

2 COMPLICATIONS OF PREGNANCY

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2.19 Small for Gestational Age Fetus
Section B
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2.19 SMALL FOR GESTATIONAL AGE FETUS

BACKGROUND INFORMATION

The term 'small for gestational age' (SGA) refers to the fetus that has failed to reach a specific biometry or estimated weight threshold by a specific gestational age.^{1,2} It is estimated that 50-70% of fetuses born weighing less than the 10th centile for gestational age are constitutionally small, with the growth appropriate for the parental size and ethnicity. The outcome is usually associated with normal placental function and normal outcomes. SGA foetuses with a birth weight less than the 50th centile for gestational age have a greater likelihood of intrauterine growth restriction (IUGR).²

SGA fetuses are at greater risk for stillbirth, birth hypoxia, neonatal complications, impaired neurodevelopment, and possibly Type 2 diabetes and hypertension in adult life, although the high incidence of adverse perinatal outcomes maybe contributed to the IUGR foetuses in this group. The majority of term SGA infants have no appreciable morbidity or mortality.¹

Biometric tests used to assess fetal size assist diagnosis of SGA, while biophysical tests are used to detect fetal wellbeing and are more indicative of IUGR.¹ The use of the customised fundal height chart has been demonstrated to improve the accuracy to predict an SGA fetus, but ultrasound measurements of the abdominal circumference and estimated fetal weight provide the most accurate way to predict SGA.¹ Symphysis fundal height (SFH) measurements may improve sensitivity and specificity for predicting SGA, however, the impact on perinatal outcomes is uncertain with a systematic review finding only one controlled trial showing that measurements did not improve the perinatal outcomes.¹

Assessment of fetal growth requires at least two measurements at least 2 weeks apart, which will differentiate normally growing foetuses from those with IUGR. Measurements only provide limited information to assist decision making for management for timing of delivery. Associated antenatal surveillance techniques assist in clinical judgement for timing of delivery. These techniques differentiate between a SGA fetus with a predicted normal outcome, and the fetus which is growth restricted resulting in adverse perinatal morbidity and mortality.² Umbilical artery Doppler measurements can identify if an confirmed SGA fetus is affected by placental dysfunction, with end-diastolic flow velocity results providing valuable information on risk for perinatal mortality and morbidity.²

KEY POINTS

1. SGA describes the fetus that has failed to reach the normal biometric weight by a specific gestational age. This does not always indicate a fetus is growth restricted.
2. The use of ultrasound biometry and biophysical tests can assist differentiation between the SGA with no expected perinatal morbidity or mortality risk, and the IUGR fetus with predicted poor perinatal outcomes.
3. To evaluate fetal growth over time a least two subsequent measurements 2 weeks apart should be performed.³

4. Management is individualised according to gestation and fetal wellbeing.

DIAGNOSIS

Most methods to detect SGA require an accurate estimation of gestation as a prerequisite.

Methods to detect SGA include:

- Abdominal palpation – detects up to 30% of SGA fetuses, therefore if a SGA fetus is suspected diagnosis should be supplemented by ultrasound biometry.
- Measurement of symphysis pubis fundal height – has a limited diagnostic ability to predict the SGA fetus.
- Ultrasound biometry
- Biophysical tests

MANAGEMENT

ASSESS FOR CAUSES OF THE SGA AND/OR THE IUGR FETUS

- Constitutionally small mothers^{4, 5}
- Poor maternal nutrition leading to a malnourished and underweight mother^{4, 5}
- Previous birth of an SGA baby increases risk in a subsequent pregnancy⁴
- Fetal structural abnormalities and congenital malformations⁴
- Fetal chromosomal abnormalities⁴
- Multiple pregnancy - a twin pregnancy is associated with a 10% increased chance of IUGR⁴
- Life style factors e.g. smoking⁴, alcohol and substance abuse⁵
- Fetal infections e.g. cytomegalovirus, malaria, parvovirus, rubella^{4, 5}
- Maternal disease or disorders e.g. pregnancy induced hypertension⁴
- Disorders of cartilage and bone⁵
- Teratogens⁵
- Renal disease⁵
- Chronic hypoxia⁵
- Placental and cord abnormalities⁵
- Antiphospholipid Antibody Syndrome⁵

FETAL SURVEILLANCE

Ultrasound scans

1. Arrange ultrasound assessment if a SGA fetus is **suspected** – biometry, amniotic fluid index (AFI), umbilical artery (UA) Doppler velocities, and fetal wellbeing.
2. If SGA is **confirmed** organise:
 - Weekly ultrasounds including AFI and UA Doppler's.
 - Fortnightly fetal biometry and fetal well-being.

Cardiotocograph monitoring (CTG)

1. If SGA is confirmed perform a CTG if the fetus is > 32 weeks gestation.
2. If SGA is confirmed and the fetus is < 32 weeks gestation – discuss management with the obstetric team Consultant if CTG monitoring is required in correlation with ultrasound findings.
3. Frequency of follow-up CGT monitoring in MFAU will be weekly or bi-weekly depending on the biophysical profile and the UA Doppler studies. The Consultant or Senior Registrar will make this decision.

MEDICAL REVIEW AND ANTENATAL CARE

SGA IS NOT CONFIRMED

If the ultrasound examination does not confirm SGA:

- Discuss with the team registrar or Consultant
- Allow routine follow-up with the usual health care provider.

CONFIRMED SGA

1. Abnormalities of ultrasound examination or CTG monitoring should have urgent review by the Consultant or the Senior registrar.
2. Document a management plan on the MR 004 'Obstetric Special Instruction Sheet'.
3. Organise ultrasound follow-up appointments in the Maternal Fetal Medicine Unit (MFAU).
4. Organise CTG monitoring according to gestation and medical management plan.
5. Arrange obstetric team antenatal clinic appointments weekly for medical review. Ideally the appointments should be made to coincide with appointments in MFAU.
6. If SGA is confirmed but serial ultrasound biometry and UA Doppler do not indicate IUGR or fetal compromise an individualised management plan should be documented.

CONFIRMED IUGR

1. If IUGR is diagnosed refer to [Clinical Guideline Section B 2.20 Intrauterine Growth Restriction](#).
2. Consider administration of [corticosteroids](#) if pre-term delivery is anticipated.

REFERENCES

1. Royal College of Obstetricians and Gynaecologists. Guideline No. 13. The investigation and management of the small-for-gestational age fetus. **RCOG Guidelines**. 2002.
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4. Lawrence EJ. Part 1: A Matter of Size: Evaluating the Growth-Restricted Neonate. **Advances in Neonatal Care**. 2006;6(December):313-22.
5. Cunningham FG, Leveno K, Bloom SL, et al. Fetal Growth Disorders. In: Rouse D, Rainey B, Spong C, et al, editors. **Williams Obstetrics**. 22nd ed. New York: McGraw-Hill; 2005. p. 893-910.