Obstetric Epidural Analgesia and Anaesthesia / Accidental Dural Puncture – Guideline for Management

NHS University Hospitals of Leicester

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Contents

1. Introduction and who the guideline applies to:

This guideline aims to ensure effective and safe use of epidural analgesia and anaesthesia on the labour wards. A 24 hour on - request epidural service is available. However, availability will depend on adequate midwifery staffing levels and the clinical environment at the time. Epidurals can only be performed in the obstetric led delivery rooms. Women in the midwifery led care rooms must be moved into a room on the main delivery suite first.

This guideline is for use by midwives, anaesthetists, obstetricians, pharmacists and nurses in the care of a woman with epidural analgesia in labour.

2. Information and consent

If a person is contemplating regional analgesia, talk with them about the risks and benefits and the implications for labour, including the arrangements and time involved for transfer of care to an obstetric unit if they are at home or in a midwifery unit.

2.1 Provide information about epidural analgesia, including the following;

- It is available only in obstetric units.

- It provides more effective pain relief than opioids.
- It is not associated with long-term backache.
- It is not associated with a longer first stage of labour or an increased chance of a caesarean birth.
- It is associated with a longer second stage of labour and an increased chance of vaginal instrumental birth.
- It will be accompanied by a more intensive level of monitoring and intravenous access, and so mobility may be reduced.

2.2 Consent must be obtained prior to the procedure

- The anaesthetist should as a matter of routine visit the woman before performing the epidural and explain the technique, complications and what to expect.

- A verbal consent must be obtained and documented in the health record

- If there has been previous administration of IM Opioid the woman should be informed of the increased risk of itching

- An epidural analgesia information sheet may be offered. Translations of this document are available on the OAA website.

3. Preparation for epidural

3.1 IV access

- Intravenous access must be secured using a 14 or 16g cannula

- An intravenous infusion should be commenced using 1000mls Hartmann's solution

- Preloading is only necessary if the woman is evidently dehydrated

3.2 Position

- The woman must be positioned correctly to avoid aorta-caval compression throughout labour and delivery

- The epidural may be inserted in the sitting or full lateral position.

- If they wish to lie supine after epidural insertion, at least 15 degrees of lateral tilt should be applied by wedging under the hips

4. Monitoring

- The woman and fetus should be closely monitored
- The IV access should be examined at each top up to ensure it is intact
- The epidural site should be examined at each top up to ensure it is intact
- The woman's position should be changed at least every 2 hours if possible in order to prevent pressure sores developing
- The skin should be inspected and the woman's position recorded at every top up
- Blood pressure, heart rate, respiratory rate and auscultation of the fetal heart should be taken and documented in the health record at least every 30 minutes as a minimum
- If the woman is not pain-free 30 minutes after each administration of local anaesthetic/opioid solution, recall the anaesthetist.
- Assess the level of the sensory block hourly.
- Degree of motor block should be recorded hourly using the straight leg raise test. (figure 1)
- During labour, the anaesthetist should be alerted if a woman is unable to straight-leg raise (being able to raise the heel off the bed against gravity, even if not sustained).
- The woman should have plenty of opportunity to empty her bladder as reduced bladder sensation and side effects of epidural opioids can cause urinary retention. A Foleys catheter will need to be in place should a second in and out catheter be required (see bladder care guideline)
- Continuous electronic fetal monitoring (if not already in use) must be commenced after insertion of the epidural and prior to administration of the test dose for at least 30 minutes and also after each bolus dose of 10ml or more
- If there are any concerns about the fetal heart rate then effective monitoring prior to the siting of the epidural should be established. Use of a fetal scalp electrode may need to be considered.

Score	Degree of motor block	
1	Complete block; unable to move feet or knees	
2	Able to move feet only	
3	Just able to flex knees; free movement of feet	
4	No block; full movement of knees and feet	

(Figure 1) Bromage scale for motor block resulting from neuraxial anaesthesia

5. Administration

5.1 Test dose

- A test dose must be administered
- A test dose should be given by the anaesthetist. This is the first dose given via the epidural. The recommended test dose is 10 -15mls of Bupivacaine 0.1% with Fentanyl 2 mcg/ml given slowly
- A pre dose blood pressure must be taken and documented in the health record
- Following the test dose the blood pressure, heart rate, respiratory rate and auscultation of the fetal heart should be recorded and documented in the health record every 5 minutes for 20 minutes
- The woman should not be left unattended for the 20 minutes following the test dose

5.2 Bolus administration

- Boluses must be administered correctly

- PCEA (Patient Controlled Epidural Analgesia) should be the first line technique for epidural analgesia. The pump should be programmed by the anaesthetist

- The chosen regime should be Levo-Bupivacaine 0.1% with Fentanyl 2mcg/ml – 10mls bolus dose with 30 minutes lockout. (27 minutes set in the Saphire pump as the bolus takes 3 minutes to be delivered). This is available as a pre-set programme. A 15ml top up is available as an alternative

- The epidural bag should be labelled with the patient details and an epidural form must be completed

- Epidural boluses should only be administered by a midwife competent to do so, or a midwife being supervised by a midwife

- PCEA bolus by the woman should be done only in the presence of a trained midwife. A pre dose blood pressure should be taken and documented in the health record

- Following a bolus dose the blood pressure, heart rate, FHR and respiratory rate should be taken at 10 minutes and documented in the health record

6. Combined spinal and epidural

- Combined spinal and epidural should be managed appropriately

- Spinal injection of 1ml Bupivacaine 0.25% and 25 micrograms (0.5mls) of Fentanyl should provide analgesia for 1 to 1.5 hours. An alternative is to give 2.5-3.5ml of 0.1% bupivacaine/2mcg/ml fentanyl using the vials of low dose mixture

- Blood pressure, heart rate, respiratory rate and auscultation of the fetal heart should be taken pre dose and at 5, 10, 15 and 20 minutes

- Once the woman starts to feel some discomfort from contractions again, the epidural should be topped up

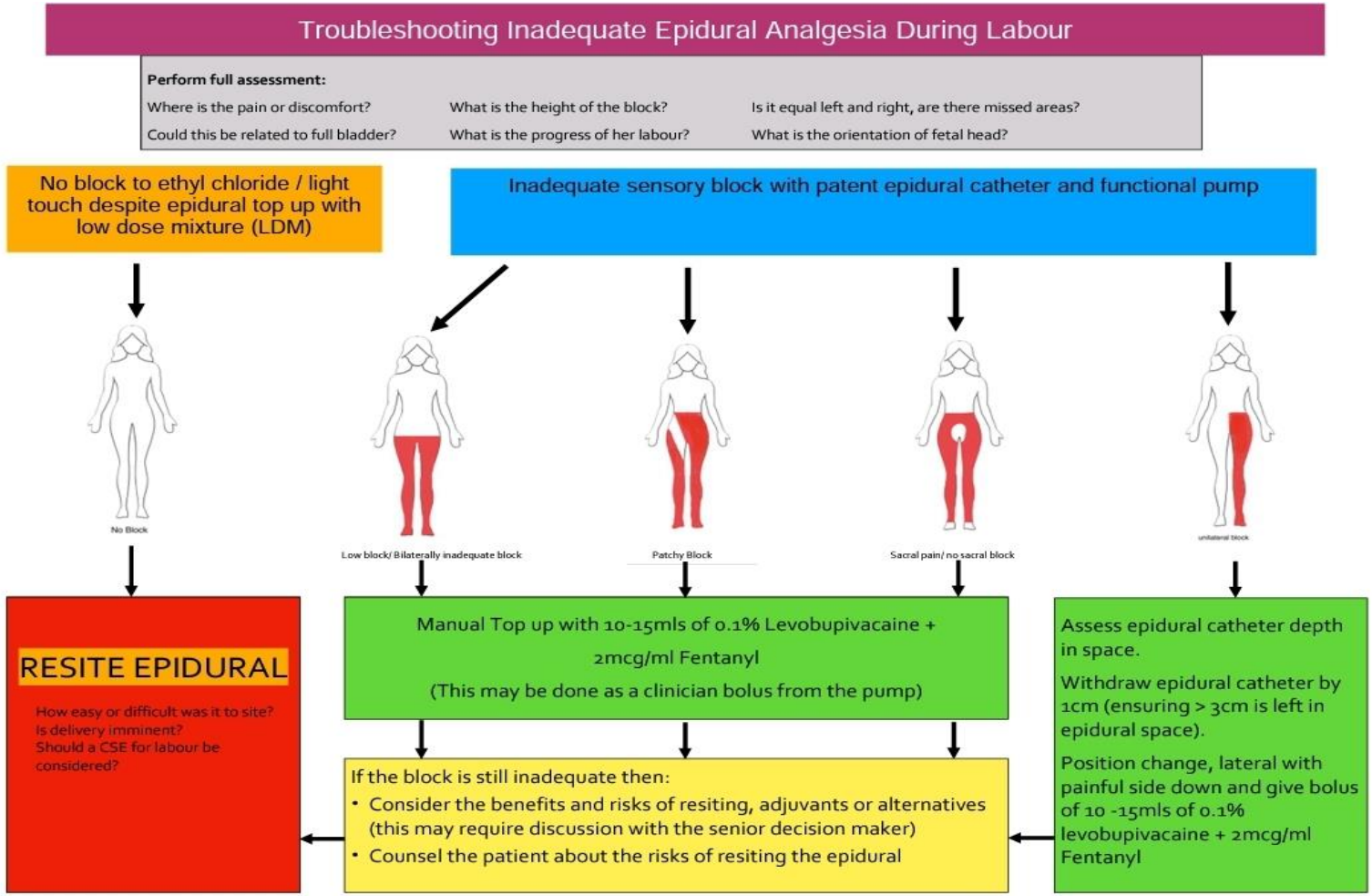
- The first top up of 10 – 15mls of Bupivacaine 0.1% and Fentanyl 2 micrograms/ml must be given by the anaesthetist

- After this, the epidural PCEA can be commenced and can be managed by the midwife

7. Second stage of labour epidural management

- The second stage of labour should be managed appropriately
- Once established, epidural analgesia should be continued until after completion of the third stage of labour and any necessary perineal repair
- Upon confirmation of full cervical dilation in women with adequate epidural analgesia, an individualised plan of care should be made. The plan should take into consideration the woman's urge to push, if the presenting part is visible or if there are maternal or fetal concerns. Pushing can be delayed for at least 1 hour.
- Following the diagnosis of full dilatation in a woman with regional analgesia, a plan should be agreed with the woman in order to ensure that birth will have occurred within 4 hours regardless of parity. (NICE 2007)

8. Trouble shooting



9. Theatre cases

- The correct procedure must be followed when the woman is to undergo emergency caesarean section or trial of instrumental delivery in theatre
- A “trial of instrumental delivery” should be topped up as for caesarean section (see below).
- Before topping up an epidural catheter with potent local anaesthetics, intrathecal or intravenous placement should be excluded. The existing block should be assessed and an appropriate test dose should be given e.g. 1mg/kg lignocaine with 1:200,000 adrenaline (3-4mls 2% lignocaine with adrenaline)
- If the existing epidural appears not to be working then it may be appropriate to consider alternative anaesthesia. This should be discussed with a senior anaesthetist.
- Up to 20mls of Lidocaine 2% with 1 in 200,000 adrenaline (0.1ml of 1 in 1000 added to 20ml 2% Lidocaine) with or without the addition of 2ml 8.4% Sodium Bicarbonate may be used. Alternatively up to 20mls of 0.75% Ropivacaine or up to 20mls of 0.5% Levobupivacaine may be given. Epidural fentanyl up to 100mcg may also be given. The epidural catheter should be aspirated before, during and after the top up.
- The initial top up can be given in the room but the anaesthetist must stay with the patient at all times after this.
- The woman must be closely monitored at all times following this top up until arrival in theatre except during transit from the room to the theatre`
- Remember to use wedge / lateral tilt to avoid aorto – caval compression
- Women should be informed of the likely timescale for resolution of their neuraxial block and encouraged to alert staff should this be delayed.
- All women recovering from neuraxial anaesthesia should be tested for straight-leg raising at 4 h from the time of the last epidural/spinal dose of local anaesthetic.

10. Removal of epidural catheter following delivery

- The epidural catheter can be removed by the Midwife or a Maternity Support Worker (who has had the appropriate training) along with the anaesthetist or OPD
- The Midwife or MSW must make sure that the epidural catheter can be removed before doing so
- Staff must wait 12 hours after the administration of a prophylactic dose of low molecular weight heparin before the catheter can be removed or 4 hours before the next dose is due
- The procedure is explained and discussed with the patient and verbal consent obtained

- The catheter is removed using an aseptic technique and an occlusive dressing applied
- Staff must check that the blue tip of the catheter is present and the catheter is disposed of in the clinical waste
- The epidural tip may be sent for culture and sensitivity if infection is suspected
- It must be documented in the woman's notes that the epidural catheter has been removed including date and time

11. Accidental dural puncture

Accidental dural puncture (ADP) is a recognised complication of inserting an epidural. It occurs in between 1 in 50 to 1in 100 epidurals.

11.1 What to do if you have an accidental dural puncture

There are two options after performing an accidental dural puncture.

Option 1: Resite the epidural catheter at another space.

- If unsure or technically difficult consider threading the catheter intrathecally or request help.
- If not confident to manage an intrathecal catheter or you encounter difficulty/paraesthesiae inserting catheter, resite epidural at another space.
- All top ups must be given cautiously.

Option 2: Thread the catheter into the intrathecal space.

- Inserting an intrathecal catheter:
- Advance catheter into subarchanoid space by 2-3cm.
- Stop if there are any paraesthesia.
- Clearly label catheter and filter as intrathecal.
- Inform anaesthetists, midwife, midwife co-ordinator and obstetric team.
- Appropriate signage should be placed on the delivery room door. All on-call anaesthetic staff (including at handover) should be informed.
- The situation should be explained to the woman and her partner in a reassuring manner. The appropriate documentation should be completed including filling the forms in the PDPH folder in the anaesthetic office and follow up should be arranged.
- DO NOT use an infusion.
- Anaesthetist only top ups
- For labour analgesia,1 ml of 0.25% levobupivacaine, 1-2 hourly slowly
- For Caesarean section, 0.5ml increments of 0.5% levobupivacaine plus 300mcg diamorphine/ 100mcg of preservative free morphine + 15mcg fentanyl.
- The catheter should then be flushed with 2ml 0.9% sodium chloride after each top-up.

- **GIVE PATIENT AN OBSTETRIC ANAESTHETISTS ASSOCIATION (OAA) INFORMATION LEAFLET ON POST DURAL PUNCTURE HEADACHE (PDPH)** (found at labourpains.com), it could be given to the patient postnatally if she develops headache.

- Hartmann's solution should be given intravenously at a rate of 1 litre over 8 hours.
- A short active second stage of labour not exceeding 30 – 45 minutes is advisable (elective forceps delivery is not necessary)

11.2 Post-partum management

- The epidural catheter should be left in situ until the block has worn off.
- The catheter should then be removed.
- Good hydration should be maintained using intravenous fluids if necessary, bearing in mind the cardiovascular status of the woman.
- There is no need to nurse the woman flat. She should be allowed to mobilise freely. However, if she develops a headache, she will be more comfortable in the supine position.
- The woman should be handed over and receive daily follow up from the anaesthetic staff whilst in hospital.

Symptoms of post dural puncture headache (PDPH):

- Postural headache
- Blurred vision
- Tinnitus
- Muffled hearing
- Dizziness
- Vertigo
- Photophobia

Red flag symptoms and signs:

- Elevated temperature
- Fitting
- paraesthesia or pins and needles
- leg weakness
- bladder or bowel problems

- If the woman develops a headache, regular, simple analgesia should be used (paracetamol or Ibuprofen/diclofenac) and a good fluid intake encouraged.
- If the woman develops a significant headache and is not responding to simple analgesia a senior anaesthetist should review the woman and discuss autologous blood patching. This should be a consultant decision.
- The woman should be advised to telephone the maternity assessment unit should problems arise on discharge from hospital.
- A six week follow up appointment in the Obstetric Anaesthetist Clinic should be arranged.

11.3 Autologous blood patch

Requires discussion with a consultant obstetric anaesthetist;

- Consider in women who have had a headache for greater than 24 hours and it is causing disability and delaying discharge.
- Should be performed at least 24hours after accidental dural puncture (ADP)
- Take informed written consent - give patient OAA leaflet.
- Ensure patient is apyrexial.
- Check LMWH timings. (Need 12 hours after prophylactic dose or 24 hours after therapeutic dose)

After a single blood patch around 70% of patients have resolution of their symptoms. If the symptoms are not relieved after a second patch neuro-imaging is recommended to rule out alternative pathology.

- This should be performed in theatre on the delivery suite in liaison with the delivery suite co-ordinator.
- Following the procedure the woman should be advised to remain supine for at least 4 to 6 hours with gradual mobilization after this period.
- The woman should be advised to avoid lifting and bending over for two weeks as this may prevent recurrent headaches.
- A six week follow up appointment in the Obstetric Anaesthetist Clinic should be arranged.

12. Supporting References:

1. Clinical guideline CG190 Intrapartum care for healthy women and babies (NICE 2014, last updated December 2022)
2. Management of post dural puncture headache – Obstetric Anaesthetists Association Dec 2019
3. https://www.oaa-anaes.ac.uk/assets/_managed/cms/files/Guidelines/New%20PDPH%20Guidelines.pdf
4. Safety guideline: neurological monitoring associated with obstetric neuraxial block 2020. A joint guideline by the Association of Anaesthetists and the Obstetric Anaesthetists' Association 01 March 2020 https://doi.org/10.1111/anae.14993

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13. Keywords

Bromage scale, Motor Block, Neuraxial, pain Relief, Regional, Spinal

DEVELOPMENT AND APPROVAL RECORD FOR THIS DOCUMENT	
Author / Lead Officer: Original Working Party: Obstetric Anaesthetists, Quality Standards Midwife and Senior Midwife Contributions from: • Dr H. Brooks, Consultant Anaesthetist • Dr C. Elton, Consultant Anaesthetist • Dr N. Hickman, Consultant Anaesthetist • H. Jarvis, Clinical Guidelines Facilitator • Dr I. Jeyapalan, Consultant Anaesthetist • Dr A. May, Consultant Anaesthetist	**Executive lead:** Chief Medical Officer
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REVIEW RECORD			
Date	**Issue Number**	**Reviewed By**	**Description Of Changes (If Any)**
June 2013	V2	As above	Reflects current practice and addition of standard letter
September 2014	V3	L Matthews	Use of CEFM clarified in accordance with NICE guidance
March 2018	V4	As above	General update
August 2023	V5	A Rezk Maternity guidelines group Maternity governance group Women's Quality & Safety Board	Added information sharing section prior to procedure. Added further assessments to be taken to assess block including straight leg raise. Added easy guide to trouble shooting. Added timescale and testing following neuraxial block. Dural puncture section updated. Symptoms of PDPH added. Autologous blood patch section updated.

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9 August 13

Anaesthetic .....

To,

Dear Doctor,

Patient details:

The above patient was seen by us in our ..... at ....., had ..... for .....

This patient was seen by us for ....., and received the following intervention: .....

Clinical information:

This letter is for your kind information and for the following action:
.....

Further information:

Please do not hesitate to contact us for further clarifications or queries.

Yours sincerely,

Dr
.....

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