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Intrauterine fetal death

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Abstract
Sadly, intrauterine fetal death is a common occurrence and one that all labour ward personnel should be trained to manage. Recent advances have improved the likelihood of identifying a cause. The key to this is a logical and methodical approach to investigation. Postmortem examination remains a critical aspect of investigation and labour ward teams require a clear understanding of the legal aspects of this. Sympathetic and supportive care of parents should respect parental wishes and allow choice wherever possible. However, maternal safety should also be a central aspect of this care.

Introduction

Intrauterine fetal death (IUFD) or stillbirth is variously defined in different countries—by gestation or birth weight (usually 500 g). The variety of definitions makes comparisons of stillbirth rates difficult. This article takes fetal death after 20 weeks' gestation as the focus, as these women are generally managed on the labour ward.

In the UK, a stillbirth is defined as the delivery of a baby with no signs of life after 24 weeks' of pregnancy. The stillbirth rate in England and Wales is approximately 5.5/1000 total births and has been rising recently for reasons that are not clear.

The Extended Wrigglesworth, Obstetric (Aberdeen) and Fetal and Neonatal Factor classifications are used in the UK (details of these classification systems can be found at http://www.cemach.org.uk/pdn_classifications.htm). However, these classifications tend to leave a large number (up to 60%) of stillbirths as unclassified. A more recent classification—the ReCoDe system—provides a proposed aetiology in more cases, leaving only about 15% unclassified. This system is still being evaluated but potentially provides the clinician with more information.

Aetiology

The aetiology of IUFD is extremely heterogeneous. The use of growth centiles customised to maternal characteristics has shown that among the group of unexplained IUFD there are is large proportion of fetuses where poor growth is implicated. This finding demonstrates that fetal undergrowth is associated with many unexplained losses, although the pathological mechanism remains unclear. The causes can broadly be divided into fetal, maternal and placental (Box 1). An understanding of these allows us to better direct investigations.

The contribution of each of the above diseases and associations to fetal death is variable. It is vital not to ascribe unproven causation, as this can result in important further information being missed. For instance, although abruption might lead to fetal demise, underlying factors could exist. Abruption is more common in fetal abnormality, thrombophilias, growth restriction, smoking and drug use.

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Box 1 Causes of intrauterine fetal death.

Fetal

- Feto-fetal transfusion
- Feto-maternal haemorrhage
- Chromosomal and genetic disease
- Structural abnormality
- Infection
- Anaemias of fetal origin, e.g. alpha thalassaemia
- Cord accidents

Direct maternal effects

- Obstetric cholestasis
- Metabolic disturbance, e.g. diabetic ketoacidosis
- Reduced oxygen states, e.g. cystic fibrosis, obstructive sleep apnoea
- Uterine abnormalities, e.g. Ashermann's syndrome
- Antibody production, e.g. Rhesus disease, platelet alloimmunisation, congenital heart block

Maternal placental effects

- Pre-eclampsia
- Renal disease
- Antiphospholipid syndromes
- Thrombophilia
- Smoking
- Illegal drugs, e.g. cocaine

Associations

- The following factors are associated with an increased risk of IUFD:
  - advanced maternal age
  - obesity, advanced gestation
  - social deprivation

Equally, thrombophilias are common and whereas they have been shown to contribute to fetal death in some women, they might also be an incidental finding after a fetal death of another cause.

Obstetric cholestasis (OC) is strongly associated with fetal death as gestation increases. It is an important diagnosis to make as it might recur in up to 80% of subsequent pregnancies. It is a difficult diagnosis to make at post-mortem (PM) because the features are very non-specific in the fetus.

Diagnosis of the death

Fetal death must be diagnosed by ultrasound. Cardiotocography can be very misleading, as the heart rate tracing of an anxious mother is usually identical to that of a fetus. Fetal scalp electrodes can record the maternal heart rate when the fetus is dead:

- Ensure that you are appropriately trained to perform the ultrasound. If you are not, find someone who is.
- Colour-flow mapping can be very useful, especially in obese women.
- It might be helpful to show the parents what you are looking at, so they can see for themselves (however, not all parents want to see).
- Tell the parents clearly if the baby is dead.

Ultrasound can also confirm features that are helpful in further investigation. There might be:

- Spalding's sign: overlapping of the fetal skull bones when the fetus has been dead for some time;
- oligohydramnios;
- fetal hydrops.

Once the ultrasound has confirmed fetal death, it is very important that the news is given to parents in an unambiguous and sensitive way. Explain that the baby has died and express your sorrow.

Take some time to take a history. Mothers might forget important factors later. This is an important process for the mother; who might feel the need to go through events preceding the admission. Although some of the information that parents volunteer is clinically unimportant it should be listened to sympathetically and never dismissed as