Podiatric Perspectives on Nail Surgery

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Common In Office Podiatric Conditions treated

- Paronychia/Onychocryptosis
- Trauma
- Disappearing Nail Bed
- Pincer Nails
- Retronymchia
- Biopsy for suspicious pigmented lesion
To consider...

- If a nail trauma or long standing paronychia, get radiographs to rule out osteomyelitis
- Pedal pulses
- HbA1c
- If neuropathic, may be done without local anesthesia
- Pediatric patients
- Granulation tissue that recurs after nail procedure, biopsy
18 yo pt with community Acquired MRSA and osteo vs a typical 15 yo patient
Anesthesia

- Local Metatarsal Block
  - 5 cc of lidocaine 1% plain
  - 3 stick or 4 stick technique
- External Vibratory Device (Buzzy®, MMJ Labs)
- Ethyl chloride
Patients who have difficulty to maintain local anesthesia?

- “resistance” to certain local anesthetics
- Pts were injected with test wheals of lidocaine, bupivicaine, and mepivicaine, area then scratched with a corner of an alcohol swab packet.
- Patients did not have reaction to lidocaine, mepivicaine, or all three, but most were hypoesthetic to mepivicaine

Khunger N, Kandhari R. Ingrown toenails. Indian J Dermatol Venereol Leprol 2012;78:279-89
Equipment for Partial Nail Avulsion

- English Anvil (English Nail Splitter)
- Hemostat
- Thin metal curette
- If a chemical matrixectomy: Phenol EZ swabs® (Pedinol), alcohol for irrigation, and tapered mini cotton tipped applicators (sterile)
- Ointment of choice, DSD, 1 inch coban
Total Nail Avulsion

- “Bottle cap” procedure
- Freer Elevator
- Nail Splitter
- Ointment, DSD, 1 inch coban
Post operative

- On their first dressing change, I have them use neomycin/polymyxin b/hydrocortisone otic drops (2 gtt daily), followed by antibiotic ointment, simple dressing
- Activity as tolerated
- I don’t have them “soak” their toe
- Follow up in 2 weeks
- Oral Abx?

Disappearing Nail Bed

• Coined in 2005 by Dr Daniel (*CUTIS* 2005;76:325–327)
• A shortened or narrowed nail bed that is the result of long standing onycholysis
  • 20% shorter than the bilateral nail
• Long standing onycholysis can cause epithelialization to occur and dermatoglyphics to appear
• May occur on fingernails (onychophagia) or toenails (hallux most common)
What can cause it?

- Onychomycosis
- Onychogryphosis
- Trauma (blunt force or repetitive)
- Nail Surgery (ie iatrogenic)
- Biomechanics (ie hallux extensus)
- Other disorders that cause nail onycholysis: ie psoriasis, lichen planus, medications

- You do want to rule out subungual exostosis or other boney deformity first

Daniel et al Skin Appendage Disord 2017;3:15–17
Radiographs collimated to great toe, weight bearing!
Wedge excision for disappearing nail bed
Pincer nail

- Aka Trumpet nails
- Cornelius and Shelley in 1968: Result of transverse overcurvature of the nail plate that increases distally along longitudinal axis
- Great toenail
- Enlarged base of distal phalanx
- Traction osteophytes
- Hereditary vs Acquired
- Not the same as an ingrown nail
- Cosmetic and/or Painful

Dermatol Surg 2001; 27: 261-266
Mechanobiology

• Physical forces and changes in cell/tissue mechanics contribute to pathology
• Toenails are subject to constant physical forces
• Hypothesis: nails have an automatic curvature function to adapt to the daily upward forces
• Imbalance: pincer nails
Curvature index

- A = Apparent width of the nail tip
- B = Traced length of nail tip
- B/A = curvature index
- Shows severity before and after surgical intervention
Surgical therapies

- Target the underlying deformity—if not, relapse
- Nail avulsion not recommended
- Targeting the lateral osteophytes on the distal phalanx → DIPJ ligament issue
- Targeting the lateral matrix horns to reduce width of the nail bed via chemical or surgical
- Other methods: dermal grafting, dermal flap
Surgical technique: ZigZag Nail bed flap Method

Arch Plast Surg 2015;42:207-213
Surgical technique: inverted T incision method (modified Haneke’s method)
Retrospective review

- 20 nails with pincer vs control group
- Interphalangeal angles and base widths were measured via radiograph
- Zig-zag flap and Inverted T incision

A, width of the nail root; B, width of the nail tip; C, height of the nail tip. Width index = B/A×100, height index = C/B×100.

Arch Plast Surg 2015;42:207-213
Retrospective review, continued

- Radiographs: osteophytes 14/20 pincer nail group and Interphalangeal angle significantly higher in pincer vs control
- No difference in the indices between zigzag and inverted T, followed 6 months after surgery

Control group  Pincer nail group