BACKGROUND INFORMATION

Histopathological and microbiological examination of the placenta can reveal the aetiology of many conditions, such as stillbirth, pre-term delivery, intrauterine growth restrictions (IUGR), and neurological impairment. In a study of cases of intrauterine fetal death where causation was found, 88% had abnormal findings on placental examination. Additionally, examination can determine the type of twins, associated pathologies and can possibly identify whether fetal pathophysiology was acute or chronic. Furthermore, medical conditions that can recur can be recognised, providing information to manage or treat subsequent pregnancies.

Examination of the placenta may provide information for medico-legal reasons e.g. future neurodevelopment of an infant or timing of intrauterine compromise. The examination may provide defence against allegations of malpractice when the findings indicate that fetal or placental disease contributed to adverse pregnancy outcomes independent of the clinical care provided.

An Australian study showed that less than 20% of placentas were examined, while up to 50% would have met the College of American Pathologist Guidelines for placenta examination. The study also indicated insufficient information was given on pathology request forms; thus hampering clinicopathologic interpretation of the placental findings. It is important for staff to be familiar with current local guidelines for placental examination.

Placentas may be kept in the refrigerator, kept at 4°C, for at least a week, enabling later pathological examination. However, fresh placental tissue has the advantage of providing material for cultures, genetic and metabolic studies, and electron microscopy.
SPECIMEN TRANSPORT

1. The placenta should be checked; labelled, double bagged and placed in a container. The placenta is placed in a refrigerator (in the utility room in the Labour and Birth Suite) until transfer to the Pathology Specimen Reception. The accompanying Pathology form should contain a comprehensive clinical history and be signed. In cases of perinatal death when post-mortem is required the placenta is taken by the Patient Care Assistant (PCA) to Perinatology Pathology at KEMH. In the Labour and Birth Suite the labelled placenta is placed in the refrigerator in the Perinatal Loss Service (PLS) room. In cases when an autopsy is declined, a Pathology form must be completed and sent with the placenta.

2. Ensure a patient addressograph and date is applied on the plastic bag containing the placenta, and also on the container lid, and the side of the container.

PATHOLOGY REQUEST FORM - INFORMATION REQUIRED

Information provided on the pathology request form should include:

- Maternal:
  - Maternal age, parity and gestation
  - Maternal disease e.g., diabetes, autoimmune disease, metabolic disease, diabetes, thrombopathies-thrombophilias
  - Significant maternal history e.g. trauma, drug/alcohol abuse, infections
- Pregnancy information
- Antenatal / intrapartum: Any maternal/fetal problems
- Fetal / Neonatal: Any abnormalities
- Therapeutic interventions
- Both pathological and microbiological examination must be requested

ADDITIONAL INFORMATION

All placentas are kept in the KEMH Pathology Department for 6 weeks prior to being discarded.

See next page for indications for examination of the placenta.
INDICATIONS FOR PLACENTAL PATHOLOGICAL AND MICROBIOLOGICAL EXAMINATION

MATERNAL
- Pre-eclampsia\(^2\), pregnancy induced hypertension;\(^1\) chronic hypertension with IUGR\(^2\)
- Maternal infection, maternal fever;\(^1, 8\) or peripartum sepsis\(^2\)
- Significant maternal disease or conditions e.g. known maternal cancer;\(^2, 9\) collagen disease, diabetes, seizures, severe anaemia\(^8\)
- Prolonged rupture of membranes (ROM) (>24hrs);\(^5, 8\) or Premature ROM (>36hrs)\(^1\)
- Drug or alcohol misuse\(^7, 8\)
- Maternal trauma (severe)\(^2, 7, 8\)
- Gestational age more than 42 weeks\(^5, 8\)
- Unexplained or recurrent pregnancy problems e.g. stillbirth, spontaneous abortion, premature birth\(^5, 8\)
- Unexplained third trimester bleeding or excessive bleeding of > 500mL\(^5\)
- Metastatic malignancy

FETAL
- IUGR\(^2\) (birth weight < 2.5kg or 3\(^{rd}\) centile);\(^1\)
- Prematurity (< 37 weeks)\(^1, 8\)
- Fetal anaemia/haemorrhage
- Same sex twins, twins with undetermined chorionicity, twin to twin transfusion or multiple pregnancy\(^1\)
- Fetal abnormality; fetal hydrops\(^1, 2\) amniotic band disruption, discordant twin growth\(^2, 8\)
- Severe fetal distress requiring Special Care Nursery admission;\(^1\) or poor condition at birth (cord pH <7, Apgar ≤ 6 at 5min, ventilation>10min, severe anaemia)\(^2, 8\)
- Diseases of the neonate with possible intra uterine origin e.g. Infection/sepsis\(^2, 8\), neurological signs;\(^1\) seizures\(^2, 8\); or suspicion of fetal infection\(^9\)
- Stillbirth\(^1, 2\) or Neonatal death\(^2, 8\)

PLACENTAL
- Abruption;\(^1, 2\) or morbidly adherent placenta\(^1\)
- Abnormal placental appearance;\(^1\) or physical abnormality of the placenta e.g. infarct, mass, vascular thrombosis, haemorrhage, malodorous, scar;\(^2\) retroplacental haematoma, abnormal colouration;\(^8\) or placental lesions
- Small or large placental size or weight for gestational age\(^2, 5, 8\)
- Abnormal cord\(^2\) e.g. thrombosis, torsion, true knot, single artery, absent Wharton’s jelly; abnormally coiled cord or total umbilical cord length < 32cm at term, or long cord of > 100cm\(^5, 8\)
Marginal or velamentous insertion
Invasive procedures with suspected placental injury

OTHER: Medical request

REFERENCES / STANDARDS