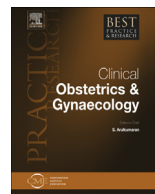




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Imaging in Gynaecology – Multiple Choice Answers for Vol. 28, No. 5

1. a) F b) T c) F d) T e) F

In women with regular menstrual periods, cardiac activity can be visualised at a gestational age of at least 46 days. Because of possible variation in the menstrual cycle and rate of fetal growth, however, gestational age alone should not be used for the determination of pregnancy viability. Cardiac activity can be seen by transvaginal ultrasonography in embryos measuring 3–5 mm in length. Taking into account variations in the sonographers' experience and equipment quality, a safety margin has been proposed stipulating that fetal demise should not be diagnosed in a single visit when the embryo measures less than 7 mm in length. Miscarriage can be diagnosed in a single visit when an empty gestational sac measuring 25 mm or more is seen on ultrasound. Complete miscarriage is diagnosed when ultrasound fails to identify any signs of pregnancy tissue within the uterine cavity. One should bear in mind that this diagnosis can only be made when an intrauterine pregnancy was visualised on a previous scan. While falling β HCG levels indicate a failing pregnancy, they do not identify its location.

2. a) F b) F c) T d) F e) F

Clinical findings suggestive of torsion should always take precedence over ultrasound findings in diagnosing ovarian torsion and sudden onset pain associated with nausea and vomiting are the most common. Ultrasound findings typical of torsion are not always present, and their absence should not influence the clinical management of a cystic ovary and acute pain. In ovarian torsion, arterial blood flow is typically maintained and, therefore, Doppler ultrasound studies are not particularly helpful. Ovarian enlargement and evidence of oedema are more helpful than findings of blood-flow studies. The 'Whirlpool' sign is a useful feature, as the twisted torqued pedicle can often be visualised using colour Doppler ultrasound. Endometriomas tend to be adherent to the surrounding pelvic structures and therefore they are less likely to tort compared to dermoid cysts which are typically free of adhesions. Pain that resolves in suspected torsion is usually due to de-torsion of the pedicle. In the presence of a cyst this should still be surgically managed to prevent it happening again and loss of the ovary.

3. a) F b) F c) F d) F e) F

Chorionicity can be determined when two gestational sacs are seen on the ultrasound examination. Gestational sacs can clearly be visualised at about 5 weeks' gestation. Monozygotic twins develop from a single fertilised oocyte. The chorionicity depends upon the time at which the developing embryo divides. If it divides before implantation, the resulting twins are dichorionic. In the first trimester, amniotic and chorionic membranes are not fused, and amnionity can be determined by counting the

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number of amniotic cavities within a gestational sac. Once pregnancy progresses beyond the first trimester, the membranes become fused, and determination of chorionicity and amnionicity is more difficult. In that situation the 'T' sign and 'lambda' sign are helpful in making the diagnosis. The number of yolk sacs can be predictive of amnionicity; however, in a small proportion of women, this can be misleading as a single yolk sac does not definitely indicate monoamniotic pregnancy. Because of this phenomenon, the visualisation of amniotic membranes at 7–9 weeks gestation is the appropriate tool for assessment of amnionicity. The early first trimester CRL measurements are not significantly different between singleton and twin pregnancies.

4. a) T b) T c) F d) T e) F

Only M-mode ultrasound should be used for heart rate assessment, as Doppler ultrasound produces high-energy output and should not be routinely used in early pregnancy. Three-dimensional ultrasound techniques use serial two-dimensional image sampling to reproduce a three-dimensional image. Hence, it does not exert higher energy impact on the embryo compared with standard two-dimensional ultrasound. Modern ultrasound machines always display mechanical and thermal indices. These should be presented to the examiner. They remind him to adjust the ultrasound settings to the lowest possible energy output. Tissue temperature rises of up to 1 °C are considered to be safe for the embryo.

5. a) T b) F c) T d) T e) F

The risk of finding endometrial cancer in a woman with postmenopausal bleeding and endometrial thickness as measured by ultrasound 4 mm or less is low. Prospective observational follow-up studies show that it is safe to refrain from endometrial sampling in these women. If the endometrial thickness is 5 mm or more, a representative endometrial sample must always be obtained. Regular endometrial echogenicity at grey scale ultrasound and poor vascularisation at colour or power Doppler decrease the risk of malignancy, but this information should be used mainly for prioritising women for a diagnostic procedure, not to decide whether or not a diagnostic procedure is needed (unless the woman is at extremely high operative risk and surgery is necessary to obtain a histological diagnosis). Almost all endometrial pathology grows focally in the uterine cavity. Therefore, a smooth endometrium with no signs of focal pathology at saline contrast sono-hysterography (or hysteroscopy) is a strong sign of normality. Because 87% of focal lesions cannot be removed at all or only partially removed if a blind endometrial sampling technique is used they must be resected under direct visual control to ensure their complete removal. Malignancy is sometimes rarely found in benign polyps. Therefore, it is important to remove focal lesions in toto. An endometrium that cannot be seen at ultrasound cannot be measured and cannot have its echogenicity or vascularity evaluated. Indeed, endometrial cancer is sometimes diagnosed in women with an invisible endometrium at ultrasound. To clarify the situation, saline-contrast sono-hysterography should be carried out. If it fails, the woman should be referred for hysteroscopy and endometrial sampling.

6. a) F b) F c) F d) T e) F

Endometrial thickness measurements with transvaginal ultrasound have no role in the triage of women with irregular bleeding before the menopause, because the endometrial thickness changes during the menstrual cycle. Immediately after menstruation, the endometrium is thin, during the proliferative phase it increases in thickness, and it remains thick in the secretory phase. The ultrasound appearance of the endometrium in the case of endometritis is not well known. No published high-quality ultrasound images exist of more common types of endometritis or of tuberculous endometritis. Indeed, endometritis in women with clinical signs of pelvic inflammatory disease does not seem to manifest any specific ultrasound features. Benign polyps may regress spontaneously in women before the menopause. Whether this is explained by misdiagnosis or by true polyps regression is unknown. Polyps are characterised by the presence of a feeding vessel at colour or power Doppler

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