

## **Answers to Medical Quiz**

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- A1. The ultrasound showing an anterior placenta which covers the internal os completely with a small margin of overlap.
- A2. Type III placenta praevia.
- A3. Predisposing factors:
- Increased parity
  - Advanced maternal age
  - Large placental size
  - Endometrial damage
  - Preterm delivery
  - Previous caesarean section
  - Smoking
  - Uterine scars and pathology
  - Placental pathology
  - Previous placenta praevia
- A4. Associated pregnancy complications:
- Spontaneous abortion
  - Pregnancy-induced hypertension
  - Small-for-gestational age
  - Abnormal placentation
  - Congenital abnormalities
  - Malpresentation

### **DISCUSSION**

Ultrasound evaluation of the placenta includes examination of the placental position, size and structure as well as examination of the retroplacental area and the umbilical cord.

Accurate placental localization is necessary for the diagnosis of placenta praevia. Placenta praevia refers to a placenta that is situated wholly or partially within the lower uterine segment at or after 28 weeks gestation. Prior to 28 weeks a placenta may be situated in or close to the developing lower segment and is described as low-lying; most low-lying placentae will not become placenta praevia.

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Placental localization using transabdominal ultrasound was first described by Gottesfeld et al, in 1966<sup>1</sup>. This technique has become standard practice as part of the routine ultrasound examination in the second and third trimesters and for acute diagnosis, replacing methods such as soft-tissue radiography and radioisotope scanning. Diagnostic accuracy is high, with rates between 93 and 97% reported<sup>2</sup>.

The lower uterine segment can be defined anteriorly as the area underlying the bladder. The normal lower segment measured from the cervical os is about 0.5 cm at 20 weeks gestation and hence, whilst a placenta may appear low-lying, it is not necessarily located in the lower segment. Only a placenta that is truly within the lower segment at 20 weeks is likely to become a placenta praevia; this is especially true of a placenta situated centrally over the cervical os.

Posterior placenta praevia can be difficult to diagnose both due to the absence of an appropriate landmark and because of the interposed fetal head. The use of transvaginal ultrasound is of advantage in making an accurate diagnosis<sup>3</sup>.

Differentiation between types of placenta praevia can also be difficult, especially distinguishing a low-lying placenta (I) from marginal or partial placenta praevia (II and III). Several conditions, such as maternal obesity, posterior localization, over distension of the bladder, local myometrial thickening or acoustic shadows from fetal parts can make transabdominal ultrasound less accurate for distinguishing different grades of placenta praevia<sup>3</sup>.

Careful ultrasound examination of the uterine cavity must be made to exclude the presence of a succenturiate lobe. Placental size is usually assessed visually, although a thickness of 4 cm is usually regarded as the upper limit of normal. Abnormalities in the size of the placenta require comprehensive examination of the fetus. Ultrasound examination of the retroplacental area in patients with antepartum haemorrhage may reveal the presence of retroplacental clot. Other structures in this area are placental venous lakes which are of no clinical significance. Lastly, the visualization of the umbilical cord is also an important part of the ultrasound examination. Longitudinal and transverse sections of the cord are necessary to demonstrate the umbilical vein surrounded by the two arteries. The presence of a single umbilical artery is an indication for a comprehensive review of fetal anatomy.

## REFERENCES

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3. Farine D, Fox H, Jakobson S, et al. Vaginal ultrasound for diagnosis of placenta previa. Am J Obstet Gynecol 1998;159:566-9.