm ilerisinde, cildin 5-7 mm altında, kasın hemen önünde olduğu tespit edildi. Bunun üzerine ameliyathanede implantın çıkartılmasına karar verildi. USG’de işaretlediğimiz bölgeye yaklaşık 5 mm lineer kesi yapılarak, fasya altındaki İmplanona™ ulaşıldı ve implant çıkartıldı. USG, palpe edilemeyen İmplanonun™ lokalizasyonunun belirlenmesinde ve çıkartılmasında güvenli, pratik ve başarılıdır.

Anahtar Kelimeler: İmplanon™ (3-keto-dezogestrel); ultrasonografi

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Implanon™ (Schering Plough, Holland) is a single flexible rod 4 cm long, that contains 68 mg etonorgestrel, which is non radio opaque. The hormone is released at an initial rate of about 67 mcg per day decreasing to 30 mcg after 2 years; inhibition of ovulation is achieved within 8 hours of insertion. It is highly effective as a long-term ‘forgettable’ contraception for up to 3 years.

Insertion of Implanon™ is simple: the applicator needle is positioned subdermally and the cannula is withdrawn, leaving the implant rod in the subcutis of the upper arm. Implanon™ is removed using the 'pop out' technique, involving a 2-mm incision. These procedures are done under local anesthesia.

The implanted rod is usually removed easily after its effective period. However, where the rod is not palpable, the removal of the rod can be difficult or impossible. But ultrasound (US)-guided localization and removal of Implanon™ rods is safe, practical and highly successful.

CASE REPORT

30-years-old woman, gravid 4, para 2, D&C 2 admitted to our outpatient clinic for non palpable Implanon™. She had been inserted Implanon™ 3 years before at a private clinic and she told us that the procedure was done easily without any problem and even she could palpate the Implanon™ at her left upper arm but she has not been palpate her Implanon™ since 4 months. At our examination we either could not palpate the Implanon™ at her left upper arm, it was clear that it was not in the subcutis. Afterwards, US was performed, US showed that Implanon™ was migrated nearly 10 cm cranially and it was located just above the muscle; 5-7 mm deep from the skin and this point was marked (Figure 1a). We planned to remove the Implanon™ in the operating room; then informed consent was obtained. Under general anesthesia a 5 mm incision was made over the upper arm where we marked at US, and then we reached the Implanon™ below the fascia muscularis, we removed it by using pop out technique and forceps (Figure 1b). There was no important bleeding and the operation was ended within 10 minutes. Postoperative period was normal and she was discharged at the same day.

DISCUSSION

Is it possible that migration of the Implanon™ rod can occur even if correctly positioned as in our case? Ismail et al tried to determine this subject. Of the 100 women studied, 95 were seen for follow-



FIGURE 1a: Ultrasound showed that Implanon™ was located just above the muscle; 5-7 mm deep from the skin.



FIGURE 1b: Implanon was removed by using pop out technique and forceps. (See for colored from <http://jinekoloji.turkiyeklinikleri.com/>)

up at 3 months. There was no migration of Implanon™ in 58 (61%) patients. Of the remaining 37 (39%) patients where migration had occurred, 34 showed migration caudally and only three demonstrated cranial migration. With regard to the degree of migration, all but one case showed this to be less than 2 cm either cranially or caudally. At 1-year follow-up 87 patients were seen. No migration was noted in 39 (45%) patients. In the remaining 48 (55%) patients where migration had occurred, 44 showed migration caudally and only four demonstrated cranial migration, which in one case was over 2 cm. With regard to the degree of migration, all but one case showed this to be less than

2 cm either cranially or caudally. There were no cases of deep migration.¹

The rod is implanted in the subcutis of the upper arm and is usually removed easily after its effective period. However, removal of ImplanonTM that are impalpable, are not as easy as the other palpable ones. So what can be done? Singh et al studied twenty-seven patients with impalpable ImplanonTM rods; they showed that it was possible to identify and locate impalpable ImplanonTM rods with the aid of US, facilitating their subsequent safe removal. They measured the skin implant depth, as well. They said that this parameter, together with the precise position of the implant (in muscle or fat), aided removal.²

The reliability of US in locating non-palpable ImplanonTM and to investigate the optimal technical parameters for determining the location was evaluated by Prosch et al. They evaluated 21 women and the ImplanonTM was detected in all 21 patients by US, they also added that reasons for negative palpability were mainly an intramuscular or subfascial location as well as a significant migration of the ImplanonTM implant.³

Recently an article from Norway studied 18 patients with non-palpable implants to be removed and they also admitted that localization and removal of implants inserted too deeply requires high-frequency US equipment and surgical experience.⁴ Persaud et al also showed that US guided localisation and removal of ImplanonTM rods was safe, practical and highly successful especially when it is not palpable or when an attempt at removal of a palpable device has not been successful.⁵

Piessens et al. also studied 23 patients with non palpable ImplanonsTM and US was carried out to localise the non-palpable ImplanonTM. In 22 out of 23 patients the ImplanonTM was correctly identified as present. The specificity was 95.7% (95% CI 79.0-

99.2%), the positive predictive value was also 95.7%. In six out of seven patients the ImplanonTM was correctly identified as absent. The sensitivity was 85.7% (95% CI 48.7-97.4%), the negative predictive value was also 85.7%.⁶

Shulman and Gabriel reviewed different localization methods for nonpalpable ImplanonTM rods. In the great majority of cases; optimal visualization of the single-rod ImplanonTM rod was obtained with US using a high-resolution linear array transducer (10-15 MHz). An implant located just under the skin, under the fascia muscularis or one located deep in the muscle could most often be localized with US. In rare cases where US did not definitively locate the implant, magnetic resonance imaging was the next best choice. Measurements of serum etonogestrel levels might be necessary to confirm the presence or absence of the implant when it could not be visualized by either of the two imaging methods.⁷

Vidin et al. discussed the management of removal of contraceptive implants that were difficult to palpate or were impalpable, as well. They concluded that the removal of an implant that was not palpable or difficult to palpate should be take place in the operating theater following localization by US. Patients must be fully informed about the procedure, including its complications and the risk for failure.⁸ Because neurovascular injury may occur when ImplanonTM is located too deep, this should be kept in mind before and during operation.⁹

In conclusion, high resolution US is the method of choice for determining the location of non-palpable ImplanonTM. Localization of the impalpable ImplanonTM is useful to confirm its presence or to assist the surgeon with its removal. US-guided localization and removal of ImplanonTM rods is safe, practical and highly successful.

REFERENCES

1. Ismail H, Mansour D, Singh M. Migration of implanon. *J Fam Plann Reprod Health Care* 2006;32(3):157-9.
2. Singh M, Mansour D, Richardson D. Location and removal of non-palpable Implanon implants with the aid of ultrasound guidance. *J Fam Plann Reprod Health Care* 2006;32(3):153-6.
3. Prosch H, Walter RM, Westermayer V, Mostbeck GH. [Sonographic localization of non-palpable implanon hormone implants]. *Ultraschall Med* 2008;29(Suppl 5):239-44.
4. Jørgensen NP. [Contraceptive implants--aberrations from insertion and removal procedures]. *Tidsskr Nor Laegeforen* 2010;130(7):733-4.
5. Persaud T, Walling M, Geoghegan T, Buckley O, Stunell H, Torreggiani WC. Ultrasound-guided removal of implanon devices. *Eur Radiol* 2008;18(11):2582-5.
6. Piessens SG, Palmer DC, Sampson AJ. Ultrasound localisation of non-palpable Implanon. *Aust N Z J Obstet Gynaecol* 2005;45(2):112-6.
7. Shulman LP, Gabriel H. Management and localization strategies for the nonpalpable Implanon rod. *Contraception* 2006;73(4):325-30.
8. Vidin E, Garbin O, Rodriguez B, Favre R, Betahar-Lebugle K. Removal of etonogestrel contraceptive implants in the operating theater: report on 28 cases. *Contraception* 2007;76(1):35-9.
9. Wechselberger G, Wolfram D, Pülzl P, Soelder E, Schoeller T. Nerve injury caused by removal of an implantable hormonal contraceptive. *Am J Obstet Gynecol* 2006;195 (1):323-6.