COMPLICATIONS OF THE POSTNATAL PERIOD

POSTPARTUM HAEMORRHAGE

SELECTIVE PELVIC ARTERIAL EMBOLISATION IN THE MANAGEMENT OF POSTPARTUM HAEMORRHAGE AND ABNORMAL PLACENTATION

Keywords: arterial embolisation, embolization, selective pelvic, SPAE, pelvic embolization, selective arterial embolisation, post-partum haemorrhage, PPH, embolotherapy, occluding balloon catheter, angiography, transfer to another hospital, SCGH, FSH

AIM

The consideration of early interventional radiology in the management of postpartum haemorrhage and abnormal placentation

BACKGROUND

Postpartum haemorrhage remains a significant cause of maternal morbidity and mortality. Confidential enquiries and near miss reports indicate that large numbers of women suffer severe morbidity requiring blood transfusions, hysterectomy and intensive care facilities because of excessive blood loss. This may be predictable where there is known placenta accreta or placenta praevia. However, the majority of postpartum haemorrhage is unpredictable. Radiology has a central role in patient management of these conditions. Pelvic arterial embolisation should be considered when there is active bleeding in a woman who is haemodynamically stable, when the primary measures have failed. Reported success rates ranges from 86% -100%.

TECHNIQUE

The procedure is performed by an interventional radiologist in an angiography suite. The common femoral artery is punctured and a guide wire is advanced, followed by a catheter into the distal aorta. Pelvic angiograms and selective bilateral internal iliac angiograms identify the internal iliac of interest. Catheterisation of the internal iliac with digital “road mapping” to subselect the bleeding vessel is performed and this vessel is then occluded by gelfoam pledgets, coils or rings. The contralateral internal iliac is then catheterised. Vascular occlusion is confirmed by repeat angiography. Initial catheterisation of the anterior branch of the internal iliacs can be done with occluding balloon catheters prior to planned surgery and eventual embolotherapy in order to reduce blood loss and control postpartum haemorrhage.

ADVANTAGES OF SELECTIVE PELVIC ARTERIAL EMBOLISATION

- The risks of a major surgical procedure may be avoided.
- In selected clinical situations it may decrease the risk of morbidity and mortality for the woman.
• Conservation of the uterus and fertility potential. The overall success rate appears to be higher than that of surgical ligation of internal iliacs. 2,4

DISADVANTAGES OF SELECTIVE PELVIC ARTERIAL EMBOLISATION

• Failure of the procedure – failure rates are reported as 5%. Higher rates up to 30% are reported when there is abnormal placentation. 3,5
• Complications of angiography, pelvic infections and ischaemic phenomenon have been reported. In long term follow up it is reported the most common side effects were transient buttock numbness and urinary frequency. 6
• Availability of an interventional radiologist.
• Time delay due to the necessity to embolise off site.

SELECTION OF CASES

Use of SPAE is a decision made by the obstetrician in consultation, as appropriate, with a gynaecological oncologist, anaesthetist, haematologist and interventional radiologist (not all will need to be consulted in every case). Suitability for this procedure depends on the:
• clinical problem
• clinical state of the woman
• availability of the interventional radiologist
• time factors.

CLINICAL SITUATIONS THAT SPAE MAY BE CONSIDERED

EMERGENCY INTERVENTION1

Interventional radiology should be considered in the management of postpartum haemorrhage secondary to:
• Atonic uterus following normal or prolonged labour, with or without caesarean when pharmacological or other conservative measures e.g. intrauterine balloon, have failed.
• Surgical complications or uterine tears at the time of caesarean when there is ongoing bleeding which is surgically difficult to control without resorting to hysterectomy
• Bleeding while in the recovery unit or in the postnatal ward following a normal birth or a caesarean birth.
• Bleeding following hysterectomy.

In all of the above circumstances, the woman must be clinically stable enough to allow the embolisation to proceed.
ELECTIVELY
Known placenta accreta, increta or percreta.
Catheters may be placed electively in the anterior branch of the internal iliac arteries prior to the surgical procedure. However in the context of KEMH this would mean that surgery would be conducted at either Sir Charles Gairdner Hospital (SCGH) or Fiona Stanley Hospital (FSH).
Alternatively, leaving a morbidly adherent placenta in situ at the time of elective Caesarean and transferring the woman, if they are stable, for embolisation is an option.

TRANSFER TO SCGH OR FSH OF A WOMAN FOR SELECTIVE PELVIC ARTERIAL EMBOLISATION
- Ideally the woman should be haemodynamically stable at time of transfer.
- Time from decision for SPAE to haemostasis should be 2-4 hours.
- A senior midwife and senior obstetric staff member shall accompany the woman.
- An unstable woman shall only be transferred for embolisation, if, in the opinion of the Consultant Obstetrician, the risk of surgical intervention outweighs the risks inherent in:
  - moving an unstable woman
  - managing an unstable woman in a less-than-ideal environment during transfer
  - delays caused by transfer and time to achieve embolisation.
- In the case of an unstable woman, an anaesthetist shall accompany the woman and liaise with the intensive care consultant at the receiving tertiary hospital.

THE PROCESS TO FOLLOW:
See Appendix on page 4
REFERENCES / STANDARDS


National Standards – 1- Care Provided by the Clinical Workforce is Guided by Current Best Practice  
9- Recognising and Responding to Clinical Deterioration in Acute Health Care

Legislation -  
Related Policies -  
Other related documents – KEMH Clinical Guidelines:  
- O&G: Patient Administration: [Transfer of a Patient: Transfer of a Critically Unwell Patient and Records to an ICU at Another Hospital](https://www.rcog.org.uk/)  
- O&M: [Postnatal Complications](https://www.rcog.org.uk/)  
- Restricted Area Guideline (Intranet Only): [Primary PPH](https://www.rcog.org.uk/)

RESPONSIBILITY

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<th>Nursing &amp; Midwifery Director OGCCU</th>
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<tbody>
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<td>Initial Endorsement</td>
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<td>Last Reviewed</td>
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<td>Review date</td>
<td>March 2019</td>
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Do not keep printed versions of guidelines as currency of information cannot be guaranteed. Access the current version from the WNHS website.
APPENDIX

THE PROCESS TO FOLLOW

- Use of SPAE is a decision made by the obstetrician in consultation, as appropriate, with a gynaecological oncologist, anaesthetist, haematologist and interventional radiologist (not all will need to be consulted in every case).
- Telephone SCGH / FSH and request to speak to the interventional radiologist.
  - Sir Charles Gairdner Hospital direct line – speed dial 6001 or dial 9346 3333
  - Fiona Stanley Hospital 6152 2222
- Obtain the time for the procedure from the intervention radiologist.
- Explain the procedure of embolisation to the woman and obtain verbal prior to transfer as a formal consent will be obtained at SCGH / FSH on arrival.
- Check that the results are available and current for the following blood tests: Full Blood Count (FBC), coagulation profile, blood group and hold.
- Cross- matched blood should accompany the woman if there are concerns with ongoing bleeding.
- Ensure the woman is stable enough for transfer. This is to be determined by informing the Anaesthetic Consultant (KEMH) of the need to transfer and consider an anaesthetic escort (Registrar).
- An obstetric medical escort (Senior Registrar/Registrar) is mandatory even if the woman’s condition is considered to be stable.

Inform the following prior to transfer:
- The consultant on call at the Accident and Emergency Department (A&E) at SCGH / FSH- who will inform the Triage Nurse in A&E that the woman will not stop in A&E but only pass through.
- The surgeon on call (SCGH / FSH) - in case the woman requires admission at SCGH or FSH
- The Hospital Clinical Manager (KEMH)

Complete:
- A referral letter to the interventional radiologists – this should be comprehensive in case the woman requires admission at SCGH / FSH. Ensure that the contact details of the nominated consultant at KEMH are documented.
- A radiology form for arterial embolisation.

Midwives to ensure that:
- The woman is prepared for transfer with a nurse / midwife escort.
- Patient’s medical notes to accompany the woman. Appropriate documents to be photocopied for handover to SCGH / FSH - see Clinical Guideline, O&G, Patient Administration: Transfer: [Transfer of a Critically Unwell Patient and Records to an ICU at Another Hospital](#).
- Obtain a taxi voucher from the Hospital Clinical Manager / Unit Clinical Manager for the escort to return to KEMH.
- Call St. John’s Ambulance on 9334 1234 for a **CAT 1 transfer** and be ready as the ambulance will arrive in 5 or 10 minutes.