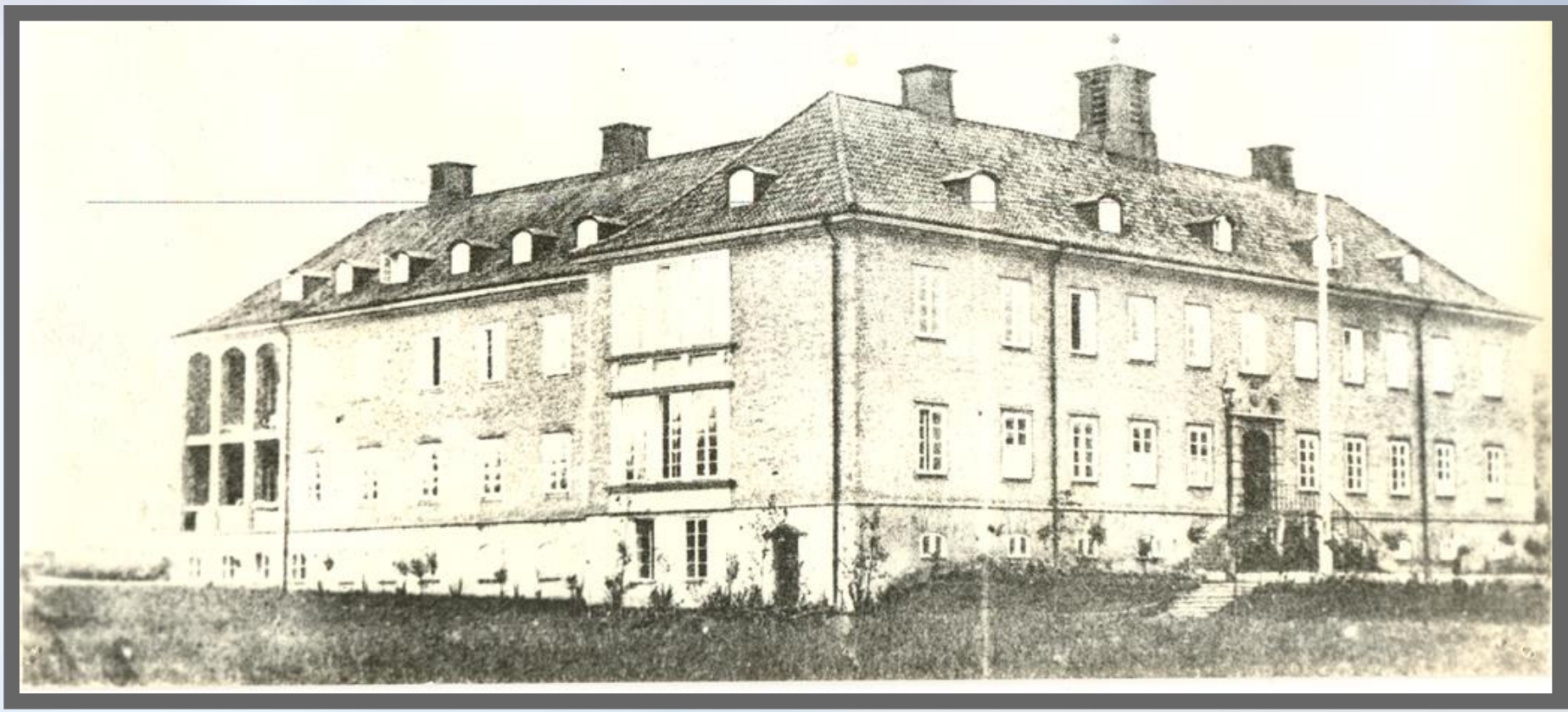
SAHLGRENSKA UNIVERSITETSSJUKHUSET
Område Mölndal

GÖTEBORGS UNIVERSITET

Новое – это старое забытое прошлое или как мы обезболиваем рожениц в Швеции

Ауримантас Пеланис
Sahlgrenska Universitet
(Гётеборгский университет)
Швеция

Mölndal Hospital 1924



Sahlgrenska Universitet (SU)

- В 2005 году Mölndal больница стала самой большой Ортопедической больницей Швеции и Скандинавии, входя в 10-у больших Ортопедических клиник Европы

- Sahlgrenska Universitet (SU)– самая большая Акушерская клиника Швеции

2013

- Ортопедия
  - 5300 операцийй
- Дневной стационар
  - 4500 операцийй
- Глазное отд.
  - 650 операцийй (наркозы)
- Родильное отд.
  - 4071 родов
  - 566 КС
  - 1059 ЭА + СА

Mölndal больница 2013

4071 Родов

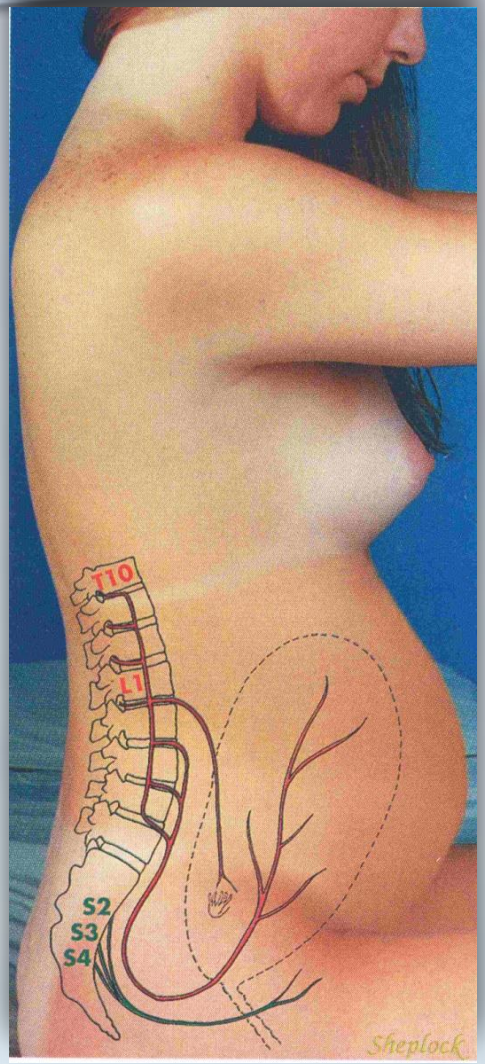
566 КЕСАРЕВО СЕЧЕНИЙ

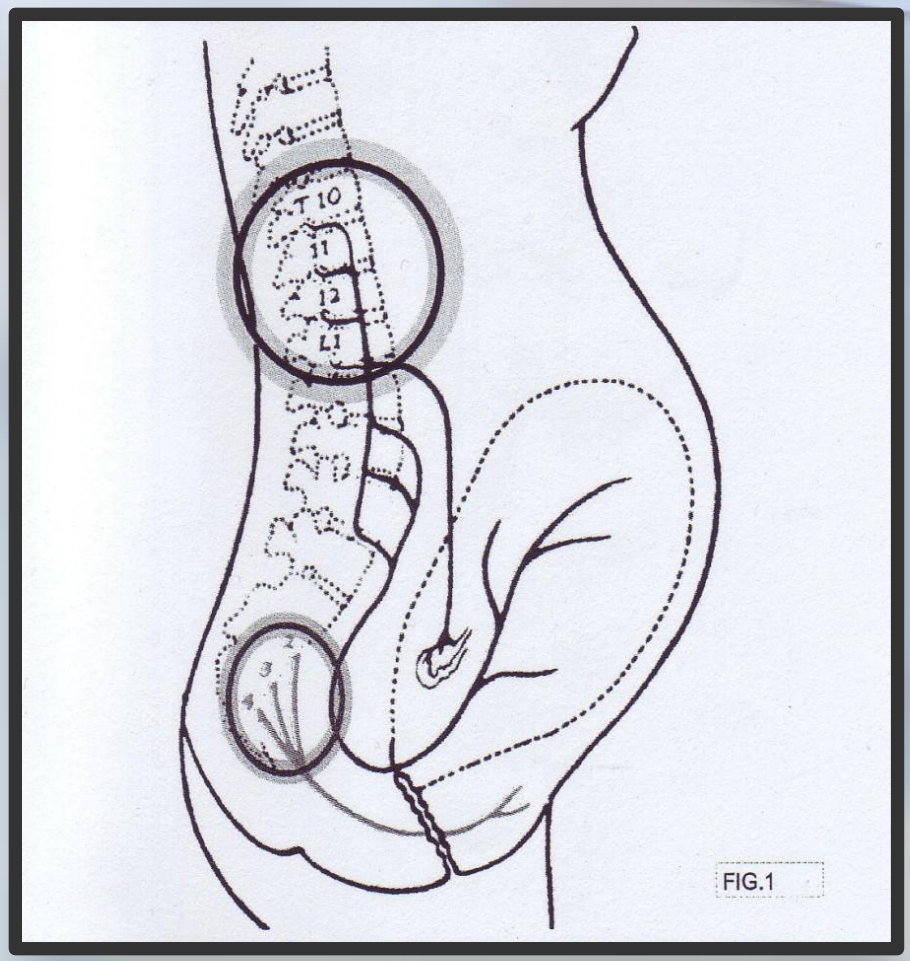
Статистика

- 9 родильных залов
- 1 операционная
  - +1 (8 родильны зал)

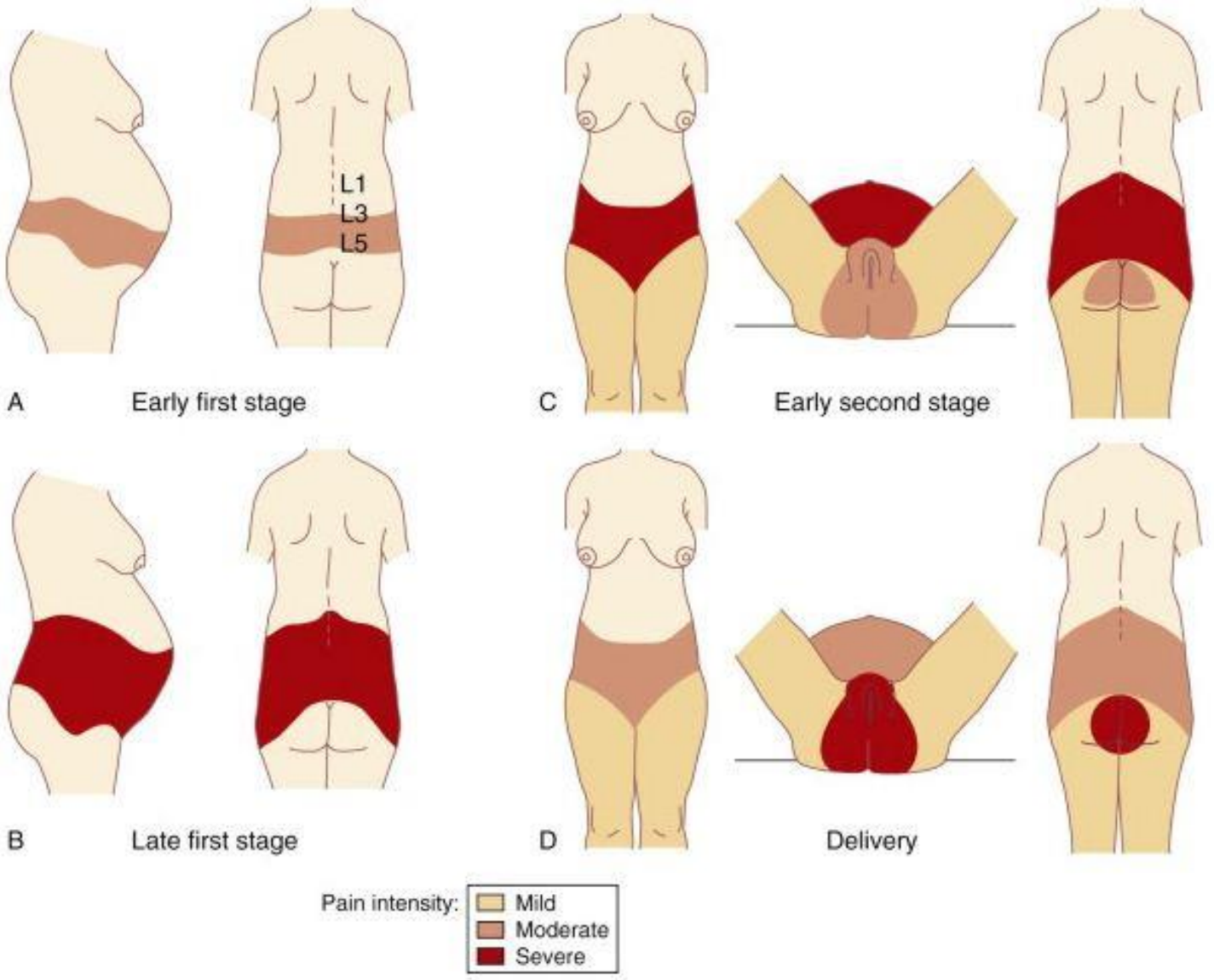
- 4071 Родов /год
  - 566 Кесаревых сечении/ 13,9 %
    - 238 плановых/ 40,5 %
    - 303 острых/ 59,5 %
- около1059 обезболивании родов (26,01 %)

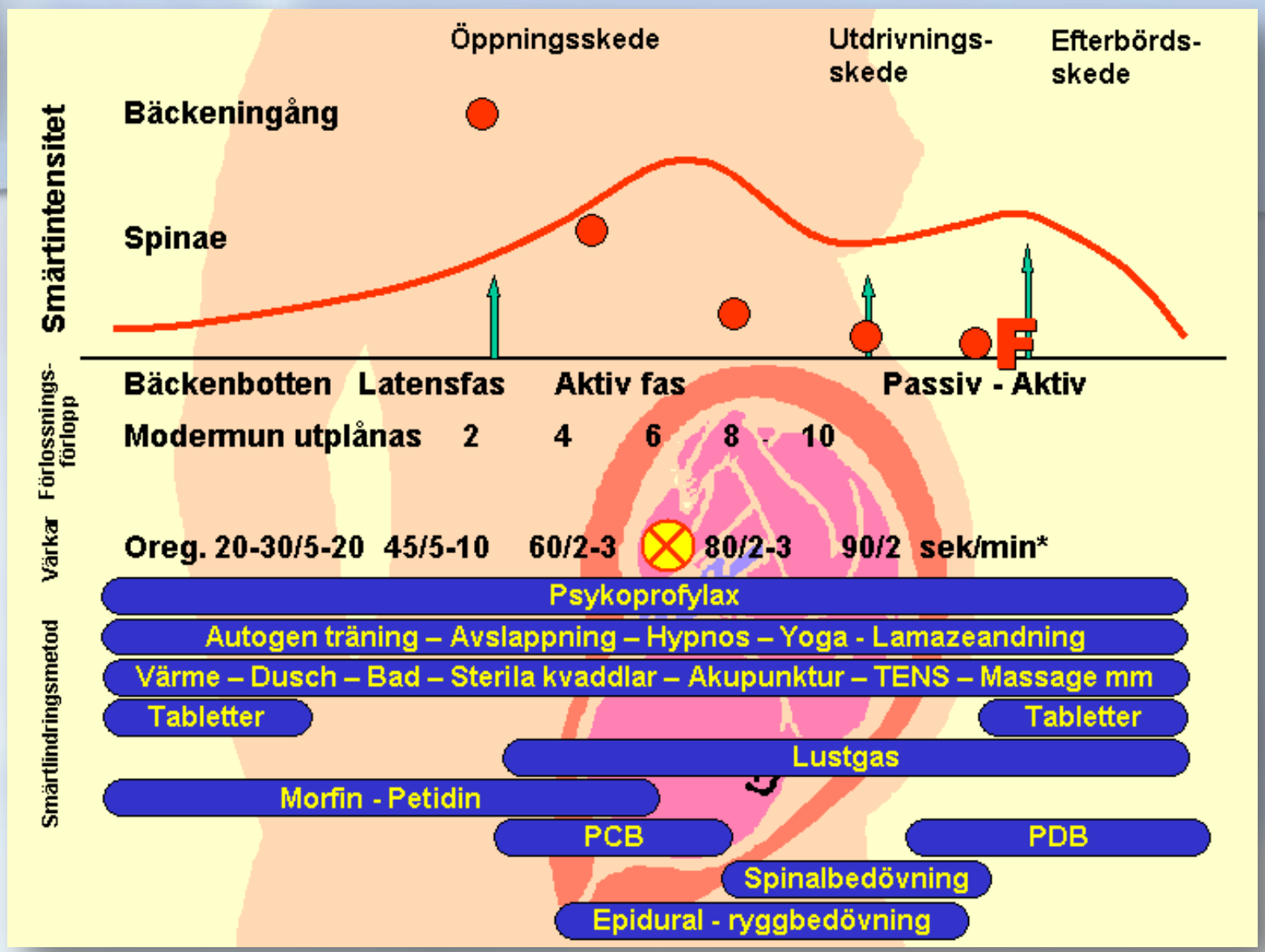
Обезболивание родов

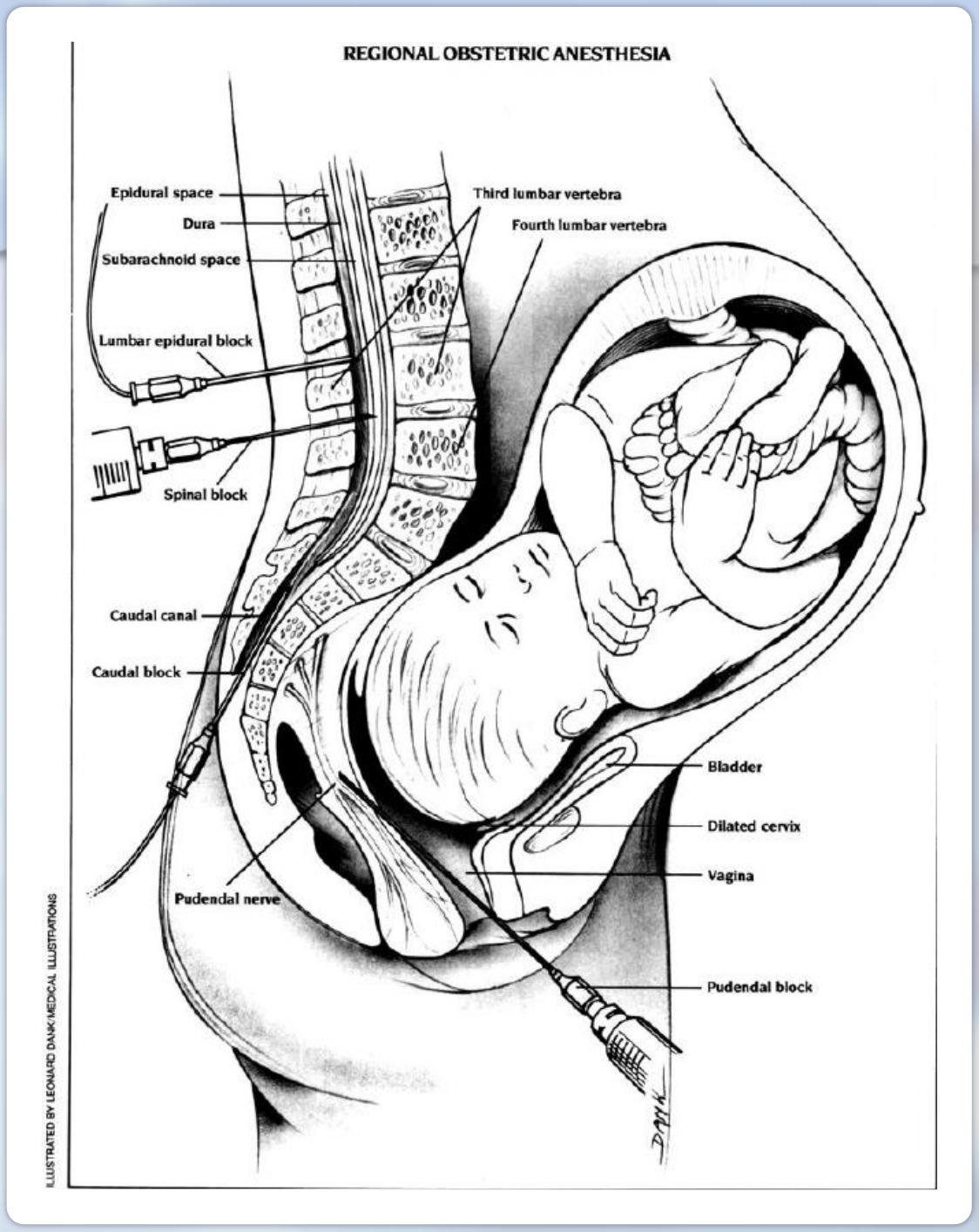




Обезболивание родов




Öppningsskede
Utdrivnings-skede
Efterbörds-skede
Smärtintensitet
Bäckeningång
Spinae
F
Förlossnings-förlopp
Bäckenbotten
Latensfas
Aktiv fas
Passiv - Aktiv
Modermun utplånas
2
4
6
8
10
Värkar
Oreg. 20-30/5-20
45/5-10
60/2-3
80/2-3
90/2
sek/min*
Smärtlindringsmetod
Psykoprofylax
Autogen träning – Avslappning – Hypnos – Yoga - Lamazeandning
Värme – Dusch – Bad – Sterila kvaddlar – Akupunktur – TENS – Massage mm
Tabletter
Tabletter
Lustgas
Morfin - Petidin
PCB
PDB
Spinalbedövning
Epidural - ryggbedövning

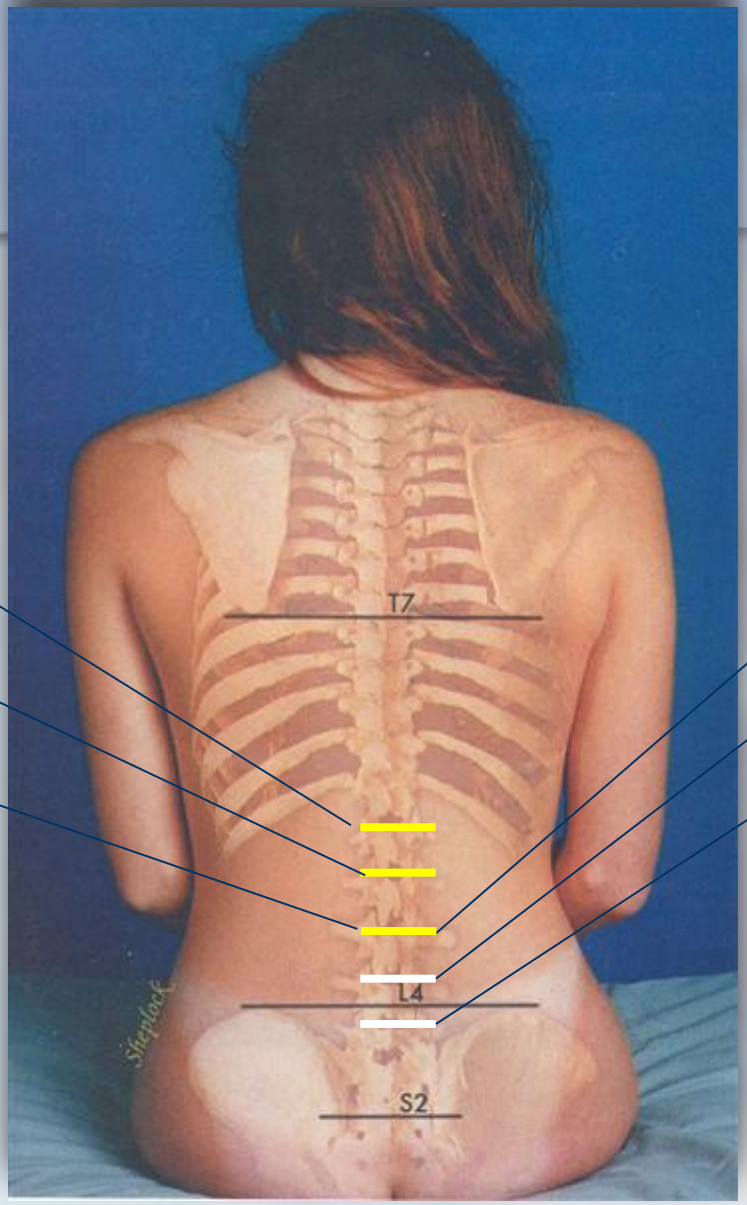

REGIONAL OBSTETRIC ANESTHESIA
Epidural space
Dura
Subarachnoid space
Lumbar epidural block
Spinal block
Caudal canal
Caudal block
Pudendal nerve
Third lumbar vertebra
Fourth lumbar vertebra
Bladder
Dilated cervix
Vagina
Pudendal block
ILLUSTRATED BY LEONARD DANK/MEDICAL ILLUSTRATIONS

ЭА уровень

$Th_{12} – L_1$

$L_1 – L_2$

$L_2 – L_3$



СА уровень

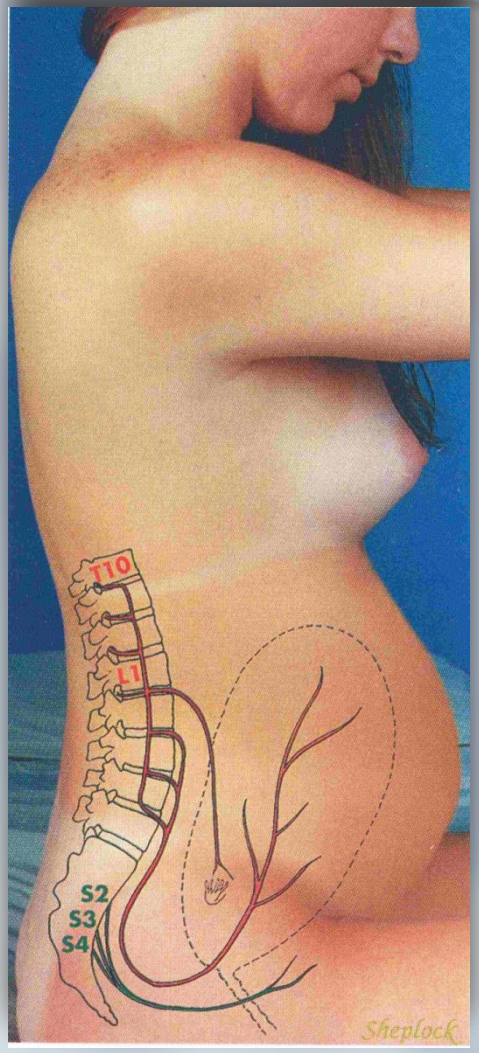
$L_2 – L_3$

$L_3 – L_4$

$L_4 – L_5$

Эпидуральная анестезия

- Латеральнный или медиальнный доступ
- Уровень
  - L_1 - L_2
  - L_2 – L_3
  - L_3 – L_4
- “Loss of resistens” щприц
  - NaCl 9 mg/ml
  - воздух
- Touhy тип 18 G (8 или 13 cm)
- Позиция
  - сидя
  - лежа



Эпидуральная анестезия

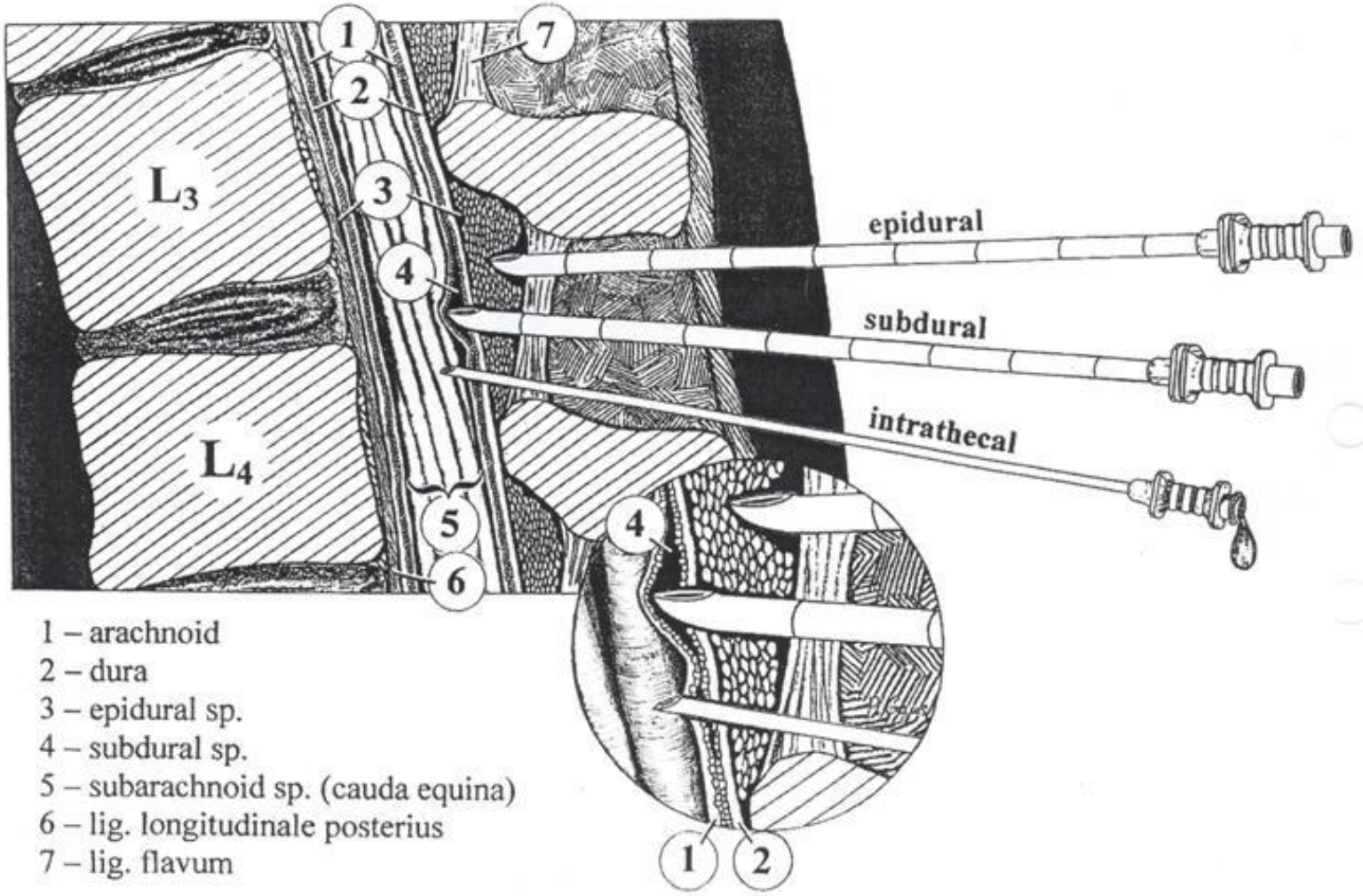
Procedure - Epidural

Sitting up

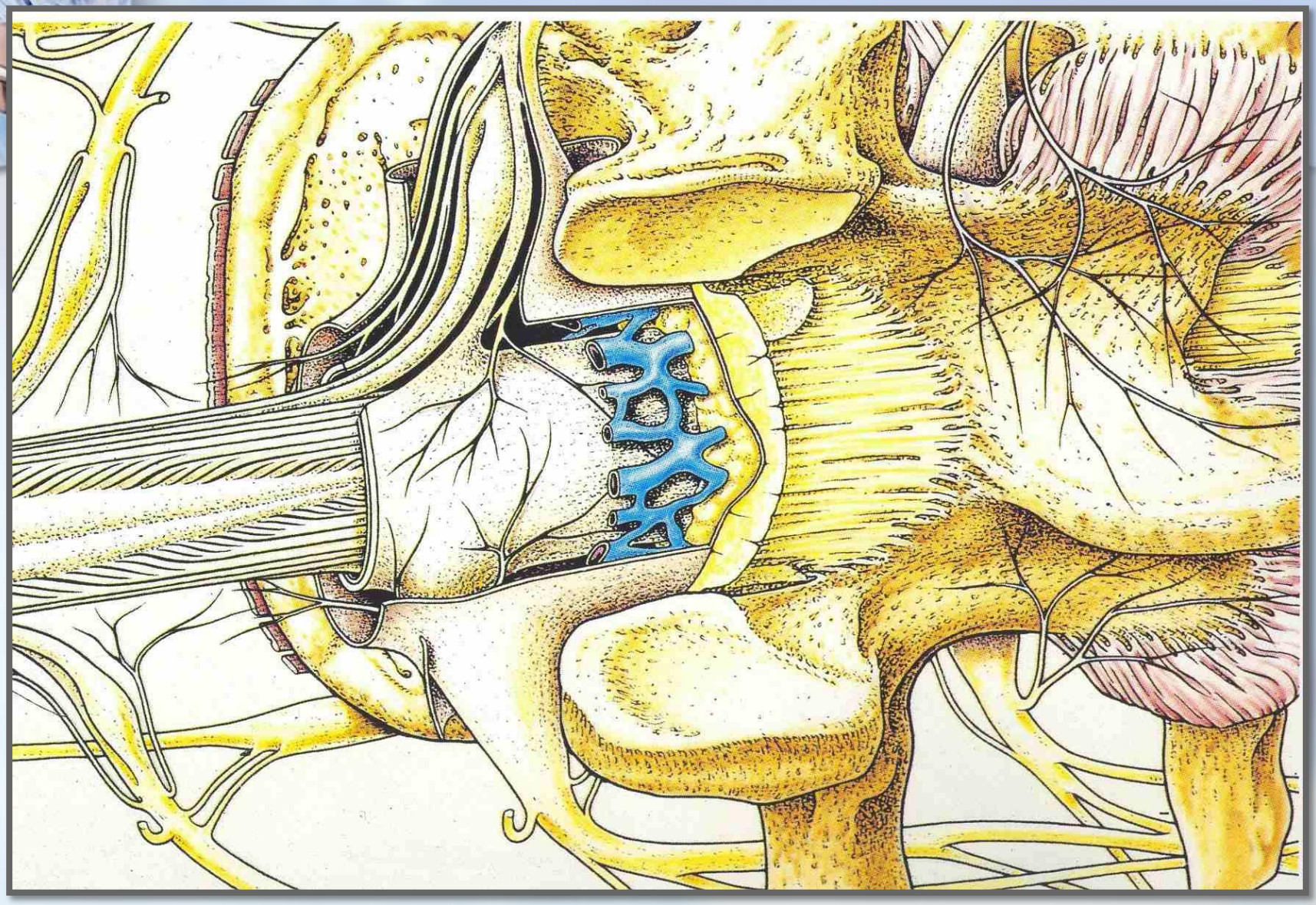
Positions for an epidural

Lying on side

A.D.A.M.

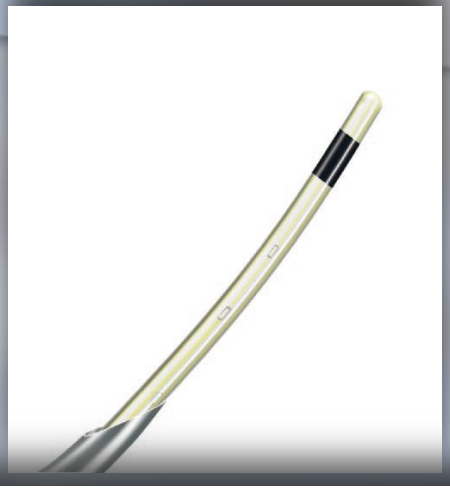


1 – arachnoid
2 – dura
3 – epidural sp.
4 – subdural sp.
5 – subarachnoid sp. (cauda equina)
6 – lig. longitudinale posterius
7 – lig. flavum

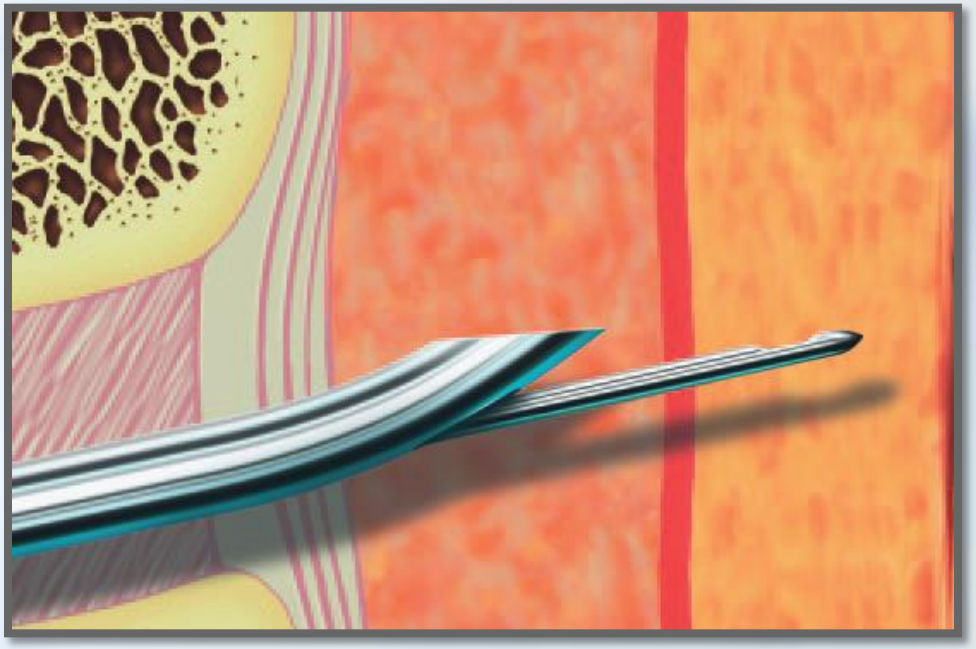


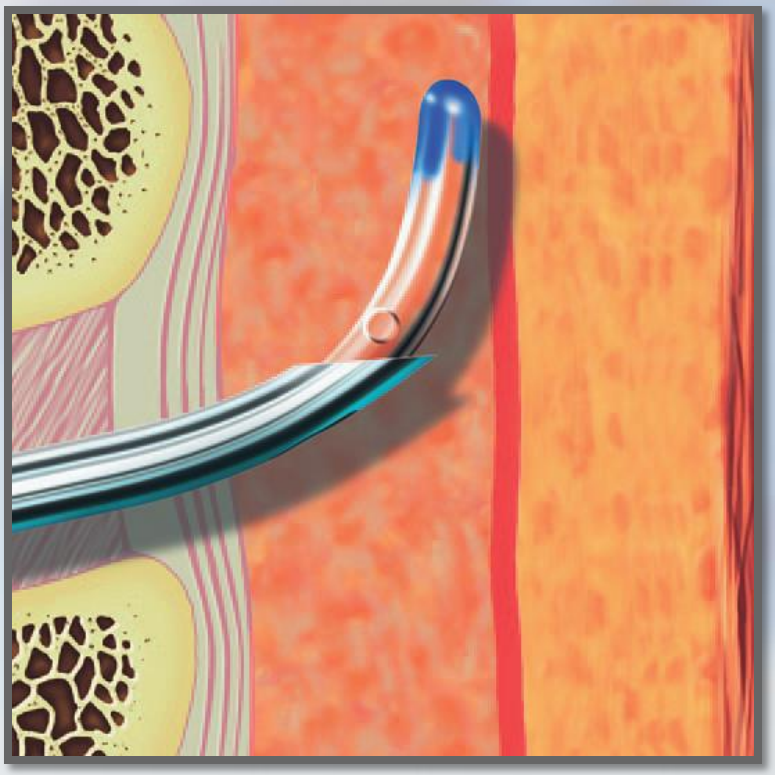
Эпидуральная анестезия

- ЭА одноразовые (с катетером)
  - Болюс МА + опиатами
- ЭА (с катетером)
  - с программируемым насосом
  - Болюс МА + опиатами
- Комбинированная спинально-эпидуральная анестезия (CSE)



Комбинированная спинально-эпидуральная анестезия

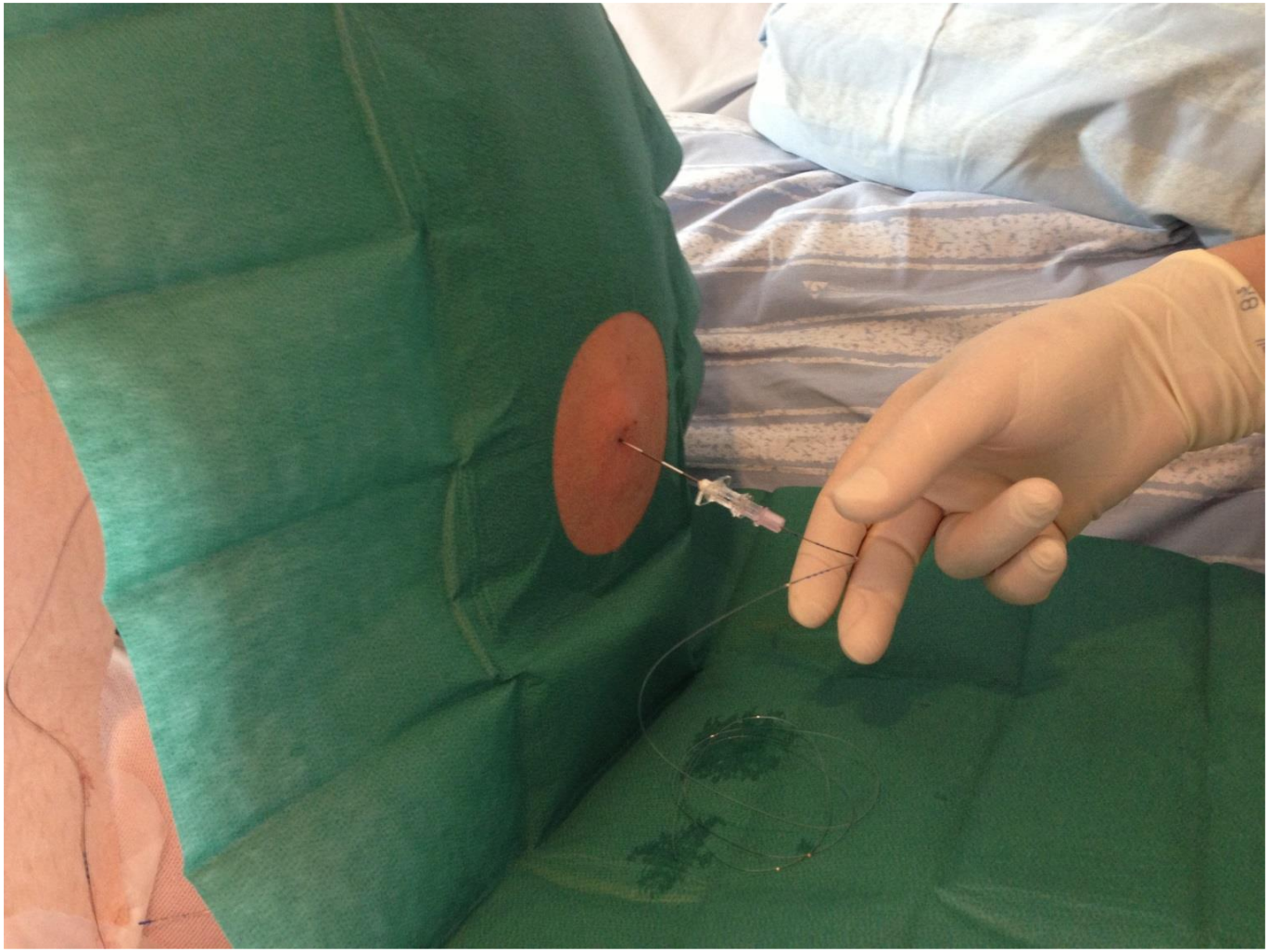




Эпидуральная анестезия

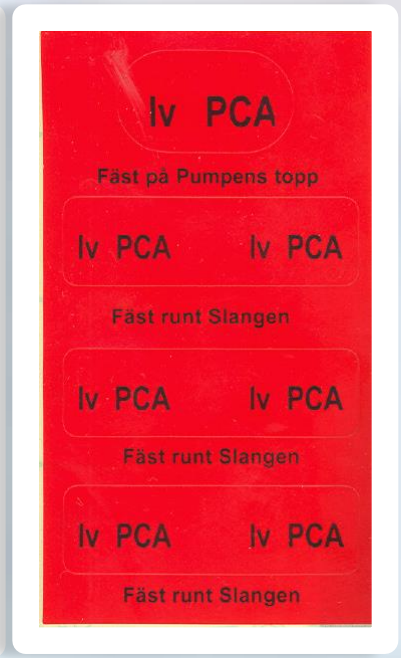
- Венный катетер
- Протокол
- Эпидуральный набор

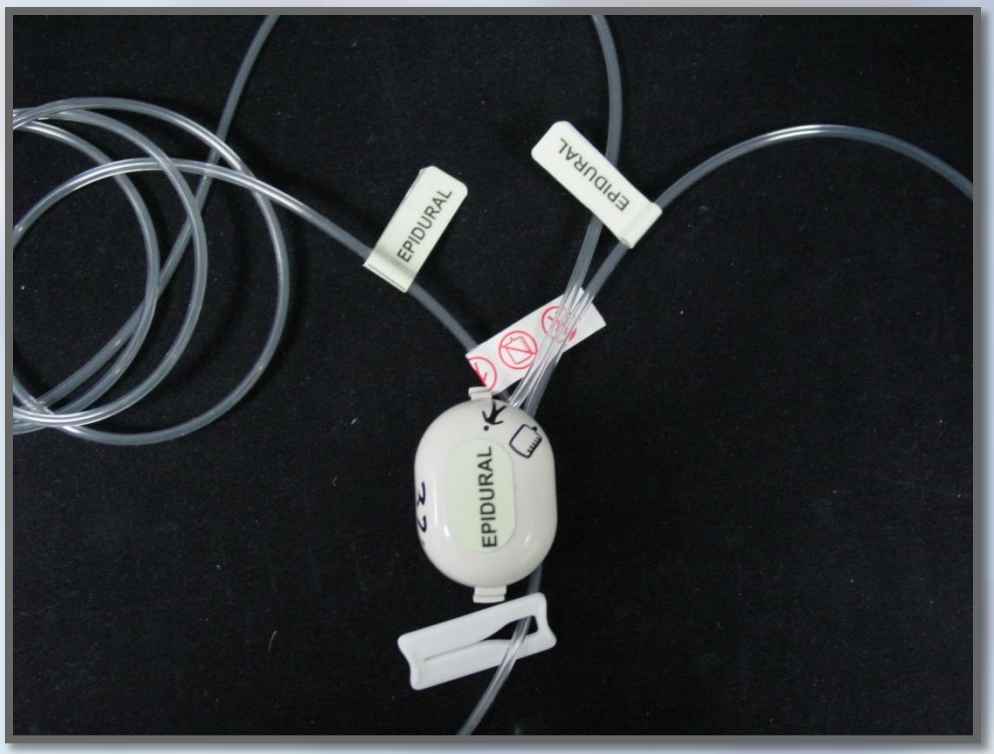
Эпидуральная анестезия



Этикетки


EPIDURAL
Fäst på Pumpens topp
EPIDURAL EPIDURAL
Fäst runt Slangen
EPIDURAL EPIDURAL
Fäst runt Slangen
EPIDURAL EPIDURAL
Fäst runt Slangen


Iv PCA
Fäst på Pumpens topp
Iv PCA Iv PCA
Fäst runt Slangen
Iv PCA Iv PCA
Fäst runt Slangen
Iv PCA Iv PCA
Fäst runt Slangen


EPIDURAL
EPIDURAL
EPIDURAL

Болюс или Инфузия

CI-PCEA-Computer Intergrated PCA

- Болюсная анальгезиия
- Инфузионная анальгезиия
- Аутоанальгезия
  - Контролируемая пациентом анальгезия (PCEA)

Аутоанальгезия

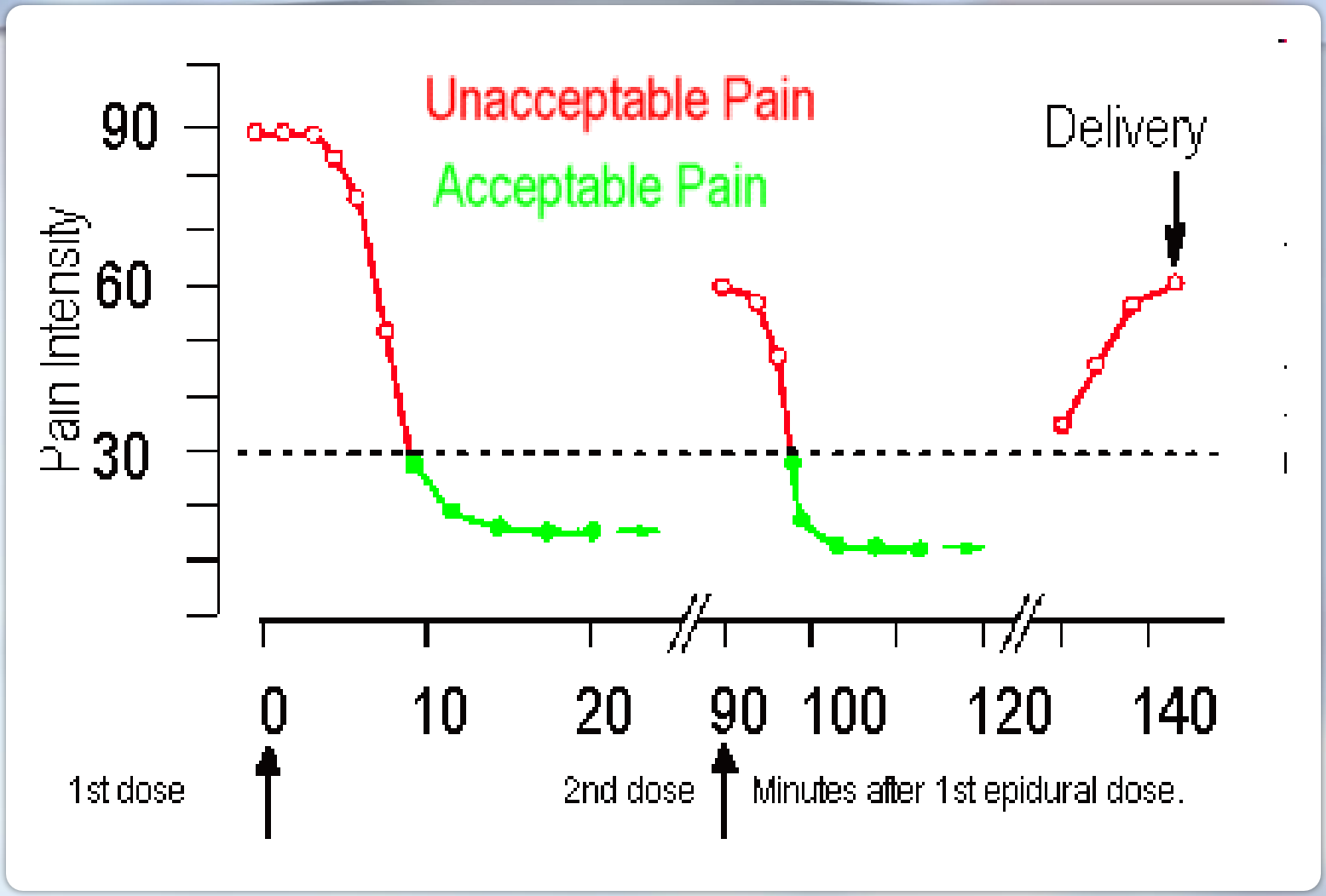
- Аутоанальгезия
- Каждые 90 мин
- 15 мл

+

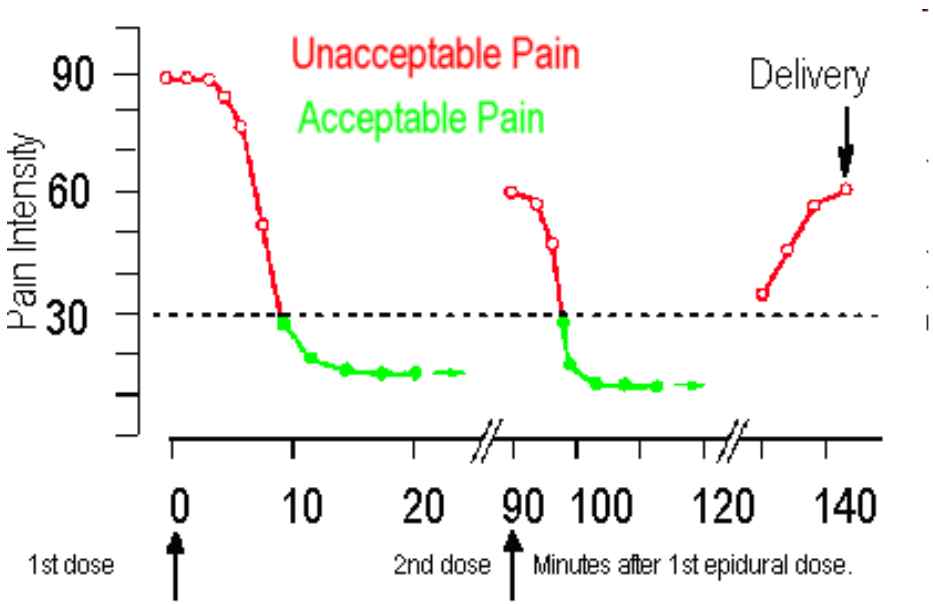
- Контролируемая пациентом анальгезия (PCEA)

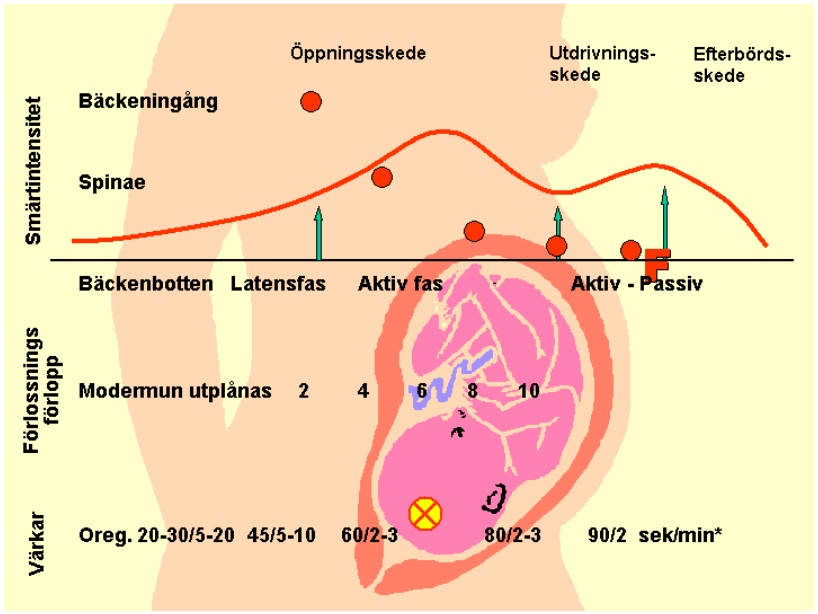
Аутоанальгезия

Болюсная ЭА (IB)



Болюсная ЭА и боль





Контролируемая пациентом анальгезия (PCEA) vs болюсная ЭА (IB)

Anesthesiology 2004; 100:968–72

Background Infusion Is Not Beneficial during Labor Patient-controlled Analgesia with 0.1% Ropivacaine plus 0.5 μg/ml Sufentanil

Emmanuel Boselli, M.D., Richard Debon, M.D.,* Yann Cimino, M.D.,* Thomas Rimmelé, M.D.,* Bernard Allaouchiche, M.D., Ph.D.,* Dominique Chassard, M.D., Ph.D.†*

Table 1. Patient Demographics and Labor Characteristics

	Background Infusion				
	0 ml/h (n = 34)	3 ml/h (n = 34)	6 ml/h (n = 32)	9 ml/h (n = 33)	*P* Value
Age, yr	26 (24–29)	27 (26–29)	29 (27–31)	28 (27–30)	0.174
Height, cm	163 (161–164)	164 (163–166)	164 (162–167)	164 (162–166)	0.313
Weight, kg	69 (66–71)	73 (70–75)	71 (67–75)	74 (71–78)	0.067
Nulliparous	26 (77)	27 (79)	25 (78)	21 (64)	0.429
Oxytocin use during labor	30 (88)	26 (76)	24 (75)	24 (73)	0.417
Cervical dilation at placement, cm	3 (3–4)	4 (3–4)	3 (3–4)	3 (3–4)	0.679
Mode of delivery					0.382
Vaginal	27 (79)	22 (64)	27 (84)	27 (82)	
Instrumental	4 (12)	6 (18)	3 (10)	5 (15)	
Cesarean	3 (9)	6 (18)	2 (6)	1 (3)	
Duration, min					
First stage of labor*	212 (188–242)	270 (246–309)	218 (186–261)	231 (204–274)	0.064
Second stage of labor†	61 (45–77)	82 (65–101)	92 (71–113)	68 (51–86)	0.067
Maternal satisfaction (0–10 scale)	9 (9–10)	9 (9–10)	10 (9–10)	9 (9–10)	0.109

Data are presented as mean (95% confidence interval) or No. (%). No statistically significant differences exist (analysis by one-way analysis of variance or chi-square test).

* From epidural catheter placement until total cervical dilation. † From total cervical dilation until delivery.

Anesthesiology, V 100, No 4, Apr 2004

Emmanuel Boselli, M.D., Richard Debon, M.D.,* Yann Cimino, M.D., Thomas Rimmelé, M.D.,* Bernard Allaouchiche, M.D., Ph.D.,* Dominique Chassard, M.D., Ph.D.†*

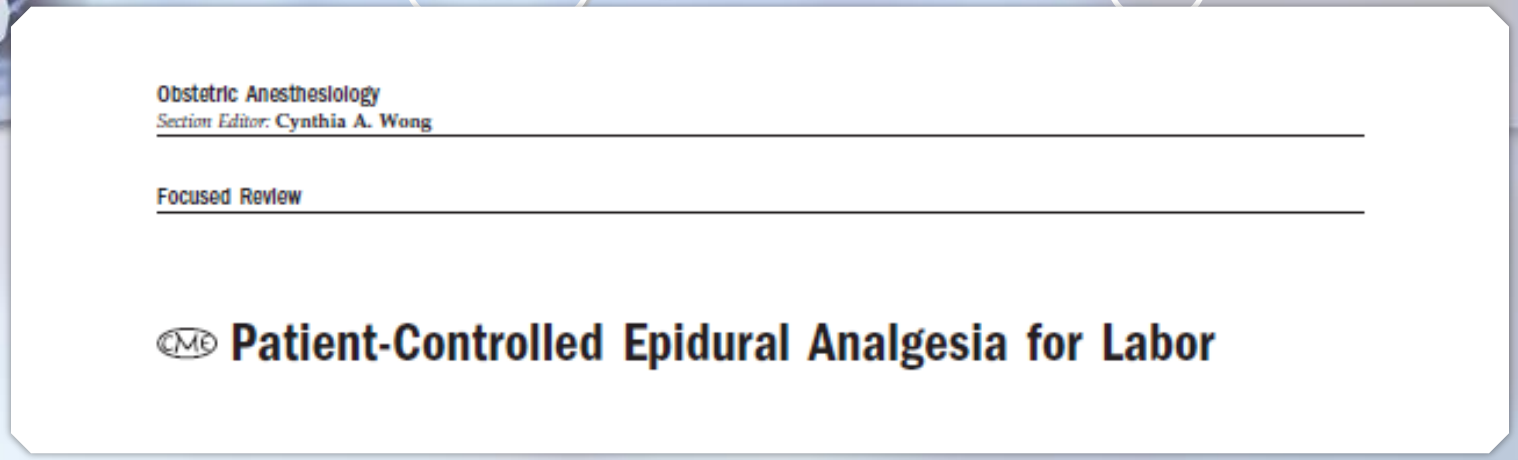
Контролируемая пациентом анальгезия (PCEA) vs болюсная ЭА (IB)

Conclusion: **The results of this study suggest that the use of a background infusion with PCEA during labor leads to a greater consumption of anesthetic solution without improving comfort and satisfaction of parturients. Moreover, not using a background infusion does not provide an increased incidence of supplemental boluses (which might cause problems in a busy unit) and allows for a substantial reduction in the cost of analgesia.**

Anesthesiology, V 100, No 4, Apr 2004

Emmanuel Boselli, M.D., Richard Debon, M.D.,* Yann Cimino, M.D.,*
Thomas Rimmelé, M.D., Bernard Allaouchiche, M.D., Ph.D.,**
Dominique Chassard, M.D., Ph.D.†

Контролируемая пациентом анальгезия (PCEA) vs болюсная ЭА (IB)



Obstetric Anesthesiology
Section Editor: **Cynthia A. Wong**

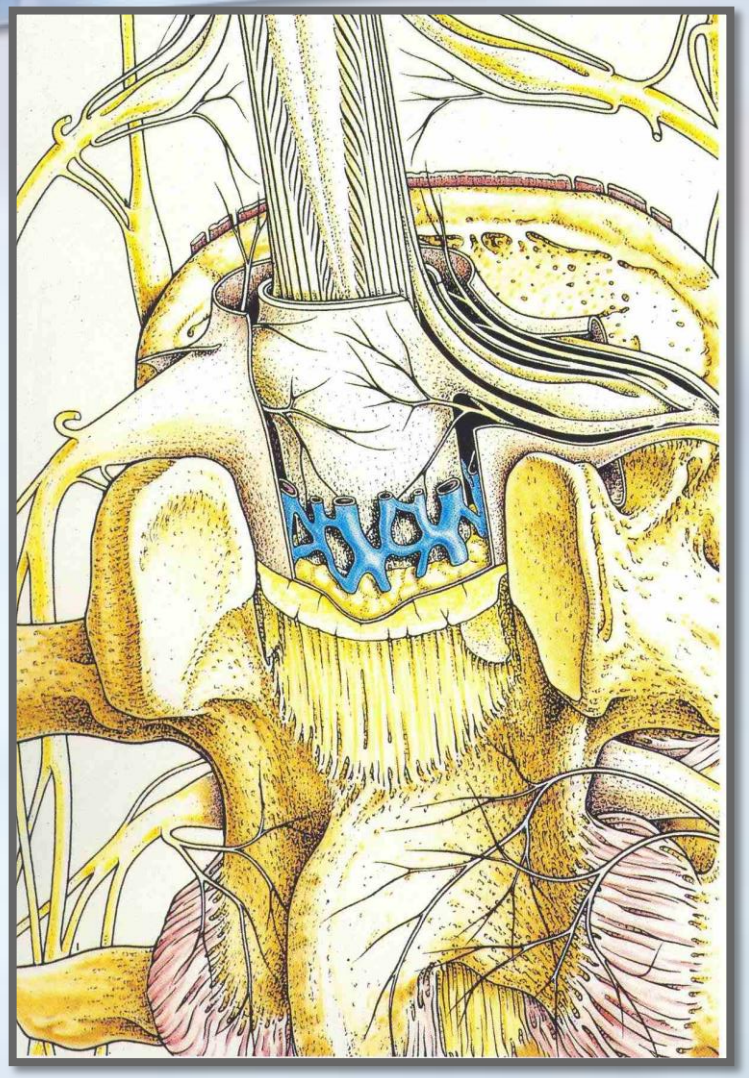
Focused Review

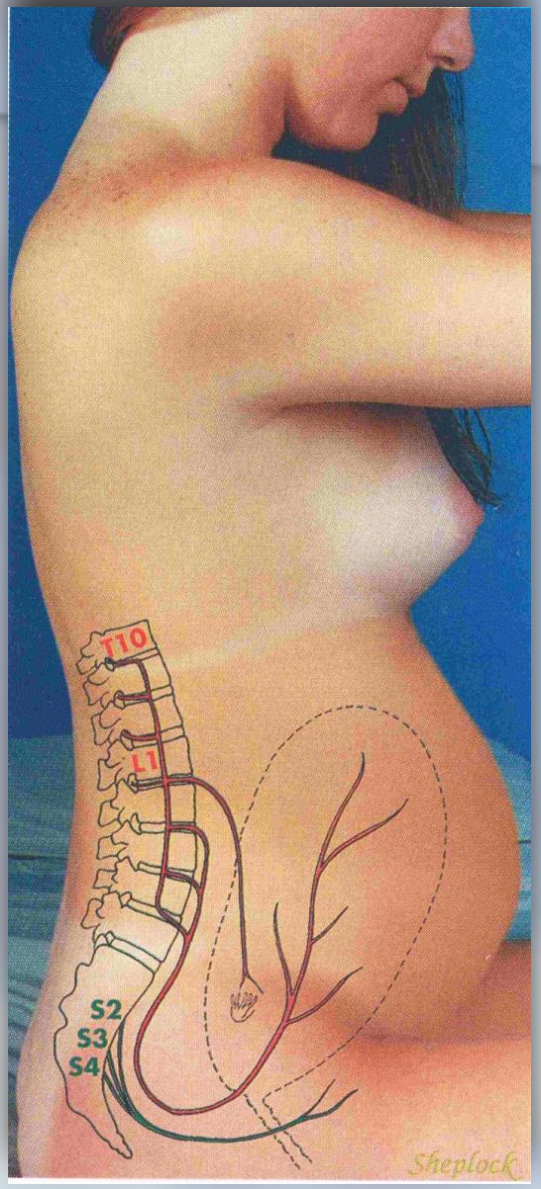
CME Patient-Controlled Epidural Analgesia for Labor

- Low concentrations of bupivacaine or ropivacaine provide excellent analgesia without significant motor block. Many strategies with PCEA can provide effective labor analgesia. High volume, dilute local anesthetic solutions with a continuous background infusion appear to be the most successful strategy. Research into new delivery strategies, such as mandatory programmed intermittent boluses and computerized feedback dosing, is ongoing

Halpern, Stephen; MD, MSc; Carvalho, Brendan; MBBCh, FRCA
Anesthesia & Analgesia. 108(3):921-928, March 2009

Эпидуральная анестезия





Тестдоза

Programmed Intermittent Epidural Bolus Versus Continuous Epidural Infusion for Labor Analgesia: The Effects on Maternal Motor Function and Labor Outcome. A Randomized Double-Blind Study in Nulliparous Women

Giorgio Capogna, MD, Michela Camorcia, MD, Silvia Stirparo, MD, and Alessio Farcomeni, PhD

BACKGROUND: Programmed intermittent epidural anesthetic bolus (PIEB) technique may result in reduced total local anesthetic consumption, fewer manual boluses, and greater patient satisfaction compared with continuous epidural infusion (CEI). In this randomized, double-blind study, we compared the incidence of motor block and labor outcome in women who received PIEB or CEI for maintenance of labor analgesia. The primary outcome variable was maternal motor function and the secondary outcome was mode of delivery.

METHODS: Nulliparous, term women with spontaneous labor and cervical dilation <4 cm were eligible to participate in the study. Epidural analgesia was initiated and maintained with a solution of levobupivacaine 0.0625% with sufentanil 0.5 μg/mL. After an initial epidural loading dose of 20 mL, patients were randomly assigned to receive PIEB (10 mL every hour beginning 60 minutes after the initial dose) or CEI (10 mL/h, beginning immediately after the initial dose) for the maintenance of analgesia. Patient-controlled epidural analgesia (PCEA) using a second infusion pump with levobupivacaine 0.125% was used to treat breakthrough pain. The degree of motor block was assessed in both lower extremities using the modified Bromage score at regular intervals throughout labor; the end point was any motor block in either limb. We also evaluated PCEA bolus doses and total analgesic solution consumption.

RESULTS: We studied 145 subjects (PIEB = 75; CEI = 70). Motor block was reported in 37% in the CEI group and in 2.7% in the PIEB group ($P < 0.001$; odds ratio = 21.2; 95% CI: 4.9–129.3); it occurred earlier ($P = 0.008$) (hazard ratio = 7.8; 95% CI: 1.9–30.8; $P = 0.003$) and was more frequent at full cervical dilation in the CEI group ($P < 0.001$). The incidence of instrumental delivery was 20% for the CEI group and 7% for the PIEB group ($P = 0.03$). Total levobupivacaine consumption, number of patients requiring additional PCEA boluses, and mean number of PCEA boluses per patient were lower in the PIEB group ($P < 0.001$). No differences in pain scores and duration of labor analgesia were observed.

CONCLUSIONS: Maintenance of epidural analgesia with PIEB compared with CEI resulted in a lower incidence of maternal motor block and instrumental vaginal delivery. (Anesth Analg 2011; 113:826–31)

Neuraxial analgesic techniques, such as epidural and combined spinal-epidural (CSE) analgesia, are the most effective modalities for pain relief in labor. Once analgesia has been established, either by using an epidural or a CSE technique, the maintenance of analgesia throughout labor until delivery may be obtained with different techniques. With intermittent epidural bolus injection (top-up) of the analgesic solution, frequent provider interventions are required, and the parturient may experience intervals of analgesia after the dose takes effect alternating with intervals of pain as the analgesia wanes. Continuous infusion results in a smoother analgesic experience for the parturient with fewer medical interventions, but total anesthetic doses are usually larger and motor block may be more profound.[1] There is some evidence from anatomical and in vitro studies[2,3] that uniform diffusion of local anesthetic in the epidural space, which leads to greater efficacy, is better obtained by the administration of bolus rather that continuous infusion.

Automated systems designed to administer a bolus at programmable intervals (programmed intermittent epidural anesthetic bolus [PIEB] technique) to combine the advantages of both manual bolus and continuous infusion, have recently been introduced. Wong et al.[4] compared PIEB versus continuous epidural infusion (CEI) in induced parous women. They reported less total local anesthetic consumption, fewer manual bolus doses because of breakthrough pain, and greater patient satisfaction with the PIEB technique. In their study, they noticed that the beneficial effect of PIEB was significant in women with longer labors, and therefore, they hypothesized that PIEB would be of greater value in parturients with longer labors such as spontaneously laboring nulliparous women.

From the Department of Anesthesia, Città di Roma Hospital, Roma, Italy.

Accepted for publication May 25, 2011.

Funding: No funding.

The authors declare no conflicts of interest.

Reprints will not be available from the authors.

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DOI: 10.1213/ANE.0b013e3182282fb8

Тестдоза

Programmed Intermittent Epidural Bolus Versus Continuous Epidural Infusion for Labor Analgesia: The Effects on Maternal Motor Function and Labor Outcome. A Randomized Double-Blind Study in Nulliparous Women

Giorgio Capogna, MD, Michela Camorcia, MD, Silvia Stirparo, MD, and Alessio Farcomeni, PhD

closed-end, multiorifice epidural catheter was inserted 3 to 4 cm into the epidural space through the Tuohy needle and secured. No test dose was administered.

All parturients received an initial epidural loading dose consisting of 0.0625% levobupivacaine 20 mL (Chirocaine; Abbott, Chicago, IL) plus sufentanil 10 μg (Fentatienil; Angelini, Rome, Italy). Parturients who did not obtain a VAPS score ≤10 mm 30 minutes after the epidural injection or who requested a patient-controlled epidural analgesia (PCEA) bolus within 30 minutes were deemed to have a failed block and were excluded from the study and subsequent statistical analysis.

Testdos

Alternativ 1

Testdos	Chirocaine 2,5 mg/ml	**3 ml**
Bolusdos	Chirocaine 2,5 mg/ml	**3 ml**
	NaCl 9 mg/ml	**5 ml**
	Sufentanil 5 µg/ml	**2 ml**
	(alt. kan Sufentanil ges i testdosen)	

Alternativ 2

Testdos	Chirocaine 2,5 mg/ml	**3 ml**
	NaCl 9 mg/ml	**6 ml**
	Sufentanil 5 µg/ml	**1ml**
Bolusdos	Chirocaine 2,5 mg/ml	**3 ml**
	NaCl 9 mg/ml	**6 ml**
	Sufentanil 5 µg/ml	**1ml**

Лекарственные средства

- ***Местные анестетики***
  - Chirocaine 2,5 mg/ml 2-3 ml
- ***Тестдоза:***
  - Chirocaine 2,5 mg/ml 3 ml
  - Sufentanil 5 µg/ml 1 ml
  - NaCl 9 mg/ml 6 ml
- ***Болюс***
  - Chirocaine 2,5 mg/ml 3 ml
  - Sufentanil 5 µg/ml 1 ml
  - NaCl 9 mg/ml 6 ml

Лекарственные средства

- Местные анестетики:
  - Ropivacaine — Narop®
    - 1 - 2 - 7,5 mg/ml
  - Bupivacaine — Marcain®
    - 0,625 - 1 - 2,5 mg/ml
  - Levobupivacaine — Chirocaine®
    - 0,625 - 1 - 2,5 mg/ml

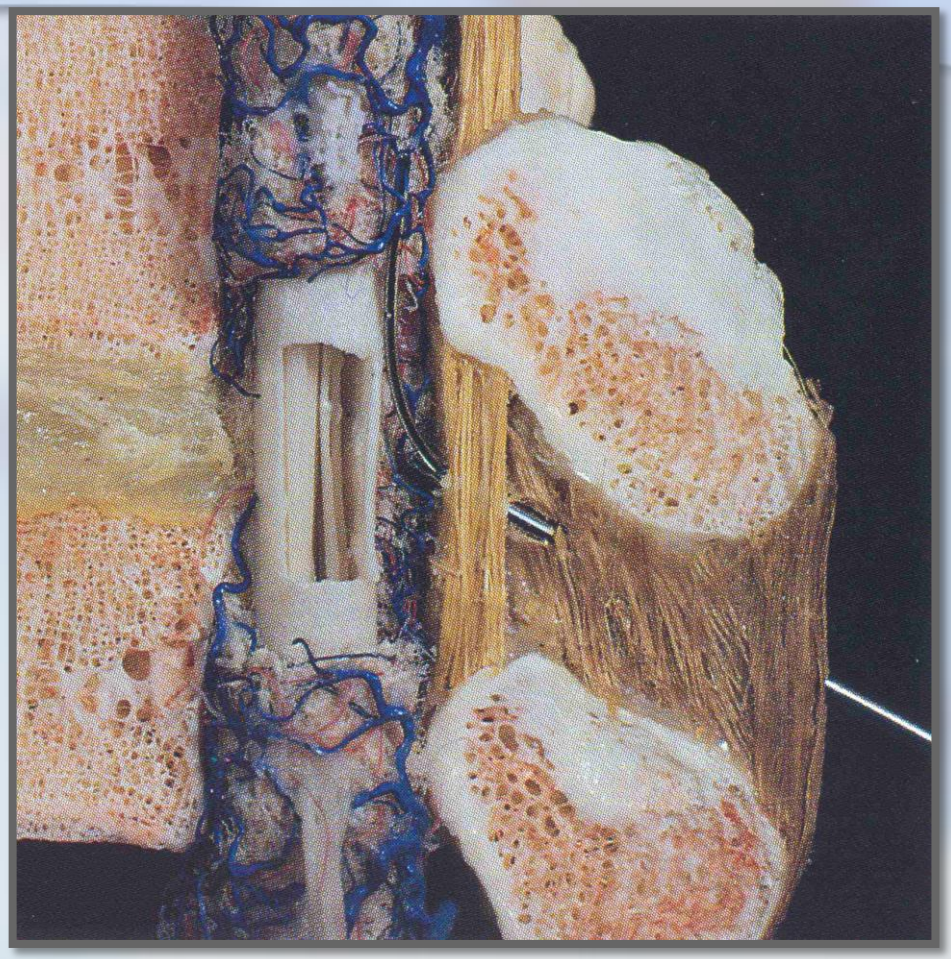
Эпидуральная анестезия

- Кровяное давление
  - 1 час каждые 15 мин
  - По том 1 раз в час

- Степень боли
- Эффект
- Осложнения

Лекарственные средства

- ***I Болюс***
  - Chirocaine 2,5 mg/ml 3 ml
  - NaCl 9 mg/ml 7 ml
  - Chirocaine 2,5 mg/ml 3 ml
  - NaCl 9 mg/ml 7 ml
  - Инъекция 15 мл из 20 мл



Лекарственные средства

- ***II Болюс***

  - Chirocaine 2,5 mg/ml 3 ml
  - Sufentanil 5 µg/ml 1 ml
  - NaCl 9 mg/ml 6 ml

  - Chirocaine 2,5 mg/ml 3 ml
  - Sufentanil 5 µg/ml 1 ml
  - NaCl 9 mg/ml 6 ml

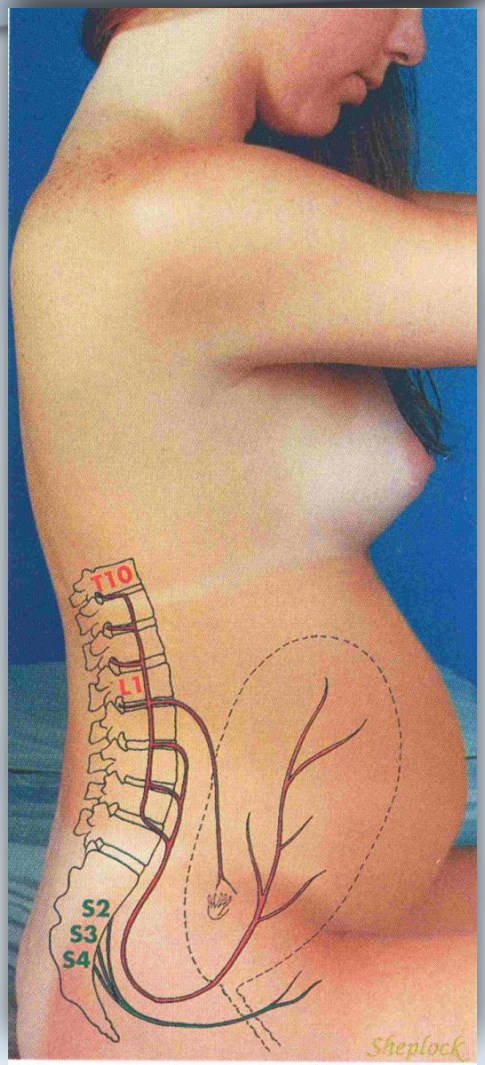
  - Инъекция 15 мл из 20 мл

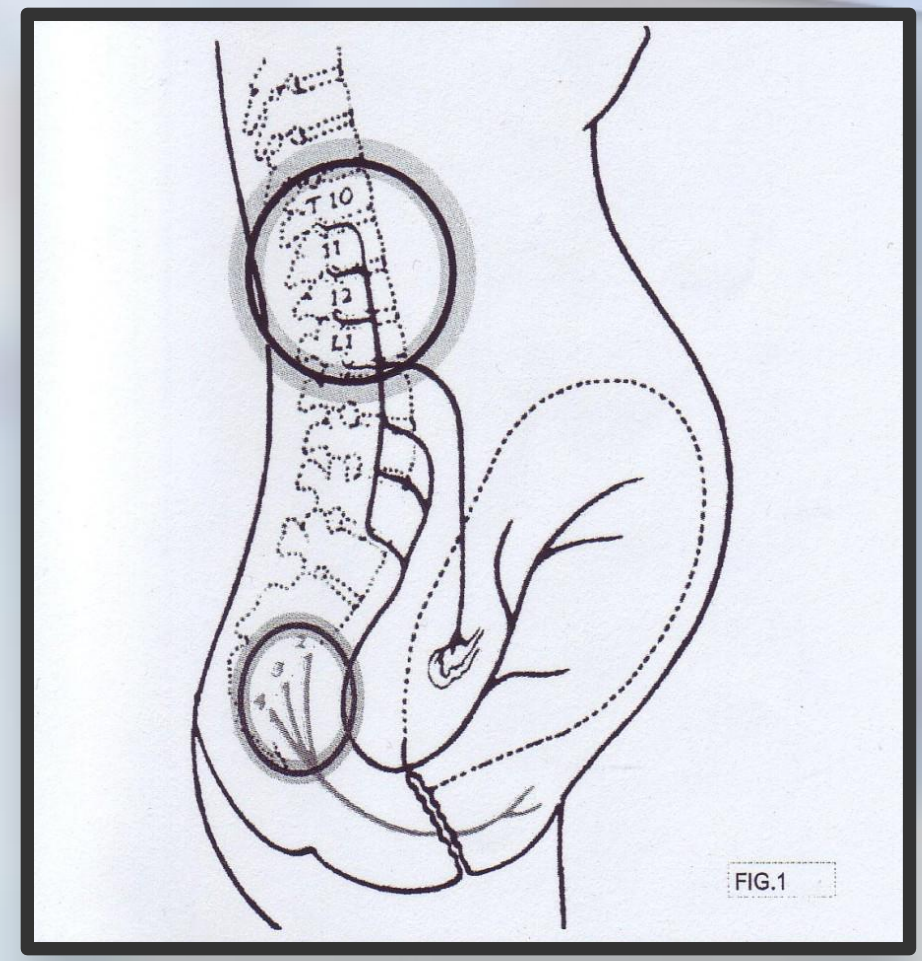
Лекарственные средства

- ***Болюс***:
  - Narop 2 mg/ml - 4 ml
  - Sufenta 5 μg/ml - 2 ml

  - Marcain 2,5 mg/ml - 4 ml
  - Sufenta 5 μg/ml - 2 ml
- ***Альтернатива:***
- Marcain 2,5 mg/ml - 4 ml
  - NaCl 9 mg/ml - 4 ml

Эпидуральная анестезия





Болюсная ЭА

Förstföderskor				
Öppnings grad	Induktions dos		Bolus dos	
cm	Läkmedel dos	Total volym (ml)	Läkmedel dos	Total volym (ml)
2-3	Sufenta 10 µg	5-10	Chirocaine 0,625 mg/ml	20
3-5	Chirocaine 0,625 mg/ml + Suf 10 µg	20-25	Chirocaine 0,625 mg/ml	20
>6	Chirocaine 0,625 mg/ml + Suf 10 µg	20-25	Chirocaine 1,25 mg/ml	10
Retr	Chirocaine 1,25 mg/ml	15		
efter foster huvud rotation			Chirocaine 1,25 mg/ml	7 ml

Omföderskor				
Öppnings grad	Induktions dos		Bolus dos	
cm	Läkmedel dos	Total volym (ml)	Läkmedel dos	Total volym (ml)
4-5	Chirocaine 0,625 mg/ml + Suf 10 µg	20-25	Chirocaine 0,625 mg/ml	15-20
6-7	Chirocaine 1,25 mg/ml	15	Chirocaine 0,625 mg/ml	15
Retr	Chirocaine 1,25 mg/ml	15		
efter foster huvud rotation			Chirocaine 1,25 mg/ml	7 ml

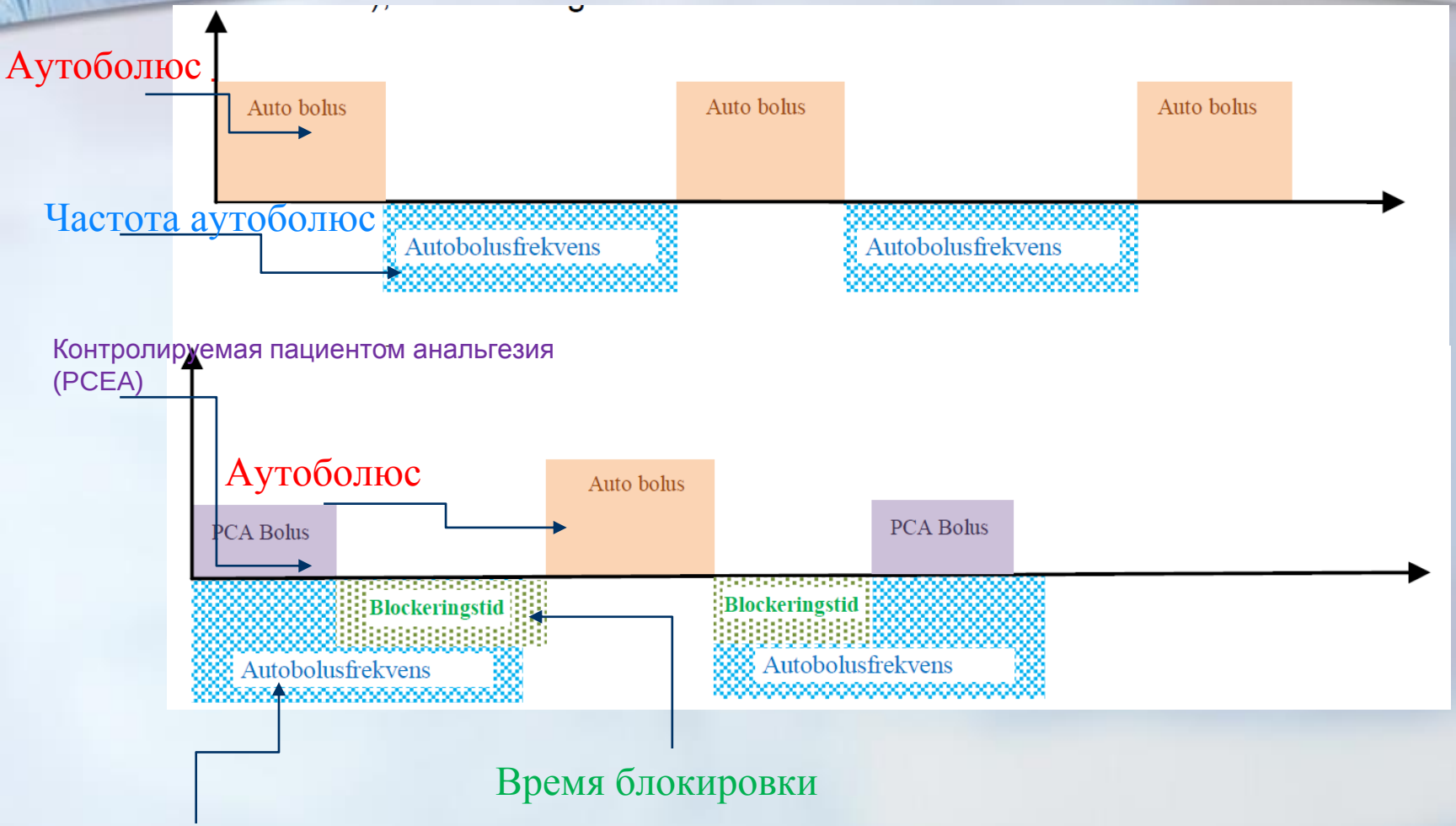
Лекарственные средства

- Постоянная инфузия 5 мл/час
  - Marcain 2,5 mg/ml 10 ml
  - Sufenta 5 µg/ml 4 ml
  - NaCl 9 mg/ml 26 ml
  - Narop 2 mg/ml 12 ml
  - Sufenta 5 µg/ml 4 ml
  - NaCl 9 mg/ml 24 ml

Эпидуральная анестезия

- Постоянная инфузия 12 мл/час (CEI)
  - Chirocaine® 0,625 mg/ml
    - 100 ml
  - Sufenta 5 µg/ml
    - 4 ml
- 5 мл/болюс / 15 мин (20 мл/ час) PCEA
  - Chirocaine® 0,625 mg/ml
    - 100 ml
  - Sufenta 5 µg/ml
    - 4 ml

Аутоанальгезии

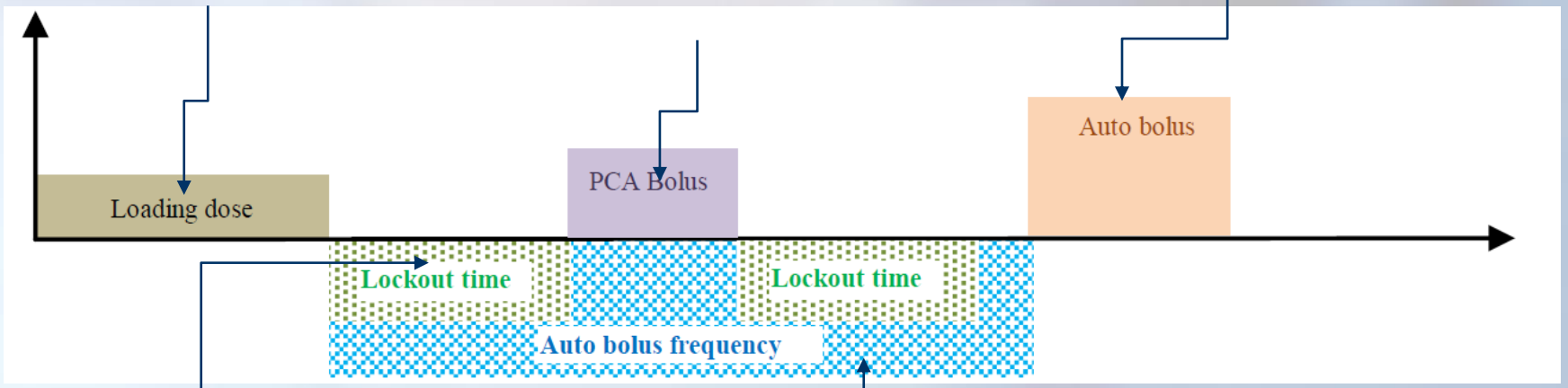


Rythmic™ Evolution

Контролируемая пациентом анальгезия (PCEA)

Начальный болюс

Аутоболюс



Время блокировки

Частота аутоболюс

Rythmic™ Evolution

- Аутоанальгезии позволяет быстрее достичь адекватное обезболивание и удерживать его
- Наименьший расход местных анестетиков при использовании аутоанальгезии

Спинальная анестезия

Förlossnings spinal blandning

Läkelmedel	Konc	Mängd
Marcain spinal	5 mg/ml	0,1 ml
Sufenta	5 µg/ml	1 – 1,5 ml

Sufentanil 5-7,5 µg blandat med Marcain 0,5 mg och spädas med Na

Förlossnings EDA blandni

Alternativ 1

Testdos	Chirocaine 2,5 mg/ml	3 n
Bolusdos	Chirocaine 2,5 mg/ml	3 n
	NaCl 9 mg/ml	5 n
	Sufentanil 5 µg/ml	2 n
	(alt. kan Sufentanil ges i testdosen)	

Alternativ 2

Testdos	Chirocaine 2,5 mg/ml	3 n
	NaCl 9 mg/ml	6 n
	Sufentanil 5 µg/ml	1m
Bolusdos	Chirocaine 2,5 mg/ml	3 n
	NaCl 9 mg/ml	6 n
	Sufentanil 5 µg/ml	1m

Blandning

Blandning	
Chirocaine 0,625 mg/ml	100 ml
Sufentanil 5 µg/ml	4 ml

Blandas av narkosläkare

Färdig lösning innehåller Chirocaine 0,601 mg/ml och Sufentanil 0,19 µg/ml

Maxdos Sufentanil 70 µg

Förlossnings spinal blandning

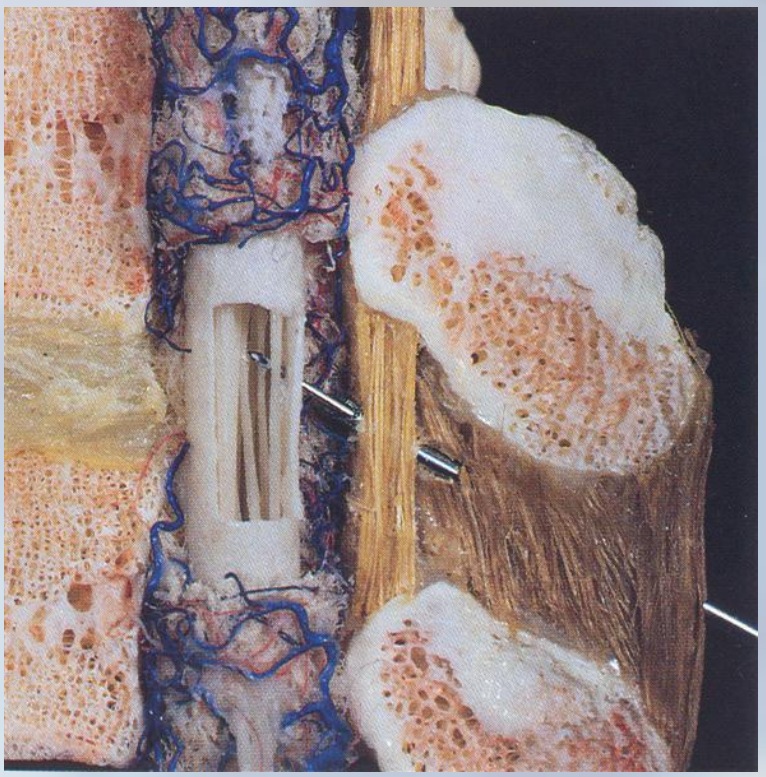
Läkelmedel	Konc	Mängd
Marcain spinal	5 mg/ml	0,1 ml
Sufenta	5 µg/ml	1 – 1,5 ml

Sufentanil 5-7,5 µg blandat med **Marcain 0,5 mg** och spädas med **NaCl 9 mg/ml** upp till **2 ml.**

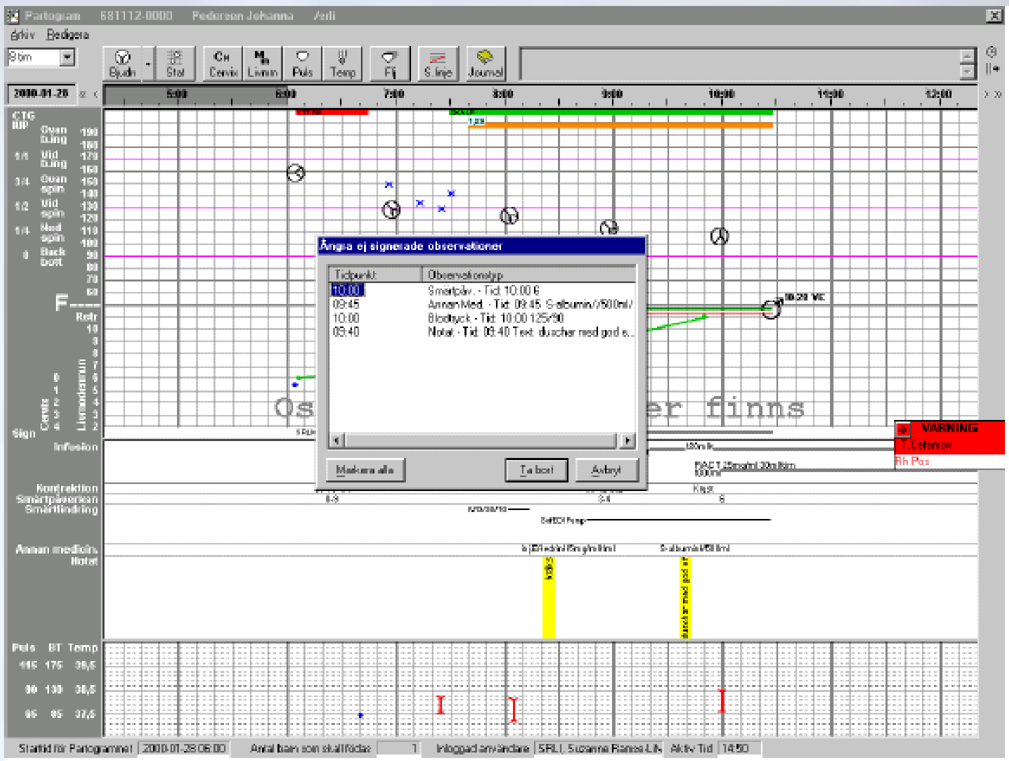
Спинальная анестезия

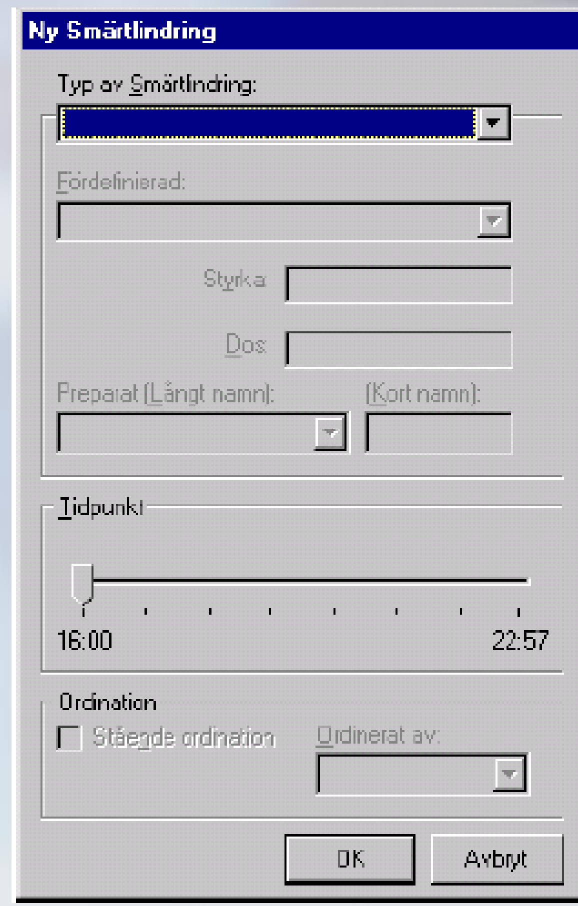
- Спинальная анестезия
  - Sufenta 5 µg/ml 1,5 - 2 мл
  - Marcain spinal 5 mg/ml 0,1 мл
  - Разбавить с NaCl 9 mg/ml до 2 мл
  - 25 - 27 G Sprotte
  - Продолжительность 2,5 - 3 часа

- Критерии
  - Повторные роды
  - Разкритие шейки матки 6 - 9 см
  - Быстрые или стремительные роды



Obstetrix


Partogram
Arkiv Redigera
Ångra ej signerade observationer
Tidpunkt
Observationstyp
Markera alla
Ta bort
Avbryt
VARNING


Ny Smärtlindring
Typ av Smärtlindring:
Fördefinierad:
Styrka
Dos
Preparat (Långt namn):
(Kort namn):
Tidpunkt
16:00
22:57
Ordination
Stående ordination
Ordinerat av:
OK
Avbryt

Ryggbedövningsjournal []

Begäran | Anläggning | Behandlingsprotokoll | Uppföljning

Begäran

Indikation: Pat önskan
Ordinerad av: Barnmorska / Walkin, Maria

Ryggbedövn. begärd: 2009-02-23 12:37
Ryggbedövn. avbeställd:

februari 2009

må	ti	on	to	fr	lö	sö
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	1
2	3	4	5	6	7	8

Idag: 2009-02-23

Patient har tagit del av information om ryggbedövning

☐ Ja

Anamnes

Längd/Vikt

Längd: 180
Vikt: 80
BMI: 24,69
=

Enkelbörd/Flerbörd

Börd:
○ Enkel
○ Fler

Par

Antal:

Förlossn. start spontan/induktion

○ Spontan
○ Induktion
◉ Ej angivet

Tidigare sectio

○ Ja
○ Nej
◉ Ej angivet

Graviditetskomplikationer

○ Ja, se journalanteckning
○ Nej
◉ Ej angivet

Sjukdomar

☐ Hjärt/Kärlsjukd
☐ Gulsot
☐ Trombos
☐ Gynekolog sjukd, Op
☐ Psyk vård
☐ Endokrina sjukd
Annat:

☐ Upprepade urinvägsinf
☐ Diabetes mellitus
☐ Lungsjukd/astma
☐ SLE
☐ Kronisk njursjukd
☐ Epilepsi
☐ UI colit el Mb Crohn
☐ Kronisk hypertoni

Varning/överkänslighet

☐ Ingen känd överkänslighet

Signatur begäran:

Skapa journaltext | Spara | Avbryt

Ryggbedövningsjournal []

Begäran | Anläggning | Behandlingsprotokoll | Uppföljning

Anlagd

Anestesiläkare: Shs, Shs

Aneläk ankomst: 2009-02-23 12:38
Ryggbedövn. anlagd: 2009-02-23 12:38
Aneläk kontakt slut: 2009-02-23 12:38

☑ Anestesibedömning, journaltext

Journaltext 1

Blockad, nål och kateter

Blockad

◉ Epidural ○ Spinal/Intratekal ○ Kombinerad epidural och spinal/intratekal

Metod	Position	Teknik	Nivå
Lumbal med kateter I	Liggande	Medial	L2-L3

Lumbal med kateter (SN 411)
Thorakal med kateter (SN 311)

Antal stick: 2

Nål: 16 G / 80 mm

Journaltext

Journaltext 2

Kateter

Spinalkateter får endast hanteras av anestesiolog

☑ Får avlägsnas efter partus enl. rutin
☑ Ändrat kateterläge

LOR vid centimeter: 5
Markering vid hudplanet (cm): 5

Text som INTE blir journaltext

Komplikationer

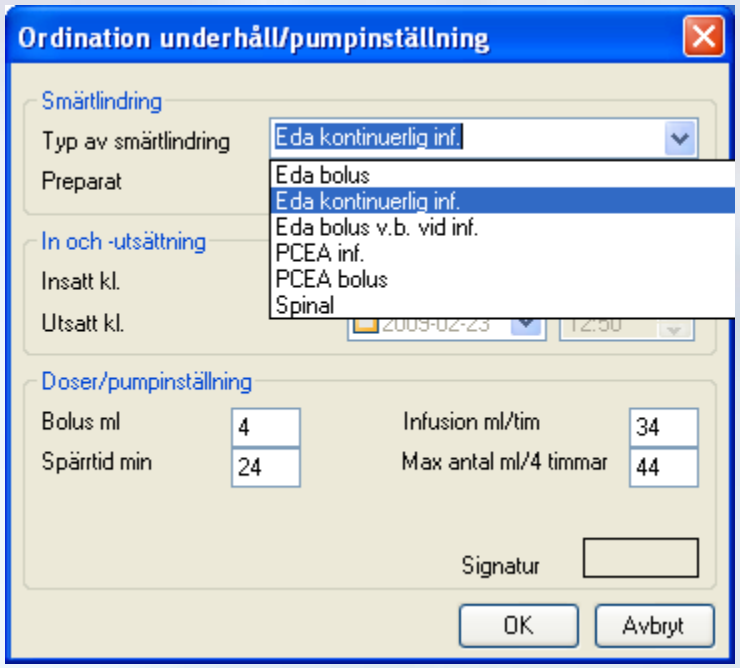
☐ Smärta/obehag
☐ Svår punktion (A511)
☐ Punktion av blodkärl (A519)
☐ Oavsiktlig durapunktion (A518)
☐ Uttalad parestesi (A520)

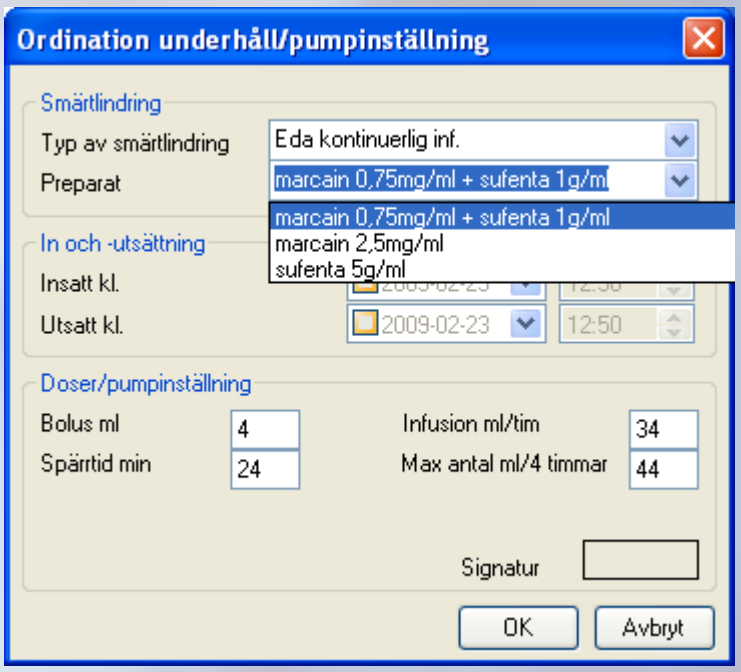
Journaltext

Journaltext 3

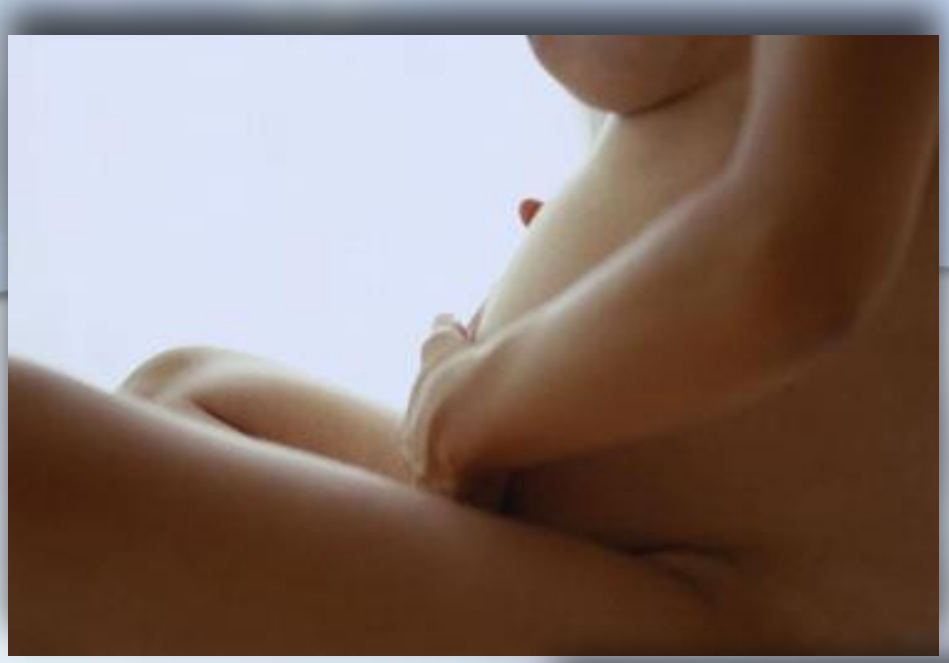
Signatur anläggning:

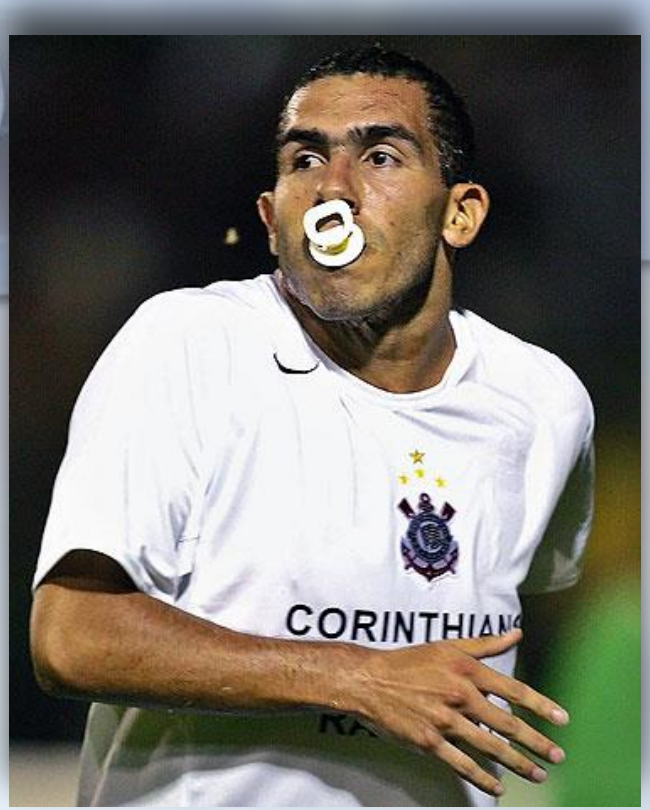
Skapa journaltext | Spara | Avbryt

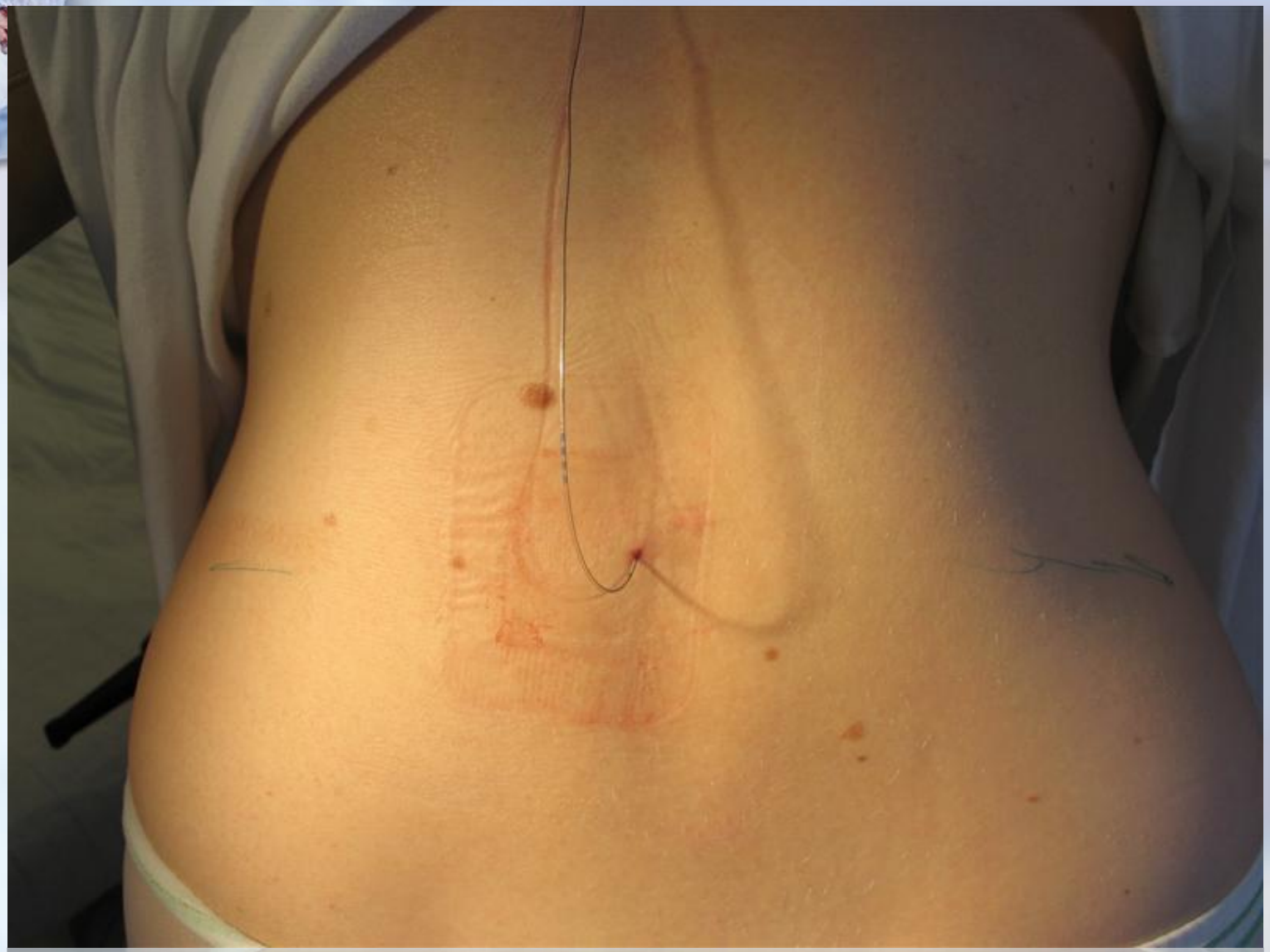

Ordination underhåll/pumpinställning
Smärtlindring
Typ av smärtlindring
Eda kontinuerlig inf.
Preparat
Eda bolus
Eda kontinuerlig inf.
Eda bolus v.b. vid inf.
PCEA inf.
PCEA bolus
Spinal
In och -utsättning
Insatt kl.
Utsatt kl.
2009-02-23
12:50
Doser/pumpinställning
Bolus ml
4
Spärrtid min
24
Infusion ml/tim
34
Max antal ml/4 timmar
44
Signatur
OK
Avbryt

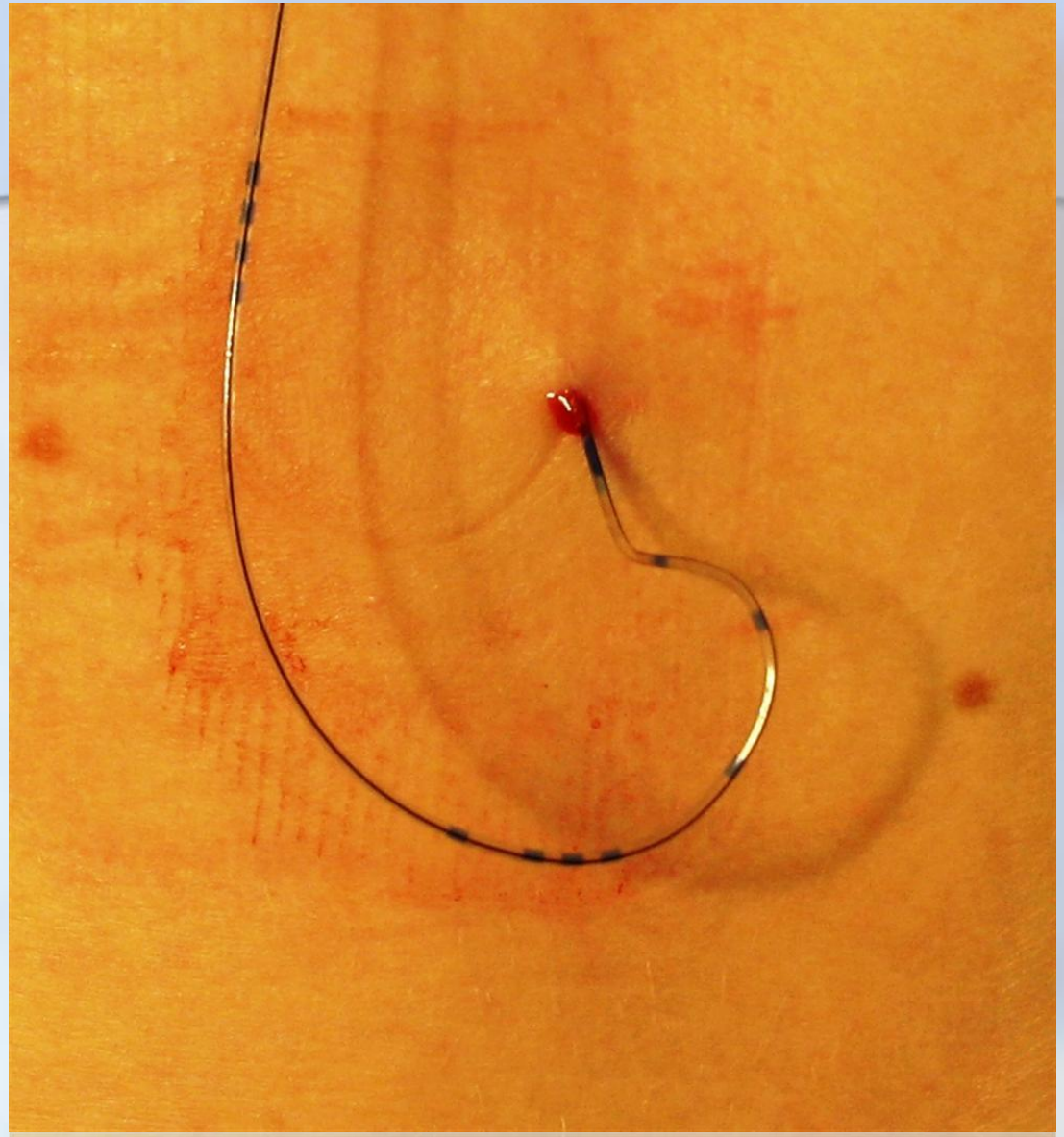

Ordination underhåll/pumpinställning
Smärtlindring
Typ av smärtlindring
Eda kontinuerlig inf.
Preparat
marcain 0,75mg/ml + sufenta 1g/ml
marcain 0,75mg/ml + sufenta 1g/ml
marcain 2,5mg/ml
sufenta 5g/ml
In och -utsättning
Insatt kl.
Utsatt kl.
2009-02-23
12:50
Doser/pumpinställning
Bolus ml
4
Spärrtid min
24
Infusion ml/tim
34
Max antal ml/4 timmar
44
Signatur
OK
Avbryt


80
99




CORINTHIAN





Ready to
connect

Dok Nr: I:139 | Giltig fr.o.m.: 090416 | Ersätter version:

Kategori: **I. Behandling, diagnostik och vård**

Rutin

Behandling av hjärtstopp i samband med lokalanestetika – intoxikation med Intralipid®- Emulsion (Fresenius Kabi)

Utfärdat av: Mathias Kotyra
Godkänt av: Mathias Kotyra
Ansvarig funktion: VÖL, Ortopedoperation

Allvarliga komplikationer kan uppstå i samband med LA-administrering, t.ex. intravasalt applikation med tecken av neuro- och kardiotoxicitet och risk för akut hjärtstopp.
LA, särskilt Bupivacain, kan orsaka en oftast svår reversibelt hjärtstopp på grund av den speciella egenskapen av LA att blockera elektrolytkontrollerade såväl som ligand-kontrollerade jonkanaler i hjärtmuskelcellerna.
Undersökningar visade att en snabbt Lipid infusion har förmågan att "wash out" LA och återställa hjärtfunktion och stabilisera cirkulationen.
I fall av hjärtstopp rekommenderas en infusion av Intralipid®- Emulsion (Fresenius Kabi) enligt följande schema:

Lipid infusion
(Weinbergs dose regime)

Intralipid® 20%, 500 ml

1. Bolus 1 ml/kg, i 1 minut
2. Upprepa 2 gånger med Bolus 1 ml/kg, inom 3-5 minuter
3. 0,25 ml/kg/minut, till stabil cirkulation

Exempel (vuxen 70 kg)

1. 70 ml snabbt inom 1 minut (använd 50 ml sprutor)
2. 70 ml, upprepa 2 gånger inom 3-5 minuter
3. Infusion av kvarvarande Intralipid® inom 15 minuter eller till cirkulation är återställd

En påse Intralipid® finns alltid tillgängligt i kylskåpet i Ortopedoperations sänghall samt 2 stycken 50 ml sprutor!

Picard J Meek T. Lipid emulsion to treat overdose of local anaesthetic: the gift of the glob. Anaesthesia 2006; 61: 107-109
Picard J et al. Guidelines and the adoption of "lipid rescue" therapy for local anesthetic toxicity. Anaesthesia 2009; 64:122-125

Mathias Kotyra
VÖL
Ortopedoperation

Синдром Горнера

International Journal of Obstetric Anesthesia (2007) 16, 180–182

doi:10.1016/j.ijoa.2006.07.007

CASE REPORT

Trigeminal nerve palsy and Horner's syndrome following epidural analgesia for labor: a subdural block?

F. De la Gala, A. Reyes, M. Avellanal, P. Baticón, L. M. González-Zarco
Department of Anesthesiology, Hospital General Universitario Gregorio Marañón, Madrid, Spain

SUMMARY. Horner's syndrome is a rare complication of epidural analgesia for labor. Much more uncommon is trigeminal nerve palsy. Both complications may be attributed to a subdural localization of the catheter, as we demonstrated clinically by a repeat injection and patchy sympathetic block and with the typical image on epidurography.

Keywords: Epidural analgesia; Subdural block; Horner's syndrome; Trigeminal nerve palsy

INTRODUCTION

Trigeminal nerve palsy has been reported on a few occasions[1–5] after lumbar epidural anesthesia. Horner's syndrome (triad of miosis, ptosis and enophthalmos, associated with vasodilatation and anhydrosis) is also a rare complication of epidural blockade, but its incidence is greater in obstetrical patients (0.4-5%).[3–7] The subdural space is a potential space containing a small volume of serous fluid between the dura and arachnoid mater or, as some authors think, an iatrogenic dissection of a cellular layer between the dura and the arachnoid.[8,9] Subdural cannulation has been described as a complication of intended regional blocks (epidural, intrathecal, interscalene and paravertebral block).[10–12] We present a well documented case of ipsilateral trigeminal nerve palsy and Horner's syndrome after attempted epidural analgesia for labor, which might be due to subdural catheterization.

CASE REPORT

A 27-year-old healthy primigravida was admitted in labor at term. The patient requested epidural analgesia and gave written informed consent. After hydration with 500 mL of lactated Ringer's solution, with the patient in the sitting position the epidural space was located through a midline approach at L2-3 with an 18-gauge Tuohy needle using loss of resistance to saline. Following negative aspiration, 5 mL of 0.25% bupivacaine plus fentanyl 25 μg was administered and after a 180° rotation of the needle another 5 mL of 0.25% bupivacaine plus fentanyl 25 μg was administered. A 20-gauge multi-orifice catheter was advanced 4 cm in the presumptive epidural space with the needle bevel pointing caudad. The patient was placed in the left lateral decubitus position and a continuous infusion of 0.1% bupivacaine plus fentanyl 2 μg/mL was started at the rate of 10 mL/h. Fifteen minutes later the patient had a T7 cutaneous anesthesia level, measured by pinprick test, with successful analgesia.

Two hours later the patient complained of a "strange feeling" on the left side of her face and in the left eye. Examination revealed an unchanged level of anesthesia and a left-sided Horner's syndrome. The facial skin was dry and flushed, the conjunctiva was red and miosis and ptosis of the eyelid were present. In addition, she demonstrated hypoesthesia and numbness of the left side of the face in the distribution of the maxillary and mandibular divisions of the trigeminal nerve, which suggested trigeminal nerve anesthesia. There was no change in her level of consciousness, her blood pressure was 116/72 mmHg and heart rate 81 beats/min and she was breathing without difficulty. We stopped the continuous infusion of local anesthetic. A healthy infant was delivered vaginally, without pain, $2\frac{1}{2}$ h after the block was established.

Four hours after the onset, the symptoms disappeared. With the patient's consent, we administrated a new 7-mL bolus of 1% lidocaine and 3 min later the patient presented the same clinical picture. In order to discern

Accepted July 2006

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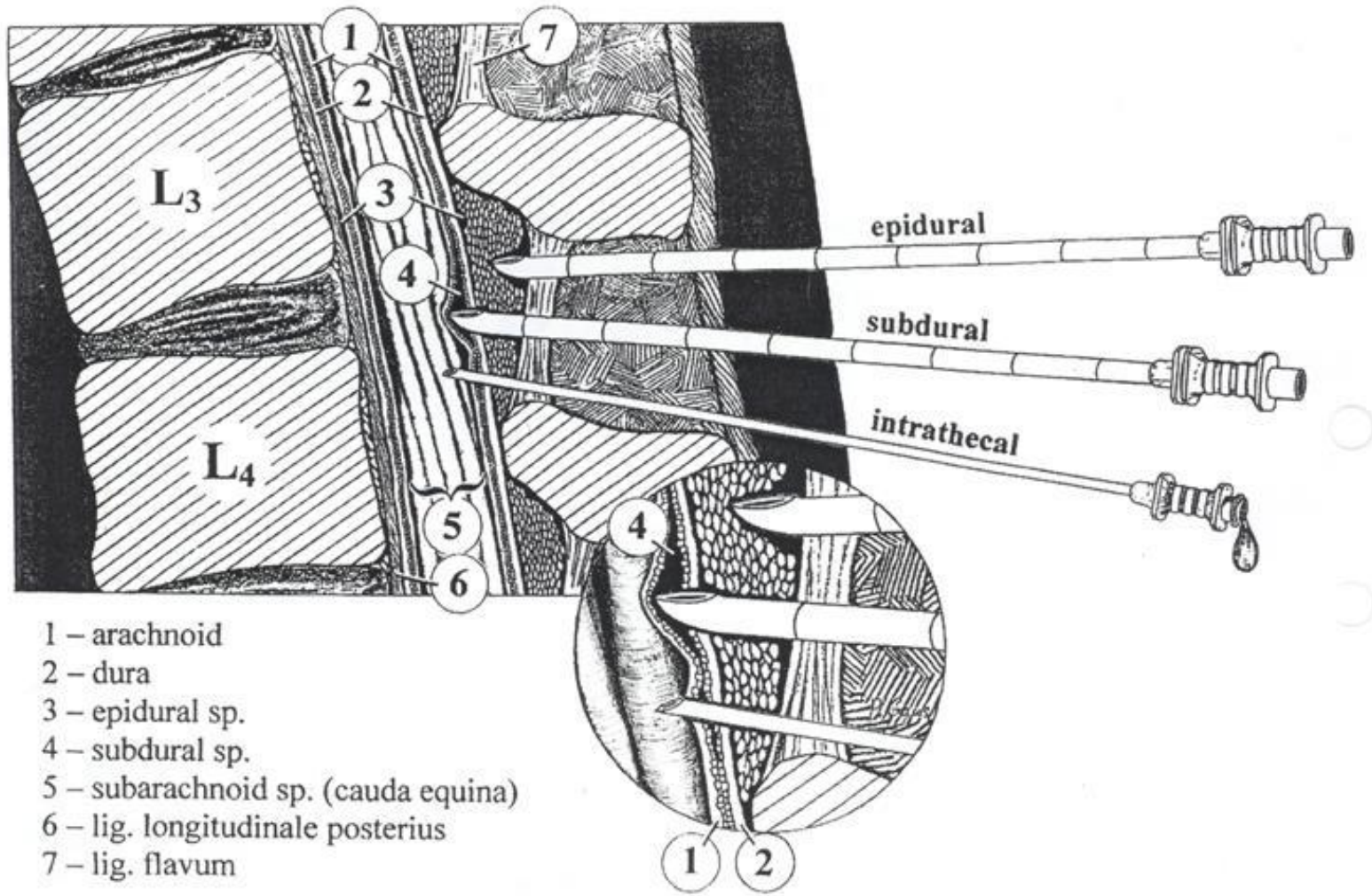
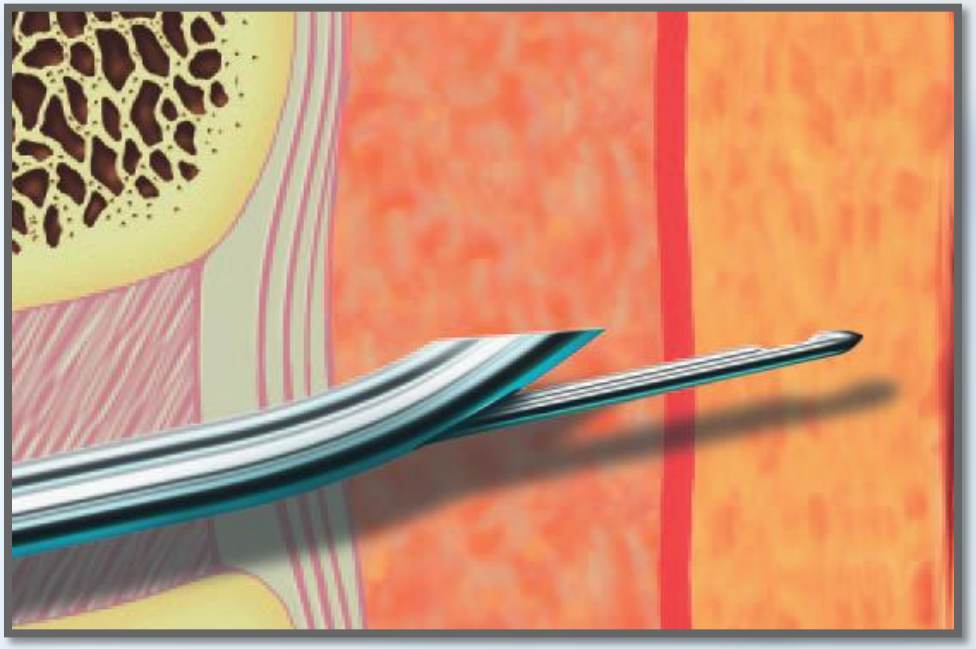
E-mail: mavellanal@telefonica.net.

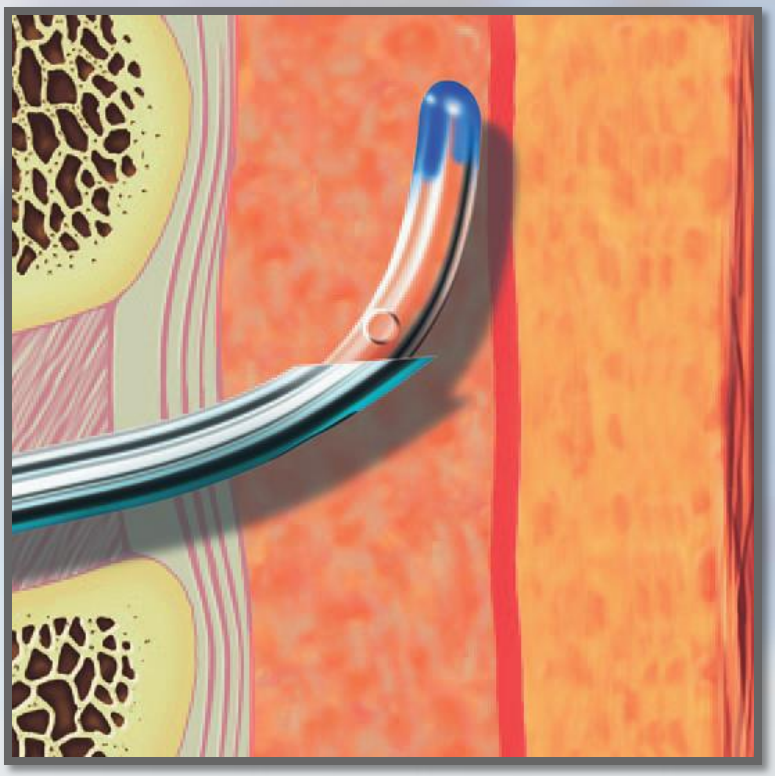
Синдром Горнера



1 – arachnoid
2 – dura
3 – epidural sp.
4 – subdural sp.
5 – subarachnoid sp. (cauda equina)
6 – lig. longitudinale posterius
7 – lig. flavum

Комбинированная спинально-эпидуральная анестезия





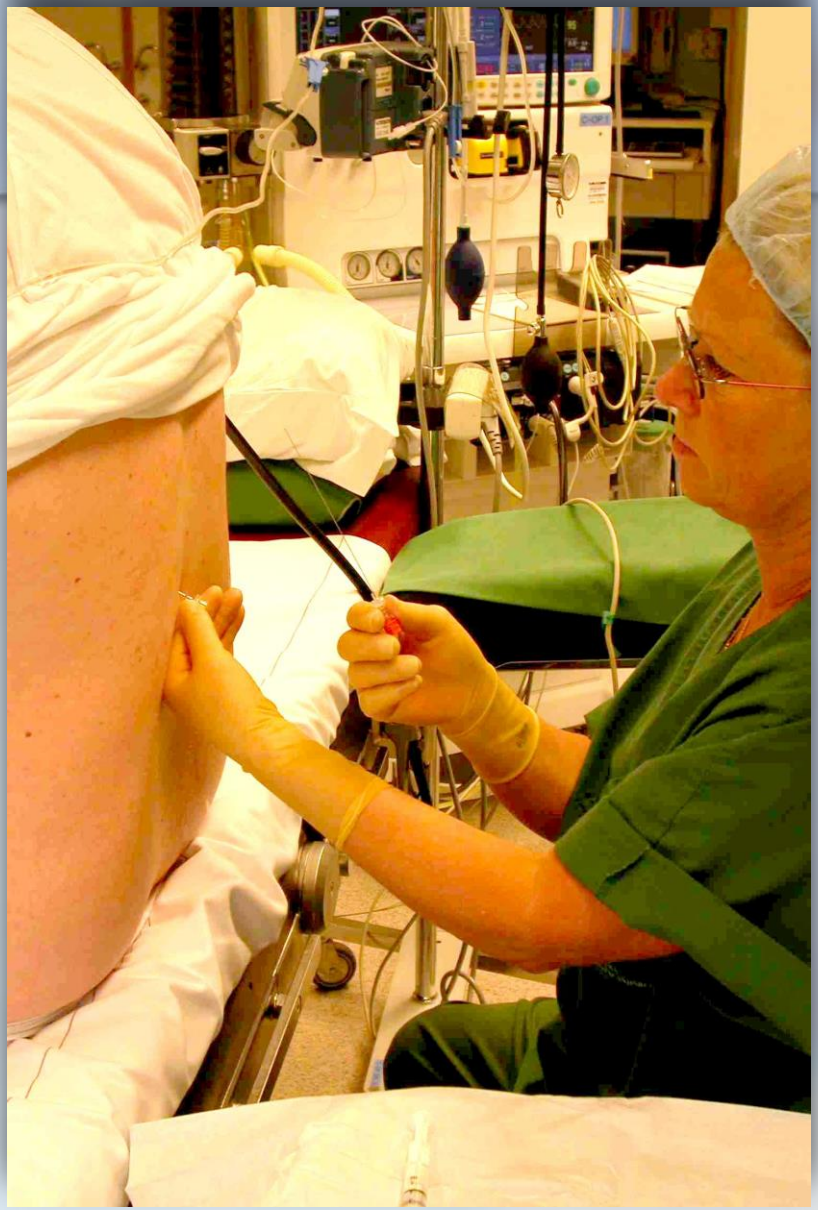
Remifentanil (Ултива)

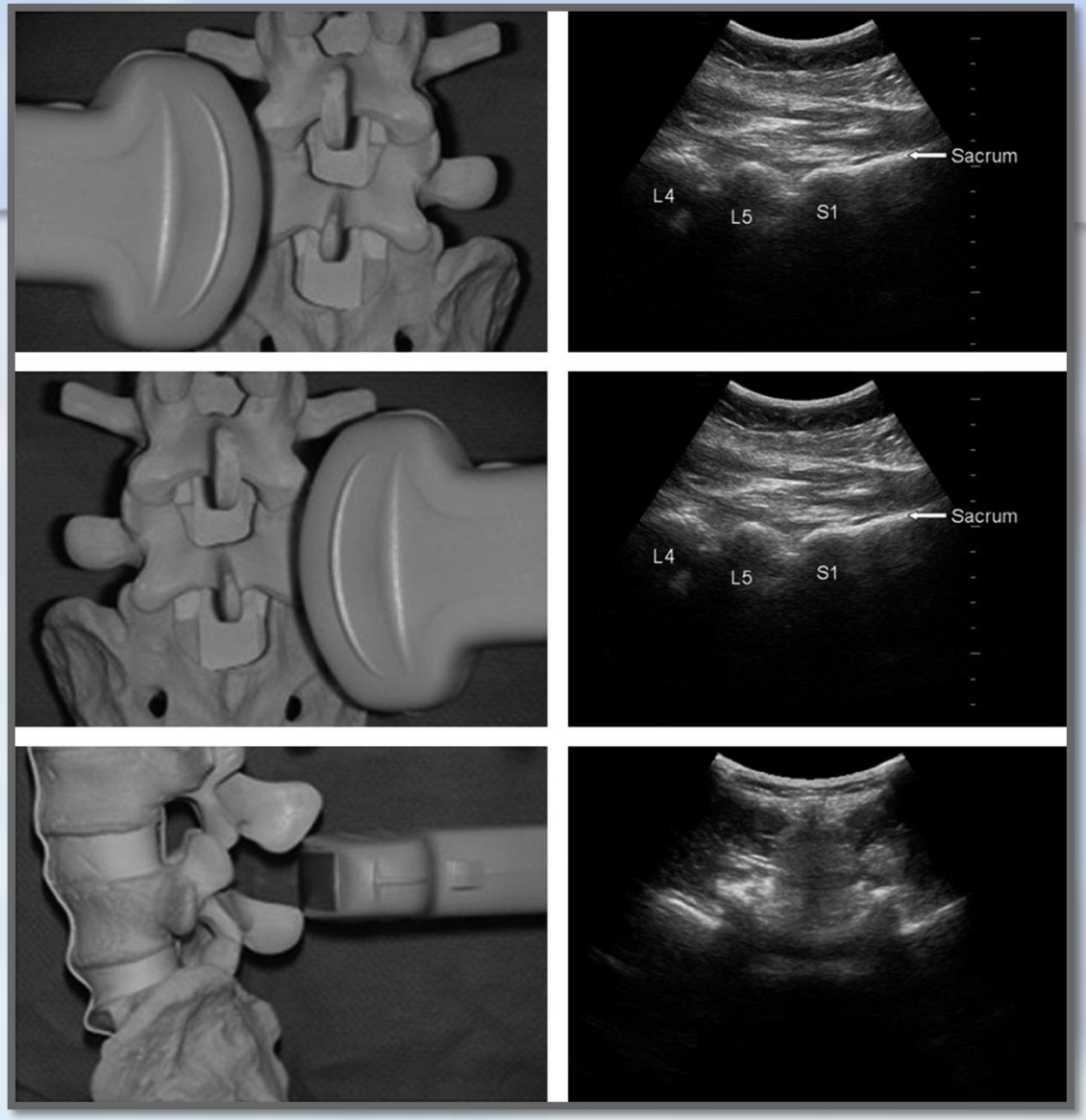
- Контролируемая пациентом анальгезия (PCA) только болюсы

- Постоянная инфузия +
  Контролируемая пациентом анальгезия (PCA)
  - i.v. инфузия между 0,025-0,05 µg/kg/min +
  - болюсы 0,25-0,5 µg/kg

Ожирение

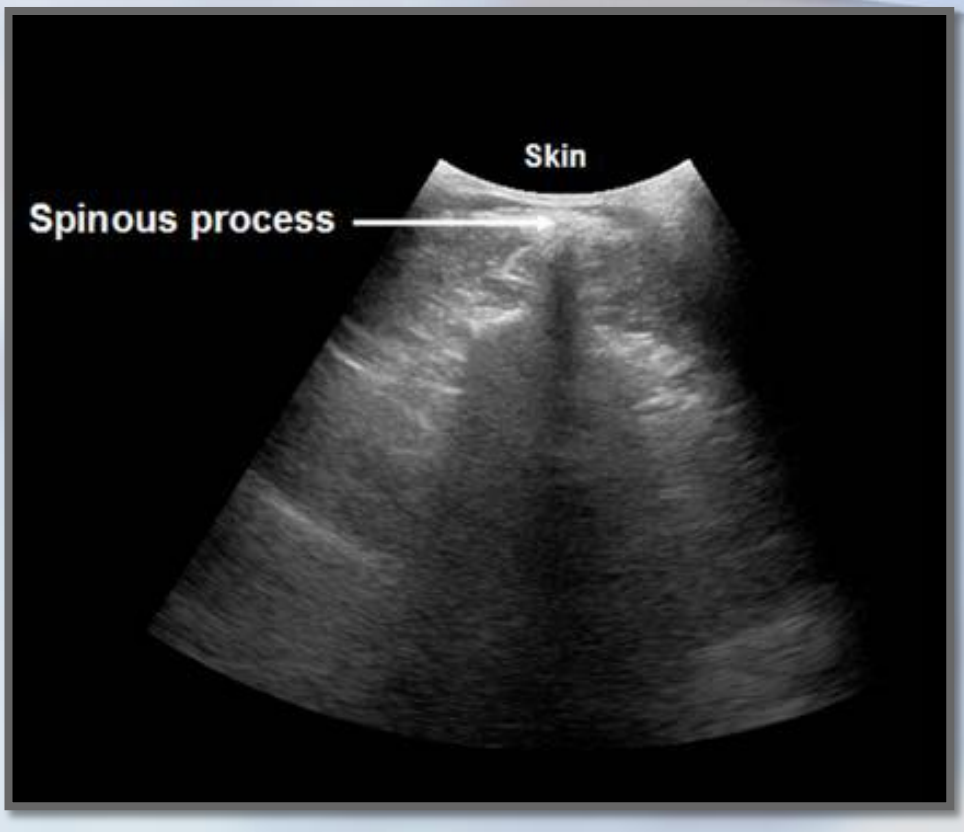
Ожирение





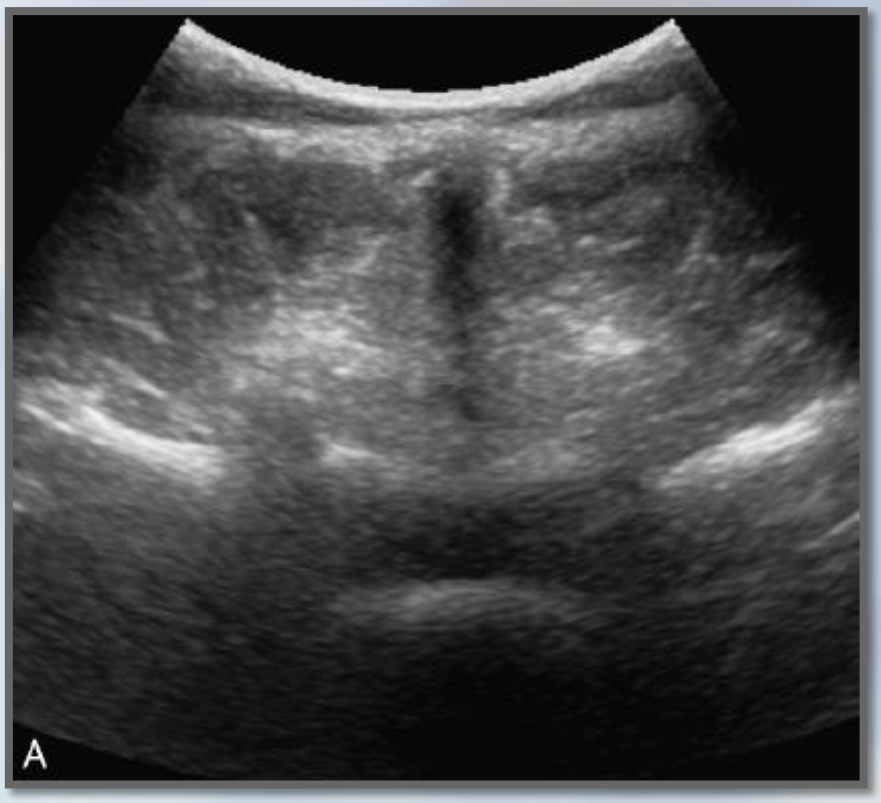
Regional Anesthesia and Pain Medicine & Volume 34, Number 6, November-December 2009

Бэтмен



Regional Anesthesia and Pain Medicine & Volume 34, Number 6, November-December 2009

Летучие мыши

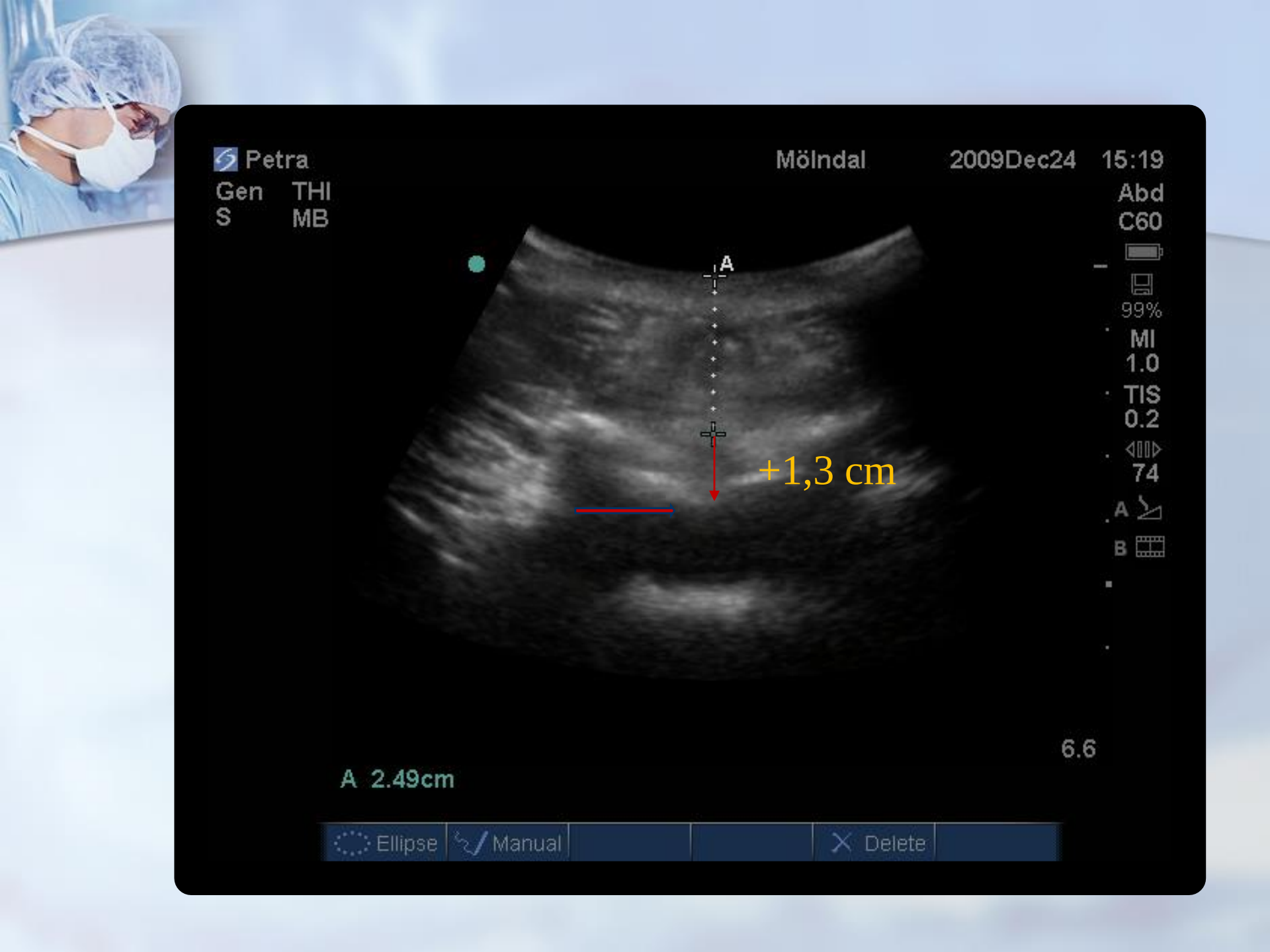


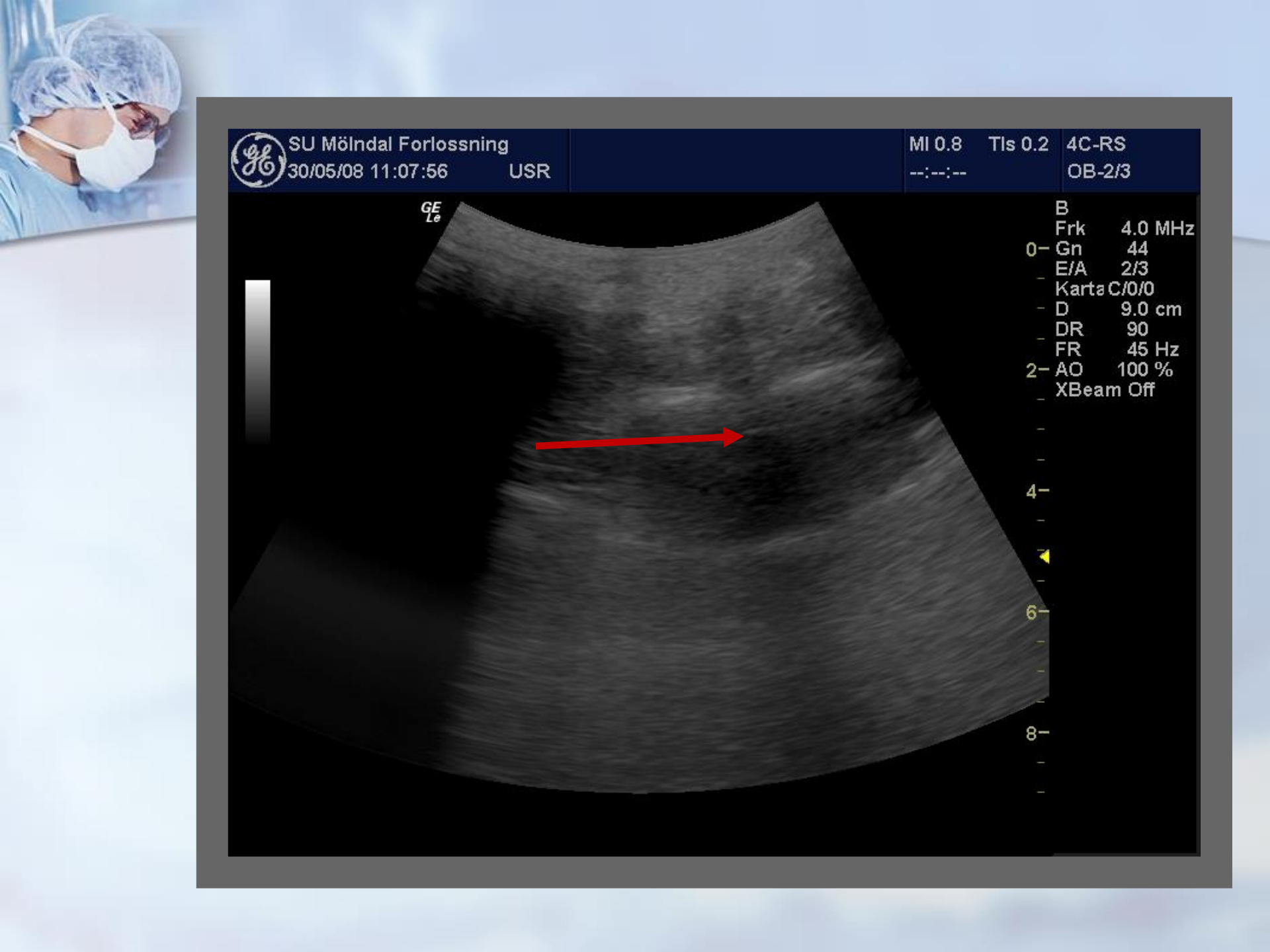
Regional Anesthesia and Pain Medicine & Volume 34, Number 6, November-December 2009

Летучие мыши

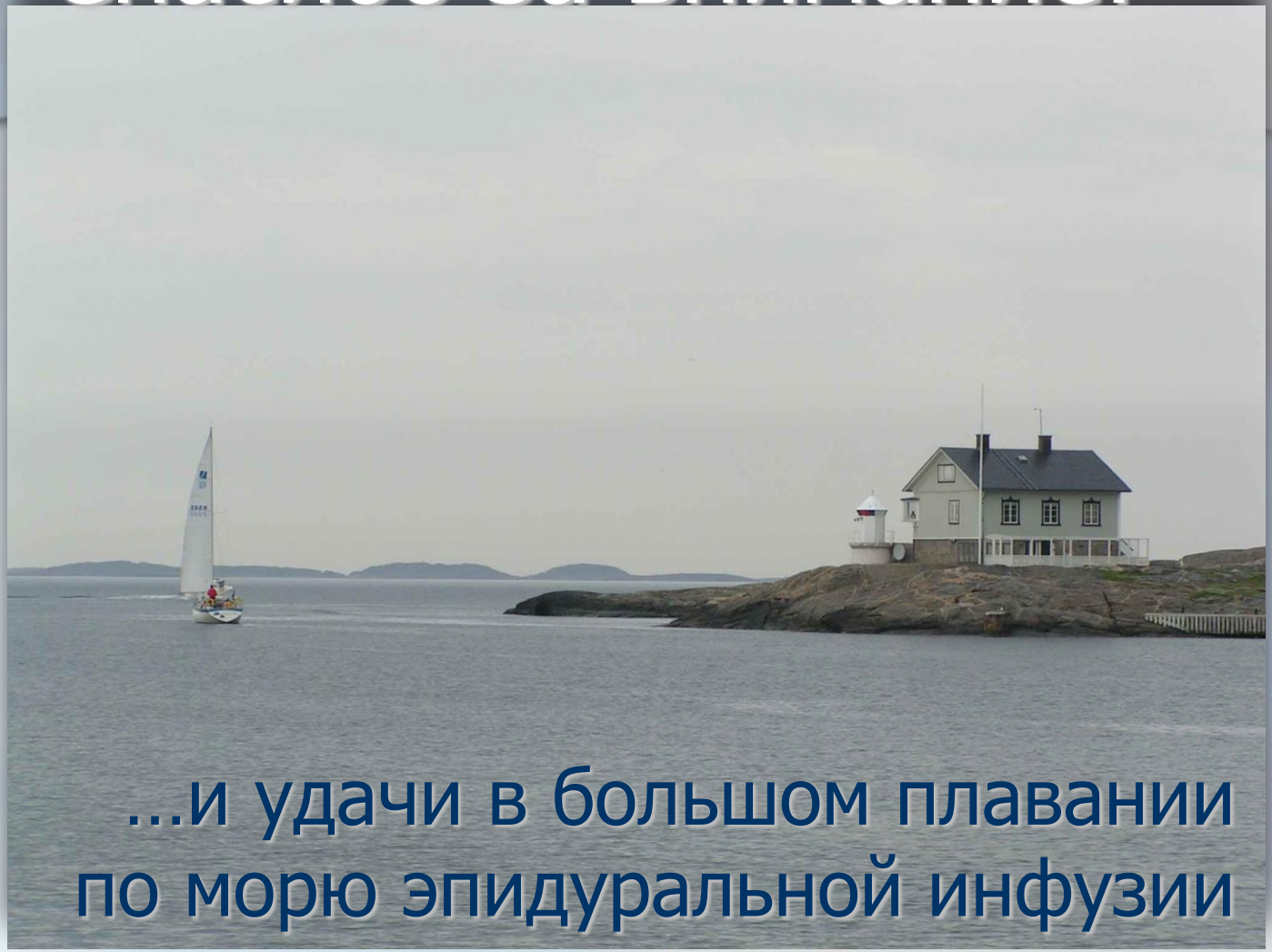
Left: Typical sonogram of an interspace in the transverse plane;

Right: Artistic enhancement to facilitate memorization of the pattern (flying bat).


Petra
Gen THI
S MB
Mölndal
2009Dec24 15:19
Abd
C60
99%
MI
1.0
TIS
0.2
74
A
B
A
+1,3 cm
6.6
A 2.49cm
Ellipse
Manual
Delete


SU Mölndal Forlossning
30/05/08 11:07:56 USR
MI 0.8 TIs 0.2
--:--:--
4C-RS
OB-2/3
GE
B
Frk 4.0 MHz
Gn 44
E/A 2/3
Karta C/0/0
D 9.0 cm
DR 90
FR 45 Hz
AO 100 %
XBeam Off
0
2
4
6
8

Спасибо за внимание!



...и удачи в большом плавании
по морю эпидуральной инфузии