OBSTETRIC ANESTHESIA

Postdural Puncture Headache

Intraoperative teaching · CA-2

THE QUESTION

Where the evidence disagrees

This topic was selected because an evidence synthesis beats a textbook on it: the trials disagree, or the guidance has moved recently.

THE EVIDENCE

What each source contributes, and how strong it is

Study design first — a cohort and a randomised trial do not carry the same weight.

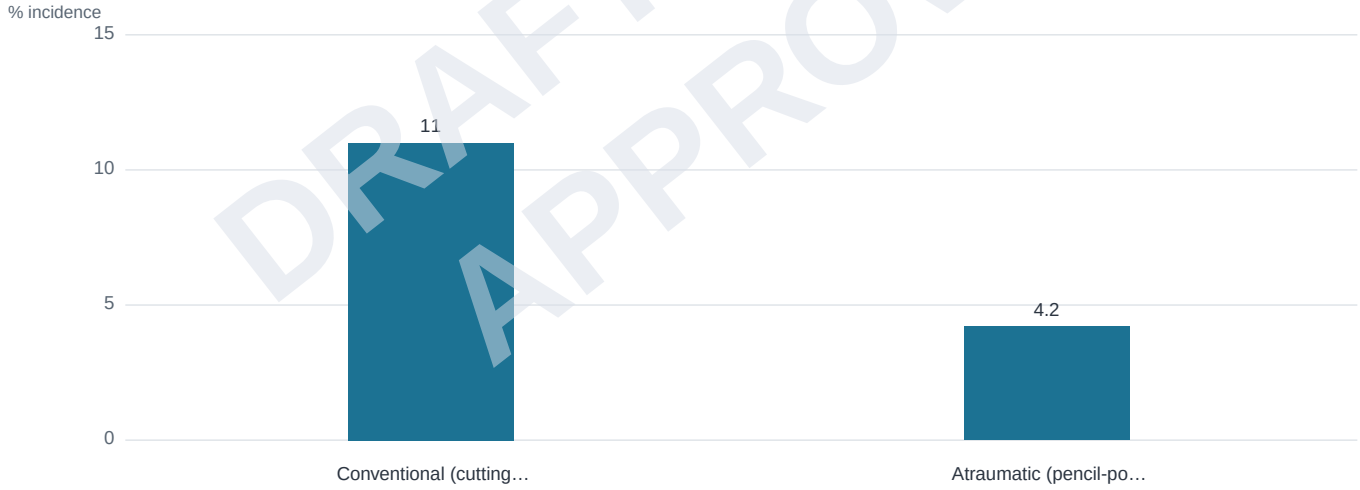
Design	Year	Journal	What it found
Other	2023	Best practice & research. Clinical	PDPH may occur late, post-discharge
Other	2024	Best practice & research. Clinical	PDPH: Not just a temporary inconvenience
Other	2023	International journal of obstetric	ADP occurs during EBP in <1% cases
Other	2008	Current opinion in anaesthesiology	Epidural blood patch treats severe postdural puncture headache

4 resolved citations behind this deck; every point above traces to one of them.

THE NUMBERS

The needle tip decides most of the risk

This is the one modifiable factor you hold in your hand.



A relative risk of 0.40 across 110 trials and 31,412 participants. Choosing the atraumatic needle prevents roughly two-thirds of these headaches before the puncture happens.

Nath et al., Lancet 2018 (110 trials, 31,412 participants) · PMID 29223694

IN PRACTICE

What the cohorts and reviews add

4 findings, each on the slide that follows.

BEST PRACTICE & RESEARCH. CLINICAL ANAESTHESIOLOGY 2023

PDPH may occur late, post-discharge

PDPH can present late, even after discharge from the hospital.

BEST PRACTICE & RESEARCH. CLINICAL ANAESTHESIOLOGY 2024

PDPH: Not just a temporary inconvenience

PDPH can be debilitating short-term and associated with chronic manifestations or serious complications, so it should not be considered only a…

INTERNATIONAL JOURNAL OF OBSTETRIC ANESTHESIA 2023

ADP occurs during EBP in <1% cases

Accidental dural puncture (ADP) during epidural blood patch (EBP) may occur in 0.5-1% of cases.

CURRENT OPINION IN ANAESTHESIOLOGY 2008

Epidural blood patch treats severe postdural puncture headache

Epidural blood patch is justified as the treatment of choice for severe postdural puncture headache.

IN PRACTICE

PDPH may occur late, post-discharge

Other · Best practice & research. Clinical

PDPH can present late, even after discharge from the hospital.

Postdural puncture headache: Revisited, Best practice & research. Clinical anaesthesiology 2023 · PMID 37321765

IN PRACTICE

PDPH: Not just a temporary inconvenience

Other · Best practice & research. Clinical

PDPH can be debilitating short-term and associated with chronic manifestations or serious complications, so it should not be considered only a temporary inconvenience.

Postdural puncture headache: Beyond the evidence, Best practice & research. Clinical anaesthesiology 2024 · PMID 39764816

IN PRACTICE

ADP occurs during EBP in <1% cases

Other · International journal of obstetric

Accidental dural puncture (ADP) during epidural blood patch (EBP) may occur in 0.5-1% of cases.

Accidental dural puncture during epidural blood patch: a narrative review, International journal of obstetric anesthesia 2023 · PMID 37302183

IN PRACTICE

Epidural blood patch treats severe postdural puncture headache

Other · Current opinion in anaesthesiology

Epidural blood patch is justified as the treatment of choice for severe postdural puncture headache.

Management of postdural puncture headache in the obstetric patient, Current opinion in anaesthesiology 2008 · PMID 18458543

INDICATIONS

When this is the right block

MULTISOCIETY CONSENSUS PRACTICE GUIDELINES ON PDPH, REG ANESTH PAIN MED 2024

Work from the multisociety guidance

A multidisciplinary international working group drawn from six professional societies developed 50 graded recommendations covering risk factors, prevention, diagnosis and management of postdural puncture headache, after two rounds of anonymous modified Delphi voting.

MAJOR NEUROLOGIC COMPLICATIONS WITH PDPH IN OBSTETRICS, ANESTH ANALG 2019

Recognise it early, because the serious complications travel with it

Among 1,003,803 women receiving neuraxial anaesthesia for childbirth, 0.48% developed postdural puncture headache. The incidence of cerebral venous thrombosis or subdural haematoma was 3.12 per 1000 with PDPH versus 0.16 per 1000 without — 1 in 320 against 1 in 6250 — with an adjusted odds ratio of 19.0.

COMPLICATIONS OF UNINTENTIONAL DURAL PUNCTURE, 10-YEAR OBSERVATIONAL STUDY, 2023

Follow every unintentional dural puncture, not just the symptomatic ones

In a ten-year observational study, unintentional dural puncture complicated 97 of 7718 labour neuraxial analgesia cases (1.25%); 53.6% of those parturients went on to have postdural puncture headache, 13.4% had neurological symptoms, and 82.5% had their hospital stay extended.

CONTRAINDICATIONS

When it is not

MAJOR NEUROLOGIC COMPLICATIONS WITH PDPH IN OBSTETRICS, ANESTH ANALG 2019

Calling a postpartum headache postdural puncture headache without excluding the alternatives

In the same million-delivery cohort, postdural puncture headache carried adjusted odds ratios of 39.7 for bacterial meningitis and 19.0 for the composite of cerebral venous thrombosis and subdural haematoma, and 70% of those events were identified during a readmission at a median of five days. The diagnosis you make on day one is often made again by someone else on day five.

MULTISOCIETY CONSENSUS PRACTICE GUIDELINES ON PDPH, REG ANESTH PAIN MED 2024

Reading the guidelines as settled science

The multisociety panel reached high consensus on all 50 recommendations but rated several as having moderate-to-low certainty of evidence, and states plainly that uncertainty remains for the majority of management approaches because the evidence base is sparse.

COMPLICATIONS OF UNINTENTIONAL DURAL PUNCTURE, 10-YEAR OBSERVATIONAL STUDY, 2023

Treating a blood patch as the automatic next step

In a ten-year cohort of 97 unintentional dural punctures managed with medical therapy and bed rest and no epidural blood patch at all, no patient developed subdural haematoma or cerebral venous sinus thrombosis, and all were monitored to complete recovery before discharge.

ASRA ANTITHROMBOTIC GUIDELINES, 5TH EDITION, REG ANESTH PAIN MED 2025

Placing a blood patch inside the anticoagulant interval

An epidural blood patch is a neuraxial procedure and carries the same haemorrhagic considerations. ASRA's fifth edition proposes conservative interruption times for antithrombotic and thrombolytic therapy before neural blockade, and takes that position precisely because the complication is too rare to study any other way.

PEARLS

What experience adds

CONSENSUS PRACTICE GUIDELINES ON PDPH, JAMA NETW OPEN 2023

How the recommendations were built matters when you cite them

Ten review questions were developed with stakeholders from six societies, each answered with a structured narrative review and recommendations graded to the US Preventive Services Task Force scheme, then voted on by a 21-member multidisciplinary team across two Delphi rounds with 90% to 100% consensus on almost all of them.

COMPLICATIONS OF UNINTENTIONAL DURAL PUNCTURE, 10-YEAR OBSERVATIONAL STUDY, 2023

The imaging threshold is lower than people expect

In the ten-year unintentional dural puncture cohort, 14.4% of affected parturients required neurological consultation and neuroimaging, and one developed posterior reversible encephalopathy syndrome associated with eclampsia rather than anything caused by the needle.

Document the puncture and hand over a named contact

Write it in the notes in plain words, tell the patient what to watch for, and give them a name and a number before they leave. The person who has to act on this is usually not the person who was in the room.

IN THE ROOM

What this changes about the next case

Colour is the strength of the evidence behind each step, not the urgency.

1. **1**
   PDPH can present late, even after discharge from the hospital.
2. **2**
   PDPH can be debilitating short-term and associated with chronic manifestations or serious complications, so it should not be considered only a temporary inconvenience.
3. **3**
   Accidental dural puncture (ADP) during epidural blood patch (EBP) may occur in 0.5-1% of cases.
4. **4**
   Epidural blood patch is justified as the treatment of choice for severe postdural puncture headache.

KEY TAKEAWAYS

What to carry into the next case

PDPH may occur late, post-discharge

Best practice & research. Clinical anaesthesiology 2023

PDPH: Not just a temporary inconvenience
Best practice & research. Clinical anaesthesiology 2024

ADP occurs during EBP in <1% cases
International journal of obstetric anesthesia 2023

Epidural blood patch treats severe postdural puncture headache
Current opinion in anaesthesiology 2008

Severe PDPH, even if delayed or after discharge, warrants an EBP; ADP risk exists but EBP remains the primary treatment.

QUESTIONS I'LL ASK YOU IN THE ROOM

1. What is the most common symptom of a postdural puncture headache?
2. How does the position of the patient typically affect the severity of a postdural puncture headache?
3. What is the primary mechanism thought to cause a postdural puncture headache?
4. What is the first-line treatment for a severe, refractory postdural puncture headache?

ORAL BOARDS STEM

> *Twenty-four hours after a labour epidural complicated by a recognised wet tap, the patient has a severe positional frontal headache and cannot sit up to feed.*

BOARD QUESTIONS

1. Despite a large evidence base favouring atraumatic needles, the authors note that clinical adoption remains poor. What arguments would you make to a colleague who still reaches for a cutting needle by default?

2. In a systematic review of 110 randomised trials including 31,412 participants, what was the incidence of postdural puncture headache with conventional cutting needles versus atraumatic pencil-point needles?

A. 11.0% versus 4.2%
B. 4.2% versus 11.0%
C. 22% versus 15%
D. 7% versus 6%

3. The meta-analysis reported I^2 of about 45% for the primary outcome. What does that level of heterogeneity mean for the strength of the conclusion?

ANSWER KEY

1. The effect is large and was measured across 110 trials from 29 countries, with the incidence falling from 11.0% to 4.2% and a relative risk of 0.40 (95% CI 0.34-0.47). Heterogeneity was moderate at I^2 45.4%, which is unsurprising given the range of indications and eras included, but the direction was consistent and the result highly significant. The authors note adoption remains poor despite this. If a colleague raises a higher failure or repeat-attempt rate as the counterargument, that is worth discussing on its own evidence — this review's finding is specifically about headache incidence.

Moderate heterogeneity affects how precisely you quote a number, not whether you believe the direction.
Nath et al., Atraumatic versus conventional lumbar puncture needles: a systematic review and meta-analysis, Lancet 2018 · PMID 29223694

2. A. 11.0% versus 4.2%

Relative risk 0.40 across 110 trials. It is a needle-choice decision made at the time of the puncture, which is what makes it unusually actionable.
Nath et al., Atraumatic versus conventional lumbar puncture needles: a systematic review and meta-analysis, Lancet 2018 · PMID 29223694

3. It indicates moderate heterogeneity — the 110 trials, spanning 1989 to 2017 and 29 countries, did not all produce the same effect size. That is unsurprising given the range of indications and eras included. It does not overturn the pooled result, but it does mean the 11.0% and 4.2% figures should be read as pooled estimates across varied populations rather than as the rates to quote for a specific patient and needle gauge.

Moderate heterogeneity affects how precisely you quote a number, not whether you believe the direction.
Nath et al., Atraumatic versus conventional lumbar puncture needles: a systematic review and meta-analysis, Lancet 2018 · PMID 29223694

Severe PDPH, even if delayed or after discharge, warrants an EBP; ADP risk exists but EBP remains the primary treatment.

SOURCES

[1] Postdural puncture headache: Revisited, Best practice & research. Clinical anaesthesiology 2023 · PMID 37321765
[2] Postdural puncture headache: Beyond the evidence, Best practice & research. Clinical anaesthesiology 2024 · PMID 39764816
[3] Accidental dural puncture during epidural blood patch: a narrative review, International journal of obstetric anesthesia 2023 · PMID 37302183
[4] Management of postdural puncture headache in the obstetric patient, Current opinion in anaesthesiology 2008 · PMID 18458543
[5] Nath et al., Lancet 2018 (110 trials, 31,412 participants) · PMID 29223694
[6] Multisociety consensus practice guidelines on PDPH, Reg Anesth Pain Med 2024 · PMID 37582578

[7] Major neurologic complications with PDPH in obstetrics, Anesth Analg 2019 · PMID 31335402
[8] Complications of unintentional dural puncture, 10-year observational study, 2023 · PMID 37880725
[9] ASRA antithrombotic guidelines, 5th edition, Reg Anesth Pain Med 2025 · PMID 39880411
[10] Consensus practice guidelines on PDPH, JAMA Netw Open 2023 · PMID 37581893