Dermatologic Disorders in Sport

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Objectives

• Review basic functions of the integumentary system
• Recognize common infectious dermatoses seen in athletes
• Understand participation concerns for common infectious dermatoses
• Differentiate infectious from inflammatory dermatologic conditions seen in athletes
• Recognize common traumatic skin conditions seen in athletes
Functions of skin

- Physical barrier
- Protect against mechanical injury
- Bacteriocidal effects
- Prevents loss of body fluids
- Reduces penetration of UV radiation
- Helps regulate body temperature
- Sensory organ
- Provides surface for grip
- Vitamin D production
- Outpost for immune surveillance
Terminology of Skin lesions

- Macule
- Papule
- Nodule
- Pustule
- Cyst
- Wheal
- Vesicle
- Bulla

- Scale
- Plaque
- Ulcer
- Furuncle
- Carbuncle
- Callus
- Fissure
Epidemiology

• Skin infections are the most common infectious disease outbreaks in sports

• Common infections:
  – Staph, MRSA
  – Herpes
  – Tinea

• Implications for participation
  – Need to prevent spread to other athletes
Epidemiology

• Common non-infectious conditions
  – Eczema
  – Acne
  – Contact Dermatitis
  – Psoriasis

• Less common
  – Exercise-induced urticaria
Staph infections

- > 12 million physician visits for skin and soft tissue infections each year

- Staph/MRSA most common cause of infectious disease outbreaks in athletics
  - Highly virulent
Staph in the community

- 25-30% of general population colonized with staph in nares, 1.5% with MRSA colonization
- Athletes may have higher rates of staph carriage
  *Oller et al, Journal of Athletic Training 2010*

MRSA found on athletic equipment and facility surfaces
Turf, door knobs, training tables, showers, sinks, etc
*Stanforth et al, J of Environmental Health 2010*
Risk Factors for Staph Infections

- Sharing towels, soaps, lotions
- Skin trauma
- Skin to skin contact between players
- Sharing of athletic equipment

Cohen PR, Clinics in Dermatology (2008)
A good player will pass the ball, not staph.

Do not share personal items such as towels or razors.
Wash your hands frequently.
Shower immediately after each practice and game.
Use clean towels each time you shower.
Launder clothes and towels after each use.

Sharing isn’t always caring.

Sharing personal items like towels, razors, or tweezers can spread diseases.

www.cdc.gov/mrsa
Clinical Features

- “Spider bite”
- Erythema
- Tenderness
- Pustule or fluctuance
  +/- Demarcated borders
- Furuncles, pustules, abscess, cellulitis
- Culture for definitive diagnosis
Treatment

**Abscess** - Incision and drainage

**Antibiotics** - cover for MRSA
- Clindamycin
- Trimethoprim-Sulfamethoxazole
- Doxycycline
- Linezolid

**Close follow-up**; IV antibiotics if not improving
NCAA participation guidelines

BACTERIAL INFECTIONS:

1. Wrestler must have been **without any new skin lesion for 48 hours** before the meet or tournament.

2. Wrestler must have **no moist, exudative or purulent lesions** at meet or tournament time.

3. Gram stain of exudate from questionable lesions (if available).

4. Active purulent lesions shall not be covered to allow participation.
Prevention

• Hygiene: Don’t share towels or equipment!

• Education for athletes and staff
  – Early recognition of skin infection
  – Early evaluation and treatment

• Education program and use of sani-hands wipes
  – Decreased incidence of CA-MRSA infection by 75%
    • Sanders, JC. Journal of Community Health Nursing, 2009; 26:4, 161-172
Prevention

• Surveillance of nasal colonization?
  – colonization did not correlate with infection
    • Garza et al CJSM 2009

• NFL Infectious Disease News - Jan ‘13
  – The Reduce MRSA Trial
  – Screening vs No screening/Universal Decon

• Decolonization
  – Chlorhexadine body wash for 1 or more MRSA on the team
  – Mupirocin nasal application
Staph Mimickers

Hidadrenitis suppurativa
- chronic inflammation and abscesses of sebaceous and apocrine sweat glands
- "double comedone"
- sinus tracts common

RX: long-term antibiotics
Hot tub folliculitis

- *Psuedomonas* spp.
- Contaminated pools/hot tubs
- Urticarial plaques with central papule or pustule
- Bathing suit distribution
- Spontaneous resolution 7-10 days
  - Acetic acid 5%, silver sulfadiazine cream
- Prevention- proper hot tub/pool maintenance
Erysipelas

- Inflammatory cellulitis
- Lymphatic streaking prominent
- Tense, deeply erythematous, warm
- Raised, Sharp borders

- Streptococci
Herpes Simplex Virus (HSV)

- Most Common skin infection in collegiate wrestlers
  - Seen in up to 40%
  - Not as common in football but still there!

- Up to 80% of general population have positive HSV-1 Antibodies
Transmission of HSV

• Direct contact with virus (via skin or mucosal surface)
• Reactivation of latent virus

• Average time from exposure to symptoms - 8 days (range 4-11 days)
• Viral shedding can occur for several days prior to skin findings
Clinical features

• Grouped vesicles on erythematous base
• Later stages - crusts and erosions
• Head, face, neck are most common sites
• Primary infection - may have systemic symptoms
Treatment

• **Primary infection**
  – Valacyclovir 1000mg BID x 7 days
  – Famciclovir 500mg TID x 7 days
  – Acyclovir 200mg five times per day x 10 days

• **Recurrent infection**
  – Valacyclovir 500mg BID for 7 days
    • Expedites viral clearance by 1.7 days
    • Expedites clinic resolution by 2 days
      – Anderson BJ, CJSM 2005
Prevention

• Isolate athletes with active infections
• Education of athletes, coaches

• Prophylactic medications
  – Valacyclovir 1000 mg daily prevents recurrent infections among wrestlers

NCAA participation guidelines

HERPES SIMPLEX Primary Infection

1. Wrestler must be free of systemic symptoms of viral infection (fever, malaise, etc.).

2. Wrestler must have developed no new blisters for 72 hours before the examination.

3. Wrestler must have no moist lesions; all lesions must be dried and surmounted by a FIRM ADHERENT CRUST.

4. Wrestler must have been on appropriate dosage of systemic antiviral therapy for at least 120 hours before and at the time of the meet or tournament.

5. Active herpetic infections shall not be covered to allow participation.
HERPES SIMPLEX: Recurrent infection

1. Blisters must be **completely dry** and covered by a **FIRM ADHERENT CRUST** at time of competition, or wrestler shall not participate.

2. Wrestler must have been on appropriate dosage of **systemic antiviral therapy for at least 120 hours** before and at the time of the meet or tournament.

3. Active herpetic infections shall not be covered to allow participation.
Herpes Mimickers

- Herpes Zoster
  - “Shingles”
- Reactivation of dormant “chicken pox” in dorsal root ganglion
- Prodrome of tingling, prickling sensation
- Vesicles follow dermatome
  - does not cross midline
Molluscum Contagiosum

- 1-2 mm shiny, flesh-colored, dome-shaped firm papule
- Localized, self-limited viral infection
- Skin-to-skin transmission or autoinoculation
- Curettage to remove lesions prior to participation
Impetigo

- More common in children
- Occurs on face or extremities
- “honey crust” appearance
- Due to Staphylococci or Streptococci
- Can be seen as secondary infection of HSV
- Highly contagious
Clinical features

- Honey colored crusts
- May see vesicles or bullae
- Pustules
- Removing crusts will leave erythematous erosions, crusts reform
Treatment

• Treatment
  – Topical Mupirocin 2% ointment TID for small lesions
  – Cephalexin 250mg QID
  – Doxycycline 100mg BID
  – TMP-SMX BID

• NCAA guidelines- must be fully resolved (typically 7 days)
Tinea Corporis

- *Trichophyton tonsurans* most common organism
  - Also most common cause of Tinea capitis

- Transmission through direct skin-to-skin contact
Tinea Corporis: Clinical features

- Erythematous, scaling plaque
- Well-defined, raised borders
- Central healing
- Often itchy
- Head, Neck, Upper extremities
- **May not have classic ring shape**
Treatment

• Topical antifungals
  – Ketoconazole 2%, Clotrimazole 1% (OTC)
  – Terbinafine (prescription)
  – Apply cream for at least 2 weeks, continue 1 week after resolution

• Oral antifungals if not resovling
  – Fluconazole
  – Itraconazole
  – Griseofulvin
Kohl et al, CJSM 1999:

- 27 High school wrestlers with Tinea corporis
  - Time to 50% symptom improvement
    • 11.9 days topical vs 10.1 days oral
  - Time to 50% reduction in lesion area
    • 18.7 days topical vs 17.2 days oral
  - Time to 50% Culture eradication
    • 22.1 days topical vs 11.1 days oral
NCAA participation guidelines

TINEA INFECTIONS (ringworm)

1. A minimum of **72 hours of topical therapy** is required for skin lesions.

2. A minimum of **two weeks of systemic antifungal therapy** is required for scalp lesions.

3. Wrestlers with **extensive and active lesions** will be **disqualified**. Wrestlers with solitary, or closely clustered, localized lesions will be **disqualified if lesions are in a body location that cannot be “properly covered.”**

4. The disposition of tinea cases will be decided on an individual basis as determined by the examining physician and/or certified athletic trainer.
Prevention

• No Sharing of towels or other equipment
• Cover abraded skin
• Early recognition and treatment of lesions
• Prophylactic medications
  – Fluconazole 100mg for 3 days, repeat at week six
    • Reduced tinea prevalence from 64.7% to 3.5%;
    • Adams BB, CJSM 2009
  – Itraconazole 200mg BID for 1 day, every 2 weeks
    • Hazen PG & Weil ML, J Am Acad Dermatol 1997
Tinea Mimickers

Contact Dermatitis

Granuloma Annulare
Lyme disease

- Erythema migrans
  - Deer tick
  - Target rash
  - Asymptomatic
  - Hx of travel to endemic area
  - Treat with Doxycycline
Other Tineas

- **Tinea Versicolor**
  - Lipophilc yeast
  - Heat and humidity
  - Adolescence and young adults
  - Usually asymptomatic
  - Neck, trunk, upper arms
  - hypopigmented or pink colored

RX: selenium sulfide lotion, topical or oral antifungals
Other Tineas…

• Tinea pedis
  “Athlete’s foot”
  –Interdigital
  –Chronic scaly infection on plantar surface
  –Acute vesicular
  –Topical antifungals
  –Shower shoes
  –Foot powders, dry socks
Pitted keratolysis

- *Corynebacterium* overgrowth
- Moist, occluded feet
- Discrete pits on soles
- Strong odor

- RX: topical erythromycin
- Synthetic socks, keep feet dry
Pityriasis Rosea

- Self-limited, often asymptomatic
- May have mild URI before rash
- Herald patch 1-2 cm
  - Oval, scaly
  - Smaller lesions over 1-2 weeks
- Trunk, proximal extremeties
- Resolves over 4-12 weeks
Urticaria

- Cold-induced
- Exercise-induced
- Drug-induced

- Pink plaques, wheals, confluent
- Dynamic process

RX: antihistamines
Traumatic skin disorders in athletes

• Nail dystrophies
  – Runner’s toe
  – Tennis toe
  – Soccer

• Chronic trauma to longest toe

• Nail thickening and discoloration

• May lose nail plate
Traumatic skin disorders in athletes

- Calluses
  - Chronic, repetitive friction
  - Hypertrophy of skin

- Blisters
  - Acute friction
Traumatic skin disorders in athletes

- Jogger’s nipples
  - painful, erythematous and crusted erosions
  - Friction between skin and shirt
  - Prevent with petroleum jelly or

- Talon noire
  - intraepidermal bleeding from shearing forces
  - applied to the skin
  - Black macules on heels of basketball players

- Mogul’s palm
  - Palms of skier’s
Traumatic skin disorders in athletes

- **Acne Mechanica**
  - erythematous papules and pustules distributed on the shoulders, upper back and chin
  - Occurs beneath heavy protective equipment
  - Shower after practice
  - Moisture-wicking clothing under protective gear
Conclusions

• Skin infections are common in athletes
  – MRSA, Herpes Simplex, Tinea

• Education is key for prevention
  – Early recognition, not sharing towels, etc

• With practice and recognition Derm issues aren’t so scary!!
Resources

Resources

- Anderson BJ. The Epidemiology and Clinical Analysis of Several Outbreaks of Herpes Gladiatorum.
- J. Chad Sanders DNP and FNP-BC (2009): Reducing MRSA Infections in College Student
Thank You!!