

September 2011

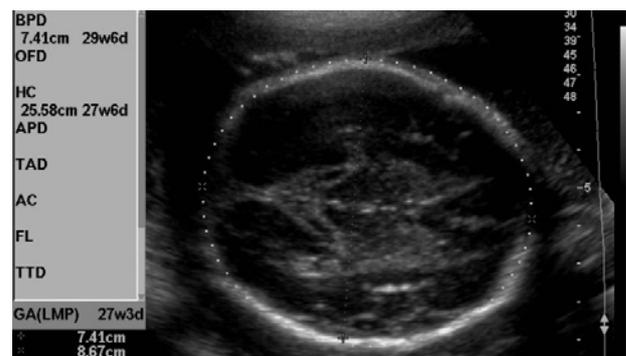
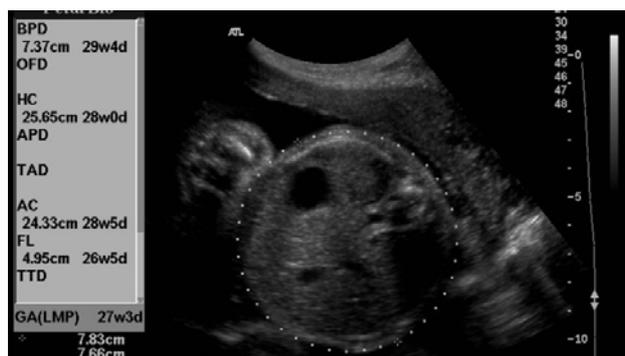
What's New in Obs and Gynae Radiology?

Customised growth charts and the use of fetal weight estimation

Experienced clinicians feel they are able to estimate fetal weight by palpation but fetal biometry using ultrasound to measure fetal growth parameters should provide a more accurate means of determining fetal size and from that deriving a fetal weight. As ultrasound machines have improved and one has been able to image third trimester and term pregnancies in greater detail than 20 years ago, reliable fetal weight estimation (EFW) has become a reality.

Fetal size varies considerably depending on maternal height, weight, ethnic origin, and parity. **Correlating fetal with maternal characteristics allows the normal constitutionally small fetuses to be separated from small fetuses that are growing poorly** i.e. are growth restricted (IUGR). By recognising this latter group early they can be monitored more closely with hopefully a better outcome. IUGR fetuses contribute significantly to the stillbirth rate in this country. It is not always appreciated but the stillbirth rate in NZ of 600 per year is similar to the deaths per year from breast cancer.

The fetal growth charts in current use are population based and do not take into account variations in size that are related to individual maternal characteristics. The answer is the **customised growth chart**. Developed in the United Kingdom, New Zealand specific data has been added. Thus fetal growth using fetal weights can be monitored on a chart dedicated to one woman and her current pregnancy. The charts can be referenced via www.gestation.net. Initially fetal growth can be followed on the charts with fundal height measurements. Ultrasound examination for EFW is indicated when there are concerns about growth. The EFW is derived from the growth parameters BPD, HC, AC and FL using a quadratic equation. It can then be plotted onto the customised chart. If the weight is appropriate for the mother it will fall within the normal parameters, the 10th to 90th percentiles on the chart. If the weight falls below the 10 percentile on the chart the fetus is potentially growth restricted and warrants specialist assessment and care. Up to 19% of these small fetuses will have a chromosomal abnormality and the risk increases if a structural abnormality is detected at the time of the ultrasound examination.



To be reliable an EFW must be based on accurate measurements of the fetal head and abdomen.

Fig 1. Biparietal BPD and head circumference measurements HC.

Fig 2. Abdominal circumference measurement - AC

- **Serial measurements over time** are better than single measurements. The abdominal circumference, AC and the EFW are the most reliable measurements for predicting a slowing of growth. Use of **umbilical artery Doppler** to monitor the IUGR fetus reduces perinatal morbidity and mortality but it does not reduce these possibilities in low risk pregnancies or where fetuses are growing normally. It is not a screening test for IUGR.
- Use of a customised chart will **only improve outcomes if the ultrasound examinations are**

performed to a high standard. In particular, the fetal head and abdominal measurements must be made according to the established patterns. Poor measurements give a false impression of poor growth or the converse. Where a mathematical formula based on more than one measurement is used, as it is for the EFW, errors of measurement will be compounded.

- It should be remembered that there is a **margin of error** in all ultrasound measurements. With EFW the margin of error is usually quoted as 10% but realistically it may be 12 to 15%. Therefore at term a fetus with a given ultrasound weight of 3.5kg the true weight will be 3.5kg plus or minus 500gm. That is the weight will be between 3kg and 4kg.

Going back to the past in gynaecology

Lipiodol, an oil contrast medium much favoured in the past, is making a comeback as a **fertility treatment**.

Lipiodol was used in diagnostic hysterosalpingography as the main contrast medium until newer contrast media were developed that could be absorbed and excreted from the body. There were some who felt this change was not an advantage as the oil contrast medium seemed to promote pregnancies in a way that was lost with the change. A trial conducted at Auckland Radiology Group in association with the O and G Department of the University of Auckland showed that there was indeed an **increase in the number of pregnancies** in women with fertility problems who underwent a therapeutic hysterosalpingogram compared with similar women who did not have the procedure.

The technique is simple, with no anaesthetic required. The nature of the positive effect seems to be in altering the uterine environment rather than "flushing the tubes". Current investigations are underway to see if Lipiodol bathing of the uterus will improve outcomes in women who have had failed IVF.

The procedure is usually performed under fluoroscopy at our Royal Oak rooms. Staff are well versed in the procedure and can answer questions you may have.



Fig 3. A hysterosalpingogram performed with Lipiodol for therapeutic reasons

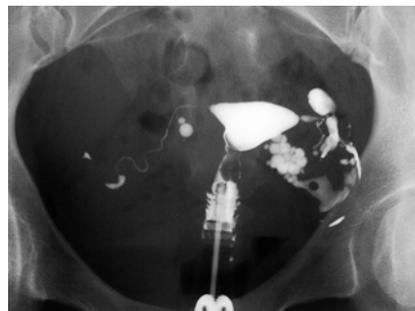


Fig 4. Lipiodol in the uterine cavity and droplets of the oil spilled from the fallopian tubes

Wendy Hadden

Our Kohimarama branch has moved a few doors along the road to 291 Kapa Road. Phone 521-2394

We have a new branch at Hauraki Corner, 327 Lake Road, Takapuna. Phone 489-3681