MANAGEMENT OF NEURAXIAL COMPLICATIONS

Applicable to (please mark with an X)							
Group-wide		**LUHFT-wide**				**Liverpool Women's**	**X**
Aintree Hospital		**Broadgreen Hospital**		**LCL**		**Royal Liverpool Hospital**	

Document ID:	LWH-CSS-GUIDELINE
Author with Contact Details:	Dr Laura Wilson, Consultant Anaesthetist Laura.wilson2@lwh.nhs.uk
Department/Division	Anaesthesia Department, Gynae Division
Version:	2.0
Approving Committee or Group:	Gynaecology Divisional Governance Group
Date Approved:	29/08/2025
Date for Review: This document will be reviewed every 3 years or as and when changes or legislation which affects the document are introduced.	01/07/2028
Target Audience	Anaesthetists, Midwifery Staff, Obstetricians
Key Words/Tags:	Neuraxial complications, Spinal, Epidural
Consulted with:	Consultant Anaesthetists, Maternity Guidelines & Policies Group
Associated Documents	Obstetric Epidural Analgesia Guideline Obstetric Inadvertent Dural Puncture during Epidural Guideline Spinal Anaesthesia
Evidence Base and References e.g. Regional or National Guidelines such as NICE or Royal College.	
Access to Information	To access this document in another language or format please email ITS@liverpoolft.nhs.uk

What is new in this version?

Latest Version	Page	Changes Made	Date
2.0		**Reviewed and updated, reformatted**	**02/07/2025**

1 Introduction

This guideline relates to complications associated with neuraxial techniques, including epidural/spinal/CSE (combined spinal epidural). All practitioners should be aware of the complications associated with these techniques.

The aim of this guideline is to ensure that should a complication occur, it is recognised and managed effectively.

This guideline does not contain information on the consent process, indications/contraindications, standards of monitoring and safe administration of neuraxial techniques. These can be found in other guidelines on the intranet, signposted throughout this document.

2 Guidance

Contents

1. Epidural Information Card (labourpains.org)

Type of Risk	How often does this happen?	How common is it?
Significant drop in blood pressure	One in every 50 women	Occasional
Not working well enough to reduce labour pain so you need to use other ways of lessening the pain	One in every 8 women	Common
Not working well enough for a caesarean section so you need to have a general anaesthetic	One in every 20 women	Sometimes
Severe headache	One in every 100 women (epidural) One in every 100-200 women (spinal)	Uncommon
Nerve damage (numb patch on a leg or foot, or having a weak leg)	Temporary - One in every 1,000 women	Rare
Effects lasting for more than 6 months	Permanent - One in every 13,000 women	Rare
Epidural abscess (infection)	One in every 50,000 women	Very rare
Meningitis	One in every 100,000 women	Very rare
Epidural haematoma (blood clot)	One in every 170,000 women	Very rare
Severe injury, including being paralysed	One in every 250,000 women	Extremely rare

2. Hypotension

Hypotension is defined as a fall in BP by 20% from pre-block BP reading or a systolic BP <100mmHg.

Assessment:

- When has hypotension occurred?
    - Profound hypotension after initial or subsequent epidural boluses maybe due to intrathecal catheter position and injection of local anaesthetic (potential to cause total spinal) or intravenous injection of local anaesthetic causing toxicity
    - SEE APPENDIX 1 AND 2 FOR OAA QRH ACTION CARDS ON HIGH CENTRAL NEURAXIAL BLOCK AND LOCAL ANAESTHETIC TOXICITY MANAGEMENT
- In absence of recent epidural bolus, consider other causes of sudden hypotension:
    - Anaphylaxis (See Appendix 3 for OAA QRH Action Card)
    - Bleeding
    - Embolic event: including pulmonary embolism, amniotic fluid embolism
    - THIS LIST IS NOT EXHAUSTIVE, SEE MANAGEMENT OF MATERNAL COLLAPSE FOR FURTHER GUIDANCE

Management:

- Stop the epidural infusion
- Turn obstetric patients into left lateral position
- Give supplemental oxygen to maintain oxygen saturations >94%
- Rapid IV fluid bolus: 250-500ml initially, repeat as required
- Call Anaesthetist for urgent review
    - IV fluid bolus if not already given
    - Assess block height and density
    - Ephedrine 3-6mg IV or phenylephrine 50-100 mcg IV boluses as required
    - Consider catheter position: is it intrathecal? SEE MANAGEMENT OF INTRATHECAL CATHETER IN INADVERTENT DURAL PUNCTURE DURING EPIDURAL GUIDELINE
    - When block height is <T8 restart epidural with reduced bolus dose
    - Consider other causes of hypotension and treat accordingly

3. Inadequate Analgesia

Perform assessment of epidural:

Subjective: Where is the pain/discomfort? What does pain/discomfort feel like?

Objective: Sensory assessment with ethyl chloride spray

- Dermatomal level?
- Unilateral/bilateral/asymmetric?
- Motor Block assessment
- Sympathetic Block assessment – bilateral warm feet?

Position:

- Maternal position
- Foetal position

Epidural site:

- Dressing intact?
- Excessive leaking?
- Catheter marking at skin unchanged?
- Equipment functioning correctly? – no alarms
- Common site for occlusion is where the catheter is inserted into the plastic clip, ensure its inserted correctly

Top-ups:

- Any top-ups performed?
- Effectiveness?

Problem Identified	Recommended Action
Missed Segment	If unilateral missed segment, position patient with missed segment side down 1. Clinician top-up from pump 2. Withdraw catheter by 1-2cm (leaving minimum of 3cm in space) followed by clinician top-up from pump
Unilateral Block	Position patient with unblocked side down 1. Clinician top-up from pump 2. Withdraw catheter by 1-2cm (leaving minimum of 3cm in space) followed by clinician top-up from pump
Low block	Clinician top-up from pump
Sacral sparing	Clinician top-up from pump with patient in sitting position
No block	Offer re-site of epidural Consider re-site at space lower than previous if sacral sparing Offer alternative analgesia eg. Remifentanil PCA

Invariably inadequate analgesia relates to inadequate volume of local anaesthetic. Very rarely is a higher concentration of local anaesthetic required. Discuss with Consultant Anaesthetist if considering this.

4. Post Dural Puncture Headache

SEE MANAGEMENT OF POST DURAL PUNCTURE HEADACHE GUIDELINE

Perform assessment of patient with headache

- Detailed history and timeline of symptoms
- Detailed examination of patient, including full neurological examination
- Review documentation of neuraxial technique

SYMPTOMS AND SIGNS OF PDPH
Frontal / Occipital Headache, postural in nature (relieved on lying flat)
Neck pain or stiffness
Nausea / Vomiting
Photophobia
Diplopia, blurred vision, tinnitus, hearing changes
Cranial Nerve Palsies

DIFFERENTIAL DIAGNOSES OF POSTPARTUM HEADACHE
Non-specific / Tension Headache
Migraine
Hypertension / Pre-eclampsia
Cortical Vein Thrombosis
Subarachnoid Haemorrhage
Posterior reversible leukoencephalopathy syndrome
Space- occupying lesions
Cerebral infarction / ischaemia
Sinusitis
Meningitis

Management:

- Consider CT head (+/- contrast) if any concerning features
- Consider LP & CSF culture depending on assessment findings
- Discuss findings with Consultant Anaesthetist
- Treatment dependent on cause
- Treatment of PDPH: SEE MANAGEMENT OF POST DURAL PUNCTURE HEADACHE GUIDELINE

5. Neurological Deficit

Review any patient reporting neurological deficit as a matter of urgency.

Perform assessment of patient:

- Detailed history and timeline of deficit
- Detailed neurological examination and examination of the back
- Review documentation regarding insertion of neuraxial technique
    - Any difficulties?
    - Multiple attempts?
- Any red flag symptoms or signs?
- Central or peripheral pathology suspected?
- Discuss all findings and actions with Consultant Anaesthetist

Central Pathology:

RED FLAG SYMPTOMS / SIGNS
ACUTE ONSET BACK PAIN
RADICULAR LEG PAIN
URINARY AND ANAL DYSFUNCTION
LOWER LEG NUMBNESS AND WEAKNESS

Peripheral Pathology:

Compressive Nerve Injury	Nerves affected	Cause	Presentation
Lateral Cutaneous Nerve of the Thigh	L2/3	Compression of nerve as it passes under inguinal ligament	Sensory loss over anterolateral aspect of the thigh
Lumbosacral plexus	L4/5, S1/5	Compression of plexus against sacral ala, usually from foetal head in second stage	Numbness over lateral aspect of thigh, lower leg and dorsum of foot. Results in foot drop, usually unilateral.
Common Perineal Nerve	L4/5, S1/2	Compression of nerve as it passes over head of fibula, usually as a result of prolonged lithotomy positioning.	Numbness over lateral aspect of lower leg and dorsum of foot. Results in foot drop.
Femoral Nerve	L2/3/4	Compression of nerve against inguinal canal during forceps delivery or LSCS.	Sensory loss over anterior thigh and inner aspect of lower leg. Reduced or absent patellar reflex. Can be bilateral.

Obturator Nerve	L2/3/4	Compression of nerve by foetal head or forceps.	Sensory loss over inner thigh, weak hip adduction and rotation. Usually unilateral. Can be bilateral.

Management:

- Central pathology
  - Requires an **urgent** MRI Spine
  - See online SOP for requesting urgent MRI
    - Liverpool Women's Inpatient CT Scan Procedure- CT (Static)
    - Liverpool Women's Inpatient MRI Scan Procedure
  - Request via appropriate pathway for time of day
  - Liaise with Radiologist & Neurosurgeon
  - Arrange timely transfer
  - Epidural haematomas need evacuating within 12 hours of symptom onset
- Peripheral pathology
  - Consider MRI spine
  - Consider Nerve Conduction Studies
  - Discuss with Neurology

Patients with peripheral pathology that is improving require daily review until discharge (if safe to do so). Ensure accurate documentation of all assessments on K2 under management plans. Ensure handover of women with neurological deficit between every shift.

On discharge ensure safety net advice has been given, follow-up arranged with Neurology (if required) and in Anaesthetic Clinic (please request face to face double slot for debrief and assessment for six weeks post-natal).

6. Additional Complications

6a. Drug related complications:

- Opiate –
  - Nausea / Vomiting: Anti-emetic
  - Pruritis: Chlorphenamine or small doses of Naloxone (40mcg IV)
  - Respiratory depression: monitor oxygen saturations, consider supplemental oxygen, consider plain epidural infusion
- Local Anaesthetic –
  - Toxicity: SEE APPENDIX 2 FOR OAA QRH ACTION CARD
  - Anaphylaxis: SEE APPENDIX 3 FOR OAA QRH ACTION CARD

6b. Blood in catheter:

- Blood in Touhy needle: remove and recommence procedure (consider at different space)
- Blood in catheter: flush with saline and aspirate until no further blood aspirated (consider withdrawing catheter 1cm), cautious test dose with Anaesthetist remaining in room

6c. Accidental Dural Puncture:

- Recognition is vital
  - CSF flowing through Touhy needle
  - Exaggerated response to test dose
  - High block
- FOR MANAGEMENT SEE OBSTETRIC INADVERTENT DURAL PUNCTURE DURING EPIDURAL GUIDELINE

6d. Catheter Disconnection

Epidural catheters can become disconnected at 3 points:

- Catheter and clip
- Clip and filter
- Filter and infusion line

Identification of Disconnection and Escalation

Midwife to wrap the end of the epidural catheter in a sterile swab
Contact Anaesthetist immediately
Midwife to document and communicate:
Time and sequence of events leading up to apparent disconnection
Witness (patient/relative vs healthcare professional)
Location of disconnection

Assessment of Disconnection by Anaesthetist

Stop epidural pump
Don sterile gloves at assess disconnection site
Inform patient of risks associated with potentially contaminated catheter

Disconnection between filter/clip or clip/catheter:

Factors Favouring Removal +/- Re-site	Factors Favouring Cut
Unwitnessed disconnection	Directly witnessed disconnection with accurate history from patient/HCP
Unknown duration of disconnection	Immediate disconnection
Obvious soiling/non-sterile contact of disconnection site	Fluid within the catheter has remained static
Clip/Catheter disconnection (catheter exposed to air)	Meniscus has moved less than 12.5cm

Removal of epidural catheter

Check platelets and anticoagulation status

Don sterile gloves

Remove dressing and catheter (check tip)

Apply sterile dressing to site

Consider re-site (alternative space) or alternative analgesia after discussion with patient

Cutting epidural catheter

Don sterile gloves

Soak contaminated segment in iodine/chlorhexidine solution and allow 5 minutes to dry

Cut designated length (7-12.5cm) with sterile scissors/scalpel

Reconnect with new epidural filter, clip and infusion line

Ensure accurate documentation on K2 of assessment and subsequent management, including counselling of risk of infection. Ensure follow-up of patients who have had an epidural disconnection.

Appendix 1: High Central Neuraxial Block

2-7 High central neuraxial block v.1

Following epidural or intrathecal injection of local anaesthetic (deliberate or inadvertent)
Symptoms can progress quickly – hypotension and bradycardia / difficulty breathing / paralysis of arms / impaired consciousness / apnoea and unconsciousness

START

1. **Call for help** (anaesthetics, midwife, obstetrician, theatre team)
   - **Ask**: "who will be the team leader?"
   - **Team leader assigns** checklist reader and scribe
   - **Reassure** woman who may be aware
2. **Airway and breathing**
   - If airway obstruction ➔ airway opening manoeuvres +/- oropharyngeal airway
   - If apnoea ➔ ventilate -*then*- intubate
   - If breathing ➔ apply oxygen at 15 L/min via reservoir mask, titrate to SpO_2 95-98%
   - Start continuous monitoring: SpO_2 and respiratory rate monitoring
3. **Circulation**
   - Relieve aortocaval compression with manual uterine displacement
   - Elevate legs without head down tilt
   - Start continuous monitoring: 3-lead ECG and blood pressure
   - If hypotension ➔ give fluid bolus 250-500 ml and vasopressor (**Box A**)
   - If bradycardia ➔ give glycopyrrolate or atropine (**Box A**)
4. **If woman is conscious** ➔
   - Check height of block
   - If awareness suspected ➔ give hypnotic
5. **Position**
   - If no cardiovascular compromise ➔ sit woman up
   - If cardiovascular compromise ➔ may need to lie woman flat
6. **Obstetricians** to consider need for birth
7. **Continue respiratory support until block recedes (approximately 4 hours)** (**Box C**)

Box A: Drug doses and treatments

Hypotension
Metaraminol: 0.5 - 2 mg bolus
Ephedrine: 6 - 12 mg bolus (to max 30 mg – tachyphylaxis)
Phenylephrine: *50 - 100 mcg bolus (followed by an infusion)
***Avoid phenylephrine bolus if bradycardic**

Bradycardia
Glycopyrrolate: 0.2 - 0.4 mg bolus
Atropine: 500 mcg bolus (to max 3 mg)

Flush all medications

Box B: Consideration of other differential diagnosis

Vasovagal event
Aortocaval compression (made worse with high block)
Local anaesthetic toxicity
Embolism
Concealed haemorrhage

Box C: Post event actions

Arrange safe transfer to appropriate clinical area
Arrange postnatal obstetric anaesthetic clinic review

9. APPEN

Appendix 2: Local Anaesthetic Toxicity

2-8 Local anaesthetic toxicity v.1.2

Signs of severe toxicity

- Sudden alteration in mental status, severe agitation or loss of consciousness, with or without tonic-clonic convulsions
- Cardiovascular collapse: sinus bradycardia, conduction blocks, asystole and ventricular tachyarrhythmias may all occur
- **Local anaesthetic toxicity may occur some time after an initial injection**

START

1. **Call for help** (obstetrician, midwife, anaesthetist +/- neonatal +/- cardiac arrest team)
   - **Ask**: "who will be the team leader?"
   - **Team leader assigns** checklist reader and scribe
   - **Ask for cardiac arrest trolley** and **lipid rescue pack**
2. **Stop all local anaesthetics → check pumps and IV infusions**
3. **Check clinical status using ABCDE approach**
   - Position woman left lateral (recovery) *-or-* supine with manual uterine displacement
   - If airway obstructed → perform head tilt / chin lift or jaw thrust
   - If intubation required → intubate. Avoid hypercarbia with mild hyperventilation
   - If breathing → apply oxygen at 15 L/min via reservoir mask, titrate to SpO_2 95-98%
   - Start continuous monitoring: SpO_2, respiratory rate, 3-lead ECG and blood pressure
4. **Check for cardiac arrest**

   If **cardiac arrest** → Start continuous CPR using standard protocols → *modify as follows*
   - Give intravenous lipid emulsion (**Box A**)
   - Use smaller adrenaline doses (≤ 1 mcg/kg instead of 1 mg). Avoid vasopressin
   - Prolonged CPR maybe necessary (at least 1 hour)
   - Call for cardiopulmonary bypass if available on your site

   If <u>no</u> **cardiac arrest**
   - If hypotension → give crystalloid fluid boluses and vasopressors
   - If arrhythmias → give standard therapy (avoid lidocaine)
   - Consider intravenous lipid emulsion (**Box A**)
5. **Check for seizures**
   - If seizures present → give drugs to control seizure (**Box B**)

Box A: 20% intralipid® emulsion regime

Immediately: Give initial IV bolus of lipid emulsion 1.5 ml/kg over 2-3 min (~100 ml for a 70 kg adult)
Start IV infusion of lipid emulsion at 15 ml/kg/hr (17.5 ml/min for a 70 kg adult)
At 5 and 10 minutes: Give a repeat bolus (same dose) if:
Cardiovascular stability has not been restored or an adequate circulation deteriorates
At any time after 5 minutes:
- Double the rate to 30 ml/kg/hr if:

cardiovascular stability has not been restored or an adequate circulation deteriorates
DO NOT exceed maximum cumulative dose 12 ml/kg (70 kg: 840ml)

Box B: Drug doses for seizure activity

Benzodiazepines:
- Lorazepam IV 0.1 mg/kg (max 4mg) *-or-* if IV access not available
- Diazepam PR 0.5 mg/kg (max 10mg)

Repeat benzodiazepine dose after 5 minutes, if seizures persist
Clinicians experienced in their use can add propofol or thiopentone if seizures persist; beware negative inotropic effect
Consider neuromuscular blockade if seizure cannot be controlled
Contact anaesthetics / ICU if not already present

Box C: Post event actions

Arrange safe transfer to appropriate clinical area
Regularly assess for pancreatitis: clinical review, daily amylase / lipase
Report case locally and to relevant national system
Check if any administered drugs affect breast milk
Arrange postnatal obstetric anaesthetic clinic review

Box D: Critical changes

If cardiac arrest → continue lipid emulsion *-and-* → **Obstetric Cardiac Arrest 1-1**

Appendix 3: Anaphylaxis

2-4a Anaphylaxis v.1

Anaphylaxis is a life-threatening hypersensitivity reaction featuring rapidly developing hypotension and tachycardia, and potentially life threating airway obstruction or bronchospasm. **Common causative agents**: antibiotics, anaesthetic agents, IV colloids, blood products. Latex: catheters, dressings, gloves. Chlorhexidine: skin preparation, impregnated lubricants, or catheters

START

1. **Call for help** (obstetrician, midwife, anaesthetist +/- neonatal team +/- cardiac arrest team)
   - **Ask**: "who will be the team leader?"
   - **Team leader assigns** checklist reader and scribe
   - **Note time**
2. **Assess clinical status using the ABCDE approach**
   - Position woman appropriately (**Box A**)
   - Check airway *–then–* give high flow oxygen
   - If airway involvement ➔ call anaesthetics/ICU
   - Start continuous monitoring: SpO_2, respiratory rate, 3-lead ECG and blood pressure
3. **Treat anaphylaxis**
   - Give adrenaline 500 mcg IM. If no improvement ➔ repeat at 5 minute intervals (**Box B**)
   - Give rapid IV crystalloid bolus
   - Remove any suspected causative agents
4. **Assess response**
   - If no improvement in cardiac or respiratory symptoms after two doses of IM adrenaline state 'refractory anaphylaxis' *–then–* ➔ **2-4b**
5. **Take mast-cell tryptase sample**
   - 5-10 mL clotted blood drawn as soon as feasible following initial resuscitation
6. **Consider transfer of the woman to critical care setting**
7. **Start post event action** (**Box C**)

Box A: Position

If cardiovascular compromise. Lie flat, tilt bed head down

Avoid aortocaval compression:

- Place in full left lateral position; ***or***
- Supine with manual uterine displacement; *or*
- 15° lateral tilt (if bed/operating table permits)

If respiratory problems without cardiovascular compromise:

- Place in sitting position

Box B: Drug doses and treatments

- **Adrenaline bolus** *500 micrograms IM (0.5 mL of 1:1000 adrenaline) to anterolateral aspect of mid-thigh *–or–* [specialist use] 50 micrograms IO/IV with appropriate monitoring.

**IM generally preferred; IV/IO adrenaline ONLY to be given by experienced specialists*

- **Oxygen** 15 L/min via reservoir mask *–then–* titrate to SpO_2 94-98%
- **Crystalloid bolus** e.g., 500-1000 ml Hartmann's titrate to response **(reduce to 250-500 ml if pre-eclamptic)**

Box C: Post event actions

- Stop suspected triggers currently prescribed
- Take 2nd tryptase sample at 1-2 hrs, and 3rd after 24 hrs
- Consider cetirizine (10-20 mg PO) for cutaneous symptoms
- Make referral to a specialist allergy clinic or immunology centre to identify the causative agent (see www.bsaci.org)
- Report anaphylactic drug reactions (www.mhra.gov.uk)
- Inform the woman and her GP

Box D: Critical changes

Refractory anaphylaxis ➔ **2-4b**

Cardiac arrest ➔ **1-1**

Appendix 4: Refractory Anaphylaxis

2-4b Refractory Anaphylaxis v.1

Refractory anaphylaxis exists where a woman shows no improvement in cardiovascular or respiratory symptoms after two appropriate doses of IM adrenaline

START

1. **Call for anaesthetics/ICU** if not already present
2. **Start continuous monitoring** if not already started
   - SpO_2
   - 3-lead ECG
   - Blood pressure checks on automatic cycle (at least every 5 minutes)
   - Continuous fetal monitoring
3. **Start adrenaline infusion (Box A)**
   - Repeat adrenaline boluses at 5 minute intervals until infusion started
4. **Check response to treatment**
   - If ongoing shock ➔ give rapid bolus(es) of IV crystalloid *–and–* give steroid treatment (**Box A**)
   - If severe or persistent wheeze ➔ give nebulised salbutamol *–and–* give steroid treatment (**Box A**)
   - If systolic BP < 50mmHg commence CPR
5. **Take mast-cell tryptase sample**
   - 5-10 ml clotted blood drawn as soon as feasible following initial resuscitation
   - Second sample 1-2 hours (no later than 4 hrs) after initial reaction
6. **Transfer the woman to a critical care setting**
7. **Start post event actions (Box C)**

Box A: Drug doses and treatments

- **Adrenaline bolus** *500 micrograms IM to anterolateral aspect of mid-thigh *–or–*[specialist use] 50 micrograms IO / IV

IM generally preferred; IV/IO adrenaline **ONLY to be given by experienced specialists*

- **Adrenaline infusion** †check local protocol *–or–* 1 mg in 100 ml 0.9% sodium chloride via peripheral IV; start at 0.5 - 1.0 ml/kg/hr

†Only for refractory anaphylaxis

- **Salbutamol** 5 mg nebulised
- **Oxygen** 15 L/min via reservoir mask *–then–* titrate to SpO_2 95-98%
- **Crystalloid bolus** e.g., 500-1000 ml Hartmann's titrate to response (Reduce to 250-500 ml if pre-eclamptic)
- **Steroid** Prednisolone PO 40 mg if possible *–or–* Hydrocortisone 100 mg IV if PO route unavailable
- **Glucagon** 1mg IV repeat as necessary if ß-blocked woman unresponsive to adrenaline

If hypotension resistant experienced specialist to consider alternative vasopressor e.g., metaraminol, noradrenaline +/- vasopressin

- **Vasopressin** 2 units repeat as necessary (consider infusion)

Box B: Critical changes

- **Obstetric cardiac arrest ➔ 1-1**

Box C: Post event actions

- Stop suspected triggers currently prescribed.
- Take 2nd tryptase sample at 1-2 hrs, and 3rd after 24 hrs
- Consider cetirizine for cutaneous symptoms
- Make referral to a specialist allergy clinic or immunology centre to identify the causative agent (see www.bsaci.org)
- Report anaphylactic drug reactions (www.mhra.gov.uk)
- Inform the woman and her GP

Appendix 5: References

epiduralinformationcard.pdf

Obstetric Anaesthetic Association: Quick Reference Handbook. June 2024
https://www.oaa-anaes.ac.uk/downloads/oaa-qrh/june-2024-v1.2/final-obs-qrh-v.1.2.pdf

GUIDELINE FOR MANAGEMENT OF UNEXPLAINED MATERNAL COLLAPSE INCLUDING CARDIAC ARREST

Obstetric INadvertent Dural Puncture during Epidural Guideline

Management of Post Dural Puncture Headache PDPH

McKenzie, A.G. and Darragh, K., 2011. A national survey of prevention of infection in obstetric central neuraxial blockade in the UK. Anaesthesia, 66(6), pp.497-502.

Parry, G., 2003. What do we do with a disconnected epidural catheter?. Canadian Journal of Anesthesia, 50(5), pp.523-523.

Donnelly, T., Djabaty, E. and Davies, M., 2000. Management of disconnection between epidural filters and catheters: a dilemma for the anaesthetist. Anaesthesia, 55(2).

Appendix 6: Document History and Version Control

Version	Date	Comments	Author/Job Title
1.0	05/05/2023	New Guideline	Dr David Patrick, Consultant Anaesthetist
2.0	02/07/2025	Reviewed and Updated	Dr Laura Wilson, Consultant Anaesthetist