Sports Dermatology
OMED 2015

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Goals and Objectives

• Recognize skin conditions that are common in athletes
• List the most up to date treatment options
• List the return to play rules/regulations for specific conditions
• List preventative measures that can be utilized for common athletic dermatologic conditions
The Line Up

✓ BACTERIAL Skin Infections:
  - Impetigo
  - Erysipelas
  - Staph/MRSA
  - Folliculitis
  - Hidradenitis suppurativa
✓ VIRAL Skin Infections:
  - Herpes simplex
  - Herpes Zoster
  - Molluscum contagiosum
✓ PARASITES
  - Pediculosis
  - Scabies
✓ FUNGAL Skin Infections
  - Tinea corporis
  - Tinea pedis
  - Tinea Cruris
Noninfectious Skin Disorders

- Blisters
- Corns
- Calluses
- Talon Noir
- Tennis Toe
- Contact Dermatitis
- Photodermatitis
- Acne Mechanica
- Urticaria
- Sports specific dermatosis
WHEN IN DOUBT, CHECK IT OUT.

Report skin infections to your athletic trainer, coach or team physician.

Recognize the signs of infections:
skin sores/lesions that have redness, pain, swelling or pus.

Don’t treat yourself.
The Skin

- It totals 12 to 20 square feet in area. It can weigh up to 15 lbs.
The Name Game

Skin Lesion Guide

Bulla
Circumscribed Collection Of Free Fluid > 1 cm

Macule
Circular Flat Discoloration < 1 cm
Brown, Blue, Red or Hypo Pigmented

Nodule
Circular, Elevated, Solid Lesion > 1 cm

Patch
Circumscribed Flat Discoloration > 1 cm

Papule
Superficial Solid, Elevated, 50.5 cm, Color Varies

Plaque
Superficial Elevated Solid Flat Topped Lesion > 1 cm

Pustule
Vesicle Containing Pus (Inflammatory Cells)

Vesicle
Circular Collection Of Free Fluid, 5.1 cm

Wheat
Edematous, Transitory Plaque, May Last Few Hours

Scale
Epidermal Thickening, Consists Of Flakes Or Plates Of Compacted Desquamated Layers Of Stratum Corneum

Crust
Dried Serum Or Exudate On Skin

Fissure
Crack Or Split

Excoration
Linear Erosion

Erosion
Loss Of Epidermis (Superficial), Part Or All Of The Epidermis Has Been Lost

Lichenification
Thickening of the epidermis with exaggeration of normal skin lines

Scar
Thickening, permanent fibrotic changes that occur on the skin following damage to the dermis
Blisters

• Repetitive friction
  – New shoes
• Drain
• Overlying skin intact
• Treatment
  – 2 pairs of socks
  – Second skin, Tefla
  – Moleskin doughnut
  – Inject
Callus

- Plaque of hyperkeratosis
- Repetitive friction, pressure, or trauma
- Most common
- Sport specific demands
Corns

- Localized, tender, sharply demarcated area of hyperkeratosis
- Bony prominence (xray)
- Central core
- Observe footwear, foot mechanics
- Differentiate from wart by core and skin lines
Callus & Corn Treatment

- Treatment
  - Paring
  - Pumice
  - Sal-acid plaster
  - Toe separators
  - Doughnut shaped corn pads
  - Pressure relieving orthotics
  - Keratolytic emmollients
  - Surgery for osteophytes
Talon Noir

- Intra-epidermal hemorrhage into the stratum corneum
- Noted mainly over heel and callus location
- Also called *black heel*
- Microtrauma of vasculature secondary to lateral shearing forces
Talon Noir

- Basketball, tennis, soccer, volleyball, etc.
- Asymptomatic
- Does not affect performance
- Reassurance
- Can be pared down
- Spontaneously resolves without treatment
Tennis Toe

• Subungual hematoma precipitated by rapid starting and stopping
• Melanoma should be in differential
• Warm soaks and rest
• If painful, can release pressure with small hole in nail
• Attention to proper shoe fit
Allergic Contact Dermatitis

• Multiple allergens
  – Rubber
  – Poison Ivy

• Treatment
  – Steroids (topical or oral)
    • 2-3 wks (rhus dermatitis)
  – Antihistamines
    • Benedryl, atarax, claritin
  – Calamine lotion
  – Domeboro
  – Substitution
Photodermatitis

• Inflammatory reaction from exposure to irritant (e.g. plant sap, medications) and sunlight
• Sharp lines of demarcation (exposed skin)
• Papules with erythema and occasionally vesicles
• Usually delayed 24 hours after exposure

• Medications
  – Phenothiazides
  – Diuretics
  – Tetracyclines
  – Sulfonamides
  – OCP

• Treatment
  – Topical steroids
  – NSAID’s
  – Prednisone
  – Antihistamines
  – PREVENTION (sunscreen)
Acne Mechanica

• Secondary to heat, friction from equipment
• Usually under clothes
• Underlying acne
• Treatment
  – Wicking
  – Hygiene
  – Topicals
Exercise Induced Urticaria/Anaphylaxis

- Cutaneous warmth and flushing
- Well circumscribed wheals
- Pruritis (90%) and urticaria (80%)
- Headaches, angioedema, laryngeal edema, bronchospasm, and hypotension
- Classically occurs within 5 minutes of exercise Food ingestion within 6 hours of exercise usually coprecipitator
- >50% have atopic history
- Most common sport: running
- Consider EIA in differential
Exercise Induced Urticaria/Anaphylaxis

TREATMENT

• Antihistamines
• H2 blockers
• Epinephrine (Epi-Pen)
• Vascular support
Exercise Induced Urticaria/Anaphylaxis

PRECAUTIONS

• Stop Exercise at onset of symptoms
• Food avoidance 4-6 hours prior to exercise
• Preventive antihistamines
• Always carry epi-pen
• Consider allergy testing
Sports Specific Dermatosis

- Golfer’s Nails
  - Subungual blood
- Skier’s Palm
  - Ecchymosis in mogul skiers
- Surfer’s nodules
  - Infrapatellar epidermal hyperplasia
- Piezogenic papules
  - Extruded fat
  - Steroid injections if painful
Sports Specific Dermatosis

RUNNING

• Jogger’s nipples
  – Erosion of the skin by repetitive friction from the shirt or jersey
  – Prevent by tape
  – Vaseline

• Runner’s Rump
  – Gluteal cleft ecchymosis
Sports Specific Dermatosis

SWIMMING

• Xerosis
  – Loss of hydration from skin
  – Avoid long showers
  – Oil based soaps
  – Lotions after practice
    • Cetaphil, Eucerin
Auricular Hematoma
Cauliflower Ear

Auricular hematoma, shown below, is a complication that results from direct trauma to the anterior auricle and is a common facial injury in wrestlers. Shearing forces to the anterior auricle can lead to separation of the anterior auricular perichondrium from the underlying, tightly adherent cartilage. This may lead to tearing of the perichondrial blood vessels and subsequent hematoma formation.

The torn perichondrial vessels compromise the viability of the avascular underlying cartilage. Interestingly, the presence of a subperichondrial hematoma has been found to stimulate new and often asymmetric cartilage to form. This deformity, which is often referred to as cauliflower ear or wrestler’s ear, is often considered a badge of honor among wrestlers and rugby players.

The goal of treatment is to completely evacuate subperichondrial blood and to prevent its reaccumulation. The mechanism of hematoma drainage has been debated. To date, no randomized controlled trials have addressed this issue.
Herpes Simplex Virus

• Viral infection
• Herpes simplex 1
• Very contagious
• skin to skin contact
• Local prodrome: pins and needles sensation, pain, itching, adenopathy, and finally vesicle formation
Herpes Simplex Virus

• Diagnosis
  – Tzank smear
  – Immunofluorescence
  – Culture
  – Polymerase Chain Reaction
  – Clinical presentation
Herpes Simplex Virus

- Primary outbreak may last 10 – 14 days
- Capable of latency
- Recurrent episodes may only last 5 days
- Fever, menstruation, trauma, illness, stress, and sunlight may predispose for recurrent outbreaks
Herpes Simplex Virus
Herpes gladiatorum

- Cluster of painful vesicles at an erythematous base
- 2-3 days before “tops” comes off
- Crusted lesions 5-7 days
- Common in wrestling
- Post herpetic neuralgia
Herpes gladiatorum

- Return to play: rash should be crusted and dry
- 120 hours of isolation from onset of symptoms (NCAA/NFHS guidelines)
- The Earlier the Better-Treatment
- Benzoyl Peroxide for ulcerated lesions
Herpes gladiatorum
TREATMENT

• INITIAL OUTBREAK
  - **Acyclovir**: 200-400mg 3-5x/day for 10 days (compliance)
  - **Valacyclovir**: 1000mg bid x 10 days
  - **Famciclovir**: 250mg TID x 7-10d

• RECURRENT OUTBREAK
  - **Acyclovir**: 200mg 5x/day for 5 days (compliance)
  - **Valacyclovir**: 500mg bid for 5-7 days
  - **Famciclovir**: 125mg BID x 5 days/250mg TID x 5d

• PROPHYLAXIS REGIMEN
  - **Valacyclovir**: 500mg daily
  - **Acyclovir**: 200mg BID
  - **Famciclovir**: 250mg BID
Valacyclovir to Expedite the Clearance of Recurrent Herpes Gladiatorum

• Issues?
  – Longer duration of isolation than 120 hours
  – Does viral presence equal infectivity
  – PCR analysis vs. culture
  – Different antiviral dosing regimen
Herpes Labialis

- Sunburns and windburns can precipitate an outbreak
- Common in skiing
- Treatment usually not necessary unless widespread involvement
- Oral hygiene and dental care can hasten resolution
- Valtrex 2 gm po q 12 hours x 2 doses
Herpetic Whitlow

- **Wear gloves** when evaluating skin
- Trainer becomes infected
  - Painful
  - Source ?
Molluscum Contagiosum

• Infection with large pox virus
• Skin trauma causative factor
• Hands, forearm & face
• Wrestlers
• Sexually transmission counseling
Molluscum - Diagnosis

- Raised, umbilicated, firm, skin colored papules
- 2 - 4 mm
- Solitary, multiple
- Frequently located along scratch (Koebner’s Lines)
Molluscum - Treatment

- Extrude molluscum body
- Stab of papule with scalpel
- Electrocautery
- Curettage
- Cryotherapy
Molluscum Contagiosum

- **Topical**
  - Aldara 5% cream
    - TID x 5d/wk x 4 wks
    - >80% cure rate

- **Oral**
  - Cimetidine 40mg/kg/d x 2 months
Molluscum - Prevention

• Difficult
• Transmitted skin to skin, mat to skin
• Withhold from practice & competition until clear
Warts

• Human Papillomavirus
  – Common warts (verruca vulgaris)
  – Plantar warts (verruca plantaris)
  – Flat warts (verruca plana)
Warts

- Very Common
- Hands & feet
- Infectivity low
- Ave incubation 6 mos
- Difficult to treat
- Self-limited
- Chronic trauma
  - football & wrestlers
Plantar Warts vs. Callus

- Paring
  - Pinpoint bleeding
  - Core = Corn
  - Nothing = Callus

- Skin lines disrupted (wart)
Warts - Treatment

- Nonplantar warts
  - Cryosurgery – Liquid Nitrogen
  - Salicylic Acid
  - Duct tape occlusion
  - Cantharidin
  - Excision with base ablation (electrocautery/hyphrecator)
- Plantar warts
  - Avoid destructive techniques during season
  - Imiquimod (Aldara)®
Warts - Treatment

• Candida albicans antigen injection w/ lidocaine
• 0.1 ml intradermally at margins to a total of 1 ml for each wart
• Repeated monthly x 3 or till warts gone
• Candida, Bayer, Spokane, Washington or Candin, Allermed Laboratories, San Diego, California
Warts - Treatment

• Vitamin A
  – 10000IU x 4-6 wks

• Tagamet
  – 800mg TID x 1-2 months
Methicillin Resistant Staphylococcus Aureus

• “Athletes under attack” - CDC

• Risk factors
  - Body Shaving (43%)
  - 10% of football players
  - Turf Burns (RR = 7)
  - Infected whirlpools (?!)
  - Wrestlers
MRSA

- Community acquired
- Sports with skin to skin contact
- Immunocompromised or late treatment seekers
- Culture, culture, culture $^{1st}$
- Early aggressive treatment
- Appropriate self hygiene
- Aggressive locker room/training room decontamination
MRSA

• More attention recently

• National Federation of High Schools Policy
  – Athlete must notify guardian, athletic trainer, coach, or physician of lesion
  – Athlete must be evaluate by healthcare provider prior to activity
  – Suggest evaluating teammates at risk for spread of disease
  – Shower immediately after competition or practice
  – Wash all workout clothing after practice
  – Wash personal gear, such as knee pads, periodically
  – Avoid sharing towels or other personal hygiene products with others
  – Refrain from cosmetic shaving
MRSA

• Treatment
  – Soap and water hygiene
  – I & D abscess
  – Topical
    • Bactroban 2% bid (nares and wound) x 1-2 wks
      – Evidence of resistance
  – Oral antibiotics
    • Bactrim DS 1-2 po bid x 10 days
    • Rifampin 600mg qday + tetracycline/dicloxacillin x 10d
Abrasions
(Road Rash)
Treatment

- Lavage
- Telfa
- Second skin
- Lubricant
- Antibiotic cream
Impetigo

- Staph, Strep
- Honey crusted
- VERY contagious
- Swimmers & Wrestlers
- Poststreptococcal GN
- Treatments
  - debride crust w/ H₂O₂
  - Topical mupirocin TID x 7-10d
  - Oral abx if widespread

- Return to Play
  - NCAA: no new lesions for 48 hours or 3 days of therapy
Furunculosis “Boils”

- Staph. Aureus
- Hair follicle abscess
- Risk related to contact with “Boils”
- Treatment
  - Incision & drainage
  - Oral antibiotics
- Complications
Boils - Treatment

- Cessation of play
  - swimmers & contact athletes
- Oral antibiotics
- Wound drainage (I&D)
- Dressing
- Protection
“Hot Tub” Folliculitis

• P. aeruginosa O:11
• Hot tubs, spas, swimming pools
• Diagnosis
  – pruritic papulo-pustules
  – axillae, breast, pubic areas
• Treatment
  – Usual spontaneous resolution
  – Drain tub and chlorinate
Erythrasma

- Corynebacterium
- Mimics fungal infection except non-inflammatory
- “Coral Red” fluorescence under Wood’s lamp
- **Diagnosis:** reddish / brown patches of desquamation in groin or axillae
Erythrasma

• Treatment
  – Erythromycin 250mg qid x 5 days
  – Clarithromycin 1 gm x 1 dose
  – Miconazole, clotrimazole, or econazole topically (not ketoconazole)
  – Clindamycin or Erythromycin topically bid x 2 wks
Fungal Infections

More than just
“athlete’s foot” and “jock itch”
Tinea Infections

- Superficial fungal skin infection
- Frequent infections may indicate systemic disease
- Spread by contact skin to skin, showers, towels, etc.
- Moisture, occlusive clothing, abrasions increase occurrence
Tinea Pedis

*Athletes Foot*

- **Trichophyton rubrum**
  - relatively asymptomatic
- **Trichophyton mentagrophytes**
  - painful, itchy blisters
- **Diagnostic clue**
  - 4th & 5th toe web
Dermatophytid Reaction
(essentially an allergic reaction to the allergic reaction)

- Dyshidrotic eczema
- Pruritic vesicles
- Annular plaques on hands
- Treat the source
Tinea “Elsewhere”

- Named by site
  - tinea corporis - trunk
  - tinea capitis - scalp
  - tinea barbae - beard
  - tinea cruris - groin

- Agents
  - Trichophyton tonsurans
  - Trichophyton rubrum
# Fungal - Treatment

## Topical
- **Fungistatic**
  - Clotrimazole (Lotrimin)
  - Ketoconazole (Nizoral)
- **Fungicidal**
  - Terbinafine (Lamisil)

## Oral
- **Fluconazole (Diflucan)**
- Terbinafine (Lamisil)
- Ketoconazole (Nizoral)
- Griseofulvin
- Baseline LFT’s
Fungal - Prevention

• Keep feet /groin dry
• Loose absorbent shorts / socks
• Frequent changes
• Drying powders
• Nonocclusive leather shoes
• Treat “hyperhidrosis”
Tinea Versicolor

Fungus of Many Colors - Malassezia Furfur

• Mild chronic infection
• Many colors
  – Red macules
  – Hypopigmented macules
  – Tan to dark macules or patches
• Upper torso & arms
• More prominent with heat and sun exposure
• Swimmers, football players
• Transmitted skin to skin, towels, linens
Tinea versicolor

Treatment

• Topical
  – Ketoconazole shampoo (5 min treatment)
  – Selenium sulfide suspension 2.5% (10 min qd x 7 d)
    • Treatment only for limited lesions
    • High recurrence
    • Compliance?

• Oral
  – Ketoconazole
    • 400mg x 1 dose
    • Prophylaxis q montly
    • Take with juice or carbonated beverage
    • Do not bathe x 12 hours
  – Fluconazole
  – Itraconazole
  – Not sensitive to griseofulvin
Acne

- Too often only considered a minor affliction
- Permanent scarring of skin
- Self esteem and image affect
- Classified degree of acne
- Consider dermatology referral if basic topical and systemic therapy fails or disfiguring lesions
• Note to physicians: Non-contagious lesions do not require treatment prior to return to participation (e.g. eczema, psoriasis, etc.). Please familiarize yourself with NCAA Wrestling Rules which state: (refer to the NCAA Wrestling Rules and Interpretations publication for complete information)
  – "9.6.4. The presence of a communicable skin disease. shall be full and sufficient reason for disqualification."
  – "9.6.5. If a student-athlete has been diagnosed as having such a condition, and is currently being treated by a physician (ideally a dermatologist) who has determined that it is safe for that individual to compete without jeopardizing the health of the opponent, the student-athlete may compete. However, the student-athlete or his/her coach or athletic trainer shall provide current written documentation from the treating physician to the medical professional at the medical examination."
  – "9.6.6. Final determination of the participant's ability to compete shall be made by the host site's physician or certified athletic trainer who conducts the medical examination after review of any such documentation and the completion of the exam."

• Below are some treatment guidelines that suggest MINIMUM TREATMENT before return to wrestling: (please refer to the NCAA Sports Medicine Handbook for complete information)

• Bacterial Infections (Furuncles, Carbuncles, Folliculitis, Impetigo, Cellulitis or Erysipelas, Staphylococcal disease, CA-MRSA): Wrestler must have been without any new skin lesion for 48 hours before the meet or tournament; completed 72 hours of antibiotic therapy and have no moist, exudative or draining lesions at meet or tournament time. Gram stain of exudate from questionable lesions (if available). Active bacterial infections shall not be covered to allow participation.

• Herpetic Lesions (Simplex, fever blisters/cold sores, Zoster, Gladiatorum): Skin lesions must be surmounted by a FIRM ADHERENT CRUST at competition time, and have no evidence of secondary bacterial infection. For primary (first episode of Herpes Gladiatorum) infection, the wrestler must have developed no new blisters for 72 hours before the examination; be free of signs and symptoms like fever, malaise, and swollen lymph nodes; and have been on appropriate dosage of systemic antiviral therapy for at least 120 hours before and at the time of the competition. Recurrent outbreaks require a minimum of 120 hours of oral anti-viral treatment, again so long as no new lesions have developed and all lesions are scabbed over. Active herpetic infections shall not be covered to allow participation.

• Tinea Lesions (ringworm): Oral or topical treatment for 72 hours on skin and 14 days on scalp. Wrestlers with solitary, or closely clustered, localized lesions will be disqualified if lesions are in a body location that cannot be adequately covered.

• Molluscum Contagiosum: Lesions must be curetted or removed before the meet or tournament and covered.

• Verrucae: Wrestlers with multiple digitate verrucae of their face will be disqualified if the infected areas cannot be covered with a mask. Solitary or scattered lesions can be curetted away before the meet or tournament. Wrestlers with multiple verrucae plana or verrucae vulgaris must have the lesions adequately covered.

• Hidradenitis Suppurativa: Wrestler will be disqualified if extensive or purulent draining lesions are present; covering is not permissible. Pediculosis: Wrestler must be treated with appropriate pediculicide and re-examined for completeness of response before wrestling. Scabies: Wrestler must have negative scabies prep at meet or tournament time.

• DISCLAIMER: The National Collegiate Athletic Association shall not be liable or responsible, in any way, for any diagnosis or other evaluation made herein, or exam performed in connection therewith, by the above named physician/provider, or for any subsequent action taken, in whole or in part, in reliance upon the accuracy or veracity of the information provided herein.
WHEN IN DOUBT, CHECK IT OUT.

Report skin infections to your athletic trainer, coach or team physician.

Recognize the signs of infections: skin sores/lesions that have redness, pain, swelling or pus.

Don’t treat yourself.
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