Autonomous Zone of Sciatic Nerve for Foot & Ankle Surgeon under Ultrasound-guided Sciatic Nerve Block

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Sciatic Autonomous Zone
for Foot and Ankle Surgery
under Ultrasound-guided Sciatic Nerve Block

Chan Kang

My disclosure is in the
Final AOFAS Program Book.
I have no potential conflicts with
this presentation.
Purpose

• What kind of surgery is operable only under sciatic nerve block safely?

  – Individual variation of sciatic dermatome?

  – Consistency & reliability of anesthetic area?

Where is Autonomous Zone of Sciatic Nerve?
Materials

- From June 2010 to May 2011
- 70 cases (69 patients)
  - Single surgeon
    - Ultrasound guided- sciatic nerve block (USG-SNB)
    - Surgery
  - M: F = 38 : 31 cases
- Average age : 50 yrs. old (16~78)
Materials

- 70 cases (69 patients)

- Surgery type
  - ORIF with plate for lateral malleolar fracture: 3 cases
  - Metal removal of lateral malleolar plating: 3 cases
  - Modified Brostrom for CLAI: 2 cases
  - Calcaneal metal removal: 6 cases
  - Metal removal of metatarsal union: 8 cases
  - Distal Chevron osteotomy for hallux valgus: 5 cases
  - Other lower leg & ankle soft tissue surgery: 8 cases
  - Other hind / mid / fore foot operation: 3 / 9 / 23 cases
Methods

• Anesthetics
  – 1:1 mixture (1% lidocaine and 0.75 ropivacaine)
  – Mean volume: 20ml (15~25)

• Procedure of USG-SNB

• Checking anesthetic area
  – Ice cube test & pinprick test
    • 1 inch interval check with ice → Marking anesthetic borderline
      → Pinprick test with forceps around anesthetic borderline
      → Connect each marked point
      → Confirm an individual anesthetic zone
Methods

• Checking anesthetic area

• Sciatic autonomous zone
  – Intersection region of an individual anesthetic zone in all cases
Results

Sciatic autonomous zone

1. Proximal 1cm from medial 1st MT-cuneiform jt.
2. Lateral border of TA tendon at ankle
3. Lateral 1cm of ant. tibial crest at prox. 10cm from ankle
4. Distal 10cm from fibular head
5. Medial border of Achilles tendon at prox. 10cm from ankle
6. Anterior 1cm of medial boder of Achilles tendon at ankle
7. Origin of abductor hallucis
Results

Sciatic autonomous zone
Conclusion

• All kind of foot & ankle surgery included in sciatic autonomous zone can performed under only USG-SNB

• Safe and useful anesthetic method to foot & ankle surgeon
  – No anxiety of failure or other complication
  – Long anesthetic & analgesic effect