

Dermatologic problem of foot and nail

인하대병원 피부과
최광성

Contents

- Callosity
 - Callus
 - Corn
- Nail disease
- Tumor
- Infectious disease
 - Fungal
 - Bacterial
 - Viral wart

피부의 구조

- 표피

각질층과 각질을 만드는 세포, 멜라닌 세포 등으로 구성

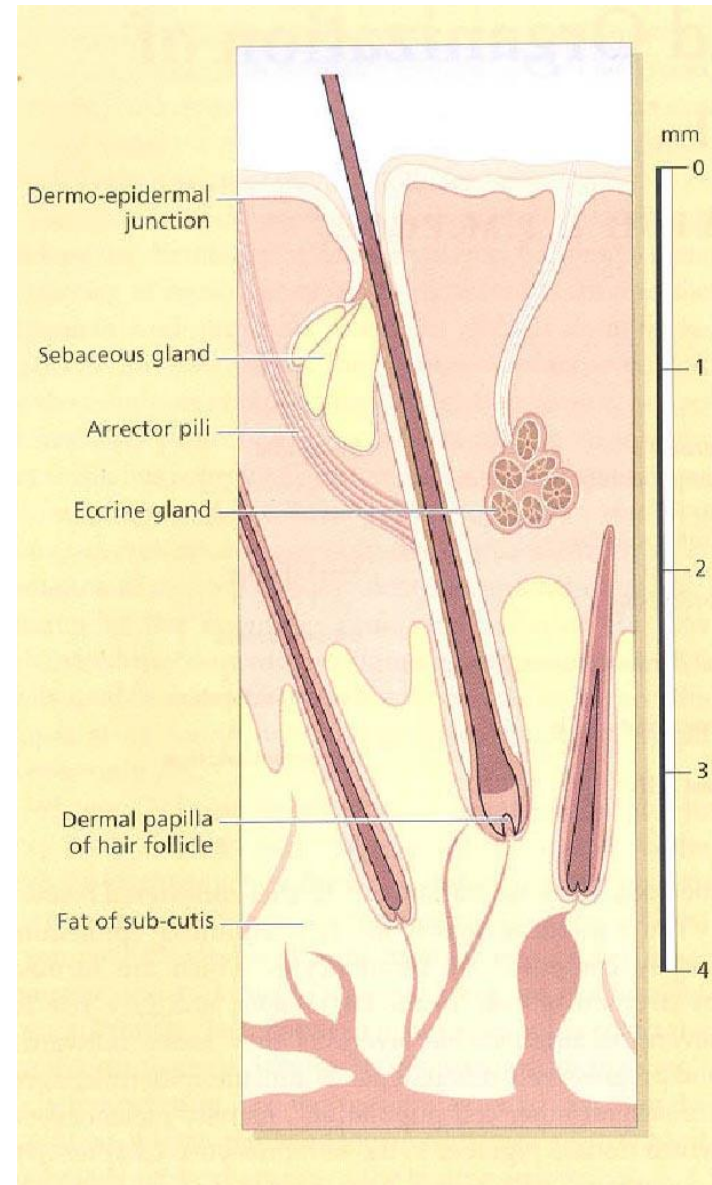
각질층: 0.01-0.02 mm

표피: 0.05-0.1 mm

- 진피 (1-2mm)

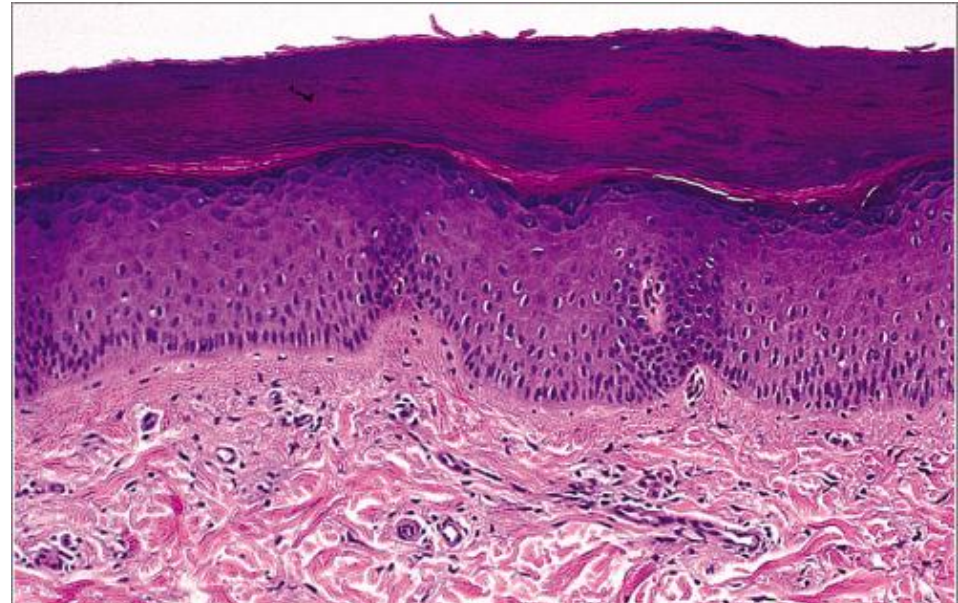
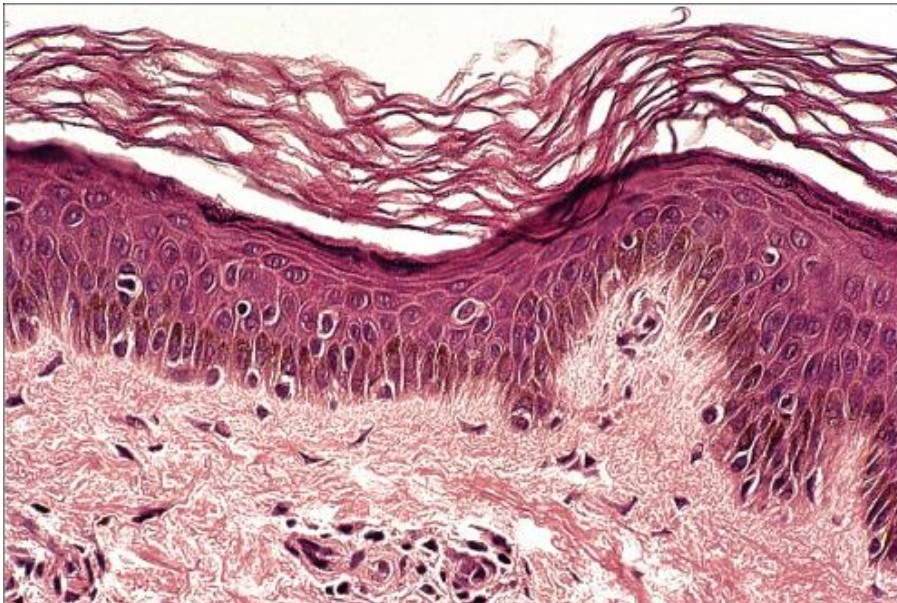
교원섬유, 탄력섬유, 기질

- 피하 지방층(1-2mm)



생존 표피

- 10-20층의 상피세포로 구성
- 각화과정을 주도
- 멜라닌 세포, 랑게르한스세포 포함

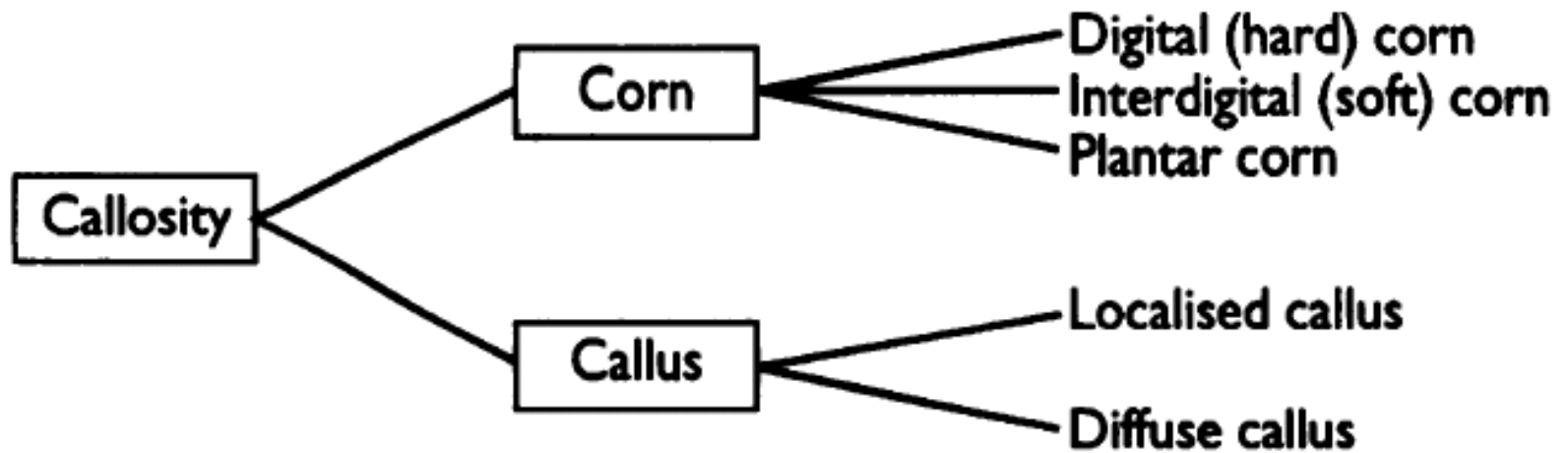


CALLOSITY(굳은살)

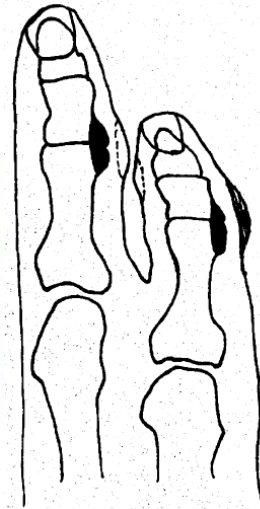
- **Keratinization(각화)**, which maintains the stratum corneum of the skin as a horny protective cover, becomes overactive due to shearing or compressive forces.
 - normal protective response
 - hands of manual labourers
 - the feet of those who walk barefoot
 - pathological only when it is so large as to cause symptoms.



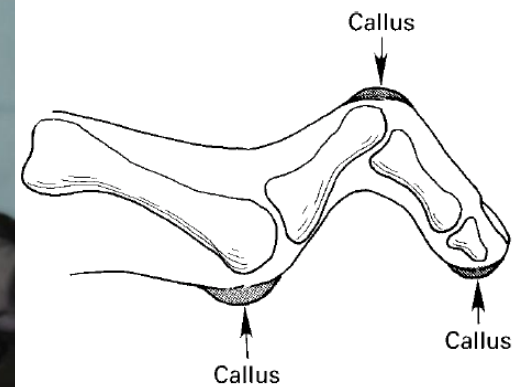




BMJ 1996;312:1403-6



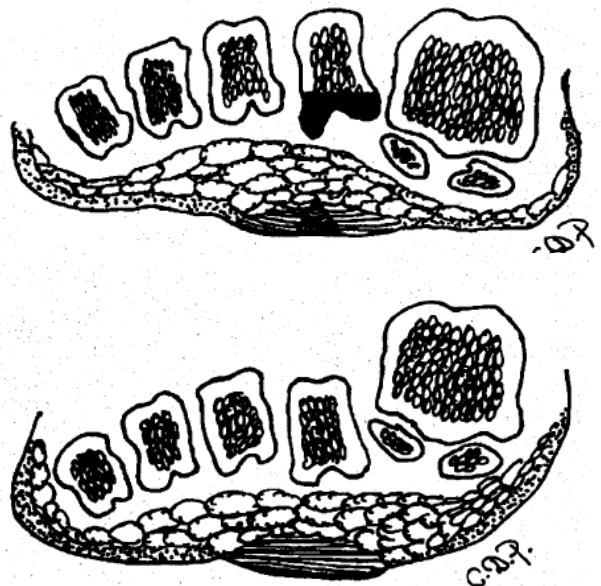
ADAM.



Factors that may lead to development of callosities

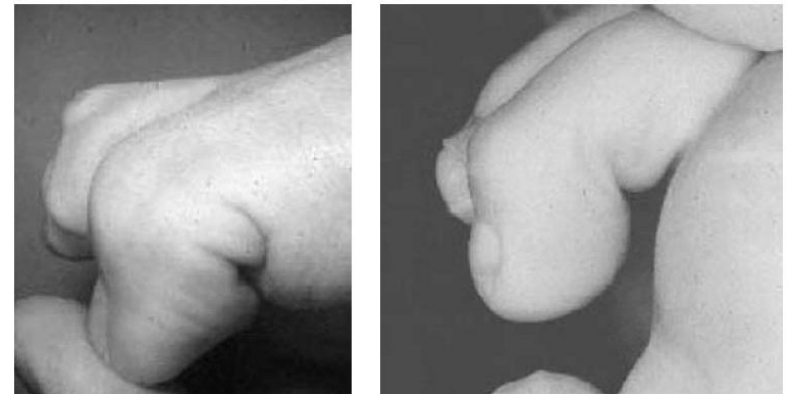
Extrinsic factors

- Poor footwear
 - Tight shoe
 - Irregularities in shoe
 - Open shoes
- Activity level
 - Athletes



Intrinsic factors

- Bony prominences
 - Prominent condylar projection
 - Malunion of a fracture
- Faulty foot mechanics
 - Cavovarus foot
 - Toe deformity (claw, hammer, mallet)
 - Short first metatarsal
 - Hallux rigidus
 - Transfer lesion from osteotomy or removal of adjacent metatarsal head



Corn vs Callus

Corns(터/눈)

- Texture varies from dry, waxy, transparent to a horny mass
- Distinct borders
- Most common on feet
- May be hard or soft
- Usually painful

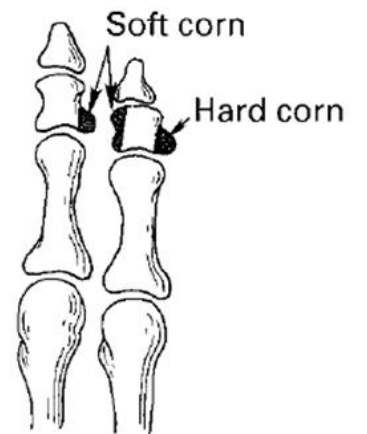


Calluses(굳은살)

- Thickening of skin without distinct borders
- Most commonly on feet and hands over bony spots
- Vary in color from white to gray-yellow, brown, or red
- May be painless or tender
- May throb or burn

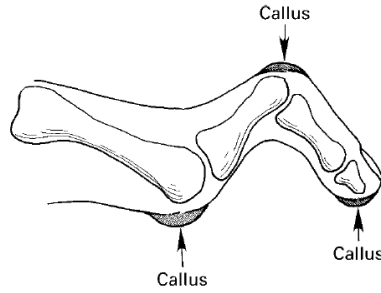


Corn



■ Resected area

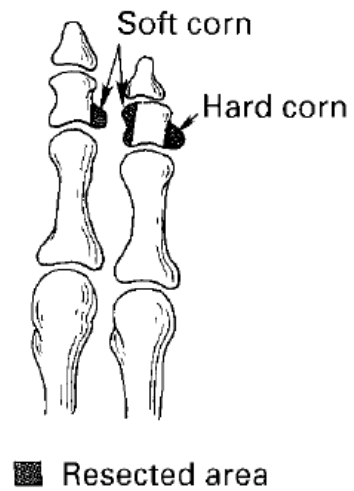
Callus



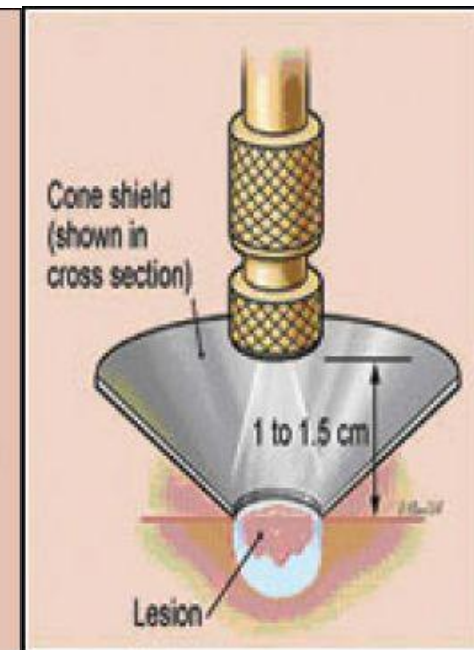
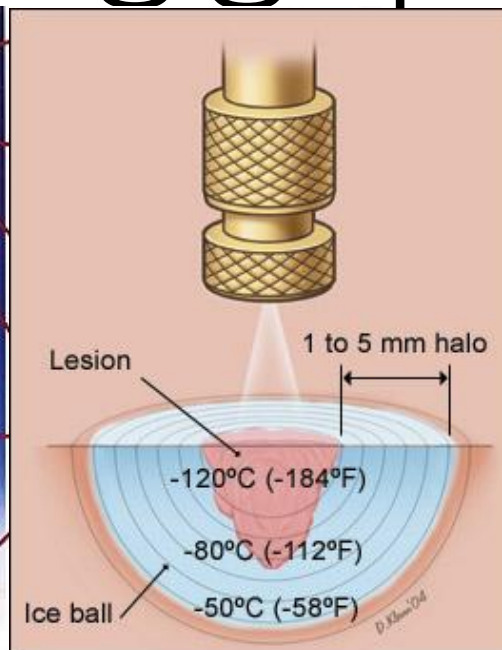
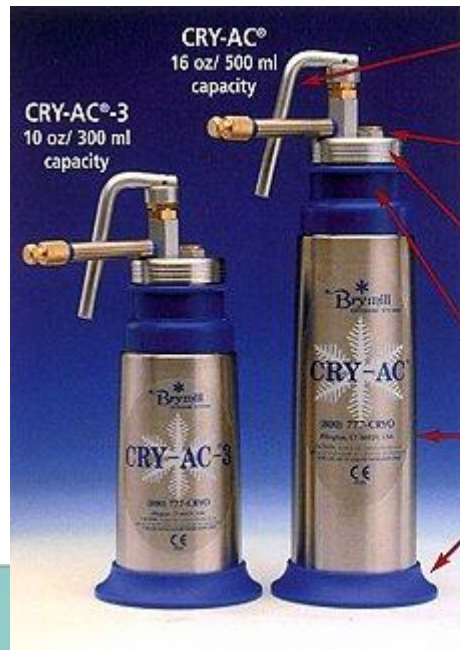
Treatment

- Callosities are [signs of increased mechanical stress](#) rather than an actual disease.
- The principles of treatment
 - provide [symptomatic relief](#)
 - determine the [mechanical etiology](#)
 - formulate a [conservative](#) management plan by advising on footwear and prescribing [orthoses](#)
 - consider [surgery](#) if conservative measures fail

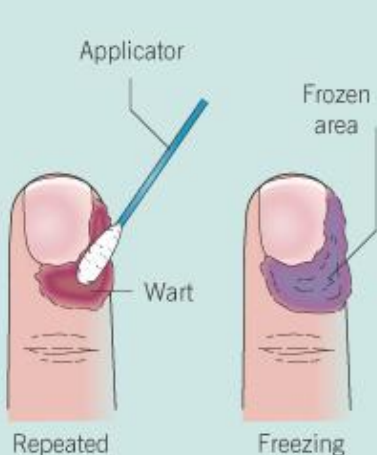
Soft Corn



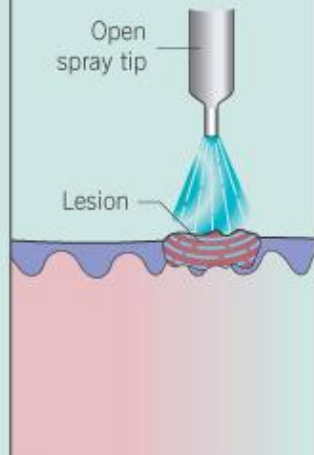
냉동치료



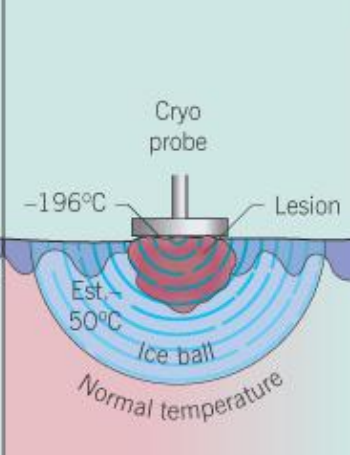
Cotton-tipped applicator method



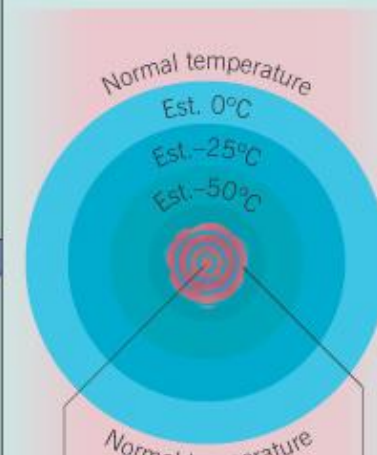
Superficial freezing



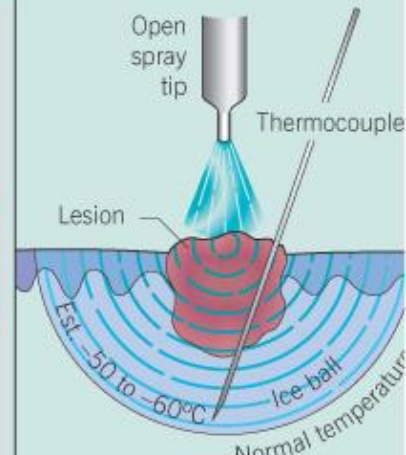
Cryoprobe method



Surface extension of the ice ball



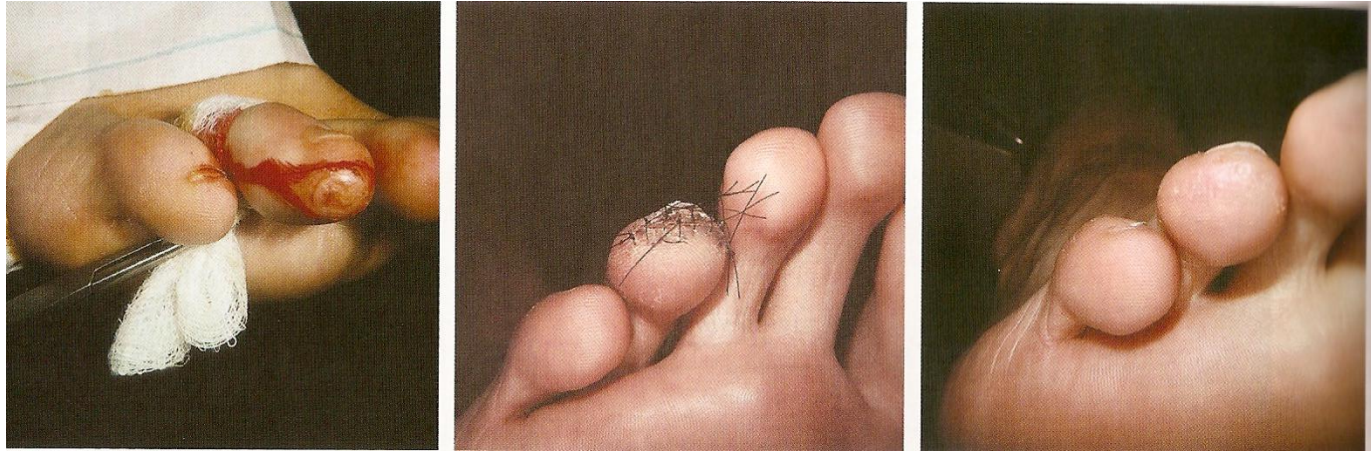
Aggressive freezing



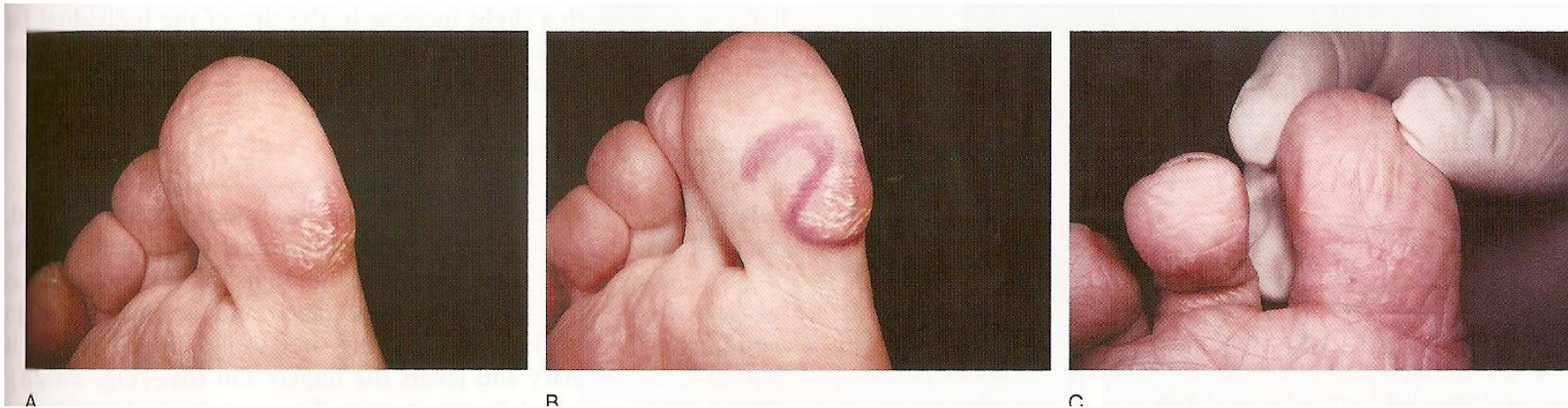




Excision by scalpel surgery

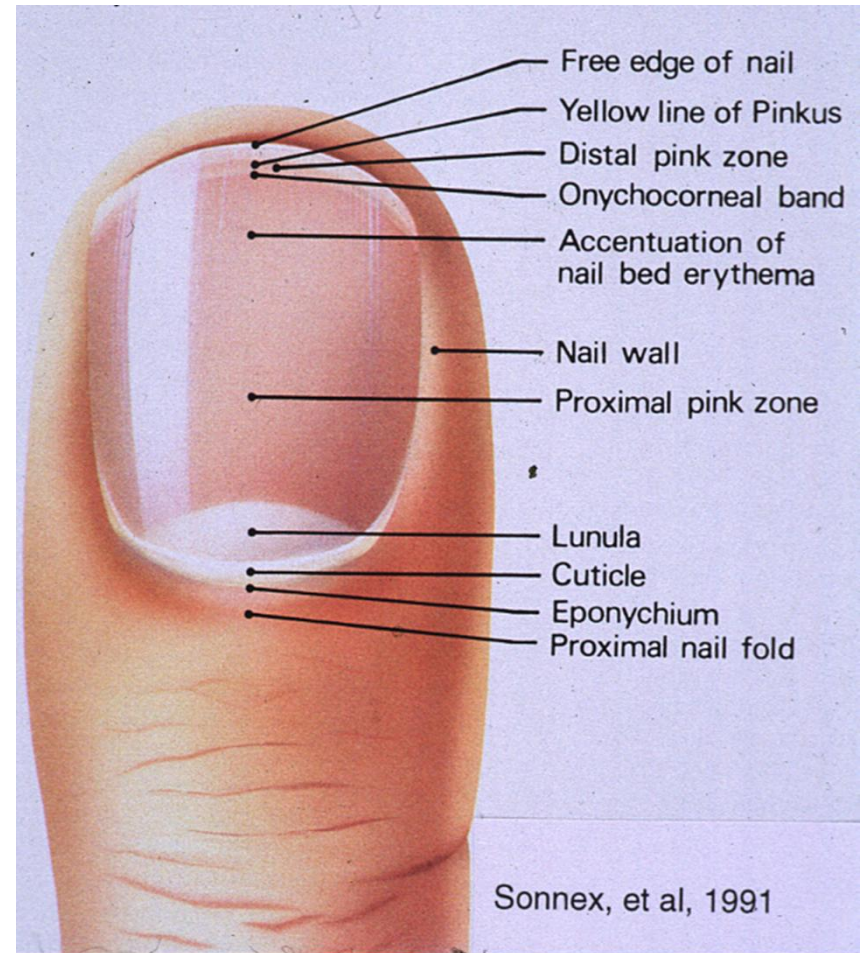
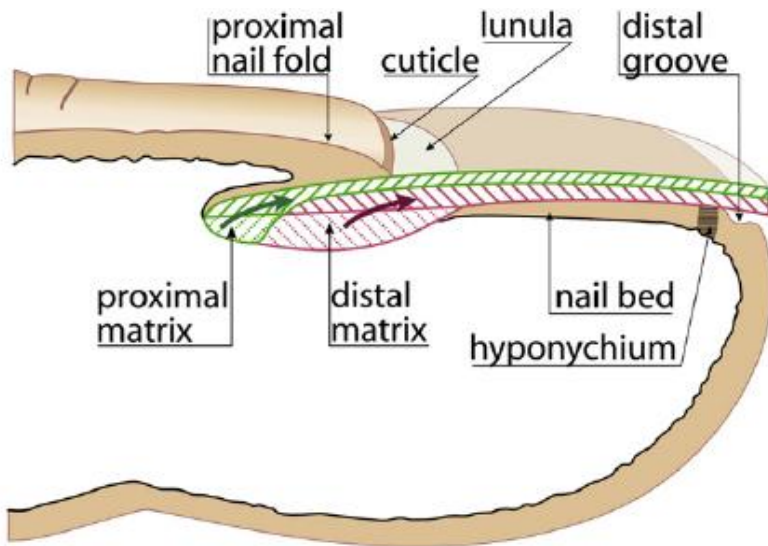


Corn excision with simple closure



Callus excision with rotation flap closure

Nail anatomy



The nail in the elderly

- **Arteriosclerosis** without gross evidence of vessel obliteration.
 - withstand trauma is severely limited when arterial insufficiency is present
 - Retarded nail plate growth results in larger corneocytes.
- Nail chemical composition
 - calcium concentrations decrease with old age, whereas magnesium increases. Iron is low

사진 추가



Variations in thickness and consistency

- **fingernail**
 - often soft and fragile, prone to longitudinal fissuring and splitting into layers
 - Decrease in cholesterol sulfate levels in fingernail
- **toenail**
 - thicker (onychauxis or pachyonychia) and harder, with hyperkeratotic lesions in the toenail region.
 - associated with chronic fungal inf
 - onychogryposis (oyster-like or ram's horn deformity)
 - ingrowing toenail as residua of previous disease, trauma, or deformity in adult life or childhood, such as congenital malalignment of the big toenail



Onychogryposis

The nail in the elderly - contour of the nail

- The normal nail has a double armature, longitudinal and transverse.
- Modifications of the contour in old age include platonychia and koilonychia.
- longitudinal ridges become more pronounced and numerous



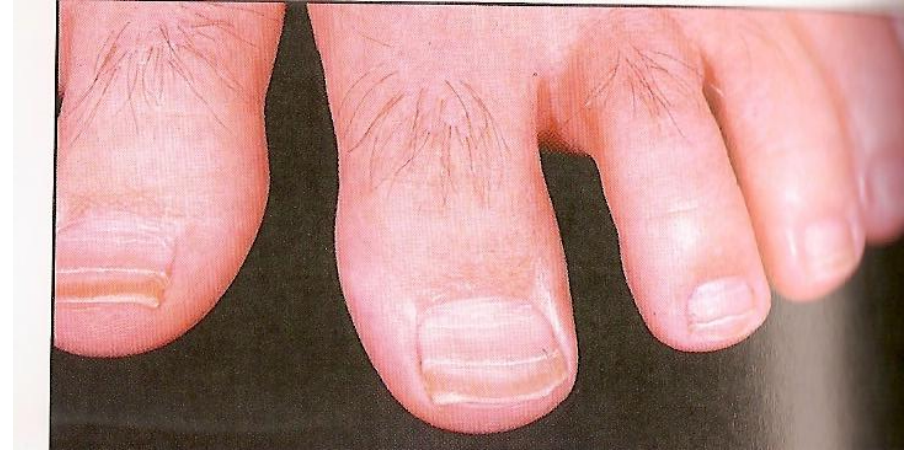
koilonychia

The nail in the elderly - variations in the color

- nails appear dull and opaque.
- The color varies from shades of yellow to grey



Nail disease-Beau's line



Multiple Beau's line

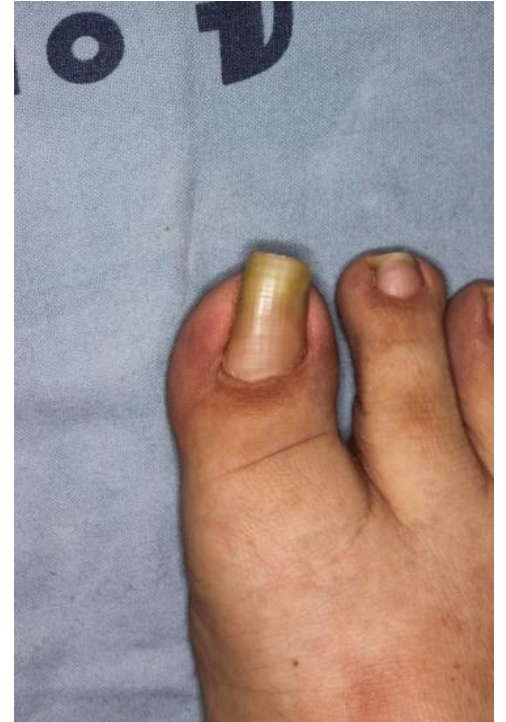


Beau's line



Median nail dystrophy

Pincer nail



형상기억합금을 이용한 집게손발톱의 치료

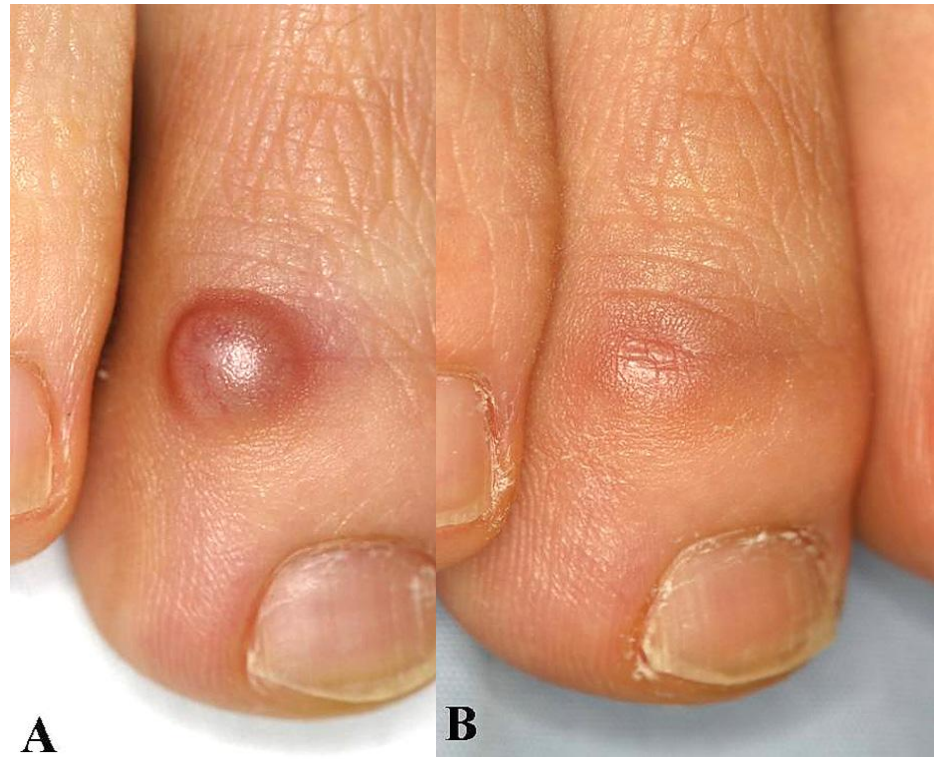


Tumors in the nail area

-Myxoid pseudocysts



- (A) A translucent, erythematous, dome shaped, fluctuating cyst on the dorsal surface of the right fourth toe.
- (B) Two months after sclerotherapy with sodium tetradecyl sulfate, the cystic lesion regressed. The patient showed focal erosion on the lateral side of the proximal nail fold.

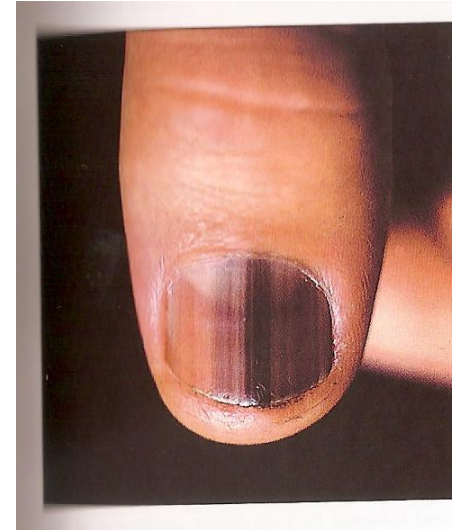


- (A) A translucent, erythematous, dome shaped, fluctuating cyst on the dorsal surface of the right second toe.
- (B) Two months after sclerotherapy with sodium tetradecyl sulfate, the cystic lesion regressed.

Tumors in the nail area

- Melanonychia vs melanoma

melanonychia



- Dark band with blurred margins
- Proximal portion of band wider than its distal portion
- Nail plate thinning and fissuring
- Hutchinson's sign



Tumors in the nail area

- Dysplastic nevus or melanoma?



- A : asymmetry
- B : border irregularity
- C : color change
- D : diameter >6mm across in size

Tumors in the nail area

- Acral Lentiginous melanoma(선단 흑자 흑색종)

임상: 암갈색-흑색의 경계가 불확실한 불규칙 반점(10년) --> 구진, 결절, 궤양

동양인에서 가장 흔하다; 한국인 60%

발생 부위; palm, sole, ungual, periungual area

발생 연령; young age

예후; 불량



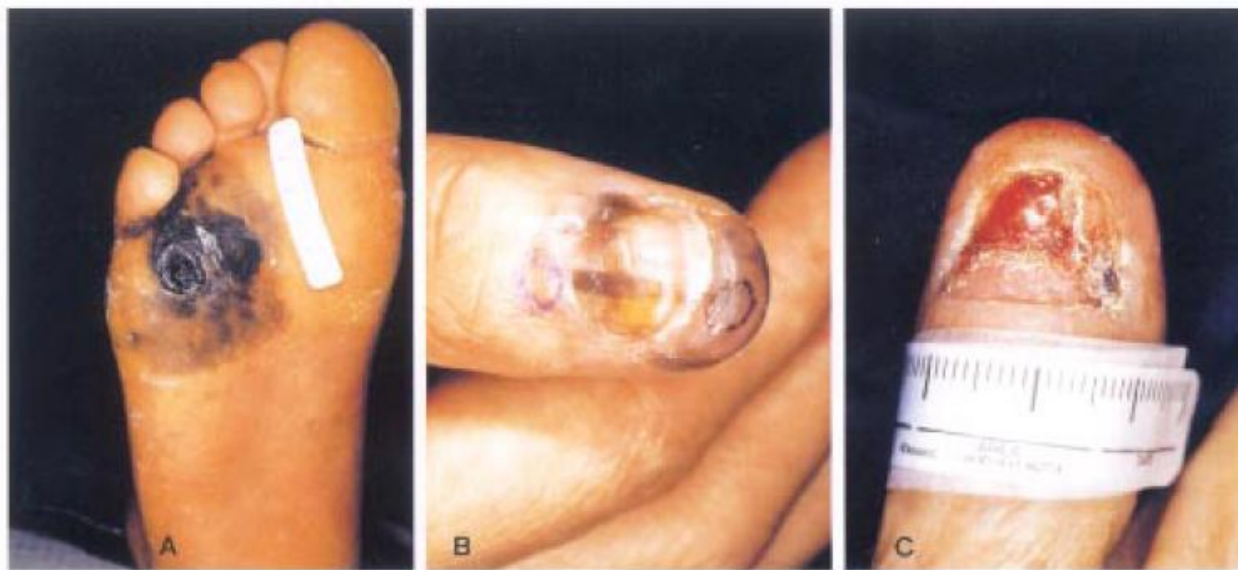


Fig. 1. ALMM on the sole(A), Hutchinson's sign(B), amelanotic melanoma mimicking chronic inflammatory disease(C).

Table 3. Distribution of skin lesions in 32 patients with acral lentiginous malignant melanoma

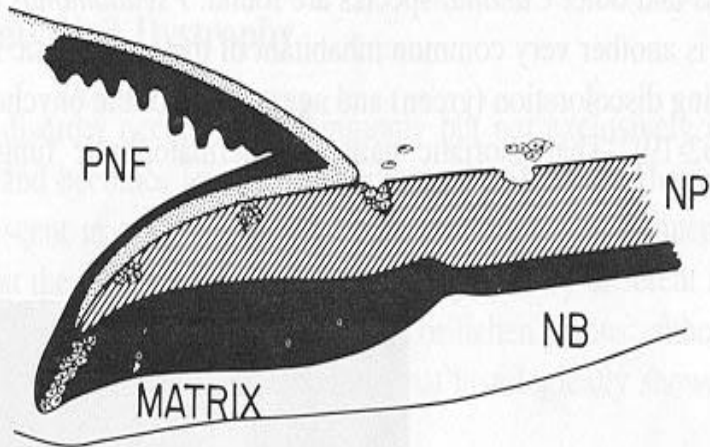
Distribution	Number of patients(%)
Foot	23(71.9)
Big toe	4(12.5)
Mid-sole	11(34.4)
Dorsum of foot	0(0)
Lateral side of foot	1(3.1)
Heel	7(21.9)
Hand	9(28.1)
Thumb	5(15.6)
Index finger	1(3.1)
Dorsum of hand	1(3.1)
5th finger	2(6.3)
Total	32(100)

Squamous cell carcinoma



Nail-associated dermatoses

1. Psoriasis(10-50%); pits, discoloration, onycholysis, subungual thickening, clumping, grooving
2. Keratotic (Norwegian) scabies
3. Darier's disease
4. Lichen planus (1-10%); pterygium formation
5. Alopecia areata; pits



Pustular Psoriasis



20 nail dystrophy



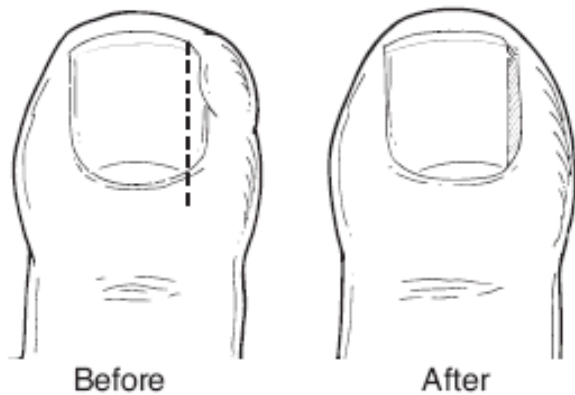
Ingrowing nail(조갑감입증)



Ingrown
toenail



Ingrowing nail



Infectious conditions

- Onychomycosis
- Paronychia
- Warts
- Tinea pedis
- Erysipelas
- DDx

Onychomycosis(손발톱무좀)

- 손발톱이 흰색 혹은 황갈색을 띄며 두터워지고 광택을 잃는다
- 진행되면 부스러진다
- 치료
 - 다른 조갑질환도 유사한 소견을 보이므로 무좀균확인이 필요
 - 바르는 약으로만 치료가 되지 않아 항진균제 복용



Types of onychomycosis



Distal-lateral subungual



Proximal subungual



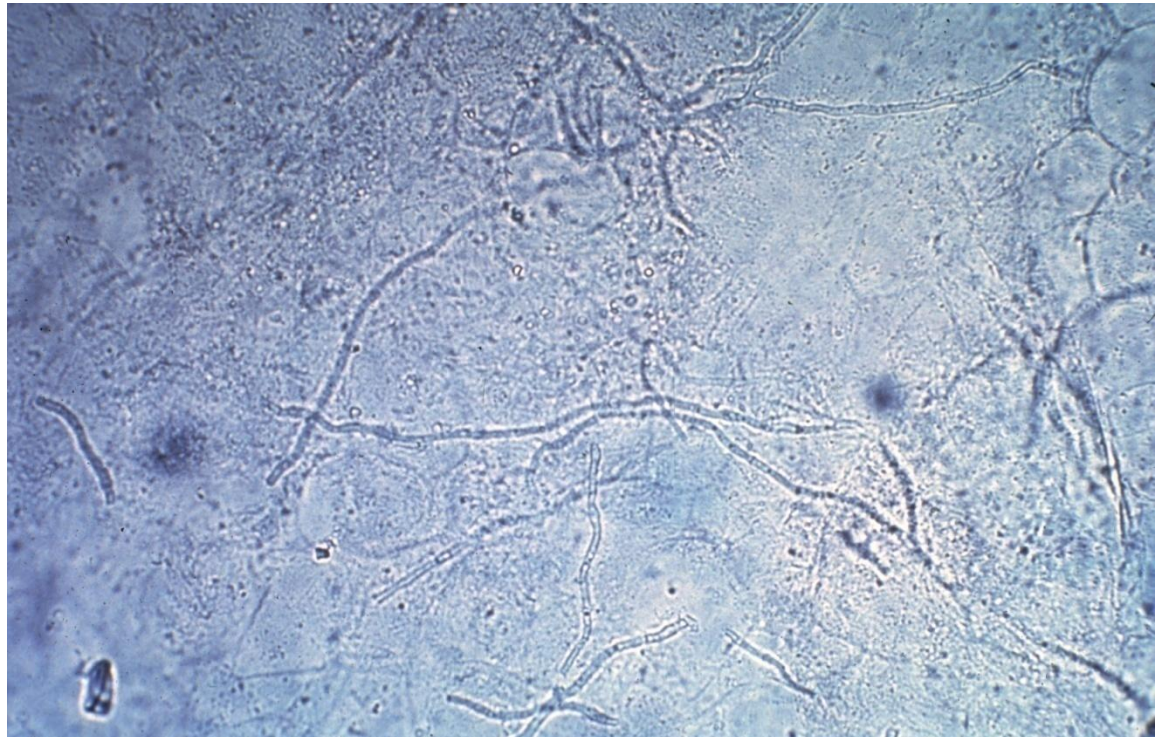
White superficial



Candida

Dx: KOH & Culture

The money is in the debris
beneath the onycholytic plate



Acute Paronychia

- Paronychia = inflammation of periungual tissue
- Gram +
 - Staphylococcus aureus
 - Streptococcus pyogenes



Acute Paronychia

Herpes Simplex



Chronic Paronychia

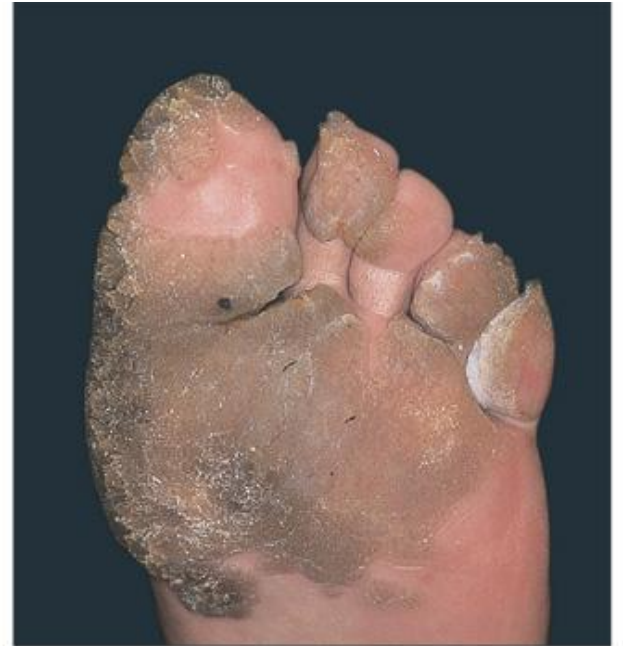


Chronic Paronychia

- Bolstering of nail folds
- Inflammation
- Dorsal nail plate dystrophy
- DDX
 - Foreign body
 - Infection
 - Inflammatory skin disease
 - Trauma
 - Tumor



Warts



Elsevier - Bologna, Jorizzo and Rapini: Dermatology - www.dermtext.com



Periungual Warts



Periungual Warts



- Prevalence up to 26%
- Peak age 12-16
- Hands most frequent
- HPV types 1, 2, 4
- Resolve spontaneously (at least 2/3)

Warts-medical Treatment

- Keratolytics
- Virucidal agents
- Topical immunotherapy
- Imiquimod
- Oral immunomodulators – cimetidine
- Interferons
- Antimitotics – bleomycin
 - REFRACTORY warts only

Warts-physical Treatment

- Wart tape
- Cryotherapy
- Excision
- Electrosurgery
- Infrared coagulation
- Localized heating
- CO₂ laser
- Pulsed dye laser
- Er:YAG laser

냉동치료



냉동치료



Warts vs Corns

Wart

- Relatively **rapid** onset
- May or may not be under bony prominences
- Skin **lines pass around** lesion
- Maximum **pain** with squeezing **side to side**
- End **arteries** visible on paring
- **Rapid recurrence** after shaving and padding

Corn

- Develops over months or years
- Localised under bony prominences
- Skin lines pass through lesion
- Maximum pain with direct pressure
- No end arteries visible on paring
- Slower recurrences at least a week after shaving



발무좀

- 목욕탕, 수영장, 군대 등 사람이 많이 모이는 곳에서 환자에게서 떨어져 나온 각질을 통해서 전염
- 우리나라에서 가장 많은 형태의 무좀
- 지간형이 가장 흔함
- 치료
 - 항진균제 도포
 - 이차감염시 습포 및 항생제 투여
- 예방
 - 항상 발을 깨끗이 하고 통풍을 잘되게 하여 건조함을 유지



지간형



피부에 생기는 무좀(표재성 진균 감염증)



사타구니무좀



손무좀

단독(Erysipelas)



Syphilid



Dyshidrotic eczema



Summary

- Callosity
 - Callus
 - Corn
- Nail disease
 - Beau's line
 - Melanonychia
 - Melanoma
- Tumor
 - Melanoma
 - SCC
- Infectious disease
 - Fungal
 - Onychomycosis
 - Tinea pedis
 - Bacterial
 - Paronychia
 - Erysipelas
 - Viral wart
- DDx
 - Psoriasis
 - 20 nail dystrophy
 - Syphilid

- 감사합니다

