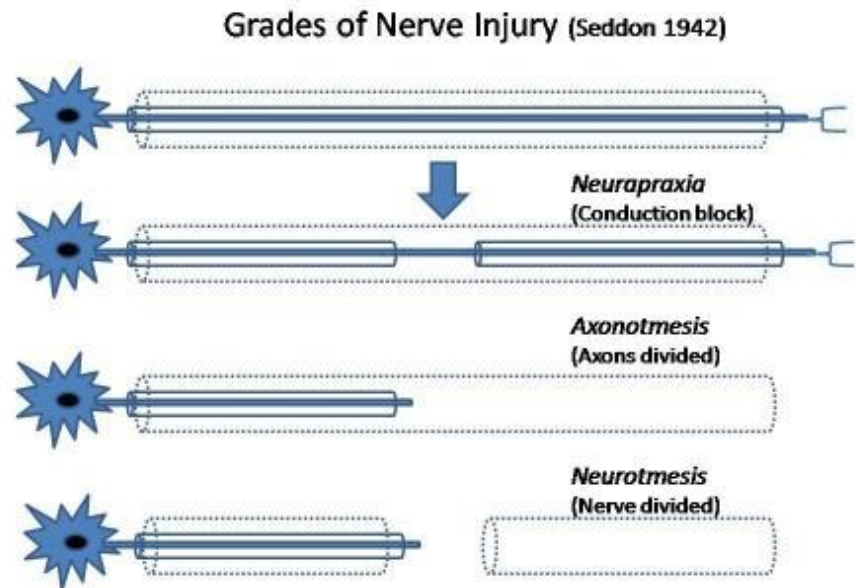


MUDr. Milan Jelínek
Anesteziologicko-resuscitační klinika
Fakultní nemocnice u sv. Anny v Brně

Neurologické komplikace (nejenom) regionální anestezie

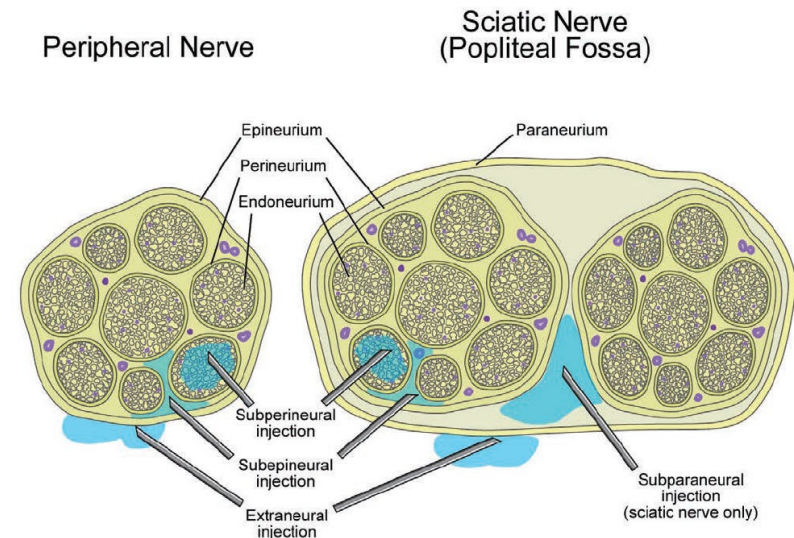
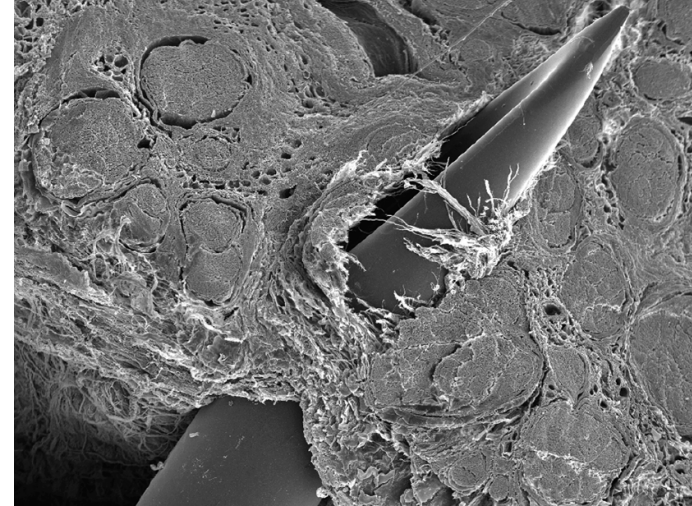
Závažnost poranění nervu

- **Neuropraxie-** nerv ani axon nejsou přerušeny, poškozena je myelinová pochva, nedochází k Wallerově degeneraci- natažení a komprese, RA – úprava 1-4 týdny
- **Axonotmeze-** přerušení axonu, nerv jako celek zachován, Wallerova degenerace, rozdrčení nervu, toxické působení-úprava měsíce , často neúplná
- **Neurotmeze-** kompletní přerušení nervu



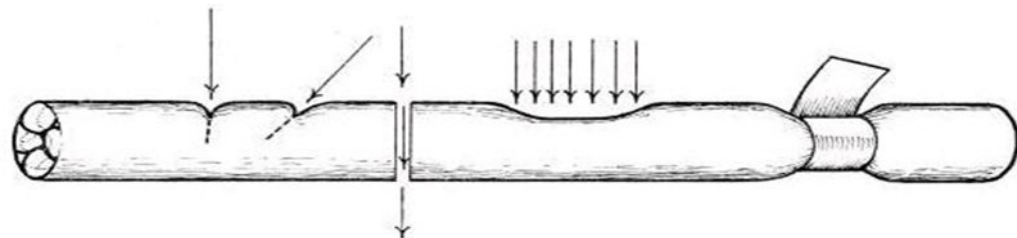
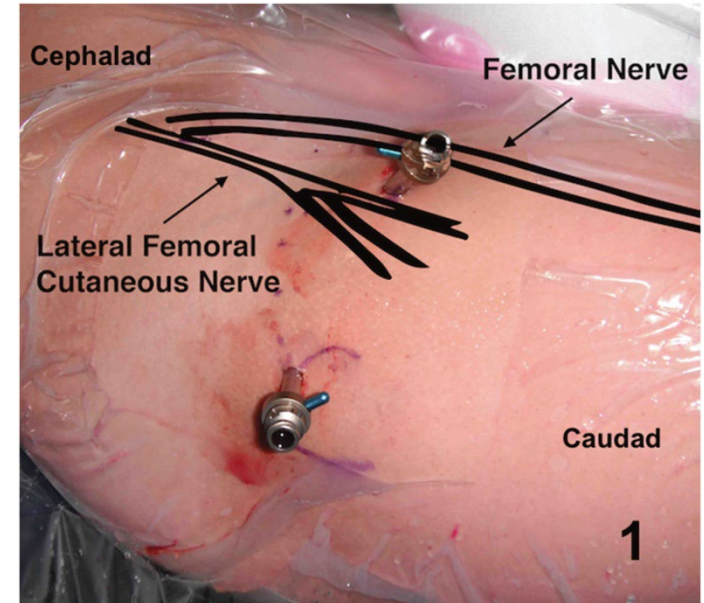
Mechanismy poškození nervu při RA

- **Traumatické**- poranění jehlou, aplikací LA do nervu
- **Vaskulární** - poškození vasa nervorum, ischemizace nervu hematodem
- **Toxické** - závislé na koncentraci, místě a délce podání LA
- **Zánětlivé**- přímé poškození nervu nebo komprese v zánětlivé tkáni



Chirurgické mechanismy poškození nervu

- Tlakové-instrumentariem, hematodem, otokem, turniketem
- Tahové – peroperační trakce, prodloužení končetiny
- Ischemizace- tlakem i tahem
- Termické-elektrokauaterizace, cement
- Transsekce
- Zánětem



Poškození zánětem

ORIGINAL ARTICLE



Ipsilateral Inflammatory Neuropathy After Hip Surgery

Ruple S. Laughlin, MD; P. James B. Dyck, MD; James C. Watson, MD;
Robert J. Spinner, MD; Kimberly K. Amrami, MD; Rafael J. Sierra, MD;
Robert T. Trousdale, MD; and Nathan P. Staff, MD, PhD

Abstract

Objective: To identify whether new ipsilateral weakness after hip surgery may be due to an inflammatory as opposed to a mechanical process.

Patients and Methods: Seven patients (8 hip surgeries) seen between July 1, 2008, and June 30, 2011, developed unexplained ipsilateral leg weakness and pain within 1 month of hip surgery, mimicking mechanical etiologies. Cutaneous sensory nerve biopsy distant from the site of surgery was performed on all the patients. Patient medical records were reviewed for the clinical, electrophysiologic, radiologic, and pathologic features of the new neuropathy.

Results: Results of all the nerve biopsies were abnormal, showing axonal damage (7 patients), inflammation (7 patients), signs of ischemic injury (7 patients), and nerve microvasculitis (6 patients). Six patients were treated with intravenous methylprednisolone. At median follow-up of 6 months, 6 patients showed improvement in function and pain.

Conclusion: In this case series, we demonstrate that inflammatory neuropathy is an important etiologic consideration in some patients with ipsilateral weakness and pain after hip surgery. In these patients, the inflammatory mechanism was ischemic injury due to microvasculitis. Identification of these patients through clinical suspicion and subsequent nerve biopsy may lead to improved outcomes with prompt initiation of immunotherapy.

Understanding and Treating Iatrogenic Nerve Injuries in Shoulder Surgery

Ranjan Gupta, MD
 Nilay A. Patel, MD
 Augustus D. Mazzocca, MD
 Anthony Romeo, MD

Abstract

As surgical techniques and technology continue to advance in shoulder surgery along with the increased use of regional anesthesia, it is important to remember that iatrogenic nerve injuries remain a possible complication. Iatrogenic nerve injuries associated with shoulder surgery lead to patient disability and distress, increased healthcare costs, and possibly additional procedures. To obtain the best possible outcome for the patient after the nerve injury has been discovered, a timely appreciation of the management options is necessary rather than expectant management. Early recognition, appropriate neurodiagnostic testing, and prompt treatment or referral are mandatory for optimal outcomes.

Nerve injuries associated with shoulder surgery are devastating and lead to patient disability and distress, including functional deficits, intractable neuropathic pain, increased costs, additional procedures, and possible physician litigation. This article discusses the causes of iatrogenic nerve injuries associated with shoulder surgery, prevention techniques, and the diagnosis and management of iatrogenic nerve injuries to achieve optimal patient outcome.

Iatrogenic Nerve Injuries Associated With Shoulder Surgery

Nerve Injuries Associated With Regional Anesthesia

Regional anesthesia such as interscalene, supraclavicular, infraclavicular, and suprascapular nerve blocks and peripheral nerve catheters are routinely used in shoulder surgery. Nerve blocks and peripheral nerve

catheters can improve patient satisfaction, decrease postoperative opioid use, and may even allow faster functional recovery of the operated limb.¹ The administration of regional anesthesia, however, has the potential to cause iatrogenic nerve injuries. The frequency of peripheral nerve injuries after peripheral nerve blocks varies from 0% to 5%.²⁻⁴ Transient paraesthesia may occur in up to 15% of patients after a peripheral nerve block, with 99% resolving within 1 year.⁵ The incidence and prognosis of more permanent neurologic deficit remain unclear. Potential complications of peripheral nerve blocks include direct puncture of peripheral nerves, compressive hematoma, or local neurotoxicity of local anesthetics.^{3,6}

Direct puncture or transection of nerves with needles may lead to mechanical damage to the nerve as well as increased neurotoxicity in intrafascicular injections due to the exposure of the nerve to higher concentrations of local anesthetic. In

SPECIAL ARTICLE

Neurological Complications Related to Elective Orthopedic Surgery

Part 2: Common Hip and Knee Procedures

Tim Dwyer, MBBS, FRACS, FRCSC,*†‡§ Michael Drexler, MD,|| Vincent W. S. Chan, MD, FRCPC, FRCA,§¶
 Daniel B. Whelan, MD, MSc, FRCSC,*†§# and Richard Brull, MD, FRCPC¶

Abstract: Many anesthesiologists may not be familiar with the rate of surgical neurological complications of the hip and knee procedures for which they are providing local anesthetic-based anesthesia and/or analgesia. Part 2 of this narrative review series on neurological complications of elective orthopedic surgery describes the mechanisms and likelihood of peripheral nerve injury associated with some of the most common hip and knee procedures, including arthroscopic hip and knee surgery and total hip and knee replacement.

What's New: As the popularity of regional anesthesia continues to increase with the development of ultrasound guidance, anesthesiologists should have a thoughtful understanding of the nerves at risk of surgical injury during elective hip and knee procedures.

(*Reg Anesth Pain Med* 2015;40: 443–454)

From the Department of Orthopaedic Surgery, University of California, Irvine, CA (Dr. Gupta and Dr. Patel), the Department of Orthopaedic Surgery, University of Connecticut Health Center, Farmington, CT (Dr. Mazzocca), and the Department of Orthopaedic Surgery, Rothman Institute, New York, NY (Dr. Romeo).

None of the following authors or any immediate family member has received anything of value from or has stock or stock options held in a commercial company or institution related directly or indirectly to the subject of this article: Dr. Gupta, Dr. Patel, Dr. Mazzocca, and Dr. Romeo.

J Am Acad Orthop Surg 2019;00:1-8

DOI: 10.5435/JAAOS-D-18-00608

Copyright 2019 by the American Academy of Orthopaedic Surgeons.



Neer Award 2005: Peripheral nerve function during shoulder arthroplasty using intraoperative nerve monitoring

Sameer H. Nagda, MD,^a Kenneth J. Rogers, PhD, ATC,^a Anthony K. Sestokas, PhD,^b Charles L. Getz, MD,^a Matthew L. Ramsey, MD,^a David L. Glaser, MD,^a and Gerald R. Williams, Jr, MD,^a Philadelphia and Bala Cynwyd, PA

The incidence of neurologic injury after shoulder arthroplasty has been reported to be 1% to 4%. However, the true incidence may be higher, because injury is identified only clinically and examination of the post-arthroplasty shoulder is difficult. This study used intraoperative nerve monitoring to identify the incidence, pattern, and predisposing factors for nerve injury during shoulder arthroplasty. Continuous intraoperative monitoring of the brachial plexus was performed in 30 consecutive patients undergoing shoulder arthroplasty. Impending intraoperative compromise of nerve function was signaled by sustained neurotonic electromyographic activity or greater than 50% amplitude attenuation of transcranial electrical motor evoked potentials (or both). Arm and retractor positions were recorded and adjusted to relieve tension. Patients with intraoperative nerve alerts underwent diagnostic electromyography at least 4 weeks postoperatively. Of the patients, 17 (56.7%) had 30 episodes of nerve dysfunction (ie, nerve alerts) during surgery. None of these 30 nerve alerts returned to baseline with retractor removal alone. Of the 30 alerts, 23 (76.7%) returned to baseline after repositioning of the arm into a neutral position. Postoperative electromyography results were positive in 4 of 7 patients (57.1%) who did not have a return to baseline

transcranial electrical MEPs intraoperatively and in 1 of 10 (10%) whose nerve function did return to baseline. In all cases of positive postoperative electromyographic results, the pattern of nerve involvement matched the pattern of intraoperative nerve dysfunction. The affected nerves included the following: combined (ie, mixed plexopathy) (46.7%), musculocutaneous (20%), axillary (16.7%), ulnar (10%), and radial (6.7%). Prior shoulder surgery and passive external rotation of less than 10° were associated with an increased incidence of nerve dysfunction ($P < .05$). The incidence of nerve injury during shoulder arthroplasty is likely greater than reported. Positioning of the arm at the extremes of motion (<10° passive external rotation with the arm at the side) and a history of prior open shoulder surgery are at higher risk for nerve injury and should be counseled on the increased risk. This patient population may also be considered for routine nerve monitoring. (J Shoulder Elbow Surg 2007;16:2S-8S.)

The risk of nerve injury during anatomical and reverse total shoulder arthroplasty: an intraoperative neuromonitoring study



Robert L. Parisien, MD^a, Paul H. Yi, MD^b, Laura Hou, MPH^c, Xinning Li, MD^a, Andrew Jawa, MD^{c,*}

Background: This study compared the incidence and pattern of potential nerve injuries between reverse shoulder (RSA) and total shoulder arthroplasty (TSA) using intraoperative neuromonitoring. Our hypothesis was that RSA has a greater risk of nerve injury than TSA due to arm lengthening.

Methods: We reviewed 36 consecutive patients who underwent RSA ($n = 12$) or TSA ($n = 24$) with intraoperative neuromonitoring. The number of nerve alerts was recorded for each stage of surgery. Neurologic function was assessed preoperatively and postoperatively at routine follow-up visits. Predictive factors for increased intraoperative nerve alerts and clinically detectable neurologic deficits were determined.

Results: There were nearly 5 times as many postreduction nerve alerts per patient in the RSA cohort compared with the TSA cohort (2.17 vs. 0.46). There were 17 unresolved nerve alerts postoperatively, with only 2 clinically detectable nerve injuries, which fully resolved by 6 months postoperatively. A preoperative decrease in active forward flexion and the diagnosis of rotator cuff arthropathy were independent predictors of intraoperative nerve alerts.

Conclusion: RSA has a higher incidence of intraoperative nerve alerts than TSA during the postreduction stage due to arm lengthening. Decreased preoperative active forward flexion and the diagnosis of rotator cuff arthropathy are predictors of more nerve alerts. The clinical utility of routine intraoperative nerve monitoring remains in question given the high level of nerve alerts and lack of persistent postoperative neurologic

The Journal of Arthroplasty Vol. 11 No. 4 1996

Surgical Maneuvers Placing the Sciatic Nerve at Risk During Total Hip Arthroplasty as Assessed by Somatosensory Evoked Potential Monitoring

Thomas R. Perceles, MD, Steven A. Stuchin, MD, Donald M. Kastenbaum, MD, Aleksandar Beric, MD, Gerard Lacagnino, MD, and Humayun Kabir, MD

Abstract: The sciatic nerve in 52 hip arthroplasties was evaluated using intraoperative somatosensory evoked potentials (SSEPs). Twenty-nine of these cases involved the lateral transtrochanteric approach, and 23 involved the posterior approach. A total of 11 incidents of SSEP changes occurred in eight patients. Six episodes occurred during lateral retraction of the proximal femur, and three occurred during anterior retraction of the proximal femur. Tracings returned to baseline with prompt cessation of femoral retraction in each case. One SSEP change occurred in a revision following reduction of the prosthetic components, and this resolved with shortening of the prosthetic neck to less than anatomic length. One change occurred during tightening of cables securing strut allografts to the femur, and this resolved spontaneously. No correlation was found between frequency of SSEP changes and age, sex, limb lengthening, or preoperative range of motion. It is concluded that routine lateral or anterior retraction may place the sciatic nerve at risk. **Key words:** somatosensory evoked potentials, sciatic nerve, total hip arthroplasty.

Incidence PNI ve ztahu k rozvoji RA

Perioperative Peripheral Nerve Injuries

A Retrospective Study of 380,680 Cases during a 10-year Period at a Single Institution

Marnie B. Welch, M.D.,* Chad M. Brummett, M.D.,† Terrence D. Welch, M.D.,‡ Kevin K. Tremper, Ph.D., M.D.,§ Amy M. Shanks, M.S.,|| Pankaj Guglani, M.D.,† George A. Mashour, M.D., Ph.D.#

Results: Of all patients undergoing 380,680 anesthetics during a 10-yr period, 185 patients were initially identified as having nerve injuries, and after review, 112 met our definition of a perioperative nerve injury (frequency = 0.03%). Hypertension, tobacco use, and diabetes mellitus were significantly associated with perioperative peripheral nerve injuries. General and epidural anesthesia were associated with nerve injuries. Significant associations were also found with the following surgical specialties: Neurosurgery, cardiac surgery, general surgery, and orthopedic surgery.



From: Perioperative Nerve Injury after Total Knee Arthroplasty/Regional Anesthesia Risk during a 20-Year Cohort Study
Anesthesiology. 2011;114(2):311-317. doi:10.1097/ALN.0b013e3182039f5d

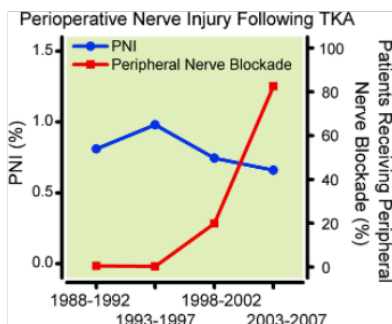


Fig. 1. Incidence of perioperative nerve injury (PNI) after total knee arthroplasty (TKA) and the proportion of patients receiving peripheral nerve blockade during 20-yr study period.

Perioperative Nerve Injury After Total Shoulder Arthroplasty Assessment of Risk After Regional Anesthesia

Hans P. Sviggum, MD,* Adam K. Jacob, MD,* Carlos B. Mantilla, MD, PhD,* Darrell R. Schroeder, MS,† John W. Sperling, MD,‡ and James R. Hebl, MD*

Results: A total of 1569 patients underwent elective TSA during the study period; 35 cases met criteria for PNI. The overall incidence of PNI was 2.2% (95% CI, 1.6%–3.1%). Use of ISB was associated with reduced odds for PNI (odds ratio [OR], 0.47; 95% CI, 0.24–0.93; $P = 0.031$). Sex (OR, 0.85; $P = 0.645$) and operative time (OR, 1.07 per 30-minute increase; $P = 0.263$) were not associated with PNI. Most patients with PNI (97%) experienced complete or partial neurologic recovery at last documentation.



From: Perioperative Nerve Injury after Total Hip Arthroplasty/Regional Anesthesia Risk during a 20-year Cohort Study
Anesthesiology. 2011;115(6):1172-1178. doi:10.1097/ALN.0b013e3182326c20

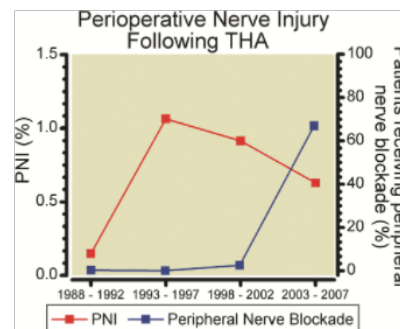
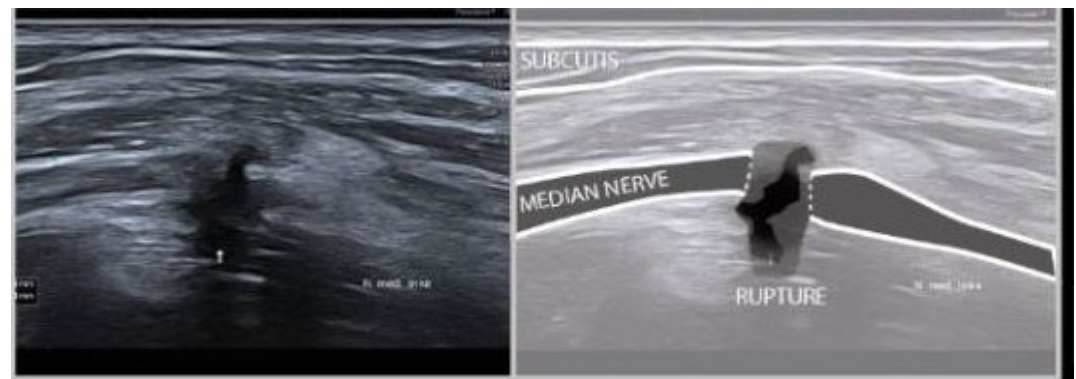
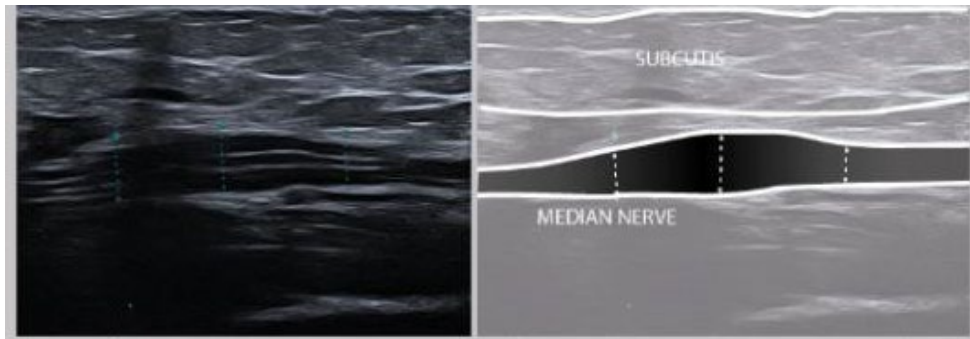
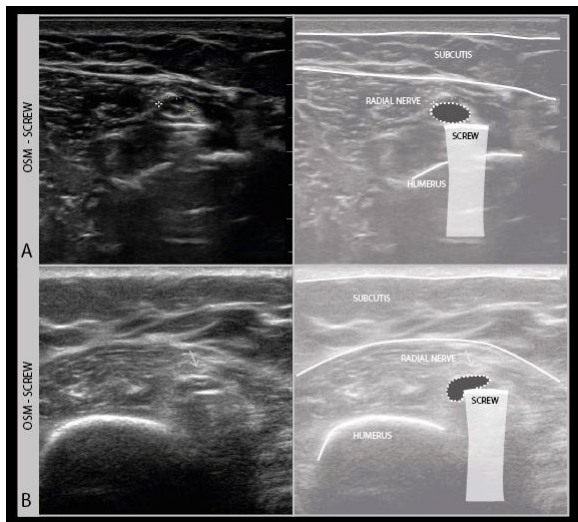


Fig. 1. The incidence of perioperative nerve injury (PNI) after total hip arthroplasty (THA) and the proportion of patients receiving peripheral nerve blockade during the 20-yr cohort study.

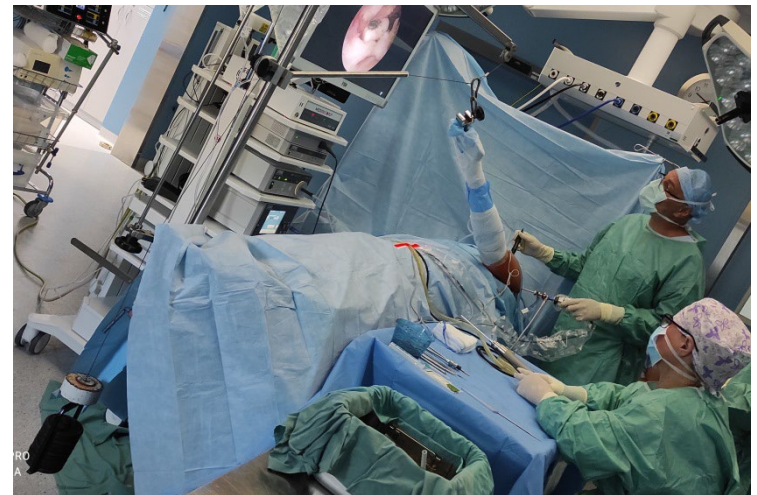
Pacient s PNI- co dělat časně?

- Klinické vyšetření, odebrání anamnezy z průběhu blokády a ultrazvukové vyšetření
- **Bohužel praxe je jiná**



ASK stabilizace ramenního kloubu

- 17 letý ragbista, ISB
dlouho před CA , 8 ml
0,5% bupivacaine, po 60
minutách blokáda C5-6,
zbytek BP bez motorické
blokády
- 2H operace v CA v
laterální pozici
- Po operaci kompletní
plegie BP trvající 18 h ???
- **Teorie dvojího inzultu???**



Korekce přednoží

- Popliteální blok+ sedace+turniket na bérec
- Žena 55 let, HT, DM II
- Žena 61 let, AB
- Paréza n. peroneus
- Obě úprava po 6 M
- **Teorie dvojího inzultu???**



Complications After Popliteal Block for Foot and Ankle Surgery

Foot & Ankle International
1–6
© The Author(s) 2015
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1071100715589741
fai.sagepub.com

John G. Anderson, MD¹, Donald R. Bohay, MD¹, John D. Maskill, MD¹,
Kuldeep P. Gadkari, MS, MBBS², Thomas M. Hearty, MD¹,
William Braaksma, MD², Michelle A. Padley, BS¹, and Kevin T. Weaver, BS³

Abstract

Background: A popliteal nerve block is a common analgesic procedure for patients undergoing surgery on their knee, foot, or ankle. This procedure carries less risk in a surgical setting compared with other forms of anesthesia such as a spinal block. Previous reports demonstrated few to no complications with the use of this nerve block, but it is unclear whether these data are consistent with the recent increase in use of this analgesic procedure for lower extremity surgery.

Methods: Retrospectively, a busy orthopedic foot and ankle practice performed a chart review examining for postoperative neuropathic complications possibly related to the popliteal nerve block. The 1014 patients who had undergone a popliteal block for foot and/or ankle orthopedic surgery were analyzed for short and long-term neuropathic complications. The collected data consisted of tourniquet time, pressure, and location as well as the method of finding the fossa nerve, adjuncts used, and patient medical history. Data were analyzed using chi-square, Fisher's exact, and t tests for analysis with a significance value of $P < .05$.

Result: Of these 1014 patients, 52 patients (5%) developed deleterious symptoms likely resulting from their popliteal block, and 7 (0.7%) of these were unresolved after their last follow-up. No immediately apparent underlying causes were determined for these complications.

Conclusion: The frequency of a neuropathic complication following a popliteal nerve block was notably higher in the early postoperative period than indicated in the past. The proportion of patients with unresolved neuropathic symptoms at last follow-up is comparable to that previously reported in the literature.

Level of Evidence: Level IV, retrospective case series.

Open Access Original
Article

DOI: 10.7758/ajco.9434

Regional Nerve Block Complication Analysis Following Peripheral Nerve Block During Foot and Ankle Surgical Procedures

Jason A. Lauf¹, Pearson Huggins¹, Joseph Long², Mohammed AL-Isa¹, Brian Byrne³, Bryan P. Large⁴, Brent Whitehead¹, Nicholas A. Cheney⁵, Timothy D. Law Sr.⁶

¹ Orthopedic Surgery, Ohio University Heritage College of Osteopathic Medicine, Dublin, USA ² Medicine, Ohio State University College of Medicine, Columbus, USA ³ Emergency Medicine, Mercy St. Elizabeth Broadman Hospital, Youngstown, USA ⁴ Anesthesiology, OhioHealth Doctors Hospital, Columbus, USA ⁵ Foot and Ankle Surgery, OrthoNeuro, Columbus, USA ⁶ Family Medicine, Ohio University Heritage College of Osteopathic Medicine, Athens, USA

Corresponding author: Jason A. Lauf, J068617@ohio.edu

Abstract

Background

Foot and ankle surgeries are frequently accompanied by a peripheral nerve block in order to reduce postoperative pain. Higher than expected complication rates with peripheral nerve blocks have led to increased concern among surgeons and patients. To our knowledge, no study conducted by the treating surgeon has identified risk factors that may predispose a patient to complications. Our goal was to attempt to identify those risk factors.

Methods

We reviewed patient charts of those who underwent an orthopedic foot and ankle procedure between 2015 and 2018, as performed by the senior author. This yielded 992 procedures performed across four surgical locations. Of these procedures, 137 procedures were removed because no block was used. The remaining cases were analyzed for nerve complications, defined as sensory or motor deficits along the distribution of a nerve. The patients were divided into those with and without complications and were evaluated for differences. Statistical analysis was performed using the SAS[®] software (SAS Institute Inc., Cary, North Carolina, USA).

Results

The overall short-term complication rate was 10.1% and the long-term complication rate was 4.3%, with a total of 855 blocks given. Electromyographies (EMGs) were performed on 24.4% of the patients with a complication. Of the EMGs, 95.2% confirmed nerve complications in the distribution of the blocked nerve. The significant factors associated with complications were age, BMI, location, and smoking status. A regression analysis was performed to determine the odds ratio for individual factors. Those with significantly higher odds ratio were between 40 and 65 years of age, had normal or underweight BMI, underwent surgery at an outpatient surgery center, and were current smokers.

Conclusions

Our study suggests that there are significant epidemiological factors in predicting postoperative complications related to a peripheral nerve block. The study also shows a similar short-term complication rate but a higher long-term complication rate than other studies. This data are important because it allows for an informed decision to be made between a surgeon,

HSSJ (2018) 14:134–142
DOI 10.1007/s11420-017-9588-y

HSS Journal[®]  CrossMark

ORIGINAL ARTICLE

The Incidence of Complications Is Low Following Foot and Ankle Surgery for Which Peripheral Nerve Blocks Are Used for Postoperative Pain Management

Richard L. Kahn, MD · Scott J. Ellis, MD · Jennifer Cheng, PhD · Jodie Curren, MPA, BSN · Kara G. Fields, MS · Matthew M. Roberts, MD · Jacques T. YaDeau, MD, PhD

Abstract *Background:* The incidence of neurologic complications from foot and ankle surgery utilizing regional anesthesia is not well established. *Questions/Purposes:* The purpose of this study was to prospectively determine the incidence of neurologic and peripheral nerve block (PNB) site complications on a busy foot and ankle service that utilizes ankle blocks (ABs) and popliteal blocks (POPs). *Patients and Methods:* This prospective observational study included patients undergoing foot and ankle surgery with ABs or POPs. Block choice was determined by surgeon's preference. Patients were assessed for complications during postoperative visits at 2, 6, and 12 weeks. The relation of each complication to the block was scored by a surgeon and anesthesiologist. *Results:* From October 2012 to October 2014, 2516 patients underwent 2704 surgeries. There were 195 complications (7.2%) considered neurologic or at the PNB site. The incidence of serious complications was 0.7%. A higher complication rate was reported for POPs (8.8%)

than for ABs (2.5%). However, when analysis was limited to forefoot surgery, this difference was not significant. Dexamethasone use was associated with increased complications for POPs. Only 5 of the 195 total complications, and 2 of 20 serious complications, were deemed to have been likely caused by the block by both the surgeon and anesthesiologist reviewer. *Conclusions:* The incidences of neurologic or block-related complications and serious complications were 7.2 and 0.7%, respectively, most without a clear surgical vs. nerve block etiology. The higher complication rate for POPs using perineural dexamethasone should be interpreted cautiously in light of the lack of randomization and likely confounders.

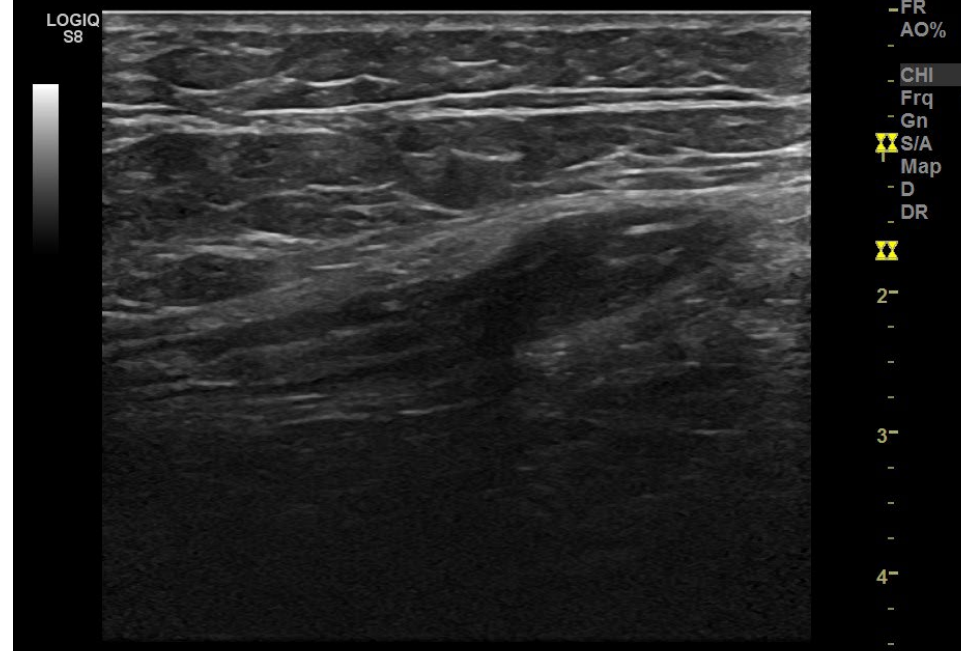
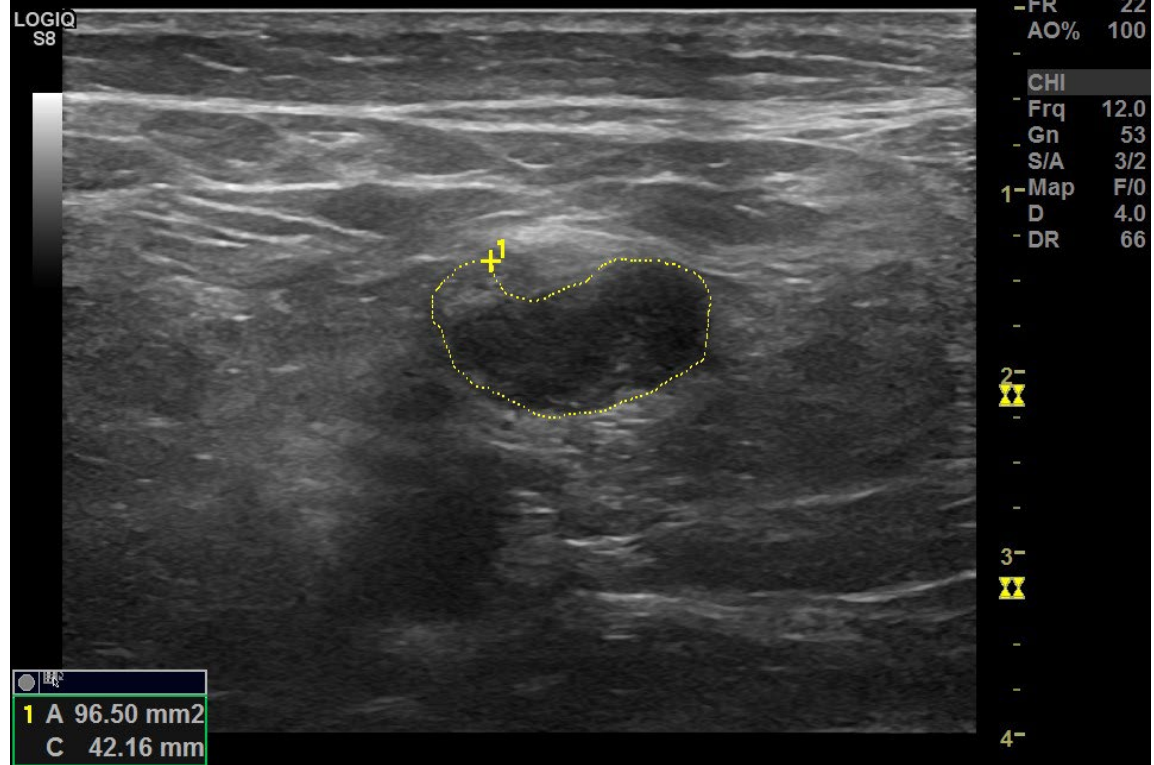
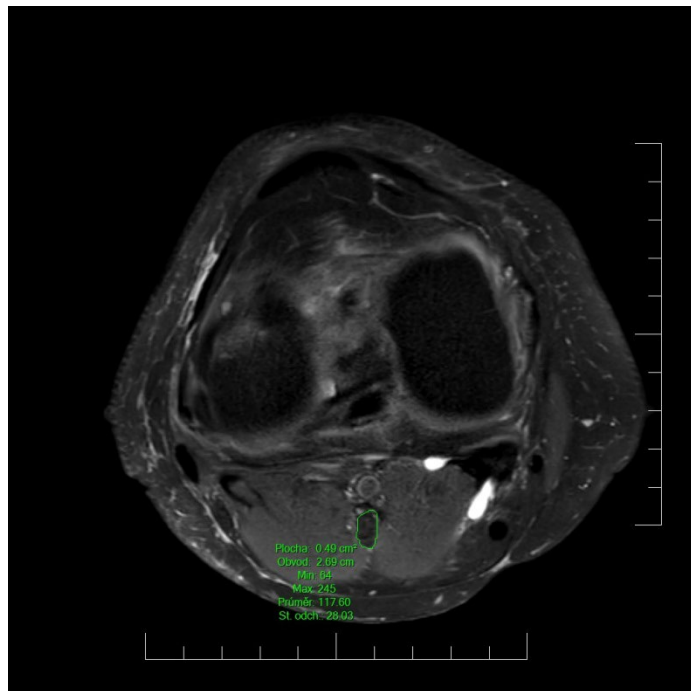
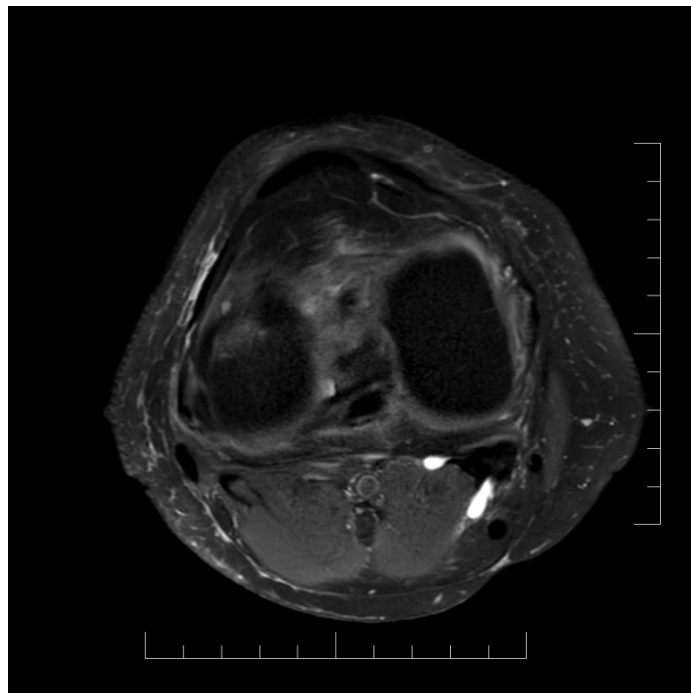
Keywords regional anesthesia · complications · peripheral nerve block · foot and ankle surgery · ankle block · popliteal block · neurologic complications

Náhrada ACL + revize Bakerovy cisty

- Muž , 54 let
- CA +blok n .femoralis + n. tibialis
- Hned po operaci patrná těžká paréza n. tibialis přisuzovaná RA a při jejím přetrvávání jako komplikace RA
- EMG po 6 měsících pouze minimální reinervace

Neurolog s odstupem

- Sonografie nervus tibialis svědčí pro poškození nervus tibialis vpravo a to těžkého stupně. Nervus peroneus communis odstupuje nepoškozen 10 cm od popliteální rýhy (horizontální rýha ve fossa poplitea při pohledu z dorsální strany na koleno ve stoji), 8 cm nad popliteální rýhou začíná poškození nervu, makroskopické maximum poškození nervu je cca 5 cm nad popliteální rýhou a poškození nervu přibližně končí 2 cm pod popliteální rýhou. V oblasti poškození nervu je patrné několik cyst intraneurálně, je patrná změna architektury nervu (prestavba a změna fascikulů, fascikuly nejsou sledovatelné přes poškození nervu) a nerv je zvětšen na 117 mm² (area nervu) z původních cca 50 mm² (srovnáno s druhou stranou).
- Doporučena chirurgická rekonstrukce



Synovial cyst of the knee: A rare case of acute sciatic neuropathy

ARTICLE INFO

Case Report Journal of Orthopaedic Case Reports 2023 January;13(1):Page 46-49

A Giant Atypical Baker's Cyst Causing Compressive Neuropathy of Combined Peroneal and Tibial Nerves - A Case Report

Surya Teja Malasani¹, Gadhamsetty Sai Ganesh², Arvindam Grandhi³

Learning Point of the Article:

The awareness of Baker's cyst causing rare consequences like combined tibial and peroneal nerve compression neuropathy along with a judicious strategy results in early diagnosis and prudent treatment, thereby preventing permanent impairment.

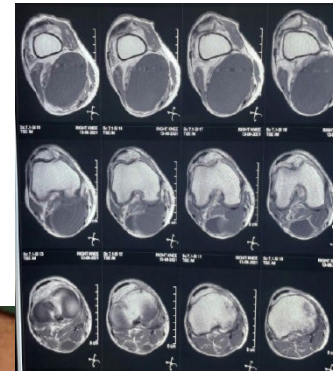
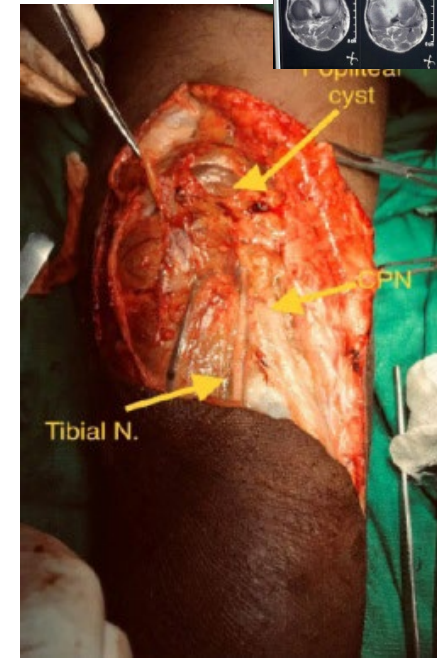
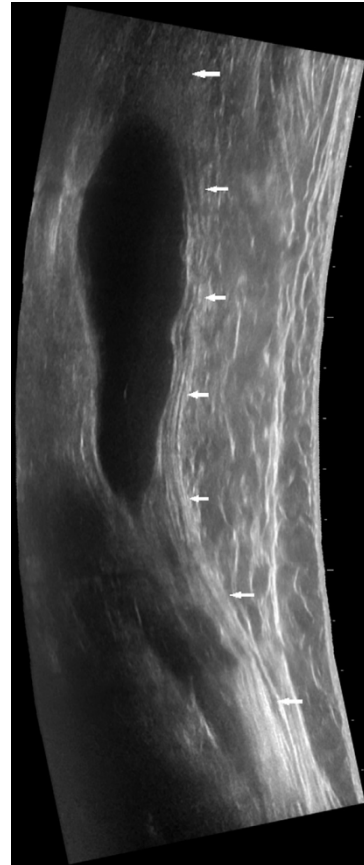
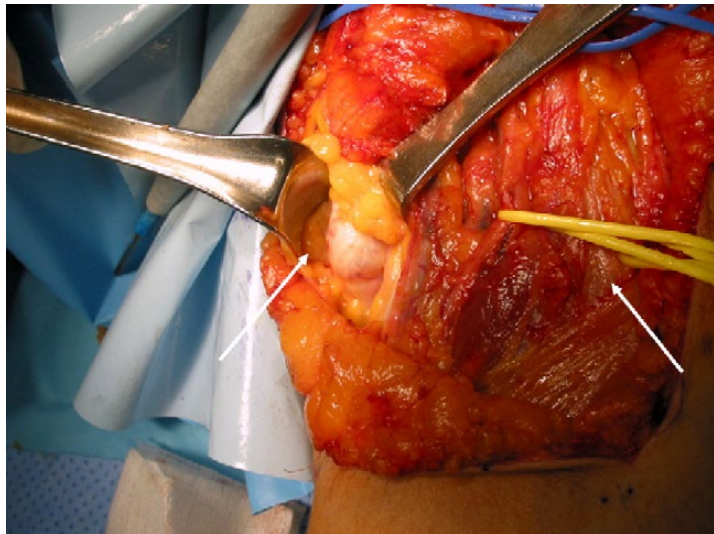
Abstract

Introduction: Popliteal cysts (Baker cysts) causing compressive neuropathy of combined tibial and common peroneal nerves is an exceptional entity. Especially, an isolated multi-septate unruptured cyst (usually posteromedially) dissecting posterolaterally, thereby causing compression of multiple components of the popliteal neurovascular bundle as seen in this case report is unique in clinical field and in the literature. Awareness and early diagnosis of such cases along with a prudent technique will preclude permanent impairment.

Case Report: A 60-year-old man with a 5-year history of a symptomless popliteal mass in his right knee was hospitalized with aberrant gait and walking difficulty that had deteriorated during a 2-month period. The patient reported hypoesthesia across the sensory innervations of tibial and common peroneal nerves. Clinical examination indicated a prominent painless and unfixated cystic, fluctuant swelling extending around 10 x 7 cm in the popliteal fossa encroaching into the thigh. Motor examination showed decrease in the power of ankle dorsiflexion, plantar flexion as well as inversion and eversion of the foot resulted in progressive difficulty in walking with high stepping gait. The action potential amplitudes of the right peroneal and tibial compound muscles were dramatically decreased with a drop in motor conduction velocities and a prolonging of the F-response latencies, according to nerve conduction studies. Magnetic resonance imaging of the knee showed a multi-septate popliteal cyst measuring 13.8*6.5*6.8 cm along the medial head of gastrocnemius, and the T2-weighted sagittal and axial sections revealed the cyst connecting with the right knee. He was planned and undergone open cyst excision with decompression of the peroneal and tibial nerves.

Conclusion: This exceptional case establishes that Baker's cyst very rarely can cause compressive neuropathy vandalizing both the common peroneal and tibial nerves. Excision of the cyst by open technique along with neurolysis may be a more judicious and successful strategy for resolving symptoms quickly as well as to prevent permanent impairment.

Keywords: Baker cysts, compressive neuropathy, tibial and peroneal nerves, open cyst excision.



Short communication

Compressive neuropathy of the tibial nerve and peroneal nerve by a Baker's cyst: Case report

Jong-Hun Ji, Mohamed Shafi*, Weon-Yoo Kim, Se Hun Park, Jang Ok Cheon

Department of Orthopaedic Surgery, Daejeon St. Mary's Hospital, The Catholic University of Korea, Daejeon, Korea, 502-2, Daehung-Dong, Joong-Ku, Daejeon 302-803, South Korea

Received 31 October 2006; received in revised form 18 December 2006; accepted 9 January 2007

Intraneural ganglion cysts: A predictable method to their madness



Dear Editor,

In a recent article in the journal, Roger et al. describe a rare case of a tibial intraneural ganglion cyst arising from the tibiofemoral joint, rare both for the nerve and its joint of origin [1]. A recent meta-analysis revealed only 5 cases of this combination of nerve and origin, including a historic case dating back 100 years. In 2 of these cases, which were ours, the joint connection to the tibiofemoral joint was not recognized until we performed a secondary re-interpretation of the imaging studies [2]. Analysis of the case, which Roger et al. present, clarifies the connection and supports previous observations for other intraneural ganglion cysts and the unifying articular theory.

ARTICLE INFO

Keywords:
 Tibial nerve
 Sciatic nerve
 Ganglion cyst
 Tibiofemoral joint
 Articular branch

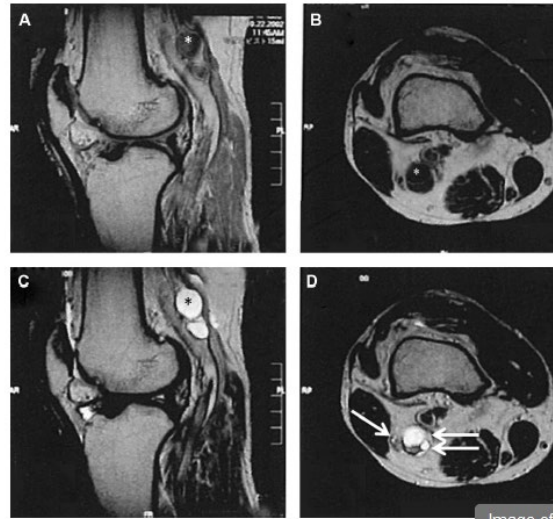


Image of Fig. 1

Fig. 1. MRI reproduced and annotated from a case of a tibial intraneural ganglion cyst arising from the tibiofemoral joint from Higuchi et al. [3]. Coronal T1-weighted (A), axial T1-weighted (B), and coronal T2-weighted (C) MRI images of the cyst (asterisk) within the tibial nerve. Axial T2-weighted image (D) showing the “wedding ring” sign (double arrow) with circumferential cyst present in the tibial nerve. A small cyst is present within the common peroneal nerve (arrow), consistent with crossover in the sciatic nerve and subsequent descent.

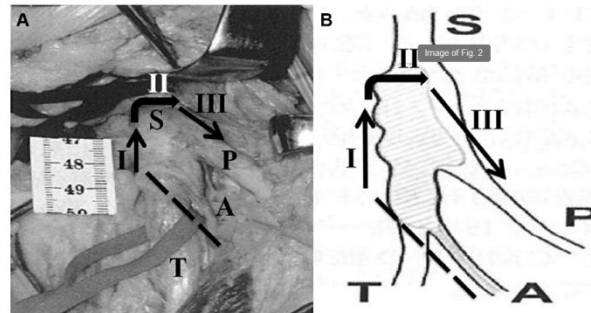


Image of Fig. 2

Fig. 2. Intraoperative photograph and schematic reproduced from Higuchi et al. [3] with annotation. A. Intraoperative photograph showing the cyst within the tibial nerve articular branch (A) to the tibiofemoral joint. The tibial nerve (T), sciatic nerve (S), and proximal common peroneal nerve (P) all appear to be cystic. The phasic mechanism involves a capsular defect in the tibiofemoral joint, which allows synovial fluid into the articular branch with primary ascent of the synovial fluid up the articular branch and into the tibial nerve (I), followed by cross-over within the sciatic nerve (II), and finally descent of the fluid down the common peroneal nerve (III). B. Schematic representation of the findings in the intraoperative photograph in A.

Bakerská cysta

- Již před operací pacient popisuje bolesti vystřelující do šlapky chodidla
- Operační protokol: „Pod kontrolou hmatu proniknuto do Baker. cysty v podkolení, odsátí , shaverem rozšíření jejího vstupu“



Adductor Canal Block Provides Noninferior Analgesia and Superior Quadriceps Strength Compared with Femoral Nerve Block in Anterior Cruciate Ligament Reconstruction

Faraj W. Abdallah, M.D., Daniel B. Whelan, M.D., F.R.C.S.C., Vincent W. Chan, M.D., F.R.C.P.C., Govindarajulu A. Prasad, M.D., F.R.C.P.C., Ryan V. Endersby, M.D., F.R.C.P.C., John Theodoropolous, M.D., F.R.C.S.C., Stephanie Oldfield, B.S., Justin Oh, B.A., Richard Brull, M.D., F.R.C.P.C.

ABSTRACT

Background: By targeting the distal branches of the femoral nerve in the mid-thigh, the adductor canal block (ACB) can preserve quadriceps muscle strength while providing analgesia similar to a conventional femoral nerve block (FNB) for inpatients undergoing major knee surgery. In this randomized, double-blind, noninferiority trial, the authors hypothesized that ACB provides postoperative analgesia that is at least as good as FNB while preserving quadriceps strength after outpatient anterior cruciate ligament reconstruction.

Methods: A total of 100 patients were randomized to receive ACB or FNB with 20 ml ropivacaine 0.5% (with epinephrine). The authors sequentially tested the joint hypothesis that ACB is noninferior to FNB for cumulative oral morphine equivalent consumption and area under the curve for pain scores during the first 24 h postoperatively and also superior to FNB for post-block quadriceps maximal voluntary isometric contraction.

Results: The authors analyzed 52 and 48 patients who received ACB and FNB, respectively. Compared with preset noninferiority margins, the ACB–FNB difference (95% CI) in morphine consumption and area under the curve for pain scores were -4.8 mg (-12.3 to 2.7) ($P = 0.03$) and -71 mm h (-148 to 6) ($P < 0.00001$), respectively, indicating noninferiority of ACB for both outcomes. The maximal voluntary isometric contraction for ACB and FNB at 45 min were 26.6 pound-force (24.7 – 28.6) and 10.6 pound-force (8.3 – 13.0) ($P < 0.00001$), respectively, indicating superiority of ACB.

Conclusion: Compared with FNB, the study findings suggest that ACB preserves quadriceps strength and provides non-inferior postoperative analgesia for outpatients undergoing anterior cruciate ligament reconstruction. ([ANESTHESIOLOGY 2016; 124:1053-64](#))


Medicine

Systematic Review and Meta-Analysis

OPEN

Comparison of adductor canal block and femoral nerve block for pain management in anterior cruciate ligament reconstruction

A meta-analysis of randomized controlled trials

Xiao Yin, MM, Xingyue Li, MD, Peng Zhao, MD* 

Abstract

Objective: To compare the efficacy of adductor canal block and femoral nerve block for pain management in patients with anterior cruciate ligament reconstruction.

Methods: A computerized search was performed in the database of PubMed, Embase, Web of Science and Cochrane Library for randomized controlled trials. The outcome measures included visual analog scale, morphine consumption, quadriceps strength, length of hospitalization and postoperative adverse events. The risk of bias of randomized controlled trials was assessed according to the Cochrane Risk of Bias Tool. All quantitative syntheses were completed using STATA version 14.

Results: Seven randomized controlled trials involving a total of 643 patients were included in our meta-analysis. The present meta-analysis indicated that there were no significant differences between the 2 groups in terms of postoperative pain score, opioid consumption, length of hospitalization or adverse effects after anterior cruciate ligament reconstruction. However, adductor canal block showed superior quadriceps strength and range of motion in the early postoperative period.

Conclusion: Adductor canal block shows similar and adequate analgesia compared to the femoral nerve block in anterior cruciate ligament reconstruction and adductor canal block can preserve a higher quadriceps strength and better range of motion.

Abbreviations: ACB = adductor canal block, ACL = anterior cruciate ligament, FNB = femoral nerve block, RCT = randomized controlled trial.

Keywords: adductor canal block, anterior cruciate ligament reconstruction, femoral nerve block, meta-analysis

THA

- Muž 55 let, sportovec , bez dokumentované neuropatie
- SA+ FICB 40 ml 0,25% bupi
- Paréza n. femoralis 5 dní
- Anamnesticky během kontroly zjištěna zvýšená citlivost k LA - SA 8 hodin, zubař 2 dny

Závěrem

- Kauzalitu vzniku PNI zpravidla nejde jednoznačně určit
- Časné vyšetření pacienta s neurologickým deficitem k odstranění reverzibilních příčin
- Znalost rizikových faktorů PNI (pacientských, chirurgických i anesteziologických) a zvážení rizika a benefitu RA
- Minimalizovat rozsah bokády a posunout ji do periferie

