

What I wish I knew about spinals and epidurals as an O&G Resident

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[anaesthetics,o&g,onthepods](#)

In this podcast, Becky Taylor and Blake Kesby discuss spinals and epidurals, what they are, what the difference is, and how to manage patients going into labour requesting an epidural. Becky and Blake discuss when you might encourage spinals and epidurals, considerations to keep in mind, anaesthetic contraindications, and risks. They also cover an approach to postdural puncture headache (PDPH).

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About Dr Rebecca Taylor

Rebecca (Becky) Taylor is a Consultant Anaesthetist from the UK, she trained at the University of Manchester, completed her residency, before moving to Australia for a 12-month fellowship at Westmead Hospital. She is a keen swimmer and has a Cat One Caesarean section.

About Dr Blake Kesby

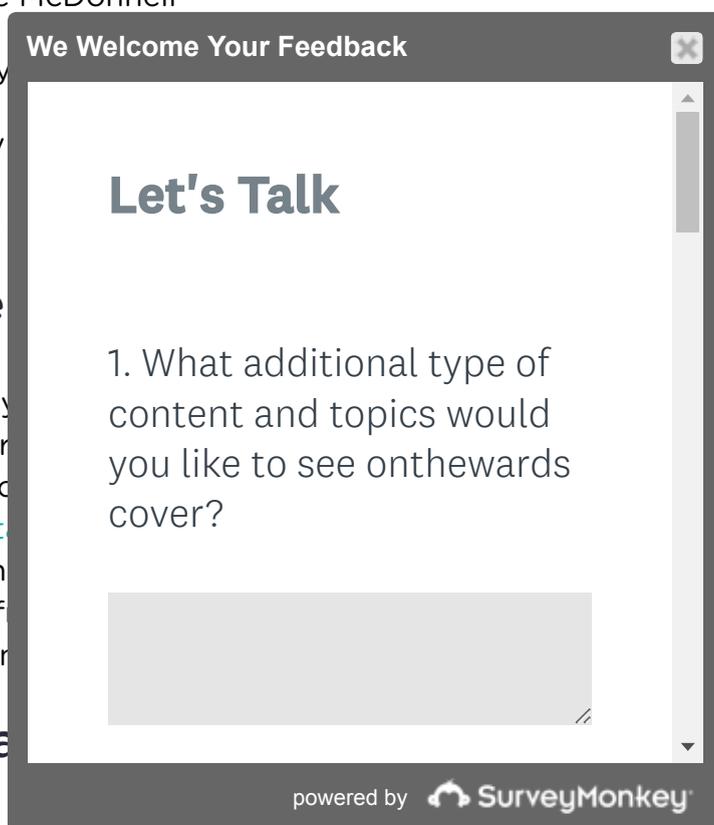
Blake Kesby is a Consultant Anaesthetist at [Royal North Shore Hospital](#) in Sydney, Australia. He has a special interest in medical education, particularly simulation-based training. When he's not putting people to sleep he's a keen free diver, an excellent cook, and married to the O&G Reg who roped him into this podcast.

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With Dr Becky Taylor, Obstetrics & Gynaecology Fellow based in Sydney and Dr Blake Kesby, Consultant Anaesthetist at Royal North Shore Hospital.

Case

A 30-year-old primigravid woman, Annie, is in spontaneous labour at 39 weeks' gestation. Her last vaginal examination was performed 3 hours ago and she was 4cm dilated. She has



from the UK, she completed her [internship](#) and training at [Royal North Shore Hospital](#). She is a 12-month fertility fellow. She is a keen swimmer and has a Cat One Caesarean section. She is a keen free diver, an excellent cook, and married to the O&G Reg who roped him into this podcast.

been using nitrous gas with good effect but now the pain is increasing and she is requesting an epidural. She has a pre-pregnancy BMI of 30 and no other medical issues.

1. What is an epidural block (EDB) and what is a spinal block?

- A spinal or intrathecal injection involves using a very small needle, preferably with a pencil point tip, and inserting it into the intrathecal space, at a level below the termination of the spinal cord or conus medullaris which is at L1/2 in most people.
 - Spinals are normally inserted at L3/L4 or below, to minimise any risk to the cord.
 - When reaching the intrathecal space, we see flow back of cerebrospinal fluid (CSF), at which time we inject a mixture of local anaesthetic and sometimes opioids. The needle is then removed.
 - It is a single shot of the drugs into the intrathecal space
- An EDB involves inserting a larger needle between the ligaments of the spine.
 - We do this to create an epidural space which is where the epidural block is performed.
 - Unlike with a spinal, the epidural needle does not enter the intrathecal space.
 - When we insert the epidural needle, we have to be careful not to insert it too high or too low.
 - Because the epidural space is larger, the drugs become diluted as they pass through the catheter.

2. What are the differences between a spinal and an epidural block (EDB) and spinals?

- Due to their differences, spinals and EDBs are used for different obstetric needs.
 - Spinals have a very fast onset, and produce a dense, reliable block → ideal for Caesarean sections.
 - Spinals also have a greater effect on the patient's haemodynamics due to sympathetic blockade.
 - Due to their single shot nature, spinals are not appropriate for labour analgesia, as they only last a few hours.
 - EDBs are not as fast in onset, but can be infused through the catheter over a long period of time, making them suited to women in labour.
 - EDBs *can* also be used for a Caesarean section by injecting a higher concentration local anaesthetic agent, to achieve a dense, higher block for surgery.

- Because lower concentrations of solutions are used to top up labor EDBs, patients are more haemodynamically stable and therefore they can be inserted on the birthing unit.
- There are also combined spinal/EDBs - these are used for Caesareans which may take longer than expected (e.g. previous major intra-abdominal surgery or morbidly obese).

3. What are some of the considerations you take into account, when a patient requests an EDB?

- History

- Haematological issues - e.g. gestational thrombocytopenia, pre-eclampsia
- Infection
- Back issues (e.g. disc disease, spinal stenosis, epidural space),
- Progression of labour (e.g. epidural, a recent vaginal delivery)

- Investigations

- Platelet count
- subdural

- Consider how difficult it is to progress quickly in the second stage of labour or established. How long it takes to progress is slow progress may require augmentation of labour

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4. In what circumstances would you advise a woman to have an EDB?

- Anaesthetic indications

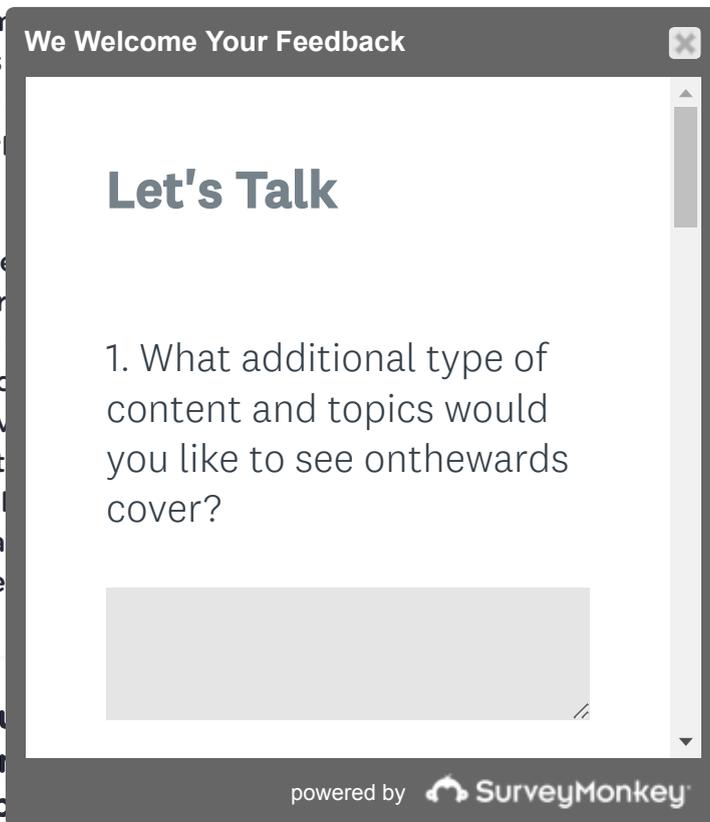
- Conditions in which the strain of labour may worsen pre-existing conditions (e.g. cardiac conditions).
- Obesity - can be more challenging in an emergency setting so having an elective EDB placed earlier may be prudent.

- Obstetric indications

- Twin pregnancy - in the event that an internal podalic version needs to be performed.
- If women have gestational hypertension or pre-eclampsia, we often see a reduction in blood pressure following an EDB placement.

8. What drugs do you use for an EDB and how do you know if it is working adequately?

- Drugs used for EDB and spinals are similar.
- For EDB
 - Aim is analgesia, not motor block. Motor and proprioception nerve fibers are much larger than pain or temperature fibers. Low concentration local anaesthetic agents preferentially block the smaller pain and temperature fibers whilst preserving the larger Motor and proprioception fibers.
 - Like to cover up to level T10 (around the umbilicus).
 - Ropivacaine is used as it is a long-acting agent. We normally use a dilute concentration of 0.1 or 0.2 percent. Patients are then given a pump which will provide a set dose per unit time, but also allow a pre-programmed bolus.
 - Opiates are used to reduce the amount of the epidural of the epidural.
- Testing
 - Pain fibers are tested therefore test the dermatome to see what level of the epidural.
 - Ability to walk after epidural.
 - Important for Caesarean section.



Case: Annie's epidural
her 4 hours later and
complicated variable
emergency Caesarean section.

asked to review
strates recurrent
to proceed to an

9. How do you proceed from an anaesthetic point of view?

- Options are:
 - Epidural 'top up' to make it adequate for performing surgery, or
 - Spinal anaesthetic (if EDB is not working well), or
 - General anaesthetic if the EDB is not working there is inadequate time to perform a spinal.
 - NB: We need a higher and denser block for a Caesarean section, up to about T3/4 level.

Case: Annie proceeds to an uncomplicated Caesarean section and delivers a healthy baby girl. She is reviewed the following day and complains of a headache which doesn't resolve with paracetamol.

10. What is your approach?

- Headaches are very common postpartum - approximately 30% of women get a headache in this period.
- Consider usual things - tiredness, dehydration.
- Consider postpartum pre-eclampsia (examine RUQ tenderness, reflexes, clonus).
- Meningitis - look for signs and symptoms.
- Look for any neurological deficits.
- Post dural puncture headache (PDPH)

- With even a very small needle, a leak of CSF can occur because the pressure in the spinal column is high. This causes the headache, which is worse on sitting or standing, and may be associated with vomiting and nausea.
- Approximately 50% of patients with a very small needle leak will resolve within 72 hours.

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- Options for management include a blood patch or a blood patch.
- Usually try a period of 24-48 hours conservative management (a clot will form and the process will self-resolve) with paracetamol and NSAIDs +/- caffeine therapy +/- opiates.
- Most of the time the headache will resolve within 2 weeks.
- If the headache is severe, we can perform a blood patch.
 - Blood patch is done in theatre under sterile conditions.
 - We obtain some blood from the patient's arm and then another epidural is performed, except this time, the blood is injected into the epidural space.
 - The aim is that this blood will clot off the hole that is causing the CSF leak.
 - Good relief obtained in 50-80% time.
 - Some patients will require a second blood patch.

