

**Title: Epidural Analgesia in Obstetric Patients**

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## **Patient**

Explain the procedure to the woman and obtain verbal consent (use an interpreter if necessary). The details will vary according to the needs of each woman and the urgency of the situation. **Specific explanation** of the possibility of **accidental dural puncture**, with accompanying **postdural puncture headache, hypotension, failure, and neurological damage** is required. Mothers will usually fall into one of two groups, namely those requesting an epidural, and those advised to have one for medical reasons. Identify and assess contra-indications before proceeding (*see below*), and if in doubt, seek advice. Always seek senior advice before attempting to site an epidural if the platelet count is below 100,000.

### **Contraindications to Epidural Analgesia**

<b>Absolute</b>		<b>Relative</b>	
	<i>Patient refusal</i>		<i>Neurological disease</i>
	<i>Allergy to Local anaesthetics</i>		<i>Fixed cardiac output</i>
	<i>Local skin infection</i>		<i>Systemic infection</i>
	<i>Bleeding diathesis</i>		
	<i>Uncorrected hypovolaemia</i>		

## **Equipment**

The disposable epidural pack contains:- a 16G x 80mm Tuohy pattern epidural needle, a 3-hole, 20G epidural catheter and catheter connector, a 0.2-micron disc filter (all perifix), a fenestrated drape, 5 gauze swabs, 21G & 25G hypodermic needles, 5ml syringe and a plastic LoR device (10ml).

## **Technique**

Ensure a patent IV cannula is in place. Consider the need for an intravenous infusion.

Place the woman in either the left lateral position, or sitting on the side of the bed, with legs supported.

Wear a hat and mask, scrub, gown and glove and prepare the trolley. Clean the back with chlorhexidine 0.5% and apply the sterile drape. Select the inter-space level at which the epidural is to be sited, preferably L3/4 or L2/3.

Infiltrate the skin and subcutaneous tissues with lidocaine 1%. Check that the epidural catheter will pass through the tip of the Tuohy needle. Flush the disc filter and catheter with saline to check for correct number (3) of side holes. Insert Tuohy through the skin into the supra-spinous ligament, and attach LoR syringe. Loss of resistance should be assessed with saline and constant pressure applied to the plunger. (Modified Doughty technique). 10cm 16G Tuohy needles are available for use with obese patients.

Insert the catheter to allow 3-4 cm to be retained within the epidural space, remove the needle (over catheter), elevate the catheter and check for siphoning. Apply 20 x 15cm self-adhesive clear plastic dressing over skin entry-site. Further tape may be used to secure the edges of this dressing. Fix the disc filter at shoulder-level. Aspirate to check for blood or CSF.

Set up the epidural infusion using a CME McKinley BodyGuard 545 epidural pump, the MicroSet giving set and a 250ml bag of pre-prepared bupivacaine 0.1%/fentanyl 2 mcg/ml. Connect to the epidural filter. Give an appropriate bolus from the pump to establish analgesia. 20 mls of the solution, given as two 10ml aliquots, with a 5 minute gap between them, will normally be sufficient. This **must** be done by the anaesthetist siting the epidural.

The response to administration of any bolus dose will give information about catheter position. Intrathecal injection will produce a rapid onset of sensory block, marked motor block and possibly a significant fall in BP. Intravenous injection of the suggested dose may produce ptosis, transient numbness/tingling of lips, tinnitus or, quite possibly, no effect at all. If there is any doubt about the catheter position please seek senior advice.

Commence an infusion of bupivacaine 0.1%/fentanyl 2mcg/ml at 10 mls/hr.

Prescribe the epidural infusion on the patient's drug chart. Instructions regarding the infusion rate and the administration of top-up boluses should be written on the epidural record form. Both the anaesthetist siting the epidural and the midwife looking after the mother must sign the epidural record form to confirm correct attachment of the epidural infusion line to the epidural filter.

The epidural line should be labelled at either side of the filter with a yellow label stating that it is an epidural infusion.

Remember to leave the woman in a "safe" position, to avoid aorto-caval compression. Advise her to avoid lying supine. Commence monitoring of BP and pulse at 5 minute intervals for 20 minutes. Pulse, BP and fetal heart rate should be monitored ½ hourly whilst the infusion continues. Block height, determined by loss of sensation to cold, should be monitored hourly.

Enter details onto the computer and hand the relevant forms to midwifery staff. Put the follow-up form in the audit in-tray. Check that emergency procedures are understood and that the woman has access to the emergency call switch and is happy with the block.

### ***Potential problems***

1. **Siting**. If difficulties are encountered in siting an epidural do not persevere with the attempt for more than 20 minutes. Seek advice, and if appropriate, abandon the procedure and advise the patient of alternative analgesia methods.
2. **Venous Tap** with either needle or, more usually, catheter often leads to re-siting the epidural, although it may be possible to withdraw the catheter and flush it with 0.9% saline until blood can no longer be aspirated. NB Direct top-up doses to be split into multiples of 5ml or less, to avoid overdose complications, since the catheter may re-enter the vein.
3. **Inadvertent Dural tap** see separate management policy.
4. **Unilateral Block** - Active management to improve the block is important to ensure client satisfaction. Positioning the patient on the unblocked side for top ups may help, but if unilateral block persists consider withdrawing the catheter until only 2cm remains in the epidural space. Consider a combined spinal-epidural technique if the problem persists. Alternative approaches such as siting a second epidural, should be discussed with consultant anaesthetist.
5. **Persistent pain / unblocked segment** - despite a demonstrable epidural block. If a further top-up of bupivacaine 0.1% + fentanyl 2µg/ml is ineffective it may be necessary to give a bolus top-up of a higher concentration of bupivacaine (e.g. 0.25% 8-10mls), or a bolus dose of opioid (e.g. fentanyl 40-50µg).
6. **Hypotension** Most commonly occurs due to aorto-caval compression. Fluid depletion may complicate PET and long labours. Sympathetic blockade (particularly with the larger doses of local anaesthetic used for LSCS) may reveal compensated fluid loss.

Turning the woman on to their side will resolve the majority of hypotensive episodes. Consider putting the bed head down (N.B. if one lateral position seems ineffective, it is worth trying on to the other side as this will often be effective).

If hypotension persists give iv fluid by rapid infusion. If this dose not solve the problem iv vasopressors may be needed. Either use ephedrine in iv boluses of 3 or 6 mg, or phenylephrine in iv boluses of 100 mcg or by iv infusion, titrated to response.

At LSCS under epidural top-up pre-loading with IV fluids is not usually necessary, and should not be done in PET. Fluid requirement will vary from 500 to 1500 ml of crystalloid (1000 ml is usually needed for LSCS). If the

woman is oedematous or has PET, colloid *may* be preferable, but should be given with care since even small amounts can cause circulatory overload, especially when the sympathetic blockade has worn off.

7. **Any other problems** apparently related to the epidural should be noted and if necessary advice sought.
8. **Post delivery follow up.** Ask specifically about the presence of any persistent sensory or motor deficit, ability to void urine, discomfort at injection site, or headache. Obtain a 'satisfaction' grading for the stages of labour, and the results of these enquiries recorded on the audit form. Complaints require a consultant review, and a written note in the post-natal patient records (NB The audit form is NOT part of the patient records, and may be destroyed after data extraction).

## **Combined spinal epidural(CSE) analgesia in labour**

Routine practice at the Bradford Maternity Hospital is to use epidural analgesia for pain relief in labouring women. Occasionally the use of combined spinal epidural (CSE) analgesia may be indicated, particularly when rapid onset of analgesia is needed. A single shot spinal is used initially to allow rapid onset of analgesia and is then followed by the insertion of an epidural catheter for the maintenance of analgesia. .

### ***Indications***

- Severe pain
- Mother unable to position herself for safe epidural insertion
- Failed epidural analgesia

### ***Technique***

2 approaches may be used.

1. Open an epidural pack. Also open a 25g Pencan spinal needle and an additional 5 ml syringe for the single-shot spinal. Prepare the mother as described earlier in this guideline for epidural analgesia alone. Perform the spinal (further guidance available in Spinal anaesthesia Policy – [link here](#)) Dosage information for the intrathecal drugs is given below. When appropriate analgesia has been achieved proceed to site the epidural catheter as normal.
2. Open a spinal pack. Perform a single-shot spinal. When analgesia is satisfactory open an epidural pack and proceed with the epidural insertion.

### **Intrathecal drug information.**

Use either:

- 3mls of “low-dose” epidural mixture – 0.1% bupivacaine and fentanyl 2mcg/ml. Total dose bupivacaine 3mg, fentanyl 6 mcg. (recommended method)
- 1 ml of L-bupivacaine 2.5mg/ml and 0.5ml fentanyl 50mcg/ml. Total dose L-bupivacaine 2.5mg, fentanyl 25mcg. If this combination is used remember to draw up the fentanyl through a bacterial filter in a similar way that is recommended for IT diamorphine in the Spinal Anaesthesia policy.

### ***Epidural management with CSE***

When the analgesia from the spinal is receding deliver the first epidural dose from the pump (please see earlier in this guideline). This **must** be done by an anaesthetist. The further management of the mother's epidural analgesia should be as described earlier in this policy.

### ***Audit/monitoring***

All mothers will be followed up the day after delivery, or possibly the day of delivery if early discharge is planned. Specific enquiries will be made concerning recognised complications and maternal satisfaction will be assessed. All data will be entered onto the audit anaesthetic computer on delivery suite. Regular reports will be produced under

the direction of the clinical lead for obstetric anaesthesia with information about complication rates and satisfaction with analgesia. These will be presented and discussed at anaesthetic clinical governance meetings. Annual reports will be made available to the Labour Ward Forum.

## References

Fernando, R. and Price, C. M.(2002), "Regional Analgesia in Obstetrics" in Collis R, Platt F, Urquart J (Eds) *Textbook of Obstetric Anaesthesia* Greenwich Medical Media, London.

"Pain relief in labour: regional analgesia" in *Intrapartum Care – care of healthy women and their babies during childbirth*, National Collaborating Centre for Women's and Children's Health (2007) (Commissioned by the National Institute for Health and Clinical Excellence)

## Web access

<http://www.mckinleymed.co.uk/products/BodyGuard-545/description>