Management of Obstetric Accidental Dural Puncture and Post Dural Puncture Headache

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Management of Obstetric Accidental Dural Puncture and Post Dural Puncture Headache

TITLE
Chair Evidence Based Guidelines Group

INITIATING DIRECTORATE
Anaesthetics

IMPLEMENTATION
Anaesthetics

CLINICAL GUIDELINE

The governing principles outlined within this document are fully supported in every respect by the Clinical Governance Sub-Committee. All members of staff are required to adhere to the principles involved as outlined within this document, together with any related procedures, which are enabled by this guideline.

This guideline was produced in consultation with:

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Definition of clinical practice guidelines

Clinical practice guidelines are systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances.
1. Title
Management of Obstetric Accidental Dural Puncture and Post Dural Puncture Headache

2. Adaptation
Updated

3. Major Recommendations

**Accidental Dural Puncture (ADP):**
Dural puncture refers to puncture of the dura and underlying arachnoid mater (meninges). Accidentally this may be either by epidural needle or possibly by epidural catheter (catheter tap). Postnatal headache may be the first manifestation.

Catheter taps have been reported. This should be identified by routine confirmatory testing such as aspiration. A high degree of suspicion for a catheter tap after insertion, should be held if insertion has been traumatic or required multiple attempts.

**Immediate action:**
- If **needle** tap, thread epidural catheter into subarachnoid space.
- If **catheter** tap, leave epidural catheter in subarachnoid space.
- Make sure that the catheter/filter is clearly labelled as **subarachnoid**.
- Only leave two cm of catheter in the intrathecal space.
- There is still debate as to whether using the catheter as intrathecal reduces the chance of PDPH. However, using the catheter as an intrathecal catheter will prevent the possibility of a second dural puncture should you choose to re site the epidural.
- Ensure that the doses of local anaesthetic mixture are given in small increments and by the anaesthetist only. 1 - 1.5 mL of the 0.1% bupivacaine + 2 microgram/ml fentanyl mixture until analgesia is obtained.
- NB plain bupivacaine is hypobaric and sitting up may cause a high block.
- All drugs must be administered by anaesthetists only.
- Alternatively, attempt to resite the catheter at another interspace. If technically difficult, or at all unsure, request more experienced help.
- An infusion regimen (2 -3 mls/h 0.1% bupivacaine + 2microgram/mL fentanyl) can be considered after a catheter has been resited at another interspace **only** if several bolus top-ups have not exhibited excessively fast onset or unusually extensive block (suggesting tendency of drug to reach CSF). Discuss with a consultant obstetric anaesthetist first.
- Document the event clearly in the patient’s notes.
- Ensure all midwifery staff and obstetric staff are aware of the nature of the block.
- A single dose of Co-amoxiclav 1.2G should be given intravenously at the time of delivery.
- Ensure the anaesthetist follows up the mother after delivery and the following day.
Advice for the second stage of labour:
It is not mandatory that the mother has an assisted delivery; however the second stage should not be prolonged.

Advice for operative delivery

Intrathecal catheter:
http://online.lthtr.nhs.uk/app/fileshare/view.asp?noredirect=y&uid=30344&gpuid=33

Epidural catheter:
This may be the case if the decision following ADP was to re-site the epidural. Extreme care should be given to topping up the epidural. Doses of the chosen top up mixture should be given in small incremental doses with regular checking of the height of the block prior to further administration. Full monitoring should be in place whilst establishing the block.

After Delivery:

- Remove the intrathecal/epidural catheter.
- A prophylactic blood patch before headache develops is not recommended.
- It has been shown that epidural diamorphine or spinal diamorphine can be beneficial in reducing these headaches and this may be worth considering before removing the epidural or spinal catheter.
- There is no evidence that enforced recumbency (lying flat) is of any use in the prevention of post-dural puncture headache it simply relieves the symptoms.

Post Dural Puncture Headache (PDPH):
If a PDPH occurs presentation is variable in timing. The cause is thought to be due to 2 mechanisms - Loss of cerebro- spinal fluid leads to cerebral vein dilatation. Nociceptors on the veins are stimulated; in addition the dilatation causes increased intracranial pressure.

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Differential Diagnosis</th>
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<tbody>
<tr>
<td>Headache, often not specific in distribution but worse on sitting or standing.</td>
<td>Stress, Musculoskeletal</td>
</tr>
<tr>
<td></td>
<td>Anxiety/Depression, Fatigue</td>
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<tr>
<td></td>
<td>PET</td>
</tr>
<tr>
<td>Neck Stiffness</td>
<td>Subarachnoid Haemorrhage</td>
</tr>
<tr>
<td>Nausea</td>
<td>Cerebral Tumour</td>
</tr>
<tr>
<td>Photophobia</td>
<td>Meningitis</td>
</tr>
<tr>
<td>Diplopia</td>
<td>Sinusitis</td>
</tr>
<tr>
<td>Tinnitus</td>
<td>Encephalitis</td>
</tr>
<tr>
<td>Deafness</td>
<td>Cortical vein Thrombosis</td>
</tr>
</tbody>
</table>

Management:
- Conservative management:
  - Ensure adequate hydration. Aim for total daily fluid input of 3 litres.
  - Ensure the woman is reviewed on a daily basis. Explain that the puncture does heal spontaneously but raise the possibility that a blood patch may be required
  - Simple Analgesics **regularly** - Paracetamol, Ibuprofen and Dihydrocodeine/Parenteral opioids.
  - Non conventional analgesics.
Caffeine a vasoconstrictor can be given intravenously or orally. If intravenous - 500mg (as Caffeine and Sodium Benzoate in 1L of Sodium Chloride 0.9%) over 1 hour. Can be repeated if not successful the first time. Oral dose is 150 - 300 mg 6 – 8 hourly. (Caffeine 50mg tablets are available)

Sumatriptan, a 5 HT\(_1\) receptor agonist, can be administered as a 6mg subcutaneous injection or orally as a 50mg tablet. An insignificant amount is secreted in breast milk so there should be no worries for breast feeding mothers, however if the mother is concerned the amount reaching the neonate can be reduced further by discarding breast milk for about 8 hours.

- Laxatives are often of benefit as they prevent straining and aggravation of the headache.
- If postural headache persists beyond 24 hours (and restricts mobilisation or is delaying discharge from hospital), consider an **epidural blood patch**. This must be performed only after consultation with a consultant obstetric anaesthetist.

Review:

All patients with post dural puncture type headache should not be allowed home until seen by the anaesthetist. Their details should be written in the follow up data in the Sharoe Green Anaesthetic Office so that they can be contacted by telephone over the next few days and a clinic appointment arranged if needed.

Each patient should be given the patient information leaflet “**Maternity Discharge Advice Spinal Anaesthetic and Epidural Analgesia**”.

A letter must be sent to the GP regarding the PDPH and the management plan with contact details for review. This letter should be incorporated into the electronic patient record EVOLVE. An example template can be found as Appendix 1.

### 4. Clinical Algorithms

None

### 5. Disease/condition/target population

Pregnant or post partum patients

### 6. Implementation strategy

Midwifery update and training days  
Competency based training for anaesthetists undertaking their obstetric module.

### 7. Interventions

**Epidural Blood Patch ( EBP):**

- It is regarded as the "gold standard" treatment of post dural puncture headache. (PDPH).
- Their success rate is debatable but probably 61 – 75% success rate. A proportion of these will have return of the headache - 30 -50%.
- The decision for a blood patch must be made by a Consultant anaesthetist. Counselling advice should be documented in the notes including the risks. Timing of the epidural blood patch may influence the effectiveness. Blood patch is best performed around 48hours and certainly not within the first 24 hours.
• Risks:
  - Further dural puncture
  - Transient backache in about a third of cases
  - Radicular pain
  - Cranial nerve palsy
  - Meningeal irritation
  - Seizures
  - Transient bradycardia

• Exclude other causes of postpartum headache:
  - Tension, fatigue
  - Intracranial hypertension
  - Pre-eclampsia
  - Migraine
  - Infection
  - Hypoglycaemia
  - Anaemia

• Contraindications:
  **Absolute** – Patient refusal,
  - Coagulopathy, treatment with anticoagulation (see below)
  - Thrombocytopenia
  - Related allergy
  - Hypovolaemia/shock
  - Raised intracranial pressure
  - Sepsis
  - Lack of suitable conditions for insertion including insufficient numbers of available staff,

  **Relative** – Patients receiving non-steroidal anti-inflammatory drug (NSAIDS)
  - Immunocompromised patients
  - Back pain or previous trauma

**ANTICOAGULATION:** Patients who have an uncorrected clotting disorder should not have an epidural blood patch. Patients who have receiving anticoagulants the epidural must be sited at least 12 hours after a prophylactic dose of low molecular weight heparin (LMWH) or 24 hours after a therapeutic dose of low molecular weight heparin.

**Procedure for EBP:**
Two anaesthetists of which one should be a consultant obstetric anaesthetist.
The Obstetric Anaesthetist Association “Headache after an epidural or spinal injection” should be given to the mother to read for information.
Written consent is obtained.
Ensure FBC has been noted for WCC prior to procedure. Ensure woman is apyrexial.
There is no consensus of opinion as to whether a patient should be starved prior to epidural blood patch.
The procedure will be performed using strict aseptic technique (in line with the hospital aseptic non touch technique – ANTT and AAGBI guidance) including hand washing, the use of sterile gloves, sterile gown, hat, mask, appropriate skin preparation and sterile drapes around the injection site.
Chlorhexidine 0.5% with 70% isopropyl alcohol is used for skin preparation.
One anaesthetist locates the epidural space. This is usually at the space below the expected level of dural tap as the majority of the blood tracks cephalad.
The other anaesthetist withdraws 20mls of blood under ANTT conditions.
Further blood is sent for culture and sensitivity.
At least 15 mls, if possible 20 mls or up to 30 mls blood is injected into the epidural space slowly. The more blood injected the greater chance of success. The patient should remain lying for 2 hours after and should not lift heavy items or take undue exercise for a week. The procedure must be documented in the notes and letter sent to the GP.

Further blood patches may be given if headache recurs. However, this will be after consultation with Consultant Obstetric Anaesthetist.

8. Major Outcomes
Effective Management of dural puncture and post dural puncture headache.

9. Reference(s)


BJA CEPD Reviews Vol 1 No 3 June 2001. Accidental dural punctures in obstetrics

10. Guideline Availability
Womens Health and Anaesthetic Directorates

11. Companion Documents
APPENDIX 1: GP Letter

Lancashire Teaching Hospitals
NHS Foundation Trust

Anaesthetic Directorate
Royal Preston Hospital
Sharoe Green Lane, Fulwood, Preston, PR2 9HT
Tel: 01772 522555 Fax: 01772 522992 Email: xxx.xxx@lthtr.nhs.uk

Dr xxx
Consultant Anaesthetist

Ref: NHS Number: Date:

GP Name and address

Dear Dr XXXX

Re: Patient Name and Address

The above patient received an epidural during the time of delivery of her baby. She unfortunately suffered with a ? dural tap / ? post epidural headache (insert the relevant)

This has been managed by ..........

Follow up has been by ........

We would be very happy to review if necessary and can be contacted for advice on the above phone number should it be required.

Yours sincerely

Dr xxxxxx
Consultant Anaesthetist

Obstetric epidural analgesia for labour
12. Patient Resources
Maternity Discharge advice Spinal Anaesthetic and Epidural Analgesia
http://online.lthtr.nhs.uk/app/fileshare/view.asp?noredirect=y&uid=27861&gpuid=130
Headache after an epidural or spinal injection. What you need to know. OAA 2011.