

## THE ANCHORING TECHNIQUE: A NOVEL APPROACH TO IMPLANON REMOVAL

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### ABSTRACT

**Objective:** To introduce and evaluate an alternative Implanon removal technique. The main objective is to facilitate removal of both the properly positioned and the misplaced Implanon capsule.

**Study design:** A descriptive non comparative study

**Setting:** Fertility Care Unit, Mansoura university hospital, Mansoura, Egypt

**Subjects and method:** Implanon implants were removed from 217 clients, during the period from July , 2004 to June, 2006 using the anchoring technique. 130 cases had properly inserted capsules and 87 had misplaced capsules. Seventy cases of the misplaced capsules were deeply located. This technique involves injecting a local anesthetic by a syringe with 25-gauge needle deep and perpendicular to the long axis of the Implanon capsule. The needle was then fashioned into a ring, around the capsule and the overlying skin, with a mosquito forceps after puncturing the skin on the other side of the capsule to allow its anchoring and stabilization during the entire removal procedure. A 2 mm transverse incision was made against the lower end of the capsule which is pulled by the underlying needle as close to the surface as possible. The capsule was then pushed from its upper end so that it emerges from the incision where it can be grasped with two fingers or a mosquito forceps and removed. The mean length of the removal times, procedure problems, implant site symptoms after removal and postremoval complications were evaluated.

**Results:** This technique resulted in a short removal time (average 1.9 minutes for the properly inserted implants and 2.3 minutes for the misplaced capsule). No damage to the capsule occurred and extension of the skin incision was not needed in all cases. No postremoval implant site contusion or infection was encountered and mild pain at the implant site was experienced in only 7 cases.

**Conclusion:** These results suggest that the anchoring technique is a simple and valuable technique for removing both properly inserted and improperly located Implanon capsule. The technique also needs far less effort and skill from the physician

**Key words:** Implanon, anchoring technique, removal.

### INTRODUCTION

Progestogen-only implantable contraceptives are used by increasing numbers of women worldwide. The implant systems with fewer capsules or rods, as Implanon, greatly facilitate insertion and removal and produce less discomfort to users. Family planning programs should therefore move as soon as

practical to those systems which have proved equally effective and safe as the six-capsule system<sup>(1)</sup>.

Implanon, a novel contraceptive implant containing 68 mg of the progestogen, etonogestrel, provides a highly effective and well-tolerated contraceptive for up to 3 years. The active substance is incorporated into a solid rod of ethylene vinyl acetate (EVA) co-polymer covered by a thin EVA

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membrane<sup>(2)</sup>. Its single-rod design, semi-rigid polymer base and convenient pre-loaded presentation, gives Implanon potential insertion and removal advantages over the six-capsule Norplant implant<sup>(3)</sup>.

Despite concerted efforts to ensure accurate insertion of Implanon contraceptive implants, cases of deeply placed implants with very difficult removal still exist. Occasionally, removals of these implants require general anesthesia<sup>(4)</sup>. The reported removal complications ranged between 0.2 and 7.0%<sup>(5)</sup>. Injury to branches of the medial antebrachial cutaneous nerve during Implanon removal can result in impaired sensibility, severe localized pain, or the formation of painful neuroma which is quite devastating to the patient<sup>(6)</sup>. Broken or deeply placed implants with fibrous tissue around lead to difficult and prolonged removals. In few instances, a second incision is required. Well-designed comparative studies between Norplant and Implanon showed significantly reduced rates of removal for complications with Implanon. The duration of the removal procedure is also shorter for Implanon compared with Norplant<sup>(7,8)</sup>. The implant should be palpable and easily removed through a small incision<sup>(9)</sup>. Unfortunately, Implanon removal can sometimes be a startling experience for the patient and frustrating for the physician. Deeply located or misplaced capsules, unskilled attempts at removal, long searching time and breakage of the capsule can contribute to both patient and physician dissatisfaction.

As difficult removal threatens the acceptability of this safe and highly contraceptive method, there is a compelling need for improved techniques for removal which are simpler, less time consuming and less traumatic to the client if the implant is to remain a viable contraceptive option. Moreover, when removal requires less time, effort and skill, more physicians will be able to provide Implanon contraceptive which would eventually lead to much larger scale of use. This study describes in detail and evaluate a novel

approach which is completely different from the original removal technique described by the manufacturer.

## **SUBJECTS & METHODS**

The study was carried out in the Fertility Care Unit, Mansoura University Hospital during the period from July, 2004 to June, 2006. Women who requested removal of Implanon, either before or after the completion of three years were recruited to the study. Cases in which Implanon capsules were not palpable were excluded. The study included 217 cases, 110 of them had the implant insertion in the Fertility Care Unit, Mansoura University Hospital and 107 were referred from other hospitals. Previous failed attempts at removal were reported by 9 of the referred cases. In this study, we have attempted removal of 130 properly inserted capsules and 87 misplaced capsules. Seventy cases of the misplaced capsules were deeply located.

### **Technique:**

At first, the removal procedure was explained for the client and a written consent was obtained. The implant was palpated with the ungloved fingers to verify its position. If initially the implant was not palpable, we tried to palpate the tips of the implant rather than the implant itself. The area was washed and then a disinfectant (Betadine) was applied. A syringe with 25-gauge needle was used to inject the local anesthetic (0.5-1 ml lidocaine 1%) under the distal part of the Implanon capsule (with the needle entering the skin at a level about 1cm above the distal tip) but perpendicular to its longitudinal axis (Fig. 1).

After administration of the local anesthetic, the needle was advanced so that it emerges from the skin just near to the other side of the capsule (Fig. 2). The needle tip was then bent with a mosquito forceps so as to be fashioned into a ring around the capsule (Fig. 3). The bent needle was kept attached to the syringe which serves as a convenient handle to allow

anchoring and stabilization of the implant for the entire removal procedure.

The lower end of the implant was pulled as close to the surface as possible by the underlying needle and a transverse incision, 2 mm in length, was made at the distal tip of the implant (Fig. 4). The rod was then pushed down towards the incision until it emerges through the incision and is grasped with the index finger and thumb (Fig. 5) or with a 'mosquito' forceps and then gentle traction with an oscillating motion dislodges the implant from the surrounding fibrous tissue sheath when it can be removed. If the implant tip was encapsulated by fibrous tissue, it was carefully dissected using blunt dissection with gauze or with the mosquito forceps or by sharp dissection using a scalpel to make an incision into the tissue sheath and the implant was then removed with forceps. Anchoring the implant via traction on the syringe helped us to deal with the fibrous capsule until the implant emerges. The needle was then withdrawn. The incision was closed with a butterfly plaster and a pressure bandage applied to minimize bruising.

Variables assessed included the mean length of removal times, procedure problem rates as breakage of the capsule, the need to extend the skin incision, the need to make another skin incision, the need for skin suture and the requirement for a second visit to complete or retry removal. All cases were asked to return for a follow up visit 1 week after removal or at any time during the first week if there was any complaint. During the follow up visit ,implant site symptoms and postremoval complications as cutaneous infection and contusion were evaluated.

## **RESULTS**

This 2 year non comparative study reports on a simple, feasible and easily learned technique for Implanon removal. The study comprised 217 women attending the Fertility Care Unit, Mansoura

University Hospital during the period from July, 2004 to June, 2006 were included in the analysis. The success rate with this method was 100% among the 217 cases in whom the implant was palpable at the start of the removal procedure. The mean duration of Implanon use was 21 months (range, 4-36 months).

The results showed that the average time for removal was 2.1 minutes (range, 1.8-2.7 minutes) for the properly inserted implants and 2.3 minutes for the misplaced capsules (range 2.1-2.9 minutes). No implants were fragmented or broken during removal. Extended skin incisions and the need for skin suture were not needed in any case. No cases needed interruption of the procedure because of difficulty of removal or was asked to return for a second visit to complete or retry removal. Only 7 cases experienced implant site symptoms after removal, mainly mild pain of short duration (1 among the properly placed cases and 6 among the misplaced cases). No postremoval cutaneous infection or contusion were found.

## **DISCUSSION**

The Implanon removal method developed by the manufacturer is the standard removal method around the world. Experience with such a method showed that, in some cases, the capsule tip may be difficult to reach and need repeated trials to grasp especially if it is deep or misplaced. This may lead to a difficult, blind and extensive dissection and occasionally damage to the implant which further complicates removal. This can prolong the removal time and cause undue trauma and frustration to the physician. Occasionally, a second incision, and even a second visit, is required to remove the Implanon implant or a remaining fragment.

This study is not intended to be a comparative controlled study but to explore the feasibility of a new technique for Implanon removal.

The bent needle that form a ring around the

implant allow anchoring and stabilization of the implant, avoids masking of the implant by the local anesthetic and remain a landmark for identification of the implant position by palpation during the entire removal procedure. Also, anchoring the implant, especially when deeply located, make it easier and quicker to direct the implant tip through a small skin incision by using digital pressure at its upper end as the ring allows the capsule to move in a longitudinal direction (towards the incision) and prevent its bending away from the incision.

This method prevents blind and extensive repeated dissection and reduces trauma, scarring and cutaneous infection and accelerates wound healing. It also reduces time, effort, needs little skill, and minimizes the need for instruments thus avoids breakage of the capsule, tissue trauma, bruising and patient discomfort.

The simplicity of this removal procedure may have significant implications for Implanon contraceptive implant training programs and user counseling. Using this technique may result in higher acceptability, wider use, and lower cost.

This study demonstrates that the described technique offers significant improvements and has the advantages of simplicity and easily available equipment and is a reasonable alternative to the procedure proposed by the manufacturer for Implanon removal. More widespread use of this technique is urged to increase the ease of Implanon removal whether properly placed or misplaced.

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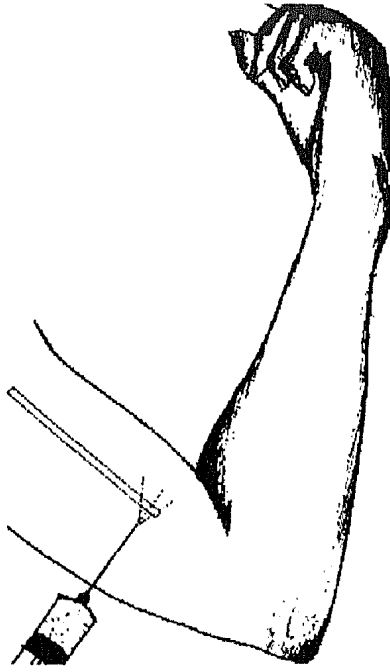


Fig. 1. injection of local anesthetic

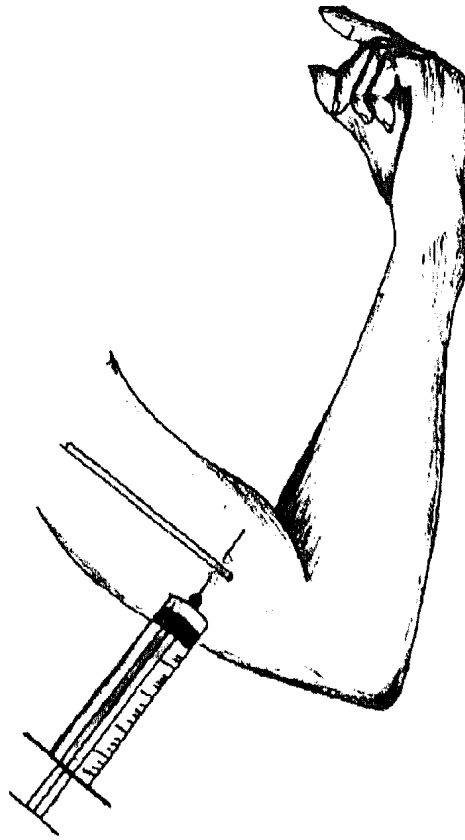


Fig. 2. Advancing the needle to emerge from the skin just near to the other side of the capsule

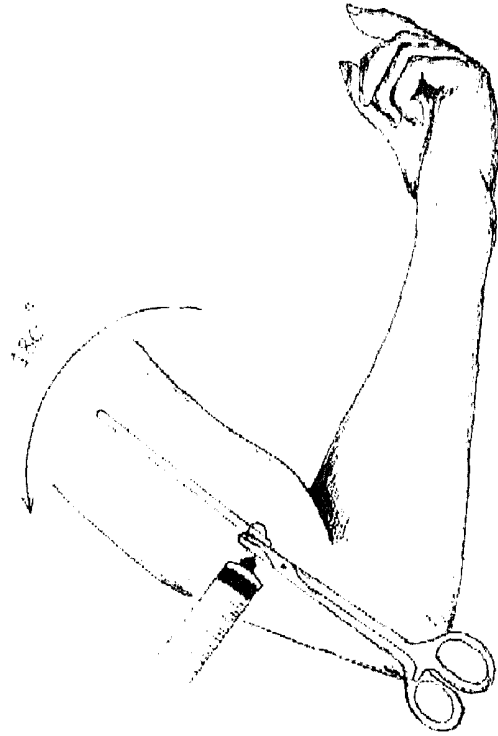


Fig. 3. Fashioning the needle into a ring around the capsule with mosquito forceps

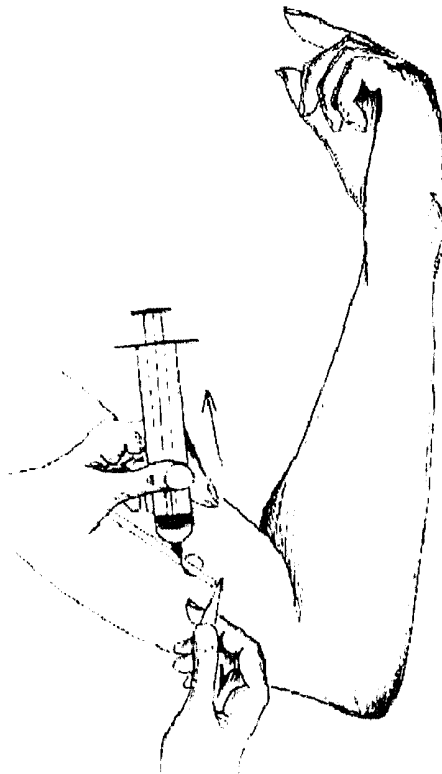


Fig. 4. Making a transverse incision against the lower end of the capsule



Fig. 5: The rod pushed down towards the incision and grasped with the index finger and thumb to be removed.