Detailed Fetal Anomaly Scan

Background

Detailed scan is a must in modern obstetrics and in the era where there is great advancement in ultrasound machines.

About one in every 50 babies (2 %) is born with a major structural abnormality. Babies with major structural anomalies may require major surgeries where the repair is possible, however many are left with some degree of handicap. Major fetal anomalies also account for 15% deaths at birth till one month and 15% of deaths in the first year of life. As antenatal and neonatal care improves, fetal malformations become increasingly important and this forms the basis of ultrasound screening for fetal abnormalities.

The aim of the detailed scan is to look for the baby's anatomy in detail in order to find out developmental and structural abnormalities. In general, the detailed ultrasound scan can detect 80 % of the structural abnormalities of the baby. Structural abnormalities which can be detected include anencephaly (absence of the skull bone) hydrocephalus (excessive fluid in the brain), achondroplasia (dwarf), omphalocele (abdominal defect at the umbilical cord insertion), spina bifida (defect in the spine formation), cleft palate / lips (defect in the lips) and heart defects (such as "hole in the heart").

When can detailed scan be performed?

18-23 weeks of pregnancy is an ideal time to perform the detail scan. This is because the baby's parts are not crowded , liquor is adequate and most of the fetal part can easily be seen. Earlier scan before 16 weeks is possible with higher resolution ultrasound machines in patients with higher risk of fetal abnormality.

What is done during detailed scan?

The detailed scan is performed by highly trained sonographers or trained O&G specialists. The scan will take about 30 minutes but may be longer in the presence of difficult fetal position and obese mothers.

During detail scanning, the following structures of the baby will be identified and examined in detail

- Head - shape and structures, ensure no excessive fluid in the brain and normal major brain structures
- Face- facial profile and to check for any cleft lip/cleft palate
- Neck –to ensure no swelling in the front and back
- Heart – to ensure normal anatomy and major vessels
- Lungs- to ensure no abnormal growth
- Diaphragm –to ensure no major defects
- Abdomen -stomach, kidneys , intestine, liver , bladder
- Genitalia – yes, most pregnant women would like to know
- Spine- both longitudinal (length) and transverse (cross section) to make sure that there are no spinal defect.

- Limbs -upper and lower limbs to look for extra digits and ensure correct angulation of feet
- Cord Insertion and vessels – to ensure no umbilical cyst. 2 arteries and 1
- Amniotic fluid
- the growth of the baby using bi-parietal diameter, abdominal circumference and femur length.

What are the abnormalities that can be detected?

The table below shows the common abnormalities that can be detected and the chances of being seen in detail scan.

Problem	What the problem is	Chance of being seen
Spina bifida	Open spinal cord	90%
Anencephaly	Absence of the top of the head	99%
Hydrocephalus	*Excess fluid within the brain	60%
Major congenital heart problems		25%
Diaphragmatic hernia	A defect in the muscle which separates the chest and abdomen	60%
Exomphalos/	Defects of the abdominal wall	90%

gastroschisis		
Major kidney problems	Missing or abnormal kidneys	85%
Major limb abnormalities	Missing bones or very short limbs	90%
Cerebral palsy	Spasticity	Never seen
Autism		Never seen
Down Syndrome	MAy be associated with heart and bowel problems	About 40%

Source: Royal College of Obstetricians and Gynaecologists (2000)

About 20% of all abnormalities will not be seen in the fetal anomaly scan because these abnormalities are difficult to detect or they appear at the later part of your pregnancy. So, there is a small chance that baby may have abnormalities at birth which are not detected during fetal anomaly scan.

With more advancement in the modern ultrasound machines, there are bigger possibility that the detection rate can be further improved.

What if there is an abnormality?

This is an extremely unfortunate situation for the patient where support is deemed necessary. The patient preferably as a couple should be counseled by highly trained O&G specialist in the field

of fetal medicine if available. During the consultation, the fetal abnormality and the implication of the abnormally is explained as clearly as possible. Some investigations might be required including maternal blood test and amniocentesis. Further interventions might be required by the baby-for example, defect of the lips or abdominal wall to be repaired by the paedriatic surgeon. It is best for the baby's doctor who will be doing the surgery to see the couple before delivery and therefore such arrangement is necessary. Certain abnormality such as cardiac defect or diaphragm defect can impair baby's breathing or blood circulation. Delivery for such patients can be arranged in hospital where more pediatrics expertise and facilities are available.

Certain congenital abnormalities can give serious handicap to the baby or markedly decreased baby's survival at birth. In such unfortunate event, termination of pregnancy can be considered as one of the options. The patients will require delicate counseling and tremendous support from the doctors and nursing staff. Many conditions are sporadic, in which will not occur in the next pregnancy. Some conditions where recurrence is possible, great care and support is offered in the next pregnancy.

Fetal medicine is a subspecialty in O&G where the obstetrician is specialized in abnormal fetal condition in order to provide better level of care for patients with fetal abnormality.

(I have some pictures of abnormal babies- see below)