

Placental Histology

Date		Version
November 2017		3
Purpose		
The purpose of this Standard Operating Procedure is to provide all clinical staff working within Maternity Services clear guidance for placentas that should be sent for histopathological examination.		
Who should read this document?		
All midwives All medical staff working within Maternity Services.		
Key messages		
Maintenance of effective and safe patient care.		
Accountabilities		
Review and approval	Review date Nov 2017 Clinical Effectiveness Committee, Women's & Children's Services	
Ratification	Clinical Effectiveness Committee	
Dissemination	All staff working within Maternity services	
Links to other policies and procedures		
Local Maternity antenatal, intrapartum and postnatal guidelines		
Version History		
V1	19 th June 2013	Written by Sally Watmore Reviewed by Sue Stock, Head of Midwifery
V2	30 th July 2014	Re-written by R Welch, L Carr and N Phillips Reviewed by Sue Stock. Head of Midwifery
V3	15 th November 2017	Re-written by Seneetha Racheneni and Rob Hadden
Last Approval		Due for Review
Nov 2017		Nov 2022

PHNT is committed to creating a fully inclusive and accessible service.

Making equality and diversity an integral part of the business will enable us to enhance the services we deliver and better meet the needs of patients and staff.

We will treat people with dignity and respect, actively promote equality and diversity, and eliminate all forms of discrimination regardless of (but not limited to) age, disability, gender reassignment, race, religion or belief, sex, sexual orientation, marriage/civil partnership and pregnancy/ maternity.

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Section	Description	Page
1	Rationale	
2	Introduction	
3	Indications for placental histology	
4	How to send placenta to histopathology	
5	How to complete the specimen request form	
6	Audit	
7	References	

This pathway aims to provide guidance on the range of indications for referral of a placenta for histopathological examination. Variations to the standard pathway for singleton placentas, relating to pregnancies from multiple gestations, are also included. Placental histology might

- facilitate the diagnosis of maternal-fetal conditions associated with adverse outcomes.
- Provide information salient to or allow prognosis for future pregnancies and their outcomes.

2 Introduction

Lesions of the placenta often reflect or explain the condition in which the baby was born and some have clinicopathological implications. However, in most cases, there is no clinicopathological relevance to a placental examination. The benefits that can be expected from the examination include revealing the aetiology of stillbirth, preterm delivery, severe intrauterine growth restriction (IUGR), and neurodevelopmental impairment. It may be possible to decide whether the pathological condition that endangered the wellbeing of the fetus was an acute or a chronic process.

Conditions with the risk of recurrence can be recognised, resulting in adequate treatment and preventive measures during subsequent pregnancies. Placental examination may have medico legal aspects—for example, concerning the aetiology of long term neurodevelopmental sequelae or the approximate timing of an intrauterine death. Individual judgment is warranted concerning the appropriateness of submitting the placenta. The decision to submit the placenta to histopathological examination should be based upon a reasonable likelihood that such an examination will:

- Facilitate the diagnosis of maternal-fetal conditions associated with adverse outcomes;
- Provide information salient to or allow prognosis for future pregnancies and their outcomes

3 When to send a placenta for histopathology

Indications:

- Severe fetal growth restriction (<3rd centile)
- Fetal abnormality-chromosomal or structural
- Still birth
- Severe fetal distress needing NICU admission with a high probability of poor outcome(storage in formalin for 21 days in the laboratory awaiting instructions from the obstetric risk management team whether to carry out an examination)
- Rhesus isoimmunisation
- Morbidly adherent placenta with incomplete removal or major obstetric haemorrhage during removal of the placenta
- Abnormal placental/umbilical cord or membranes anatomy on macroscopic examination

- Maternal alcohol and substance abuse
- Extreme prematurity(<26 weeks)
- Late miscarriages
- Twins
- Maternal infection requiring antibiotics for suspected chorioamnionitis

Submission of placentas following other pregnancy complications may depend on the value placed on placental examination in other situations by the senior obstetricians or neonatologists (evidence level D).

4 How to send the placenta for histopathology

4.1 Full details of the patient (mother), clinical consultant and date of delivery should be provided on the request form. As a minimum, the gestational age, birth weight and the indication for referral should be stated. Details of previous pregnancy complications and relevant maternal disease should also be provided.

4.2 The specimen container must be labelled with the patient details.

4.3 Any samples for cytogenetic testing or microbiology should be taken prior to formalin fixation. The request form for cytogenetic testing is available at the Midwife's station on Central Delivery Suite (CDS) where other specimen request forms are kept. The container for cytogenetic testing is available in the freezer in the treatment room on CDS.

4.4 Samples for microbiology testing of the placenta may be sent in a yellow specimen pot (urine culture pot) available on CDS.

4.5 Placentas may be submitted to the laboratory in formalin. When fixated in formalin, the container should be of sufficient size to minimise distortion of the specimen and formalin should be of adequate volume to cover the specimen entirely to ensure proper fixation.

For adequate fixation, the placenta must be placed in a container of adequate size, containing at least 3 times the tissue volume of formalin.

4.6 How to fill the specimen request form:

- Ensure full details are recorded on the pathology request form:
- Mothers full name and hospital number
- Clinical consultant
- Date of delivery
- Gestational age and mode of delivery
- Live birth or still birth
- Baby weight and sex
- Apgar scores
- Criteria indicating the need for request
- Tick 'Histology Oxford' if a stillbirth (Please discuss with the mother and inform on the PM consent form if they want the placenta to be returned to the local undertakers)

- Tick 'Histology Derriford' if the mother has not consented to a post-mortem and for all other inclusion criteria as stated above.
- Tick Store for MBRRACE, in the circumstance of an admission to NICU or any situation associated with suspected/ potential poor outcome
- Ensure the specimen container is the correct size to adequately allow for formalin immersion.
- Take samples for microbiology/cytogenetics prior to formalin immersion
- Label the container with the mother's name and number
- Send the placenta, covered in formalin, with the histology form to the laboratory

Document in maternal and neonatal records.

5 Documentation

It is expected that every episode of care to be clearly documented and as contemporaneously as possible using the approved maternity unit documents/paper work as per hospital policy. This is in line with standards set by professional colleges (NMC, RCOG). All entries must have date and time together with signature and printed name.

6 Audit

- Completeness of adherence to referral criteria
- Completeness of recording of standard measurements
- Inclusion of clinicopathological comment in report
- Turnaround time for report

7 References

1. Vinnars M-T, Vollmer B, Nasiell J, Papadogiannakis N, Westgren M. Association between cerebral palsy and microscopically verified placental infarction in extremely preterm infants. *Acta Obstet Gynecol Scand* 2015; 94:976–982
2. Carter, R. C., Wainwright, H., Molteno, C. D., Georgieff, M. K., Dodge, N. C., Warton, F., Meintjes, E. M., Jacobson, J. L. and Jacobson, S. W. (2016), Alcohol, Methamphetamine, and Marijuana Exposure Have Distinct Effects on the Human Placenta. *Alcohol Clin Exp Res*, 40: 753–764. doi:10.1111/acer.13022
3. Giacometti C, Cassaro M. [Clinicopathologic Correlations in Histopathologic Report of Placenta: Can We Do Something More?](#) *Arch Pathol Lab Med*. 2017 Feb;141(2):184-185

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- Submission of placentas following other pregnancy complications may depend on the value placed on placental examination in other situations by the senior obstetricians or neonatologists (evidence level D).

How to send the placenta for histopathology?

- Please state complete details of the patient (mother), clinical consultant and date of delivery along with the gestational age, birth weight and the indication for referral
- Any relevant details of previous pregnancy complications and maternal disease will be helpful
- Label the container with the patient details. You may send the placenta to the laboratory in formalin. For formalin fixation, choose the container of sufficient size to minimise distortion of the specimen and formalin should cover the specimen entirely
- Please take samples for cytogenetic testing or microbiology prior to pouring formalin into the specimen

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