European Society of
Regional Anaesthesia
& Pain Therapy

ESRA ITALIA

ESRA Cè

XXIX CONGRESSO NAZIONALE

ESRA Italian Chapter

CESENA, Cesena fiere

7-9 Novembre 2024

Presidente del congresso
Vanni Agnoletti
Domenico Pietro Santonastaso
Andrea Tognù

MZ EVENTS

European Society of Regional Anaesthesia & Pain Therapy
ESRA ITALIA
ESRA Italian Chapter
XXIX CONGRESSO NAZIONALE
7-9 Novembre 2024
CESENA, Cesena fiere

HO BUCATO LA DURA
Istruzioni

Dott. Diego Marandola

Ospedale M. Bufalini Cesena
U.O.C Anestesia e Rianimazione
Direttore Prof. V. Agnoletti

DICHIARAZIONE SUL CONFLITTO DI INTERESSI

In qualità di docente/relatore/tutor, ai sensi dell'art. 3.3 sul Conflitto di Interessi, pag. 18,19 dell'Accordo Stato -Regione del 19 Aprile 2021

Dichiaro

che negli utlimi due anni non ho avuto rapporti anche di finanziamento con soggetti portatori di interessi commerciali in campo sanitario

ADP (ACCIDENTAL DURAL PUNCTURE)

Visible CSF in the epidural needle, a positive aspiration test through an epidural catheter, or typical evidence of spinal anaesthesia after injection of local anaesthetic via the epidural catheter

INCIDENCE: 0.16%- 5%

Anil Gupta et al -British Journal of Anaesthesia, 2020

PDPH (POST DURAL PUNCTURE HEADACHE)

IHS Classification ICHD-3

Headache occurring **within 5 days** of a lumbar puncture, caused by **cerebrospinal fluid (CSF) leakage through the dural puncture**. It is usually accompanied by neck stiffness and/or subjective hearing symptoms. **It remits spontaneously within 2 weeks, or after sealing of the leak with autologous epidural lumbar patch**.

PDPH→ 50-80% of ADP

Choi PT et al. J Anesth 2003

Once upon a time....

XVI.

Aus der Königlichen chirurgischen Klinik zu Kiel.

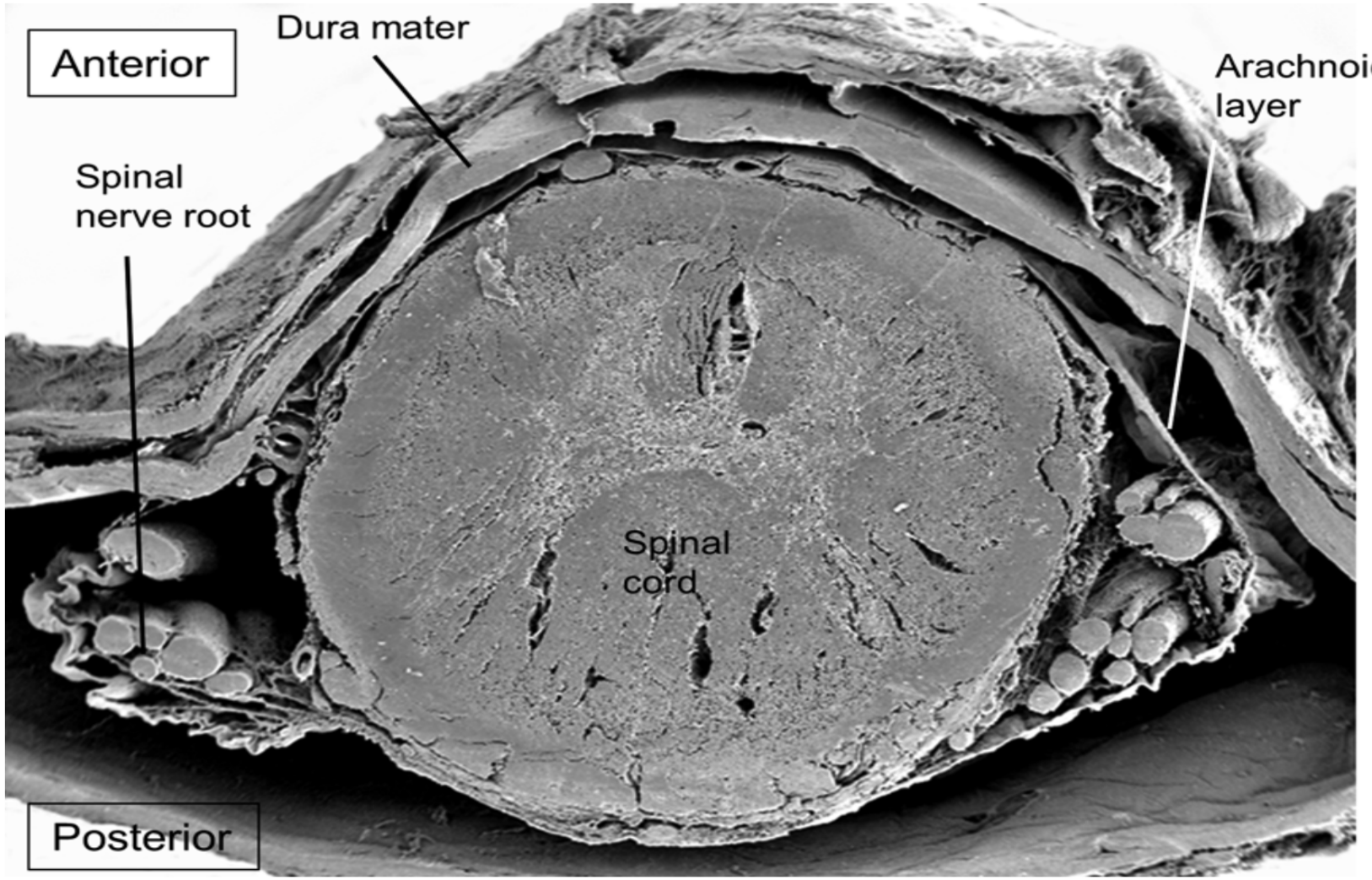
Versuche über Cocainisirung des Rückenmarkes.

Von
Prof. Dr. August Bier.

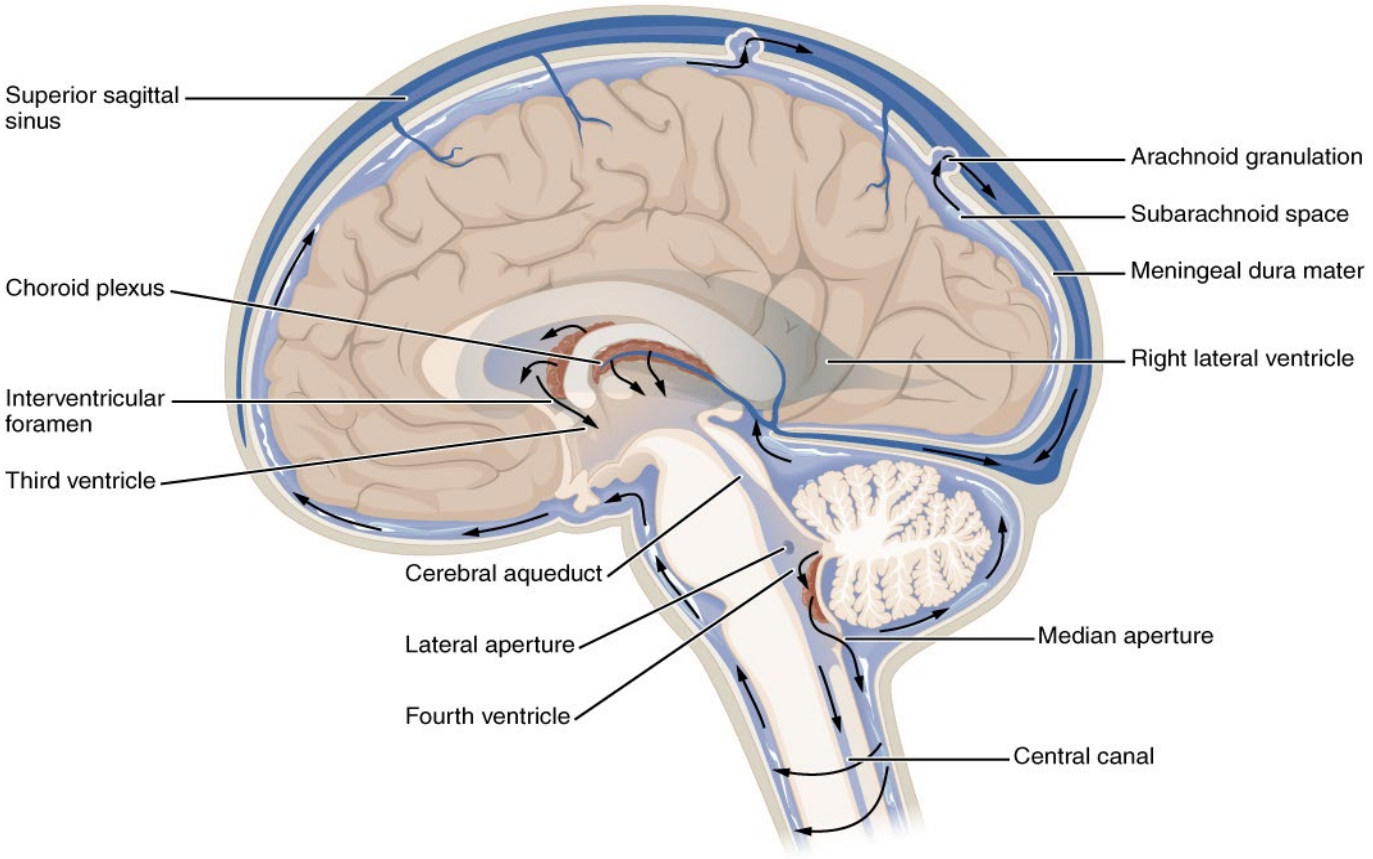
Die Schleich'sche Infiltrations- und die Oberst'sche regionäre Cocainanästhesie haben die gefährliche allgemeine Narkose in sehr wesentlicher und erfreulicher Weise beschränkt. Aber für „grosse" Operationen sind beide Verfahren doch nur im geringen Grade verwendbar. Ich habe den Versuch gemacht, durch Cocainisirung des Rückenmarkes grosse Strecken des Körpers unempfindlich gegen Schmerz zu machen. Dies wurde in folgender Weise ausgeführt:

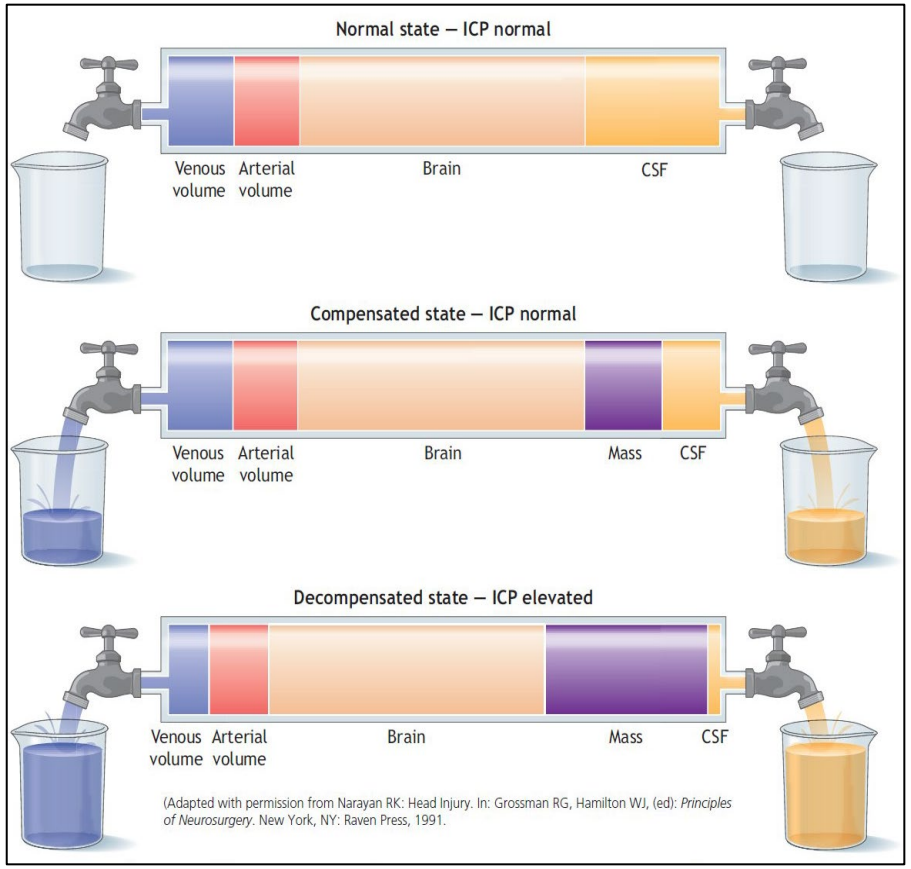
Bei dem in Seitenlage befindlichen Kranken wird die Quincke'sche Lumbalpunktion in bekannter Weise vorgenommen. Die Hohlnadel wählt man sehr dünn. Nachdem sie in den Sack der Rückenmarkshäute eingedrungen ist, entfernt man den Stöpsel, welcher die Lichtung der Nadel verschliesst, und setzt sofort den Finger auf die Mündung, damit möglichst wenig Liquor cerebrospinalis ausfliesst. Mit einer Pravaz'schen Spritze, welche genau auf die Punktionsnadel passt, wird die gewünschte Menge Cocain eingespritzt. Dabei muss man natürlich bei der Länge der Nadel so viel Cocainlösung mehr nehmen, als die Lichtung derselben fasst. (Bei unserer Nadel 1½ Theilstriche der Pravaz'schen Spritze.) Damit das Cocain nicht aus dem Stichkanale der Rückenmarkshäute in die Gewebe sickert, lässt man die Nadel mit der daraufsitzenden Spritze 2 Minuten stecken und entfernt sie dann. Die Stichöffnung in der Haut wird mit Collodium verklebt.

Die Lumbalpunktion wird unter Schleich's Infiltrationsanästhesie schmerzlos ausgeführt. Zuerst wird die Haut, dann werden mit einer langen Nadel die übrigen Weichtheile bis auf die Wirbelsäule infiltrirt.



Reina et al Eur J Pain Suppl. 2011


Superior sagittal sinus
Arachnoid granulation
Subarachnoid space
Meningeal dura mater
Choroid plexus
Right lateral ventricle
Interventricular foramen
Third ventricle
Cerebral aqueduct
Lateral aperture
Median aperture
Fourth ventricle
Central canal


Normal state — ICP normal
Venous volume
Arterial volume
Brain
CSF
Compensated state — ICP normal
Venous volume
Arterial volume
Brain
Mass
CSF
Decompensated state — ICP elevated
Venous volume
Arterial volume
Brain
Mass
CSF
(Adapted with permission from Narayan RK: Head Injury. In: Grossman RG, Hamilton WJ, (ed): *Principles of Neurosurgery*. New York, NY: Raven Press, 1991.

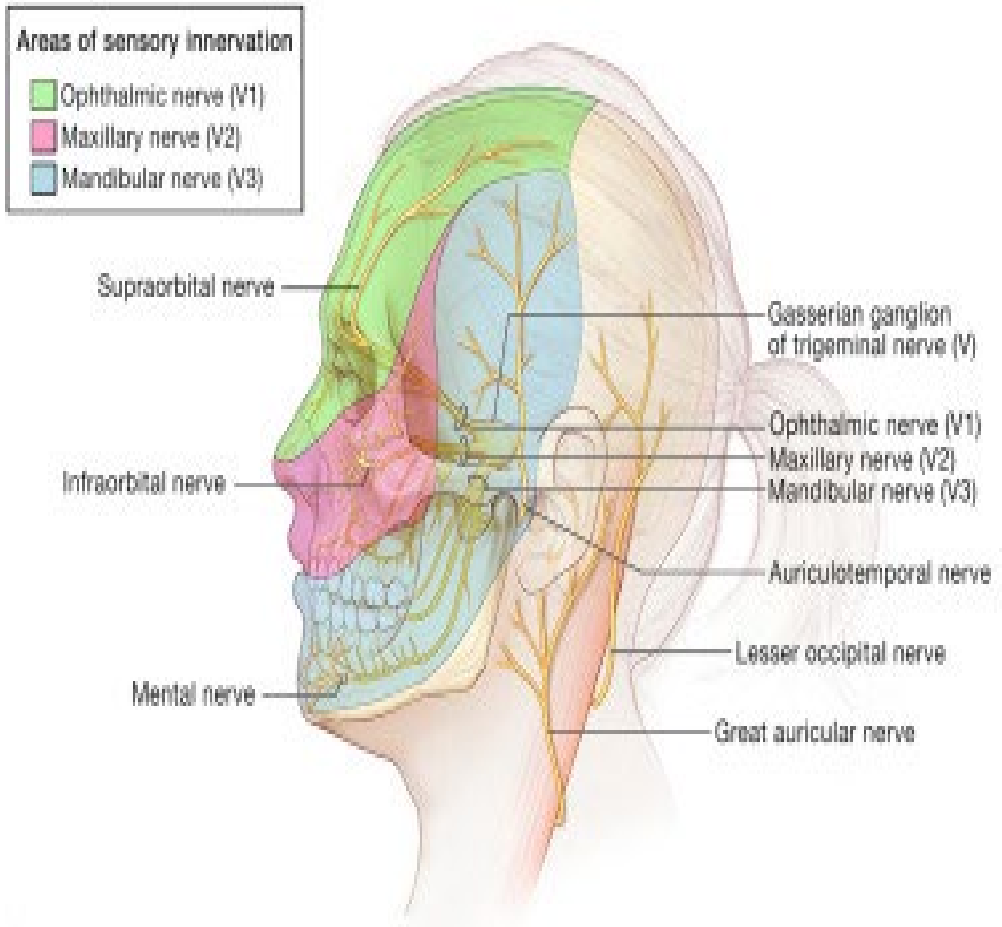
COMMON SYMPTONS AND SIGNS OF PDPH

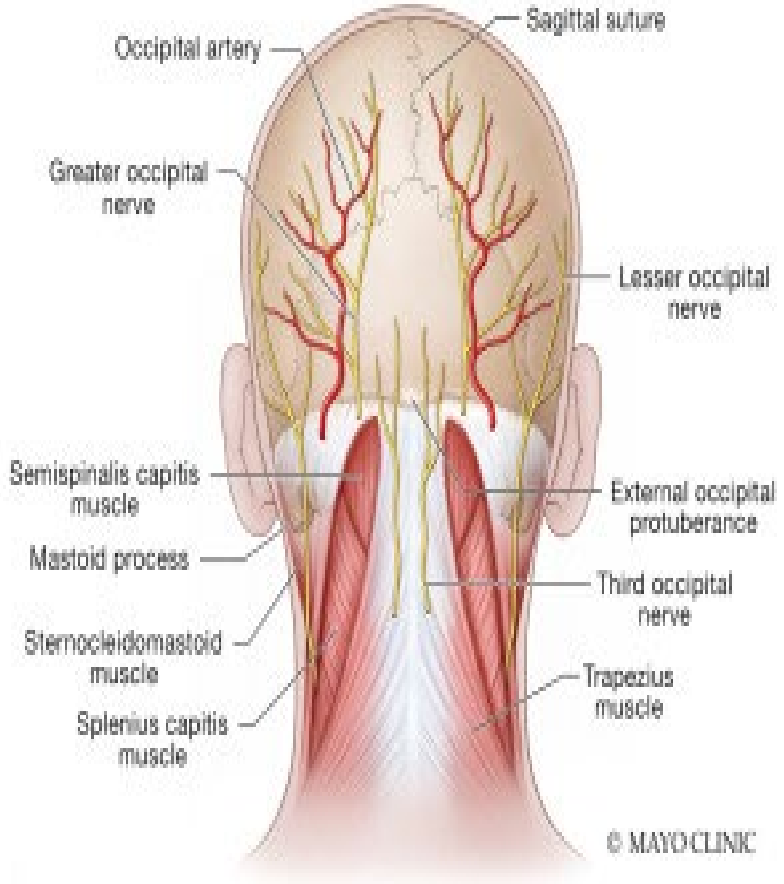
- HEADACHE * (FRONTAL, OCCIPITAL, NECK, TEMPORAL)
- DIZZINESS
- NAUSEA / VOMITING
- AUDITORY SYMPTONS
- VISUAL SYMPTOMS

*that is mostly, but not invariably, postural in character

Anil Gupta et al -British Journal of Anaesthesia, 2020

The anatomy of head pain





Carrie E. Robertson, Eduardo E. Benarroch

DIFFERENTIAL DIAGNOSIS OF PDPH

COMMON CAUSES

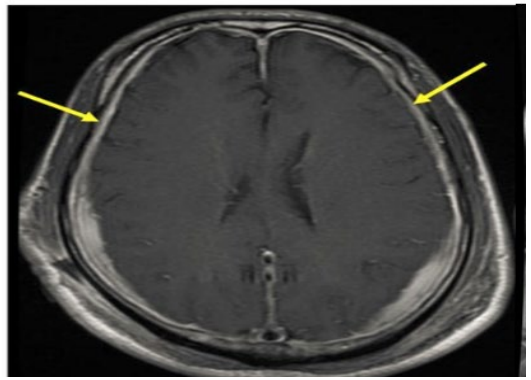
- Tension headache
- Lack of sleep
- Deydration
- Migraine

UNCOMMON CAUSES

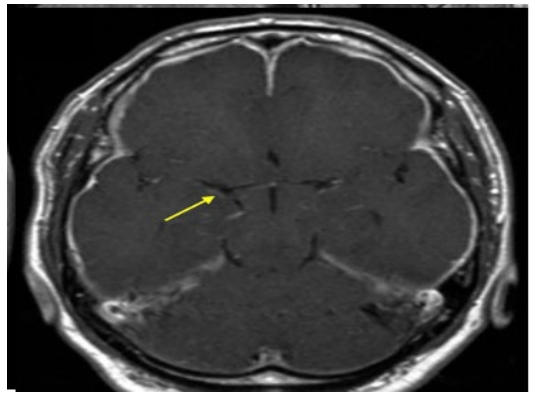
- Subarachnoid bleeding
- Cortical/saggital vein Thromb.
- Pre-eclampsia/Eclampsia
- RCV syndrome

A.M.J.V. Schyns-van den Berg, A. Gupta Best Practice & Research Clinical Anaesthesiology, 2023

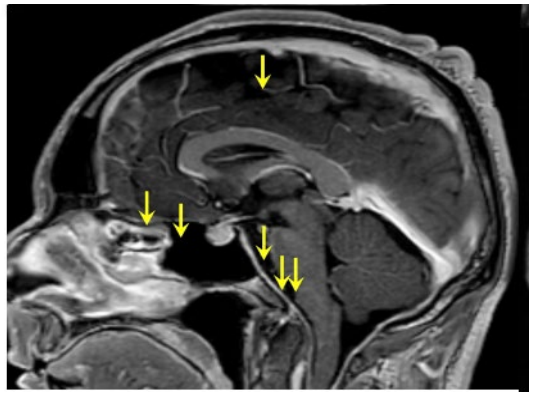
RMI in PDPH



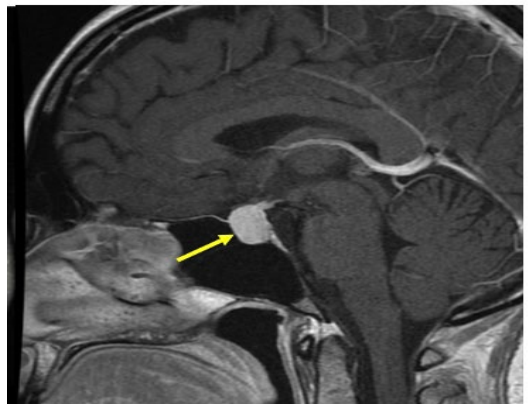
PACHYMENINGEAL ENHANCEMENT



DECREASED SIZE OF SUBARACHNOID CISTERNS AND CEREBRAL VENTRICLE



DOWNWARD DISPLACEMENT OF THE BRAIN



PITUITARY GLAND ENLARGEMENT

Paldino M et al. Neurosurg Focus 2003

Is Imaging Required in PDPH Management?

Consensus Statement | **Anesthesiology**

Consensus Practice Guidelines on Postdural Puncture Headache From a Multisociety, International Working Group A Summary Report

Vishal Uppal, MBBS, MSc; Robin Russell, MBBS; Rakesh Sondekoppam, MD; Jessica Ansari, MD; Zafeer Baber, MD; Yian Chen, MD; Kathryn DelPizzo, MD;

- Nonorthostati[illegible]esent
- Hea[illegible] **than 5 days** after [illegible]pected dural puncture

Evidence grade: C
Level of certainty: low

- Focal neurolo[illegible]
- [illegible]ousness
- [illegible]eizures

Evidence grade: B
Level of certainty: moderate

Consensus Statement | Anesthesiology

Consensus Practice Guidelines on Postdural Puncture Headache From a Multisociety, International Working Group

A Summary Report

Vishal Uppal, MBBS, MSc; Robin Russell, MBBS; Rakesh Sondekoppam, MD; Jessica Ansari, MD; Zafeer Baber, MD; Yian Chen, MD; Kathryn DelPizzo, MD;

Table 3. Patient Factors Associated With Incidence of PDPH

Factor	Statement	Level of certainty
Age	The preponderance of evidence suggests that in the adult population, younger age may be associated with an increased risk of PDPH.	High
Sex	The preponderance of evidence suggests that female sex is associated with an increased risk of PDPH.	High
BMI	Evidence does not suggest that BMI has a consistent association with an increased risk of PDPH.	Moderate
Comorbidities		
Headache	The preponderance of evidence suggests that a history of headaches (chronic, contemporaneous, or prior PDPH) may be associated with an increased risk of PDPH. The association with migraine specifically is less clear.	Moderate
Smoking	Limited evidence suggests that cigarette smoking might be associated with a decreased risk of PDPH.	Low
Depression	There is insufficient evidence to conclude that depression is a risk for PDPH.	Low
Obstetric	Evidence is conflicting regarding the association between PDPH and active pushing during the second stage of labor following dural puncture with an epidural needle.	Low

Table 4. Procedural Characteristics Associated With PDPH

Factor	Statement	Level of certainty
Needle type	Compared with cutting needles, noncutting spinal needles are associated with decreased PDPH risk.	High
	There is limited evidence regarding a particular design of noncutting spinal needle and the risk of PDPH.	Low
Needle size	When using cutting needles, narrower-gauge needles reduce the risk of PDPH.	High
	For noncutting needles, limited evidence suggests narrower-gauge needles reduce the risk of PDPH.	Moderate
Needle advancement	Evidence is insufficient to confirm benefit of any technique used to identify the epidural space on reduction of the incidence of PDPH.	Low
No. of attempts	Evidence suggests an association between the number of attempts and the risk of PDPH.	Moderate
Operator experience	Evidence suggests that a higher level of operator experience level reduces the incidence of PDPH, but the net benefit may be small.	Moderate
Level of neuraxial block	Evidence does not suggest an association of PDPH with the level of epidural insertion.	Moderate
Patient position	Evidence suggests a lower risk of PDPH with techniques performed with the patient in the lateral decubitus position.	Moderate
Traumatic vs atraumatic tap	Evidence suggests that the choice of needle for LP does not alter the risk of traumatic tap and the risk of PDPH.	Moderate

JAMA Network Open. 2023;6(8)jamanetworkopen.2023

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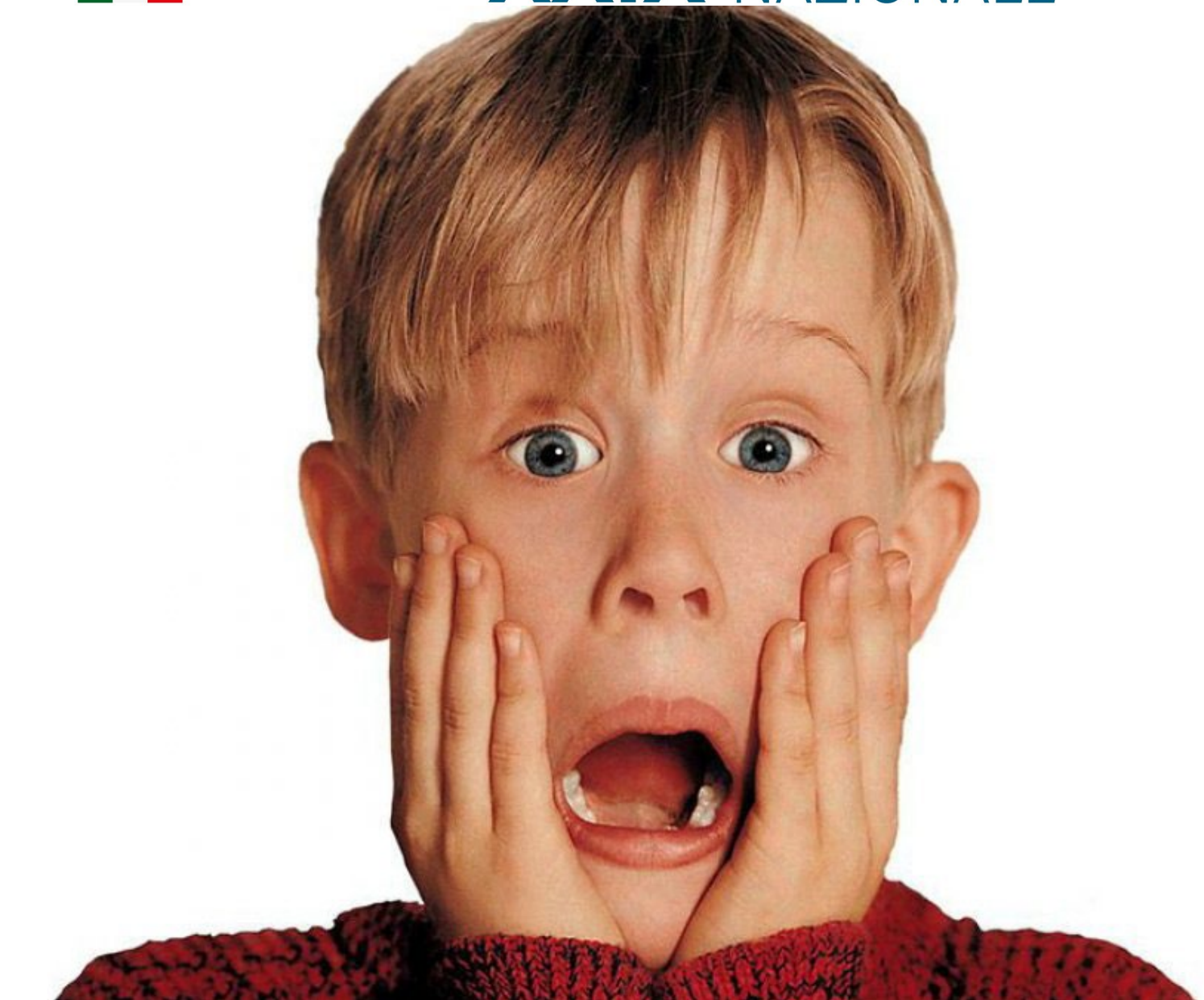

.....and now???

Management of PDHD: CONSERVATIVE

- ✓INFORM THE PATIENT
- ✓BED REST/DELAYED MOBILISATION
- ✓AVOID DEHYDRATION
- ✓ANALGESICS
- ✓OTHERS (CAFFEINE ETC…)

A.M.J.V. Schyns-van den Berg, A. Gupta Best Practice & Research Clinical Anaesthesiology, 2023

Management of PDHD: PHARMACOLOGICAL

evidence does not support the routine use of hydrocortisone, theophylline, triptans, adrenocorticotropic hormone or cosyntropin, neostigmine or atropine, piritramide, methergine, and gabapentin in the management of PDPH (evidence grade: I; level of certainty: low).

JAMA Network Open. 2023;6(8)jamanetworkopen.2023

Management of PDHD: INTERVENTIONAL

Anesthesiology
48:221–223, 1978

Comparison of Epidural Salin
of

ALEX J. BART, LCDR,

ANES
Prophyl
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Headac
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Feyce M. Peralta,
Nicole Higgins, M.
Mary Jane Jones,
ANESTHESIOLOGY 2

ELSEVIER
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Original Contribution
Greater occip
postdural pu
prospective a
guideline for
and review o
G. Niraj MD, FRCA, FFPMRCA
Vandana Girotra FRCA (Spec

of acupuncture to treat PDPH (evidence grade: I; level
support routine use of sphenopalatine ganglion blocks
certainty: low). Third, greater occipital nerve blocks may be offered to patients with PDPH after spinal anesthesia with a narrower-gauge (≤22 G) needle, although headache may recur in a substantial proportion of patients, with more severe headache requiring an EBP (evidence grade: C; level of certainty: moderate). Fourth, evidence does not support the use of spinal and epidural morphine to treat PDPH (evidence grade: D; level of certainty: low)

Acupuncture: an Alternative Treatment
for Post Dural-Puncture Headaches
Following Obstetric Epidural or Spinal
S Mahendra Perera

Journal of
Clinical
Anesthesia
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The American Journal of Emergency Medicine
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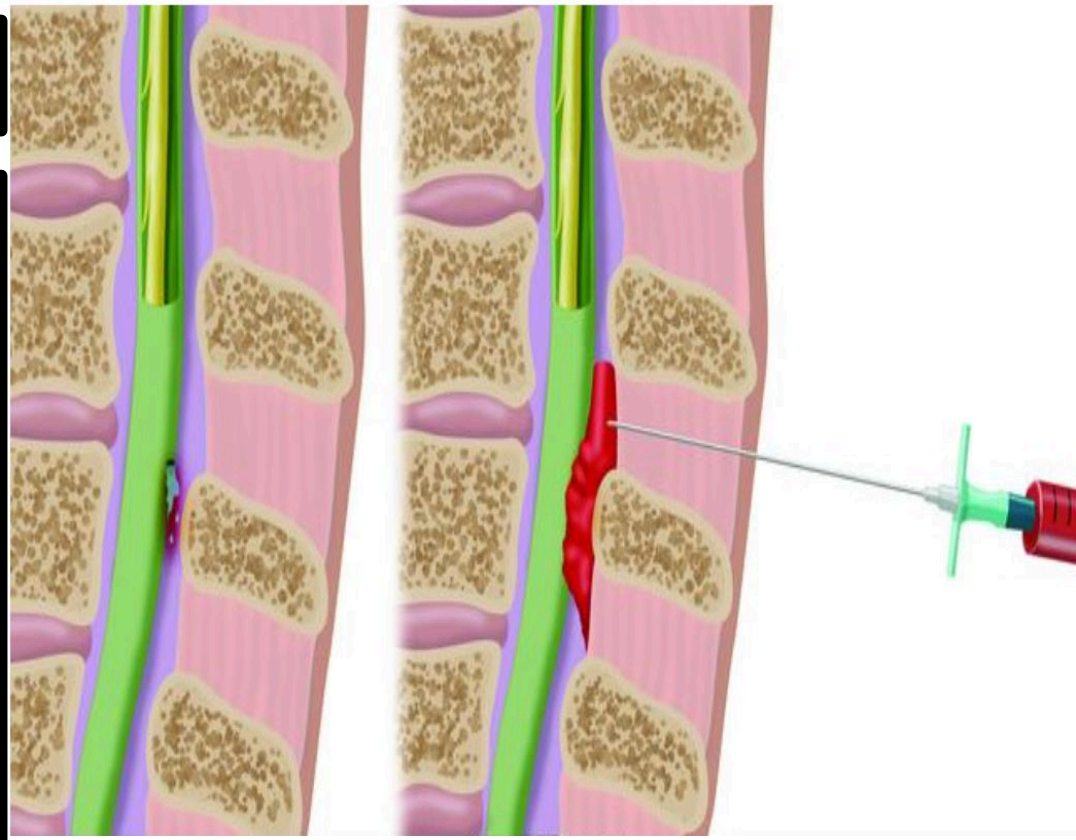
JAMA Network Open. 2023;6(8)jamanetworkopen.2023

Management of PDHD: INTERVENTIONAL

COMPLICATIONS BLOOD PATCH

-FAILED EBP 7%-66%
-BACK PAIN 50%-80%
-2 ADP
-FEVER
- RADICULAR IRRITATION
-MENINGITIS
-SPINAL SUBDURAL OR INTRATHECAL HAEMATOMA

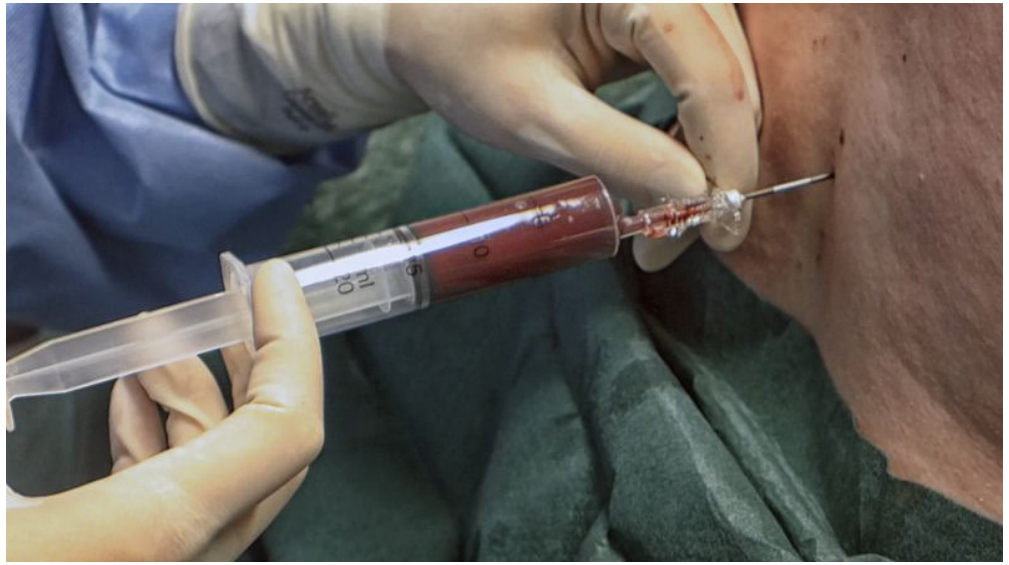
WHAT? VOL 20-30 ML AUTOLOG. BLOOD
WHEN? WAIT AND SEE 48H
WHERE? SAME OR BELOW SPACE OF ADP
WHY? MASS AND CLOT EFFECT



Anil Gupta et al -British Journal of Anaesthesia, 2020

OPERATING INSTRUCTION OF PDPH

SERVIZIO SANITARIO REGIONALE EMILIA-ROMAGNA Azienda Unità Sanitaria Locale della Romagna	Istruzione Operativa	Rev. 01 del 30/03/2024
U.O: Anestesia e Rianimazione Cesena	Cefalea Post Accidentale Puntura Durale PDPH	S P09-03
		Pagina 1 di 11



- N.2 ANESTHETISTS
- PATIENT MONITORING
- PERIPHERAL VEIN CANNULATION AND CRYSTALLOID INFUSION
- **1°ANESTHETIST** FINDS EPIDURAL SPACE WITH PATIENT IN LATERAL POSITION
- **2°ANESTHETIST** STERILE COLLECTION OF 20 ML OF BLOOD
- SLOW INJECTION 20ML INTO THE EPIDURAL SPACE

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REPOSITIONING EPIDURAL CATHETER

INTRATECHAL CATHETERISATION

REPOSITIONING EPIDURAL CATHETER

- Sensory and motor block control
- Ultrasound Help?
- Expert Help?

INTRATECHAL CATHETERISATION

Acta Anaesthesiol Scand 2014; 58: 1233–1239
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ACTA ANAESTHESIOLOGICA SCANDINAVICA
doi: 10.1111/aas.12394

Lower incidence of post-dural puncture headache with spinal catheterization after accidental dural puncture in obstetric patients

S. VERSTRAETE[1], M. A. WALTERS[2], S. DEVROE[1], E. ROOFTHOOFT[3] and M. VAN DE VELDE[1]

International Journal of Obstetric Anesthesia (2012) 21, 7–16
0959-289X/$ – see front matter
doi:10.1016/j.ijoa.2011.10.005

ORIGINAL ARTICLE

ELSEVIER
www.obstetanesthesia.com

A prospective controlled study of continuous spinal analgesia versus repeat epidural analgesia after accidental dural puncture in labour

L.F. Russell
Department of Anaesthesia, Hull Royal Infirmary, Hull, East Yorkshire, UK

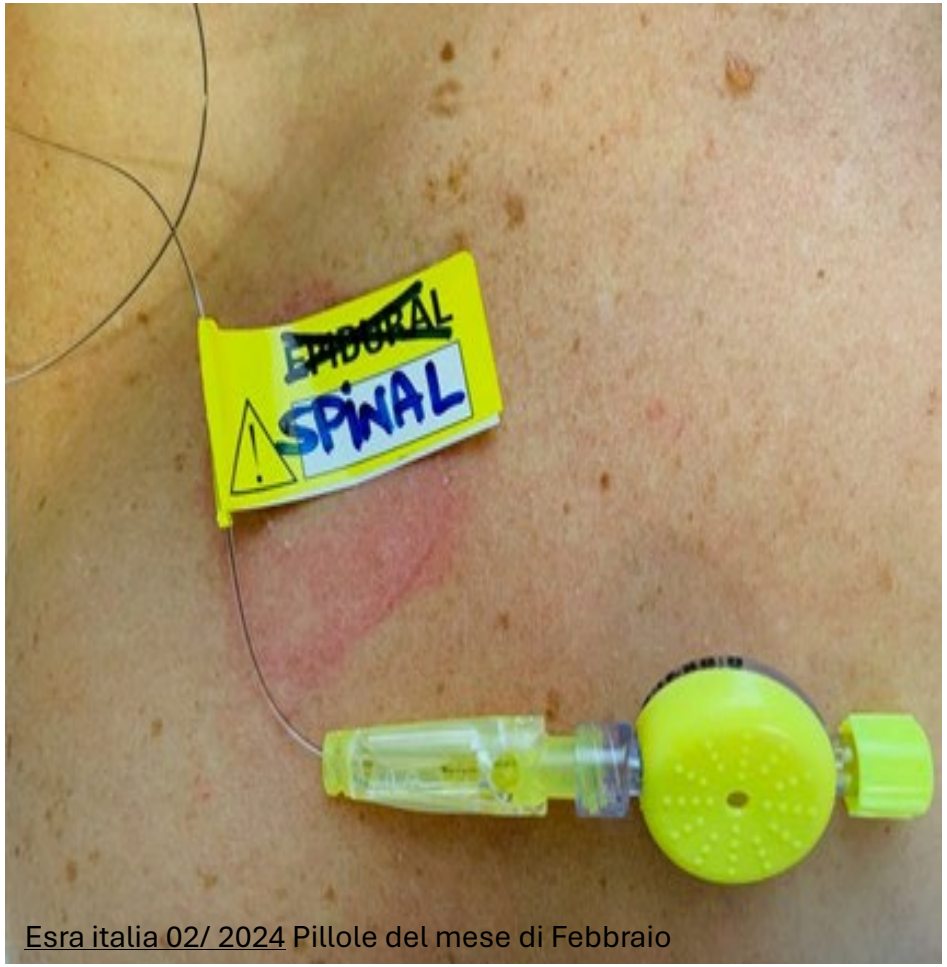
International Journal of Obstetric Anesthesia (2019) xxx, xxx–xxx
0959-289X/$ - see front matter
https://doi.org/10.1016/j.ijoa.2019.08.001

ORIGINAL ARTICLE

ELSEVIER
www.obstetanesthesia.com

Intrathecal catheterisation after observed accidental dural puncture in labouring women: up-date of a meta-analysis and a trial-sequential analysis

M. Heesen,[a] N. Hilber,[a] K. Rijs,[b] C. van der Marel,[b] R. Rossaint,[c] L. Schäffer,[d] M. Klimek[b]



Esra italia 02/ 2024 Pillole del mese di Febbraio

Consensus Statement | Anesthesiology

Consensus Practice Guidelines on Postdural Puncture Headache From a Multisociety, International Working Group
A Summary Report

Vishal Uppal, MBBS, MSc; Robin Russell, MBBS; Rakesh Sondekoppam, MD; Jessica Ansari, MD; Zafeer Baber, MD; Yian Chen, MD; Kathryn DelPizzo, MD;

- **Statement**: *Following inadvertent dural puncture during attempted epidural catheter insertion, evidence is insufficient to confirm that placement of an intrathecal catheter decreases the risk of PDPH and EBP (Low Level of Certainty).*
- **Recommendation**: *After inadvertent dural puncture during epidural catheter placement, an intrathecal catheter may be considered to provide anesthesia/analgesia. This decision must consider potential risks associated with intrathecal catheters (Grade B; Low Level of Certainty).*

Significant heterogeneity exists in all studies evaluating intrathecal catheters (eg, randomization, utilization (continuous spinal anesthesia vs no infusion) and duration of intrathecal catheters (long-term vs short-term catheter placement)). In addition, most studies are retrospective and predominantly include obstetric patients, potentially limiting the generalizability of the findings. In

ITC MANAGEMENT SCHEME OF ANALGESIA

2,5 mcg sufentanil in 5 ml di SF	5 ml di Ropivacaina 0,02%	5 ml di Ropivacaina 0,04%	5 ml di Ropivacaina 0,06%
	0,5 ml di Ropi 0,2% +4,5 ml di SF+ 2,5mcg di Sufentanil	1 ml di Ropi 0,2% + 4 ml di SF+ 2,5mcg di Sufentanil	1,5 ml di Ropi 0,2% +3,5 ml di SF+ 2,5mcg di Sufentanil
Initial 1 Stage	1 Stage	1 Stage Stimulated And /Or PROM	2 Stage

ITC MANAGEMENT IN CASE OF TC

- Ropivacaine 0.5% 2 ml (1 ml of Ropivacaine 1% 10 mg + 1 ml sf) + Sufentanil 3 mcg

- Levobupivacaine 0.5% 7.5 mg (1.5 ml)

In case of insufficient block, proceed with a further spinal bolus of Ropivacaine 0.1% 1 ml (total 1 mg) and retest the level until a block at T4 is achieved

ITC MANAGEMENT

- Inform the patient
- Conservative strategies
- Regular visit and record of the consultation
- Ceftriaxone 2 g/day for 5 days
- Connect cadd pump (containing 0.9% nacl) to the ITC in i.c. mode at a rate of 2.5 ml/h for 36 hours

SERVIZIO SANITARIO REGIONALE EMILIA-ROMAGNA Azienda Unità Sanitaria Locale della Romagna U.O: Anestesia e Rianimazione Cesena	**Istruzione Operativa** **Cefalea Post Accidentale Puntura Durale PDPH**	Rev. 01 del 30/03/2024 S P09-03 Pagina 9 di 11

RELAZIONE DI DIMISSIONE PER PAZIENTI CON PUNTURA DURALE ACCIDENTALE

Egregio collega,
in data _____ la Signora _____ nata il _____ ,
recapito telefonico _____ è stata sottoposta ad analgesia epidurale per travaglio di parto.
La procedura è stata:
☐ Complicata da un'accidentale puntura, documentata con certezza
☐ Complicata da un sospetto di accidentale puntura durale

Il decorso post partum è stato:
☐ Regolare _____
☐ Complicato da sintomi ascrivibili ad accidentale puntura durale (PDPH): cefalea posturale, rigidità nucale, disturbi visivi, uditivi
☐ Complicato da sintomi aspecifici (descrizione)_____
☐ Altro _____

Relativamente alla complicanza, dubbia o accertata, sono stati eseguiti i seguenti accertamenti:
☐ Consulenza anestesiologica _____
☐ Consulenza neurologica _____
☐ RMN encefalo e midollo _____
☐ Blood patch _____
☐ Altro

Alla dimissione dal reparto la signora risulta:
☐ Asintomatica _____
☐ Presenta ancora PDPH, in miglioramento _____
☐ Presenta sintomi aspecifici

A domicilio si consiglia:
Farsi aiutare per la gestione del bambino, i primi giorni evitare sforzi e prolungata stazione eretta (non fare passeggiate, non sollevare pesi, non prendere il bambino in braccio in stazione eretta, farsi accompagnare in bagno), ritornare in decubito supino in caso di cefalea, dolore nucale o capogiri, riprendere gradualmente le comuni attività quotidiane in base all'andamento dei sintomi, abbondante idratazione (bere almeno 1.5-2 litri di acqua al giorno), analgesici al bisogno (Paracetamolo 1 g, ripetibile ogni 8 ore) .
Nei prossimi giorni la paziente verrà contattata telefonicamente da un medico anestesista per valutare l'evoluzione clinica.
In caso di persistenza dei sintomi, peggioramento degli stessi o insorgenza di nuovi sintomi neurologici si raccomanda di contattare il Servizio di Partoanalgesia Ostetrica dell'Ospedale Bufalini al numero 0547/352803 oppure 0547/352810. In caso di necessità la Signora verrà rivalutata da un medico anestesista del Servizio di Partoanalgesia dell'Ospedale Bufalini, con accesso diretto, presso il Reparto di Ostetricia (5° Piano scala B).

TAKE HOME MESSAGES

- ✓ADP Rare but Disabling
- ✓Self-resolves … if treated correctly!
- ✓Information-collaboration-sharing
- ✓Increasing international cooperation to better understand and manage PDPH

Thanks for your attention

diego.marandola@auslromagna.it