

Norplant Removal Facilitated by Use of Ultrasound for Localization

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Two case reports are presented, describing the use of a 7-MHz ultrasound transducer to locate and visualize Norplant rods that could not easily be removed. The first patient was referred to the radiology department for a sonogram for unrelated reasons; her self-reported history led to the attempt to locate a retained Norplant rod. The second patient was first referred by a physician for the stated purpose of rod localization. After ultrasonic localization of the retained rods, both patients re-

turned to their physicians' offices and underwent successful removal of the rods. Morbidity related to difficult rod retrieval can be reduced by using ultrasound for localization.

Key words. Levonorgestrel, Norplant implants; Norplant removal; subdermal contraceptive implants; ultrasonography; morbidity; localization.

(*J Fam Pract* 1995; 40:182-183)

Concern has recently developed regarding removal of Norplant subcutaneous contraceptive rods. While generally safe and effective, scarring and prolonged removal times have been cited as two difficulties encountered by patients deciding to discontinue Norplant use.^{1,2} Inappropriately deep insertion, migration of one or more rods, and a shortage of physicians trained in proper removal are cited as reasons for difficult removal.^{2,3} Reportedly, some patients have had to undergo general anesthesia in particularly difficult retrievals.³

We present two case reports of difficult rod retrievals that were facilitated by ultrasonographic location of the rods. Each patient had undergone retrieval of all but one of the six contraceptive rods. The methods of imaging and external marking of the rod ends are discussed.

Case Reports

Case 1

Pelvic ultrasound was ordered for the patient for reasons unrelated to the retained Norplant rod. During review of

her recent medical history, the patient mentioned the unsuccessful attempt to retrieve one of the rods. Following the patient's pelvic ultrasound, and with her informed consent, a 7-MHz linear small-parts transducer was used to determine whether the retained Norplant rod could be visualized by ultrasound. While scanning the upper medial left arm, the rod became clearly visible in both longitudinal and transverse planes. With the transducer aligned along the axis of the rod, both ends could be visualized easily. A dot of indelible ink was used to mark the skin just superficial to each rod end. The patient returned to the referring physician, who removed the rod.

Case 2

The patient was referred to our ultrasound department by a physician in the same practice group as that of the physician of the patient in case 1. Based on the previous success in locating a migrated rod using ultrasound, we were requested to attempt localization of the single remaining rod in the second patient. As in the first case, a 7-MHz linear small-parts transducer with manufacturer-supplied, imaging-enhancement software was used to locate the elusive rod and clarify the images (Figures 1 and 2). The skin overlying the rod ends was marked with indelible ink, and photographs of the upper medial arm were taken (Figure 3). The patient returned to the referring physician, who removed the rod.

Submitted, revised, October 26, 1994.

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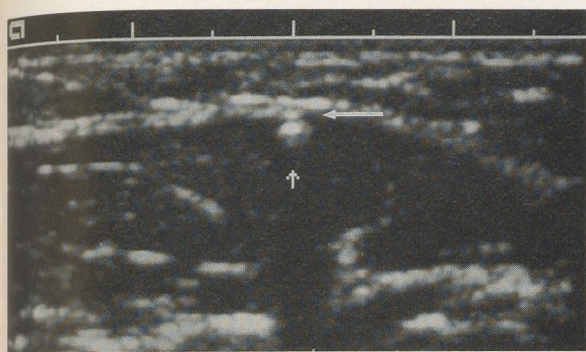


Figure 1. Transverse view of displaced Norplant rod in the patient in case 2, beneath subcutaneous fat and the superficial fascia (horizontal arrow). The rod (vertical arrow) casts an acoustic shadow on the muscle layers below. Note the fibrous capsule surrounding the rod.

Technique

The ultrasound unit used in the first case was a Siemens Quantum 2000. An Acuson 128, at a modified thyroid setting, was used for the second. In both cases, a 7-MHz linear small-parts transducer was used to visualize each patient's upper medial arm along the axis of the Norplant rod, and in each case the rod was easily identifiable. Images of the rod were obtained in long axis and transverse planes. With the transducer aligned along the long axis, a ballpoint pen was inserted between the skin and transducer. A small mark was made on the skin over each end of the Norplant rod. Indelible ink was applied to ensure that the mark would remain during sterile preparation at removal.

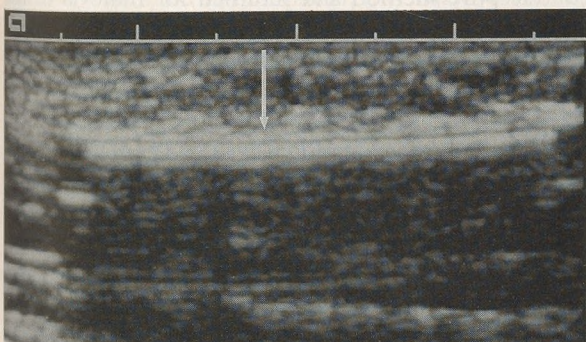


Figure 2. Axis view of the same Norplant rod in the patient in case 2, just below the superficial fascia (vertical arrow). The fibrous capsule is seen more clearly than in Figure 1, and an area of shadowed muscle is apparent below the rod.

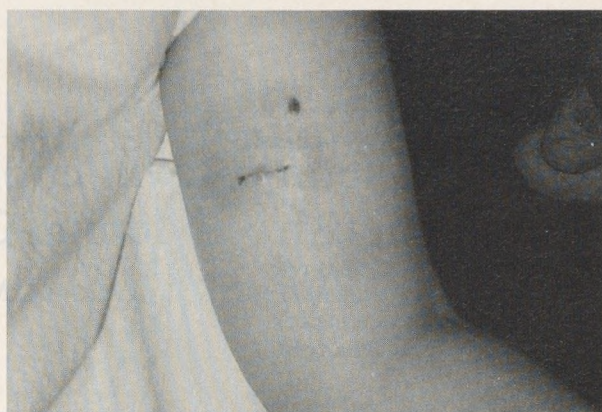


Figure 3. Left arm of the patient in case 2, showing demarcation of the rod visualized in Figures 1 and 2. Initial removal site is indicated by scarring and swelling immediately distal and medial to the marks designating the location of the remaining rod.

Discussion

Both physicians to whom the patients returned voiced favorable opinions of the additional information provided by ultrasound. Neither indicated that the actual removal was easy, but both agreed that, given the exact surface and depth positions, they had less difficulty reaching the rods. The physician performing the procedure on the second patient remarked that without the marks, it would have been impossible to remove the rod because it was buried in so many fascial layers.

Recent publicity and litigation regarding Norplant removal indicate that although only a small percentage of patients experience difficult removal, the potential results include scarring, swelling, and associated morbidity. Based on our experience, we believe ultrasound may ameliorate the morbidity associated with difficult rod retrieval. Since most patients do not experience difficulty, it would be premature and irresponsible to recommend ultrasonographic localization prior to attempted removal in each case. Since ultrasound is readily available, however, and relatively inexpensive compared with other imaging techniques and perhaps treatment of associated morbidity, physicians should not hesitate to use this imaging modality when experiencing difficulty removing Norplant rods.

References

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