

Mediální krční blok je lepší než povrchní krční blok

Pro – con debata

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KARIM FN v Motole
Praha

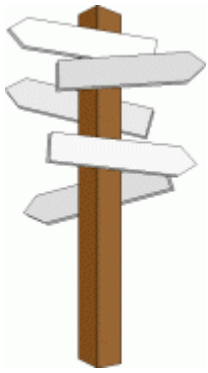


Pro – con debata

Krční blok je dobrý.



- Mediální krční blok je lepší než povrchní krční blok.
- Povrchní krční blok je lepší než mediální krční blok.
- Je nějaký blok nejlepší?
- Je vůbec nějaká anestezie nejlepší?
- **Jak to poznáme?**
- Mortalita?
- Závažná morbidita (ikty, infarkty)?
- Úspěšnost bloku?
- Počet doplňkových infiltrací a dávek analgezie?
- Má hodnocení „měkkých“ ukazatelů smysl?



Volba anestezie ke KEA

- celková anestezie
- regionální anestezie
 - krční epidurální anestezie
 - hluboký krční blok
 - povrchní krční blok
 - intermediální krční blok
 - mediální krční blok
 - lokální infiltrační anestezie
- třetí cesta = Co.Pa.Ge.A (spolupracující pacient v CA)





General anaesthesia versus local anaesthesia for carotid surgery (GALA): a multicentre, randomised controlled trial

GALA Trial Collaborative Group*

Lancet online 27.11.2008

Summary

Lancet 2008; 372: 2132-42

Published Online

November 27, 2008

DOI:10.1016/S0140-

Background The effect of carotid endarterectomy in lowering the risk of stroke ipsilateral to severe atherosclerotic carotid-artery stenosis is offset by complications during or soon after surgery. We compared surgery under general anaesthesia with that under local anaesthesia because prediction and avoidance of perioperative strokes might be easier under local anaesthesia than under general anaesthesia.

Interpretation We have not shown a definite difference in outcomes between general and local anaesthesia for carotid surgery. The anaesthetist and surgeon, in consultation with the patient, should decide which anaesthetic technique to use on an individual basis.

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93 % CB

77 % inf. an.

64 % inf. ch.

48 % sedace

44 % analgezie

Findings A primary outcome occurred in 84 (4.8%) patients assigned to surgery under general anaesthesia and 80 (4.5%) of those assigned to surgery under local anaesthesia; three events per 1000 treated were prevented with local anaesthesia (95% CI -11 to 17; risk ratio [RR] 0.94 [95% CI 0.70 to 1.27]). The two groups did not significantly differ for quality of life, length of hospital stay, or the primary outcome in the prespecified subgroups of age, contralateral carotid occlusion, and baseline surgical risk.

Interpretation We have not shown a definite difference in outcomes between general and local anaesthesia for carotid surgery. The anaesthetist and surgeon, in consultation with the patient, should decide which anaesthetic technique to use on an individual basis.



Krční epidurál, nebo krční blok?

British Journal of Anaesthesia 99 (3): 415–20 (2007)
doi:10.1093/bja/aem171 Advance Access publication on July 9, 2007

BJA

REGIONAL ANAESTHESIA

Regional anaesthesia for carotid endarterectomy: an audit over 10 years

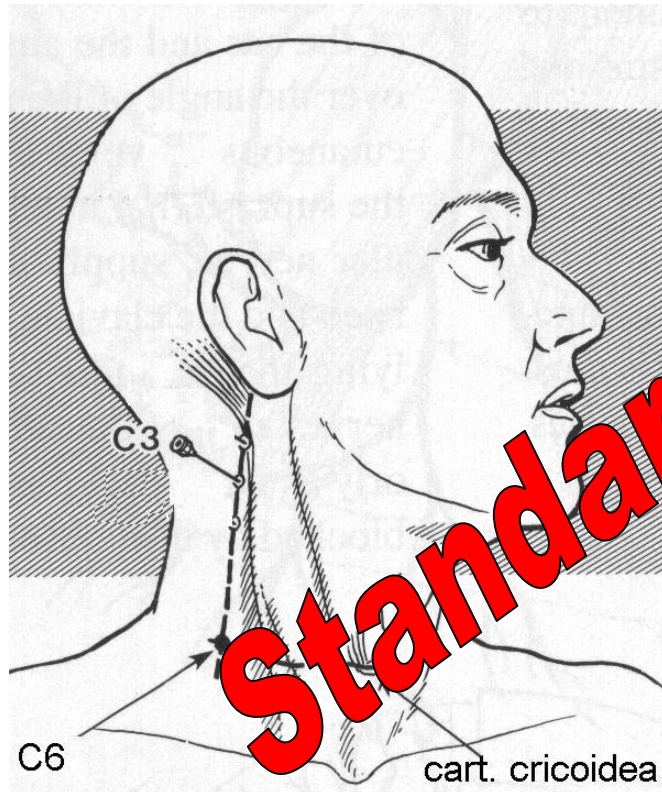
M. Hakl^{1*}, P. Michalek^{2,3}, P. Ševčík¹, J. Pavlíková¹ and M. Stern²

- 1828 KEA u 1465 pacientů 1996-2006
- 1166 bloků (hluboký + povrchní) x 662 CEA
- selhání 3 % x 6,9 %
- život ohrožující komplikace 2 % x 0,3 %
- obě metody přijatelné, ale **krční blok** má méně komplikací, proto **postupem volby**

2007

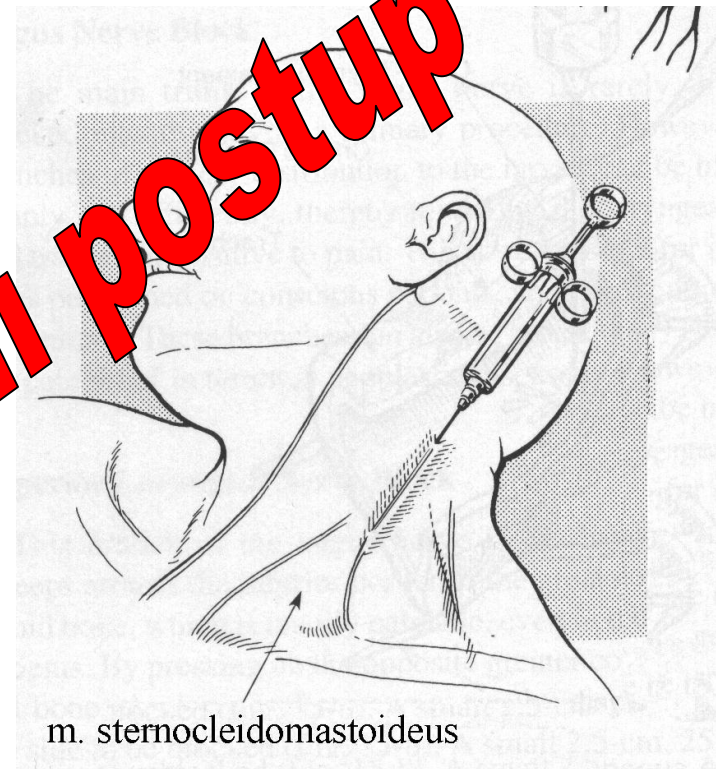


Kombinovaný krční blok (hluboký + povrchní)



hluboký krční blok

- technikou 1 jehly
- technikou 3 jehel



povrchní krční blok

REVIEW ARTICLE

Superficial or deep cervical plexus block for carotid endarterectomy: a systematic review of complications[†]

J. J. Pandit¹*, R. Satya-Krishna² and P. Gration¹



metaanalýza 69 studií 7558 hlubokých/kombinovaných
vs. 2533 povrchních bloků

- závažné komplikace při zavedení bloku OR 2,13
- konverze na celkovou anestezii OR 5,15
- systémové komplikace OR 1,13 = NS

other systemic serious complications (odds ratio 1.13, $P=0.273$; NS). We conclude that superficial/intermediate block is safer than any method that employs a deep injection. The higher rate of conversion to general anaesthesia with the deep/combined block may have been influenced by the higher incidence of direct complications, but may also suggest that the superficial/combined block provides better analgesia during surgery.

Regional anesthesia for carotid surgery

Joanne Guay

říjen 2008

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Current Opinion in Anaesthesiology 2008, 21:638–644

Purpose of review

Evidence from retrospective studies suggests that regional anesthesia reduces the risks of major complications associated with carotid endarterectomy compared with general anesthesia, namely: stroke, stroke/death, death and myocardial infarction.

Recent findings

A superficial cervical plexus block is the regional anesthetic technique of choice. It is as efficacious as a combined (superficial and deep) cervical plexus block and carries substantially less risk of inducing a life-threatening complication from the block placement than a cervical epidural or a deep cervical plexus block. Lidocaine, mepivacaine, bupivacaine and ropivacaine are all suitable agents for this block but bupivacaine provides the longest duration of postoperative analgesia. The addition of epinephrine 1 : 300 000 (3.75 µg/ml) reduces maximal blood concentrations of lidocaine and bupivacaine without inducing any adverse hemodynamic effects.

Summary

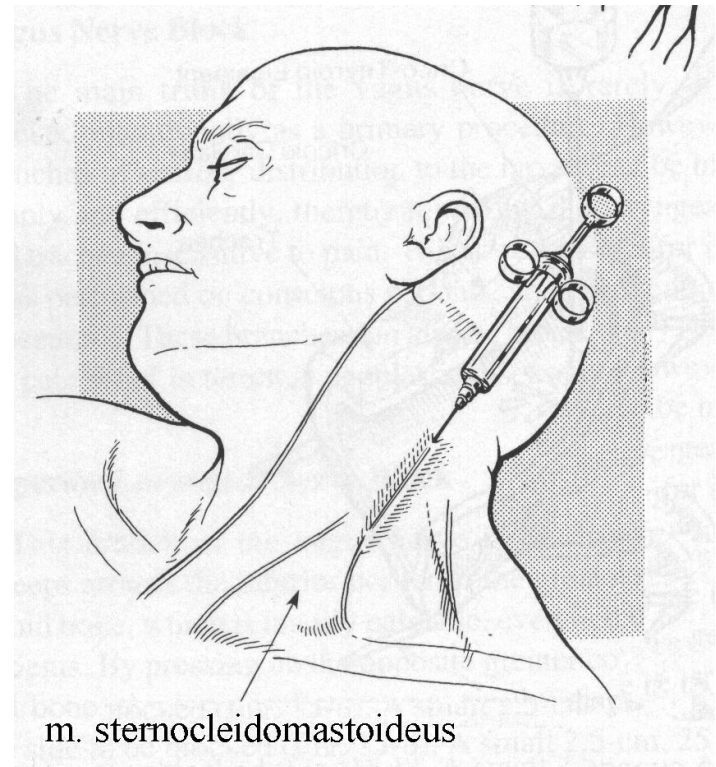
The anesthesiologist should learn how to place a superficial cervical plexus block. The technique is easy to master, effective and carries a low risk of inducing a serious complication.

2009

Povrchní krční blok + infiltrace

Standardní postup

podle NYSORA základní úroveň!



povrchní krční blok

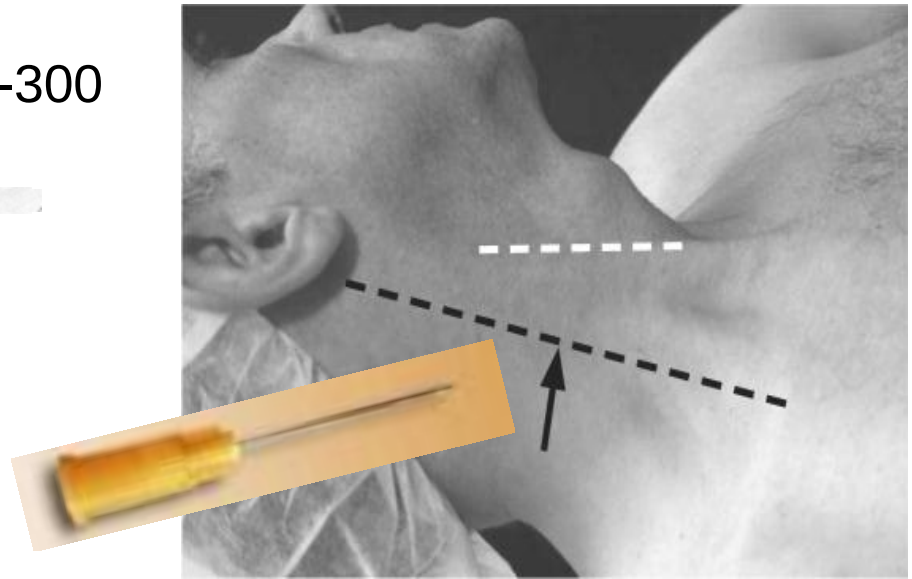
2010

Krční blok - intermediální

- 10 ml 0,75% ropi jehlou 25G do hloubky 15 mm

Barone M et al.: Carotid endarterectomy with intermediate cervical plexus block.

Tex Heart Inst J. 2010; 37(3):297-300



- 3-5 ml LA pod fascii

Pandit J. J. et al.: Spread of injectate with superficial cervical plexus block in humans: an anatomical study.

Br J Anaesth. 2003;91(5):733–735

Comparison of intermediate vs subcutaneous cervical plexus block for carotid endarterectomy

S. K. Ramachandran^{1*}, P. Picton¹, A. Shanks¹, P. Dorje¹ and J. J. Pandit²

Editor's key points

- Local anaesthetic techniques for carotid endarterectomy include local infiltration and superficial, intermediate, and deep cervical plexus block.
- Superficial and intermediate cervical plexus block may result in a similar distribution of local anaesthetic in the tissues if the investing fascia of the neck is not complete.
- No difference was demonstrated between intermediate and superficial cervical plexus block with regard to local anaesthetic supplementation, patient satisfaction, or surgeon satisfaction.
- This study supports use of superficial blocks for carotid endarterectomy.
- The results support the proposal that the investing fascia of the neck is incomplete and allows the spread of local anaesthetic to deep tissues.

Background. Carotid endarterectomy surgery can be performed under regional anaesthesia alone or under general anaesthesia. However, there are several types of regional block available and reported complication rates after superficial cervical plexus blocks are significantly lower than deep blocks. It is not known if subcutaneous and intermediate blocks are equally effective, although anatomical evidence suggests that the latter (where the injectate diffuses below the deep cervical fascia) might provide superior quality of intraoperative anaesthesia.

Methods. Forty-four patients were randomized to receive either subcutaneous or intermediate cervical plexus blocks for carotid endarterectomy. The primary endpoint was supplemental lidocaine requirement during surgery. Secondary outcome measures included: total amount of fentanyl administered during surgery, recall of pain scores during surgery, complications, and patient and surgeon satisfaction.

Results. There was no statistically significant difference for median (range) lidocaine supplementation between the subcutaneous and intermediate groups 65 (20–170) mg vs 85 (30–345) mg, respectively; $P=0.31$. There were no statistical differences in the secondary outcome measures and no major complications during the study.

Conclusions. Intermediate and subcutaneous cervical plexus blocks are equally effective for carotid endarterectomy. This study adds to the body of evidence supporting the safe use of superficial blocks for this type of surgery.

Keywords: anaesthesia, local; anaesthesia, nerve block; cervical plexus; endarterectomy carotid

Accepted for publication: 27 January 2011

2011

Br J Anaesth. 2011 Aug;107(2):157-63

BJA

Comparison of intermediate vs subcutaneous cervical plexus block for carotid endarterectomy

S. K. Ramachandran^{1*}, P. Picton¹, A. Shanks¹, P. Dorje¹ and J. J. Pandit²

- jen „měkké“ ukazatele
- má to smysl?



Anatomie krku

„Svaly krční jsou obaleny svými vlastními fasciemi a místy dochází ke spojování těchto fascií v souvislejší celky. Praktická potřeba si vynutila stanovení samostatnějších fasciálních jednotek, které jsou však koncipovány více méně uměle, a tak se zatím každému, kdo se studiem krčních fascií podrobněji zabýval, podařilo objevit řadu fascií nových a vyvrátit popisy předchůdců.“

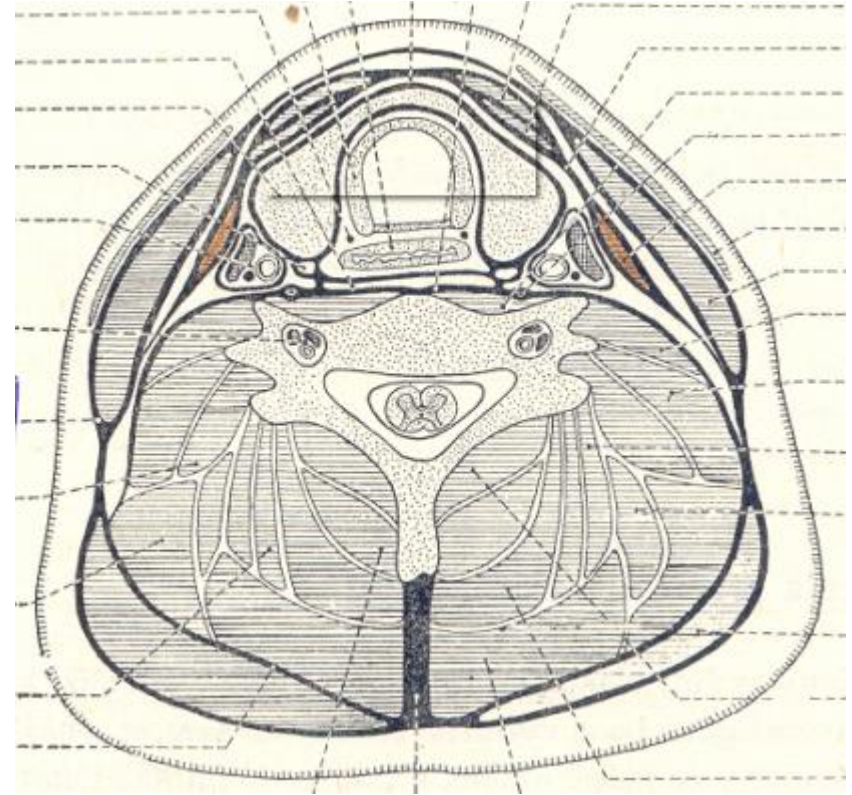
Borovanský L.: Fascie krční (str. 243)

Soustavná anatomie člověka, díl I, vyd. Avicenum 5. vydání, Praha 1976

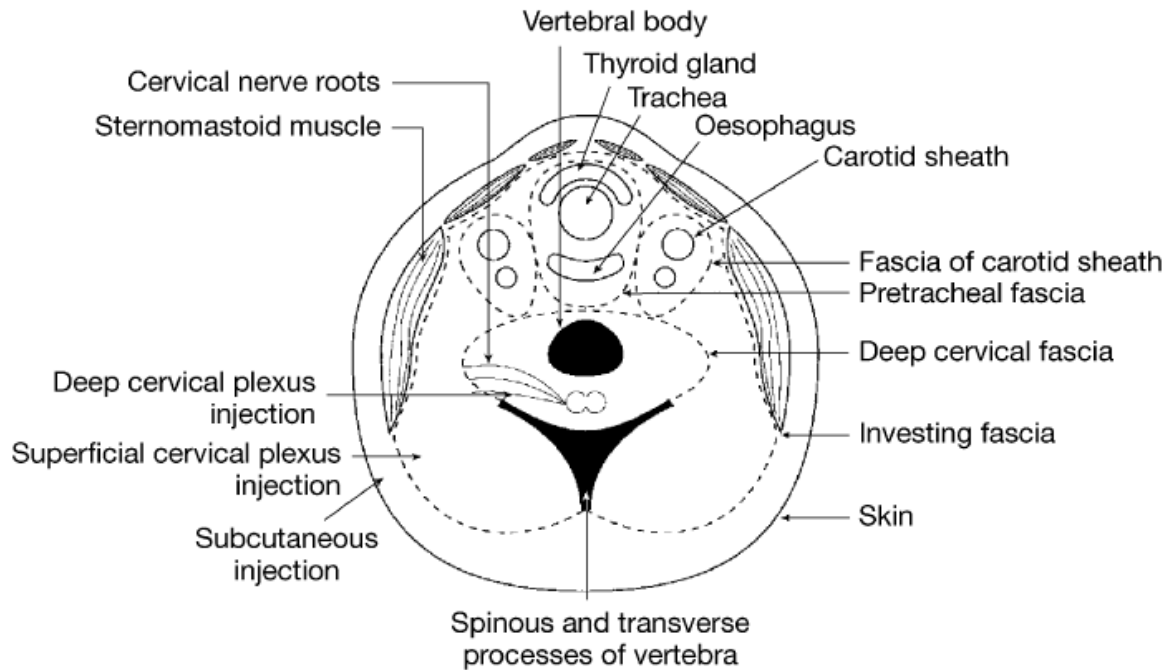


Anatomie krku

- lamina superficialis fasciae cervicalis
= fascia colli superficialis
= investing fascia
- lamina pretrachealis fasciae cervicalis
= fascia colli media
= lamina profunda fasciae colli
- lamina prevertebralis fasciae cervicalis
= fascia prevertebralis
- prostor paraviscerální = vaskulární prostor krční

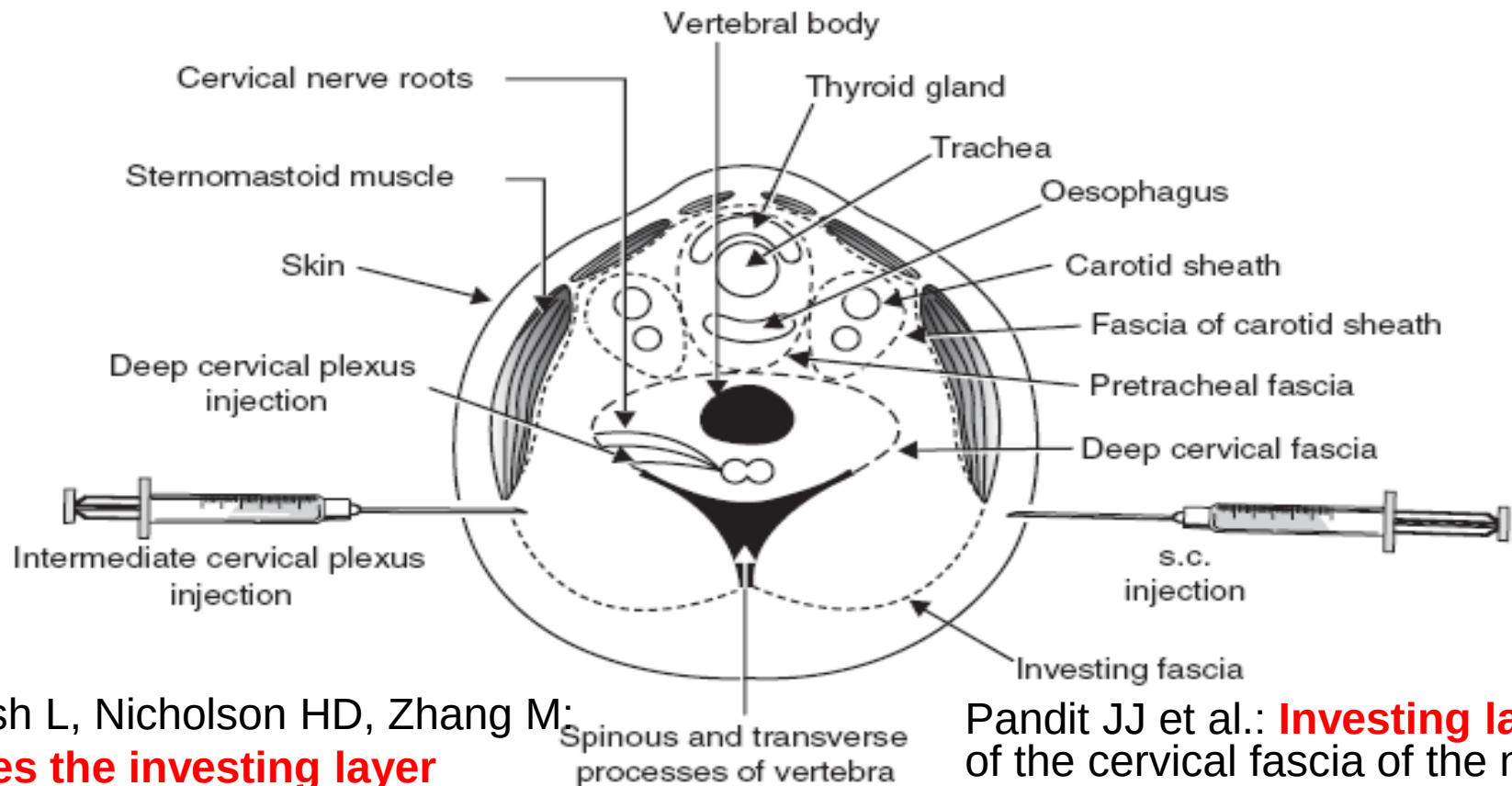


Nomenklatura bloků



1. Pandit JJ: Correct nomenclature of superficial cervical plexus blocks.
Br J Anaesth 2004; 92:775
2. Telford RJ, Stoneham MD: Correct nomenclature of superficial cervical plexus blocks.
Br J Anaesth 2004; 92:775

Nomenklatura bloků



Nash L, Nicholson HD, Zhang M:
**Does the investing layer
of the deep cervical fascia exist?**
Anesthesiology 2005; 103:962–8

Pandit JJ et al.: **Investing layer
of the cervical fascia of the neck
may not exist.**
Anesthesiology 2006;104(6):1344

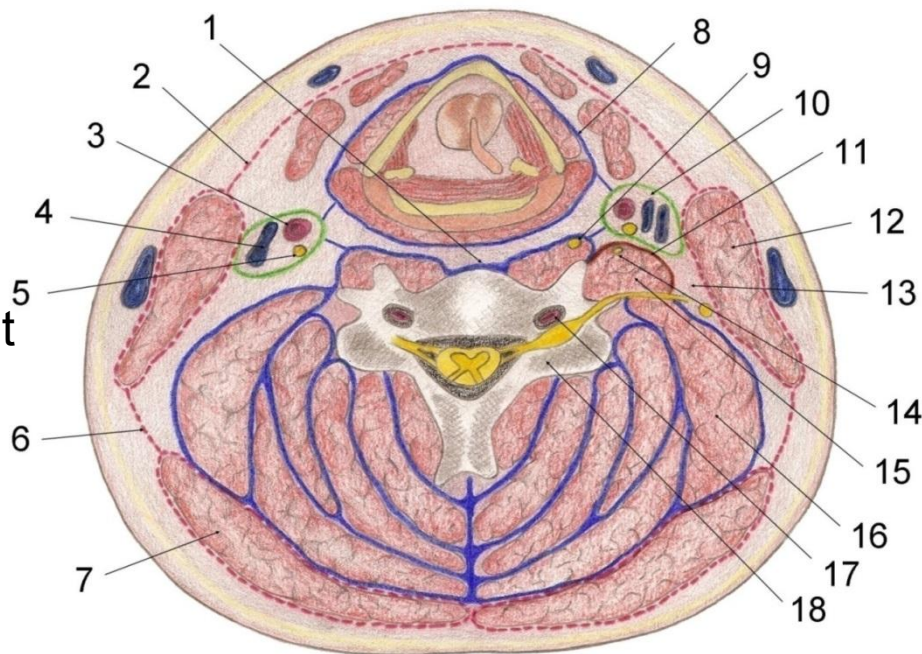
Brit J Anaesth., 2011, 107(2), p. 157-63.



Nomenklatura bloků

2011

- 1 – zadní hluboká krční fascie, přední část
- 2 – střední krční fascie, přední část
- 6 – střední krční fascie, zadní část
- 8 – hluboká přední (viscerální) fascie
- 10 – alární fascie
- 11 – skalenická fascie, 15 skaleny
- 16 – m. levator scapulae



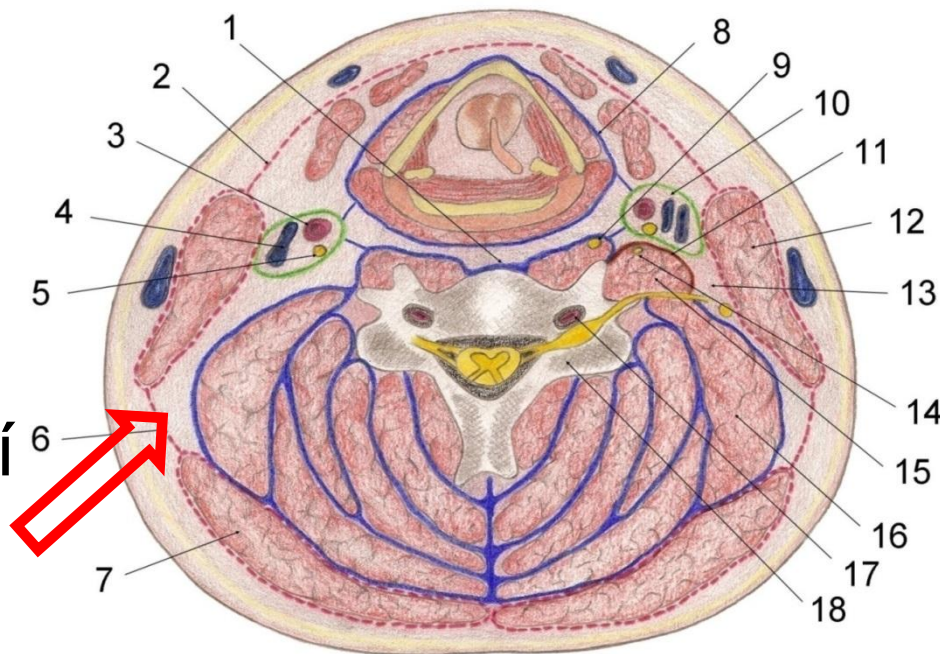
1. Michálek P., Mach D.: Blokáda cervikálního plexu (str. 89-96)
v Nalos D., Mach D.: Periferní nervové blokády pro klinickou praxi včetně
ultrazvukového navádění. Vyd. Grada, 1. vydání, Praha 1976
2. Nalos D., Mach D.: Fasciální koncept. Anest Int med 2011 2011, 22(6): 317-319



Nomenklatura bloků

2011

- povrchní fascie
- vaskulární prostor krční
- m. sternocleidomastoideus
- m. levator scapulae



1. Michálek P., Mach D.: Blokáda cervikálního plexu (str. 89-96)
v Nalos D., Mach D.: Periferní nervové blokády pro klinickou praxi včetně ultrazvukového navádění. Vyd. Grada, 1. vydání, Praha 1976
2. Nalos D., Mach D.: Fasciální koncept. Anest Int med 2011 2011, 22(6): 317-319

2011

Ultrazvukem naváděné bloky

- Choquet O, Dadure Ch, Capdevila X: Ultrasound-Guided Deep or Intermediate Cervical Plexus Block: The Target Should Be the Posterior Cervical Space.
Anesth Analg 2010 111(6): 1563-4
- Russel K.W.: Comparison of intermediate vs subcutaneous cervical plexus block for carotid endarterectomy - a view from an ultrasound guided user.
Comment to Br J Anaesth. 2011 Aug;107(2):157-63
- Nalos D, Humhej I.: Ultrazvukem naváděný mediální cervikální blok.
Anest Int med 2011 22(5): 249-252
- Rössel T, Kersting S, Heller AR, Koch T.: Combination of High-Resolution Ultrasound-Guided Perivascular Regional Anesthesia of the Internal Carotid Artery and Intermediate Cervical Plexus Block for Carotid Surgery.
Ultrasound Med Biol. 2013 Mar 14 published ahead-of-print.

Naslepo, nebo s ultrazvukem?

- povrchní, nebo intermediální, resp. mediální blok?
- „tvrdé“ výsledné ukazatele stejné
- „měkké“ s nevýznamným praktickým rozdílem
(nutná suplementace: 20 % K.W. Russell x 64 % GALA)
- záleží na Vás!
- ultrazvuková navigace umožní přesnější lokalizaci jehly a v.s. nižší dávku LA



**„Regionální anestezie
je prostě cvičení
v aplikované anatomii.“**

Alon P. Winnie