

Clinical effects of different anesthesia methods in lateral episiotomy



Ann. Ital. Chir., 2021 92, 2: 190-195
pii: S0003469X21031924

Dan-Hong Jiang, Ya-Jing Fan*, Cao-Jun Huang, Yi Zhang, Ya-Li Pan

Department of Gynaecology and Obstetrics, the sixth Hospital of Shanghai Jiao Tong University, Shanghai, China

Clinical effects of different anesthesia methods in lateral episiotomy

OBJECTIVES: To investigate the clinical effects of different anesthesia methods in lateral episiotomy. Providing the guidance of choosing the appropriate anesthesia method in clinical operation.

METHODS: A total of 300 primiparas with vaginal delivery were enrolled into this study. These primiparas were divided into three groups ($n=100$, each), according to the different methods of anesthesia: group A (pudendal nerve block anesthesia + stepwise dissection and incisional local anesthesia), group B (bilateral pudendal nerve block anesthesia), and group C (pudendal nerve block anesthesia + local infiltration anesthesia). The pain score of these primiparas at the time of perineal dissection and suturing, as well as suturing time and bleeding volume, were observed and compared among these three groups.

RESULTS: In respect of pain scores at the time of suturing in lateral episiotomy, maternal pain score was significantly lower in group A than in groups B and C; and the difference was statistically significant ($P<0.05$). In respect of the time required for suturing in lateral episiotomy, suturing time was shorter in group A than in groups B and C; and the difference was statistically significant ($P<0.05$). In respect of the bleeding volume in lateral episiotomy, maternal bleeding volume was lesser in group A than in groups B and C; and the difference was statistically significant ($P<0.05$).

CONCLUSIONS: Among these three commonly used methods of anesthesia in lateral episiotomy, the pudendal nerve block anesthesia + stepwise dissection and incisional local anesthesia method used in group A had the best analgesic effect, the shortest suturing time, and the lowest wound blood loss.

KEY WORDS: Lateral episiotomy, Pudendal nerve block anesthesia, Local anesthesia, Pain score

Introduction

Episiotomy is an obstetric surgery commonly used in vaginal delivery. Generally, pudendal nerve block anesthesia + local infiltration anesthesia is the traditional anesthesia method for obstetric surgery¹. However, many clinical studies have revealed that the effect of pudendal nerve block anesthesia + local infiltration anesthesia remains not very satisfactory in actual applications²⁻⁶. A

study has revealed that the degree of pain during delivery was positively correlated with the incidence of postpartum depression and postpartum chronic pain⁷. Controlling and relieving pain during labor, and improving the quality of life of postpartum women, has become an important research direction for obstetric workers⁸. Meanwhile, with the development of medical science, the people's demand for pain relief and analgesia has increased; and obstetric workers have paid more attention on humanistic medicine. They continue to explore ways to improve anesthesia, in order to improve its analgesic effect in lateral episiotomy, ease the pain of childbirth, and improve the quality of obstetric services^{9,10}. In the United States and European countries, in order to achieve painless childbirth, intraspinal anesthesia is universally applied. However, in China, this method remains in the experimental stage^{11,12}. For pudendal nerve block anesthesia, in previous years, B ultrasound-

Pervenuto in Redazione: Dicembre 2019. Accettato per la pubblicazione Giugno 2020

Correspondence to: Ya-Jing Fan, Department of Gynaecology and Obstetrics, the sixth Hospital of Shanghai Jiao Tong University, No. 600 of Yishan Street, Xuhui District, Shanghai 200233, China (e-mail: fanyajing_dn@sina.com)

guided injection or nerve stimulator-guided injection has become the research direction in other countries¹³⁻¹⁶. Therefore, in view of the status quo of the poor effect of pudendal nerve block anesthesia, there is no ready-made experience from abroad that can be used directly. At present, among the many anesthesia methods in clinical practice in China, these three methods (pudendal nerve block anesthesia + stepwise dissection and incisional local anesthesia, bilateral pudendal nerve block anesthesia, and traditional pudendal nerve block anesthesia + local infiltration anesthesia) are more commonly used. It was reported in previous literatures that each of these three anesthesia methods has its own merits¹⁷⁻¹⁹ (This study was discussed and approved by the Medical Ethics Association. From June 2015 to June 2016, 300 women who were born naturally under the incision and suture of our hospital were collected as the research object.) In this study, we collected the data of 300 primiparas who underwent vaginal delivery with the aid of lateral episiotomy in our hospital from June 2015 to June 2016. These primiparas were grouped according to different anesthesia methods, and the analgesic effects of different anesthesia methods and their effects on the time of wound closure and wound blood loss were compared. Details are reported as follows.

Data and Methods

MATERNAL DATA

Data of 300 primiparas who underwent vaginal delivery with the aid of lateral episiotomy in our hospital from June 2015 to June 2016 were collected and retrospectively analyzed. Inclusion criteria: 1) primipara 2) single head position 3) vaginal delivery 4) lines of perineal incision 5) Volunteer participation in this study, and signed informed consent, 6) The birth control midwife designated by this study 7) can communicate effectively. Exclusion criteria: 1) receiving drug-induced labor analgesia 2) serious complications during pregnancy). According to different maternal anesthesia methods, these primiparas were divided into the three groups: group A (pudendal nerve block anesthesia + stepwise dissection and incisional local anesthesia), group B (bilateral pudendal nerve block anesthesia), and group C (pudendal nerve block anesthesia + local infiltration anesthesia). All puerperants in these three groups were normal pregnant women, who had no contraindication of vaginal delivery and serious complications of pregnancy. Group A was 20 to 34 years old (28.4 ± 2.7); gestational age was 37 to 40 weeks (39.5 ± 1.8); body weight was 58-72 kg (61.3 ± 3.1); height was 155-172 cm (163.9 ± 3.2); group B age 22 to 31 years old (28.2 ± 2.3); gestational weeks 37 to 41 weeks (39.1 ± 1.4); body weight 58 to 71 kg (61.1 ± 3.0); height 154 - 173cm (163.8 ± 3.1). Group C was 21-31 years old (28.3 ± 2.9), gestational age 37-

41 weeks (39.4 ± 1.5), body weight 59-70 kg (61.4 ± 2.9), height 153-168 cm (163.8 ± 3.1). Analyzing the basic data of gestational weeks, height, weight, etc in these three groups. there is no significant difference, $P > 0.05$. it can be compared. The operations were performed by traditional birth attendants, who hold a midwifery certificate and has 1-5 years of midwifery clinical experience.

MIDWIFE INFORMATION

Choose a midwife who works in the delivery room of the Sixth People's Hospital of Shanghai. Inclusion criteria: 1 hold a midwife qualification certificate, can complete the birth attendance work independently; 2 working years 1-5 years; 3 voluntarily participate in this study; 4 can better communicate with the mother. A total of 6 midwives were included, all female, aged 24-29 years old, 4 college graduates, 2 Bachelor's degree.

METHODS

The random number table was generated by Excel, and the women were divided into group A, group B and group C. The 1, 2, and 3 digital characters are loaded into the opaque envelope, 1 for group A, 2 for group B, and 3 for group C. According to the order of the pregnant women into the delivery room, the midwife will take the envelopes before delivery, according to the digital identification in the envelope, and give the corresponding anesthesia.)

The puerperae in these three groups all laid on the obstetric table with aid after the uterus opening was fully expanded, underwent routine perineal disinfection, and the perineum was protected by the anal cushion lifting method. The anesthesia drug was 20 ml of 1% lidocaine for each puerperant. Each of these women underwent surgery after the anesthetics started to work, and the suture operation was completed within the working time of the anesthesia.

GROUP A: Left pudendal nerve block anesthesia was performed before perineal dissection. A 10-ml syringe was used to withdraw 10 ml of anesthetic drug and was connected to a blocking needle (12.5 cm). Hence, left pudendal nerve block anesthesia was performed. The midwife inserted the left forefinger and middle finger into the vagina, felt the ischial spine, and inserted the needle at the slightly lateral site of the midpoint of the line between the sciatic tuber and anus. The needle was passed through the sacrosiatic ligaments at approximately 1 cm from the tip of the ischial spine. When a sense of emptiness was experienced, the syringe withdrawn; and if no blood was withdrawn out, 10 ml of anesthetic drug was injected. Then, the needle was pulled back to the subcutaneous space, and 2 ml of anesthet-

ic drug was injected along the incision site for local anesthesia. In the interval between the delivery and wound closure, local anesthesia was performed once again with 1% lidocaine along both sides of the incision. Around the vaginal wall layer, 2 ml of anesthetic drug was injected for each side; and 2 ml was injected for the muscle layer and subcutaneous space, respectively. Then, conventional perineal suture was performed.

GROUP B: Bilateral pudendal nerve block anesthesia was performed before perineal dissection. The positioning method of anesthesia was the same with that used for the left pudendal nerve block anesthesia in group A. If no blood was observed when the piston of the syringe was withdrawn, 10 ml of 1% lidocaine was injected on both sides. After the completion of anesthesia, the puerpera routinely underwent delivery and wound suture.

GROUP C: Left pudendal nerve block anesthesia was performed before perineal dissection. The positioning method of anesthesia was the same with that used for the left pudendal nerve block anesthesia in group A. If no blood was observed when the piston of the syringe was withdrawn, 10-15 ml of 1% lidocaine was injected on both sides. When the needle was returned to the vicinity of the sciatic tuber, a sector local infiltration anesthesia was performed on the subcutaneous tissue of the perineal posterior commissure, where approximately 5 ml of anesthetic drugs was injected.

EVALUATION CRITERIA

Pain degree indexes: the visual analogue scale (vas) was adopted: after stitching the wound

A 10-cm long pain score scale was immediately provided by the observer, with the millimeter as the smallest unit of the scale. The pain score of the puerperants were marked as 0 to 10 points on the scale, according to their sense ²⁰.

Calculation standard of suturing time: the interval from the completion of placenta processing and episiotomy incision examination to the end of skin suturing was defined as the suturing time for the operation.

Calculation standard of incision bleeding volume:

The weighing method was adopted: The bleeding of the open wound was stopped by gauze compression before delivery. The wound was cleaned using gauze to expose the surgical field during suturing. At the end of suturing, all gauzes were weighed. Then, the dead-weight of these gauzes were deducted, and the obtained weight was converted to the number of ml, according to the blood specific density of 1.05 g/ml.

STATISTICAL METHODS

Data were statistically analyzed using SPSS 19.0 software. Measurement data were expressed as mean \pm standard deviation (\pm SD). Data were analyzed using analysis of variance.

Results

Comparison of pain scores at the time of incision in lateral episiotomy among the three anesthesia methods

Pain scores at the time of incision in lateral episiotomy among the three anesthesia methods were compared, and the differences were not statistically significant ($P > 0.05$, Table I).

Comparison of pain scores at the time of suturing in lateral episiotomy among the three anesthesia methods

Pain scores at the time of suturing in lateral episiotomy among the three anesthesia methods were compared. The

TABLE I - Party a and party b two groups of maternal perineum VAS score situation is when stitching ($x \pm s$)

	n	When the perineum wound closure
Group A	100	2.14 \pm 0.44
Group B	100	2.87 \pm 0.60
Group C	100	3.19 \pm 0.75
F		77.86
P		0.000

TABLE II - Party a and party b two groups of maternal perineum VAS score situation is when stitching ($x \pm s$)

	n	The perineum is cut
Group A	100	1.66 \pm 0.51
Group B	100	1.78 \pm 0.35
Group C	100	1.64 \pm 0.4
F		2.16
P		0.117

TABLE III - Party a and party b two groups of maternal incision suture time compared to the bleeding wound ($x \pm s$)

	n	Time of incision were sewn	The wound of the bleeding
Group A	100	13.66 \pm 2.35	29.64 \pm 4.72
Group B	100	14.85 \pm 2.0	32.98 \pm 8.58
Group C	100	015.68 \pm 2.14	33.08 \pm 5.15
F		21.83	9.40
P		0.000	0.000

pain score was significantly lower in group A than in groups B and C; and the differences were statistically significant ($P < 0.05$, Table II).

Comparison of the time of suturing and bleeding volume among the three anesthesia methods

The time of suturing and bleeding volume among the three anesthesia methods were compared, and the differences were statistically significant ($P < 0.05$, Table III).

Discussion

There was no significant difference in analgesic effect among these three anesthesia methods in perineal dissection. In this survey, the data in Table 1 revealed that under anesthesia, VAS scores in perineal dissection was commonly lower. Furthermore, there was no significant difference in analgesic effect among the three anesthesia methods in perineal dissection. The cause may be that, firstly, midwives would often carry out episiotomy when the puerperants forcibly held their breath during uterine contraction; and at this time, the perineum is highly bulged. Under this condition, the attention of puerperants focused on how to use the abdominal pressure to shorten the second stage of labor; hence, local pain was easily ignored. Secondly, at the end of the second stage of labor, uterine contraction was strong, the crowning of the fetal head was found, and pain induced by the passive expansion and bulging of the pelvic floor and soft birth canal easily concealed the mechanical pain in perineal dissection. Finally, puerperants in these three groups all underwent anesthesia, achieving certain analgesic effects. There are differences between these anesthesia methods. However, puerperants could not be easily distinguished among these.

Genital sensation is mainly dominated by the pudendal nerve. The pudendal nerve is divided into three branches below the sciatic bone, which are distributed in the perineum, labia and around anus. In this survey, the data in Table II revealed that in episiotomy and suturing, the method of pudendal nerve block anesthesia + stepwise dissection and incisional local anesthesia used in group A had the best analgesic effect. Its difference compared with groups B and C were statistically significant. Hence, the author considers that the difference among the three anesthesia methods derive from the following aspects: (1) Anesthesia operation procedures. Pudendal nerve block anesthesia is operated under non-direct observation, and the accuracy of puncture positioning is greatly influenced by the operator's experience and the individual difference of puerperants. Hence, injection is easily deviated from the best penetration point, and the analgesic effect could not be guaranteed²¹. This is the main reason for the poor analgesic effect of anesthesia in groups B and C. The anesthesia method of group A was combined with stepwise dissection and

incisional local anesthesia, which was operated under direct vision. Hence, the positioning was accurate, and the analgesic effect was reliable²². (2) Timing of anesthesia. Puerperants in groups B and C underwent anesthesia before delivery, and the available time for anesthesia was short. Hence, the operation was easily interfered by the progress of labor contractions. The stepwise anesthesia of group A was performed before delivery and suturing. Hence, there was adequate time for the anesthesia operation, and the interfering factors are few. (3) Midwife training mode. The midwives of low seniority studied the pudendal nerve block anesthesia protocol in the course of the operation under the guidance of clinical teachers. Prior to that, they had no anesthesia operation-related training and molds to practice²³. In the process of accumulating experience and improving the accuracy of puncture, the pudendal nerve block anesthesia was carried out by midwives without adequate experience; and the analgesic effects were difficult to guarantee.

Good anesthesia can shorten operation time and reduce bleeding volume. Table III revealed that the time of operation and bleeding volume were different in different anesthesia methods, and the differences were statistically significant. Combined with the data in Table II, it was revealed that the better the analgesic effect was, the shorter the operation time was, and the less the bleeding volume was. This is related to the relaxed puerperants mental state and high medical compliance of puerperants, who could actively cooperate with the medical staff under a good analgesic effect. In addition, operative patients with a lucid mental state under good analgesia could relax their muscles. This made it convenient for the operator to clearly expose the surgical field and shorten suturing time. Under the same conditions, this shortened the operation time and wound exposure time, and reduced bleeding volume. This result is similar to the results of a study conducted by Yuren Wang in 2010²⁴. This survey revealed that among the three common clinical anesthesia methods, the method of pudendal nerve block anesthesia + stepwise dissection and incisional local anesthesia used in group A had the shortest suturing time. the least bleeding volume.

Episiotomy can effectively reduce serious tearing injuries of the perineal tissue and anal sphincter during vaginal delivery. Hence, it is widely used in clinical obstetrics²⁵⁻²⁷. Among the variety of anesthesia methods for the operation, pudendal nerve block anesthesia + stepwise dissection and incisional local anesthesia is simple to operate, has a constant and effective analgesic effect, can effectively relax the pelvic floor muscles, and can ensure the effective analgesia during the operation. In particular, it does not increase the risk of anesthesia.

Furthermore, it has significant promoting effects in shortening the operation time and reducing bleeding volume, which is suitable for clinical use. It is especially suitable for inexperienced novice midwives and low-seniority

midwives. Meanwhile, midwives should strengthen the standardized learning and training of pudendal nerve block anesthesia, and improve their anesthetic operation skills. This is also a link that cannot be missed in the training for qualified midwives in this new era.

Riassunto

Si sono studiati gli effetti concreti di tre diversi metodi di anestesia per l'esecuzione dell'episiotomia laterale, per fornire la guida alla scelta del metodo di anestesia più appropriato dal punto di vista clinico.

Per questo studio sono state arruolate 300 primipare con parto vaginale, suddivise in tre gruppi (ciascuno di 100), sottoposte a tre diversi metodi di anestesia: gruppo A (anestesia del blocco nervoso pudendo + dissezione graduale e anestesia locale incisionale), gruppo B (anestesia bilaterale del nervo pudendo), e gruppo C (anestesia con blocco del nervo pudendo + anestesia con infiltrazione locale). Sono stati osservati e confrontati tra questi tre gruppi il punteggio del dolore al momento della dissezione e della sutura perineale, così come il tempo di sutura e il volume di sanguinamento.

RISULTATI: Per quanto riguarda i punteggi del dolore al momento della sutura nell'episiotomia laterale, il punteggio del dolore materno era significativamente inferiore nel gruppo A rispetto ai gruppi B e C; e la differenza era statisticamente significativa ($P < 0,05$). Per quanto riguarda il tempo necessario per la sutura nell'episiotomia laterale, il tempo di sutura è stato più breve nel gruppo A che nei gruppi B e C; e la differenza era statisticamente significativa ($P < 0,05$). Rispetto al volume emorragico nell'episiotomia laterale, il volume emorragico materno era inferiore nel gruppo A rispetto ai gruppi B e C; e la differenza era statisticamente significativa ($P < 0,05$).

CONCLUSIONI: tra questi tre metodi comunemente usati di anestesia nell'episiotomia laterale, l'anestesia con blocco del nervo pudendo + dissezione graduale e il metodo di anestesia locale incisionale usato nel gruppo A hanno avuto il miglior effetto analgesico, il tempo di sutura più breve e la perdita di sangue più bassa della ferita.

References

1. Le J: *People's medical publishing house*. Obstetrics and gynecology, 2008; 71-72.
2. Zhang J, Zhang W: *Maternal episiotomy suture is two anesthesia method*. Modern magazine which combines traditional Chinese medicine with western medicine, 2007; 16:1107.
3. Liao XQ, Yu HJ, Chen Y: *Episiotomy suture in local tissue infiltration of additional analgesic effect observation*. Journal of nursing, 2009; 16:47.
4. Wei Y, Liang YP: *Different anesthesia analgesic effect analysis in the episiotomy suture*. Modern magazine which combines traditional Chinese medicine with western medicine, 2012; 20:539.
5. Xu CF: *Perineal nerve block combined local infiltration anesthesia in episiotomy analgesic effect observation*. The nurse education magazine, 2008; 23:2202.
6. Xia XR: *Additional local infiltration anesthesia effect observed in maternal episiotomy suture*. General nursing, 2011; 9:1463.
7. Eisenach JC, Pan PH, Smiley R, Lavand'homme P, Landau R, Houle TT: *Severity of acute pain after childbirth, but not type of delivery, predicts persistent pain and postpartum depression*. Pain, 2008; 140:87-94.
8. Lavand'homme P: *Chronic pain after vaginal and cesarean delivery: A reality questioning our daily practice of obstetric anesthesia*. International Journal of Obstetric Anesthesia, 2010; 19:1-2.
9. Zhang M: *To assist sheen and lidocaine for episiotomy suture technique curative effect observation and nursing of analgesia*. Contemporary medical, 2016; 22(8):132-33.
10. Jiao XY, Huo XJ: *To assist sheen and fentanyl for postoperative intravenous analgesia efficacy compared*. Shanxi Medical Journal, 2011; 40:1365-66.
11. Lemos A, Amorim MM, Dornelas de AA, de Souza AI, Cabral FJE, Correia JB: *Pushing/bearing down methods for the second stage of labour*. Cochrane Database Syst Rev, 2015; CD009124.
12. Wang TT, Shen S, Huang SQ: *Effects of epidura labor analgesia with low concentrations of local anesthetics on obstetric: outcomes: A systematic review and meta-analysis of randomized controlled trials*. International Anesthesia Research Society, 2016; 8:1-10.
13. Kurup AN, Morris JM, Schmit GD, Atwell TD, Weisbrod AJ, Murthy NS, Woodrum DA, Callstrom MR: *Neuroanatomic considerations in percutaneous tumor ablation*. Radiographics, 2013; 33:1195-215.
14. LuisEduardo SM, Leonardo HC, Ferraroa AT, Masashi M, Maria AT: *Ultrasound-guided peripheral nerve blocks in anticoagulated patients*. Cas eseries . Revista Brasileira de, 2017; 67:100-06.
15. Peccora CD, Philip CN, Kaye AD, Urman RD: *Sacral neuro-modulation as a treatment for pudendal neuralgia*. Pain Physician; 2014; 17:E645-E650.
16. Buffenoir K, Rioult B, Hamel O, Labat JJ, Riant T, Robert R: *Spinal cord stimulation of the conus medullaris for refractory pudendal neuralgia: A prospective study of 27 consecutive cases*. Neurourol Urodyn 2015; 34:177-82.
17. Li XL, Yang WH: *Episiotomy intraoperative research analysis of two kinds of anesthesia*. 2015; 45:794-95.
18. Fu AP, Zhou L: *Bilateral perineum block anesthesia used to study the clinical effect of natural childbirth*. The nurse education magazine. 2014; 29:637-38.
19. Lu YW, Li J: *Explore the improvement of bilateral pudendal nerve block anesthesia method in the application effect of childbirth*. Henan Journal of Surgery, 2016; 22:130.
20. Wang SQ: *Summary of clinical anesthesiology*. Beijing: People's medical publishing house, 2007; 365.
21. Ford JM, Owen DJ, Coughlin LB, Byrd LM: *A critique of current practice of transvaginal pudendal nerve blocks: A prospective audit*

- of understanding and clinical practice. Journal of Obstetrics and Gynaecology, 2013; 33:463-65.
22. Kehlet H, Kristensen BB: *Local anesthetics in the surgical wound. Is the pendulum swinging towards increased use?* Reg Anesth Pain Med, 2009; 34:389-90.
23. Jin QY: *The comprehensive training of midwifery*. Beijing. People's Medical Publishing House, 2014; 4-5.
24. Wang YR: *Local invasion joint pudendal nerve block anesthesia in the application of episiotomy analgesia*. Contemporary nurse, 2016; 45-46.
25. Dharmesh S, Kapoor, Raneer T, Abdul H, Sultan: *Obstetric anal sphincter injuries: Review of anatomical factors and modifiable second stage interventions*. The International Urogynecological Association, 2015; 1725-734.
26. Ratchadawan S, Jadsada T, Pisake L, Witoon P, Jeerichuda P, Kanok S: *Chompilas Chongsomchai, Prakai Pitak and Sukanya Chansamak. The outcomes of midline versus medio-lateral episiotomy*. Reproductive Health, 2007; 4:1-5.
27. Nkwabong E, Kouam L: *Episiotomies during deliveries of singletons in cephalic presentation: The incidence can be reduced*. J Obstet Gynaecol India, 2012; 62:641-43.

Commento e Commentary

PROF. NICOLA PICARDI
Già Ordinario di Chirurgia Generale

Dobbiamo congratularci con gli autori per l'abilità anatomico-chirurgica e la competenza nel creare un'anestesia loco-regionale altamente sofisticata. Anche se in Occidente il problema è stato affrontato in modo diverso, vale a dire con l'anestesia epidurale, salvo i casi destinati all'anestesia generale per motivi particolari, tuttavia, l'interesse dell'esperienza rimane come testimonianza di conoscenze anatomiche fondamentali.

Con la pratica dell'anestesia epidurale, le capacità e l'esperienza anatomica e chirurgica nell'area perineale, necessarie per la localizzazione dei tronchi nervosi e per preservare la consapevolezza e le emozioni delle donne durante il travaglio, diventano superflue.

Ciò non significa che le conoscenze e l'esperienza acquisite con l'anestesia loco-regionale vadano dimenticate, ma vanno anzi conosciute e coltivate per mantenere sempre ampio il ventaglio del bagaglio tecnico di chirurghi e ostetrici.

* * *

We must congratulate the authors for their anatomical-surgical ability and competence in creating highly sophisticated loco-regional anesthesia. Although in the West the problem has been dealt with in a different way, that is to say with epidural anesthesia, except in cases intended for general anesthesia for particular reasons, however, the interest of the experience remains as evidence of fundamental anatomical knowledge.

With the practice of epidural anesthesia, the anatomical and surgical skills and experience in the perineal area, necessary for the localization of the nerve trunks and for preserving the awareness and emotions of women during labor, become superfluous.

This does not mean that the knowledge and experience acquired with loco-regional anesthesia should be forgotten, but rather they must be known and cultivated to keep the range of technical baggage of surgeons and obstetricians always wide.