Small for Dates

Small for Dates (SFD)
- Means the same as small for gestational age - SGA
- Defined as on or below the tenth centile ie 10% of babies are SFD
- Equivalent to 2.7kg at birth
- 1/3 cases picked up by measuring symphyseal-fundal height: a 3cm discrepancy is suspicious; disappointing sensitivity- most cases missed by clinical examination alone
- SFD includes babies with intrauterine growth retardation, but does NOT mean the same, as there are many other causes of SFD. For example:
  - Constitutionally small but growing (associated factors: small parents, first baby, asian ethnic group) or
  - Wrong dates or
  - Foetal anomaly

Intrauterine growth restriction (IUGR)
- Not the same as SFD (see above)
- Means the same as fetal growth restriction or retardation (FGR)
- Means failure to achieve genetic growth potential
- So a “normal” weight baby may have IUGR if its potential was to be bigger than average- very hard to pick up
- Diagnosis is based on serial ultrasound showing reduced growth velocity
- IUGR implies crossing centiles on the weight chart (in contrast to small baby growing normally)
- Associated with reduced liquor
- Commonest aetiology is placental insufficiency

Normal Placentation
- Normally fetal trophoblast cells invade the spiral arteries within the myometrium between 14 and 18 weeks
- They destroy the muscular part of the vessel wall replacing it with flaccid fibrinoid material
- This converts a high resistance vessel to a high flow, low impedance vessel which can accommodate an enormous increase in blood flow
- Failure of this process causes pre-eclampsia and fetal growth restriction
Abnormal Placentation

Fetal growth restriction → Main burden on fetus
Pre-eclampsia → Main burden on mother

Some get both conditions

Pre-disposing factors for IUGR
- Previous IUGR
- Age less than 16 or over 35 years
- Low socioeconomic status, poor nutrition, social deprivation
- Smoking, drug abuse
- Pre-eclampsia
- Maternal disease- eg hypertension, renal disease, autoimmune disease including antiphospholipid antibody syndrome

High risk pregnancies should be monitored more closely including ultrasound at least monthly in the third trimester.
Associated problems: increased risk of

- Perinatal mortality
- Intrauterine death
- Intrapartum asphyxia
- Meconium aspiration
- Neonatal hypoglycaemia, polycythaemia, pulmonary haemorrhage
- Learning disability

Causes

- Fetal eg chromosomal abnormalities, congenital infection (rare)
- Placental insufficiency- most common
- Maternal disease eg pre-eclampsia, autoimmune disease

Abdominal circumference

- Fetal abdominal circumference is the best predictor of birth weight, even though there can be associated errors of 10-20%
- With placental insufficiency, there is asymmetric growth retardation
- The head circumference is relatively normal- “brain sparing”
- The abdomen is scaphoid due to loss of liver glycogen and subcutaneous fat
- Symmetrical growth retardation makes a fetal abnormality more likely

Management Principles

- Identify high risk pregnancies and diagnose as early as possible
- Use low dose aspirin if early onset pre-eclampsia or previous IUGR: some beneficial effect as *prophylaxis* but no evidence that it helps as treatment for established IUGR
- Monitor fetal growth and well-being carefully
- If small but growing, continue to monitor.
- If growth compromised but foetus well, deliver as soon as mature eg 37 weeks
- If premature delivery contemplated, use steroids to enhance lung maturation
- If fetal distress, deliver early.

Monitoring

- Serial ultrasound measuring abdominal circumference
- Cardiotocography (CTG)
- Fetal Doppler
  (Umbilical artery; useful- admit if reduced or absent flow in diastole- high risk)

Biophysical profile includes CTG and four u/s measurements:

- Liquor volume
- Fetal body movements (trunk)
- Fetal tone (limb flexion and extension)
- Fetal breathing movements
? Fetal growth restriction

Ultrasound including
Umbilical artery doppler
and amniotic fluid index

Abnormal

Admit and monitor closely
Steroids if less than 36/40
? Early delivery

Aetiology: if uncertain check
- Auto-immune screen including antiphospholipid antibodies
- amniocentesis
- cordocentesis for karyotype and acid base status
- possibility of intrauterine infection (CMV, toxoplasmosis, rubella)
History

How accurate are dates?

Were periods regular? Was mother on oral contraceptive pill within a month or two of conception? Was there a dating scan? When did the mother book? (Ultrasound assessment of dates is much less reliable late in pregnancy)
When was the mother first aware of the fluttering feeling of earliest fetal movements (quickening)? This occurs around 16-18 weeks in a multigravid woman and 18-20 weeks in a primigravid woman.

Previous obstetric history

If previous SFD, this is significant.
Ask about birth weights and any neonatal problems of previous babies
Previous pre-eclampsia or pre-eclampsia in this pregnancy.
If multigravid woman with no previous SFD, increased risk of fetal anomaly as cause of SFD- has this been considered; ?anomaly scan ?alphafetoprotein ?nuchal translucency scan in first trimester

Social history

Relevant to all pregnancies, but particularly important here:
maternal age
smoking
drug abuse
housing conditions
employment
Monitoring in pregnancy
When was SFD first suspected? Is there evidence of growth on subsequent scans?
How often is cardiotocography being performed?

Examination

Look for tar staining and any other signs of maternal disease (eg butterfly rash of systemic lupus).
Look specifically for injection sites for signs of drug abuse
Check blood pressure and urine for protein and check for oedema
Normal obstetric abdominal assessment with particular emphasis on:
Check fundal height in cm
Comment on liquor- if it is very easy to feel fetus, may be reduced volume
Check fetal heart