Single Rod Contraceptive Implant Ultrasound

I. Patient Preparation

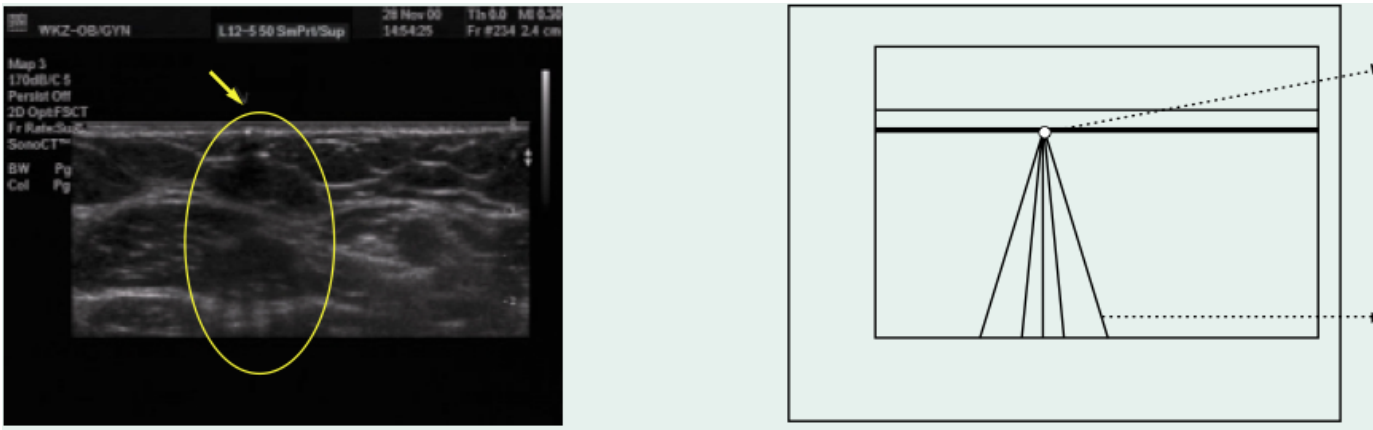
a. None

II. Equipment

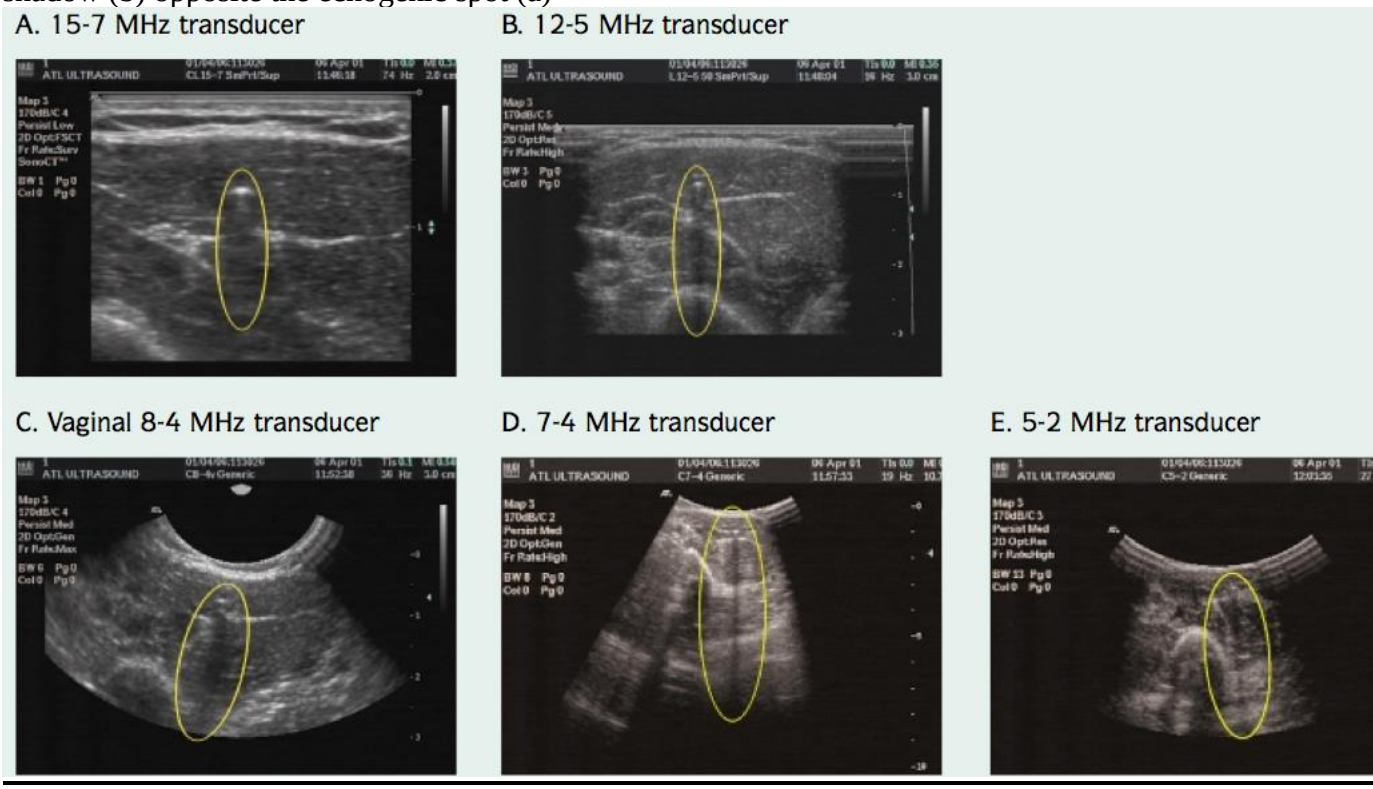
a. Performed with real-time scanner using a linear transducer with 12 MHz frequency.
b. Matrix x-plane and volumetric gray scale and/or power/color 3D evaluation can be employed.

III. Procedure Protocol

a. Locate the single rod implant and present to Radiologist, who can mark the skin after verifying location of the implant.
b. Since its introduction, Implanon® (N.V. Organon, Oss, The Netherlands), the single rod contraceptive implant containing etonogestrel. More than 300,000 women worldwide are currently using this method of contraception small number of cases have been reported in which the implant has not been inserted in accordance with the correct insertion procedure as described in the package insert. This can result in non-palpable implants and will therefore necessitate the use of other localization techniques such as ultrasound sonography. Two main reasons why the implant may not be palpable are either a failed or non-insertion procedure or an implant inserted too deeply.
c. In contrast to the surrounding tissues, Implanon can be identified and located by its acoustic shadow. The SonoCT Compound technique in the Philips Ultrasound equipment is helpful in the exact positioning of the implant since it produces a distinct acoustic shadow. The implant itself is visible as a small but clear echogenic spot.
d. We started each examination at a 90o angle to the presumed longitudinal direction of the implant. Normally the implant is positioned 6 – 8 cm from the elbow crease on the inner side of the upper arm in the sulcus bicipitalis medialis. We started focusing super- ficially since it was unlikely that the implant was inserted deeper than 3 cm after an incorrect procedure. After identifying the acoustic shadow of the implant we looked for the echogenic spot indicating the actual implant itself. Once the actual implant had been identified the transducer was turned 90o to obtain a longitudinal view. Finally, the exact position of both tips of the implant were indicated on the skin.
e. Best results were obtained with the high and very high frequency linear array transducers (12–5 and 15–7 MHz) (Fig. 3). When using a low or intermediate frequency transducer (5 – 2 and 8 – 4 MHz), application of a silicone patch or a large amount of gel was found to enhance visibility
f. The rods can be located intra-muscularly in the m. biceps and just beneath the fascia of the m. biceps, respectively. The distal tip of the implant can be located just underneath the skin while the proximal tip was inserted too deeply indicating an incorrect ”injection” technique. For the woman in whom the implant could not be visualized, a negative serum etonogestrel level (i.e. active component of Implanon) can support the ultrasound finding that the implant had not been inserted



g. Distinct (sonoCT) acoustic shadow from a correctly inserted contraceptive implant. The arrow marks the echogenic spot produced by the rod. The circle marks the distinct SonoCT-produced acoustic shadow. B Schematic representation of Figure 2A indicating the position of the acoustic shadow (b) opposite the echogenic spot (a)



h. Transversal view of an intramuscularly inserted contraceptive implant using five (A-E) different ultrasound transducers. The circle marks the echogenic spot produced by the rod itself and its acoustic shadow in the surrounding tissue

i. 

Transversal view of a too deeply, subfascialy inserted contraceptive implant using a high frequency (12–5 MHz) linear array transducer. The circle marks the echogenic spot produced by the rod itself and its clear acoustic shadow in the surrounding tissue