Abstracts of videos featured on the CD-ROM for this issue

Three-dimensional visualization of the polycystic ovary: effect of ovarian drilling

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The utilization of three-dimensional (3D) imaging technology and its application to the study of ovarian drilling are presented. The drilling procedures, 3D ultrasound reconstruction, volume rendering and surface rendering are described.

Summary

The utilization of electro-diathermic techniques for the treatment of polycystic ovary syndrome has been reported by several investigators. Although these reports have demonstrated the potential clinical effectiveness of this approach, systematic study of the effects of this type of drilling procedure on the ovary have not been reported. The purpose of this research was to utilize recently developed three-dimensional (3D) ultrasonic imaging technique of determining the longitudinal changes in ovarian volume associated with ovarian drilling.

The ovarian drilling procedures used in this study are similar to those described by Tulandi and the ultrasonic imaging procedures are similar to those of Watkin et al. The 3D imaging technique developed by Watkin uses a freehand scanning approach where the ultrasound probe location is determined in real time using a special tracking device. By moving the ultrasound probe slowly from one side of the ovary to the other ~200–600 2D ultrasound images per ovary are digitized and stored simultaneously with the probe localization data. These images are then reconstructed into a 3D database for display and measurement. Using the 3D stack of images, a 3D dimensional surface rendering measurement tool, called MeshDraw, was developed which under operator control identifies the edges of the ovary and calculates the volume of the ovary. This volume measurement technique allows irregular shapes and therefore provides more accurate volume determination compared to 2D ultrasound.

In this study the volume of the right and left ovaries were measured before ovarian drilling (1–7 days) and 1, 2 and 3 weeks post-drilling. Pre-ovarian drilling volumes were larger than those reported for the ‘normal’ ovaries. Examinations carried out 1 week post-drilling revealed enlargements due to the diathermy. At 2–3 weeks following drilling the ovary volume is reduced to near ‘normal’ volume.

Although we are reporting data from only one subject in this CD-ROM, this longitudinal study will provide important information on the effects of ovarian drilling on ovarian volume. This study underscores the need and utility of use of more advanced imaging technologies in the determination of effective treatment outcomes for polycystic ovaries.
Endoscopic myoma enucleation using a motodrive

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Initially, only small myomas were removed using this technique. Today, myomas up to 15 cm diameter can be extracted. The myoma must be grasped firmly and a VISEP motodrive is used to extract it. Three cases are shown. In the first case, a 7 cm intramural myoma is removed completely from the uterus prior to morselation. A thorough irrigation after the operation is essential to avoid the subsequent formation of adhesions.

The second case involves a 15 cm myoma which had previously been incompletely enucleated; it could be palpated under the umbilicus. The third case had also been incompletely enucleated. This part of the video emphasises how all steps must be carried out slowly and carefully.

It is essential to listen to the commentary on this video to follow the details of the operations.

Assessment of tubal function: The concept of tubal perfusion pressures

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Two recent developments have aided diagnostic and therapeutic approaches to the Fallopian tube. Firstly, spot film hysterosalpingography has been replaced by digitalized X-ray equipment for contrast analysis. The second advance, shown here, is the ability to approach the tube using catheters inserted transvaginally and so gain access to the whole of the tube. By injecting preset volumes of fluid into the tube, its resistance can be measured to obtain a value for tubal perfusion pressure (Karande et al., 1996). A standardized system has been established as shown in the video, whereby the only variable is the compliance of the Fallopian tube to different amounts of injected medium. This presentation concentrates on this diagnostic approach to the establishment of pregnancy, based on the analysis of tubal perfusion pressure.

References