Things that go bump: Wart & Molluscum

Raegan Hunt, MD, PhD
Chief of Section, Pediatric Dermatology
Texas Children’s Hospital

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Objectives

• Recognize multiple clinical presentations of warts and molluscum
• Explain pathophysiology of wart and molluscum infection
• Develop patient-centered treatment plans for children and adolescents with warts and molluscum
Warts: etiology & epidemiology

- Viral skin infection from human papillomavirus (HPV)
  - > 100 strains cause warts
- Viral warts occur in ~10% of the population
  - Prevalence ~20% of school-age children & young adults

Viral warts: transmission

- HPV virus transfers via:
  - Skin-skin contact
  - Fomites
- Contact:
  - Auto-innoculation
  - Hetero-innoculation
- Fomites:
  - Risk increased with warm, moist surfaces

Viral warts: transmission & natural history

- Site of HPV entry:
  - Traumatized skin
- Incubation period
  - 1-6 months
- Duration
  - 67% resolve in 2 years via cell-mediated immunity
Clinical Characteristics of Warts

Common warts (verrucae vulgaris)
- HPV 1, 2, 4 and 7
- Common locations
  - Hands
  - Fingers
  - Periungual
  - Subungual
  - Elbows
- May see “black dots”

Filiform warts
Flat warts (verruca plana)

- HPV 3 and 10
- Common locations
  - Face
  - Neck
  - Arms
  - Dorsal hands
  - Legs
- "Koebnerization"
  - Spread along a scratch line

Plantar warts

- HPV 1 and 4
- Common location:
  - Soles of the feet
  - Plantar toes
- Coalesce into clusters
  - Mosaic wart
- Diagnostic clue
  - "Black dots"
- Symptomatic
  - Weight bearing surfaces
Anogenital warts (condylomata acuminata)

- HPV 6 and 11

- Common Locations:
  - Anogenital skin and mucosa

Anogenital warts in children

- Consider possibility of sexual abuse

- Key historical information
  - Age of onset of warts
  - History of maternal HPV infection
  - Genital warts
  - Abnormal pap smears
  - Personal or family history of warts

- Physical exam
  - Other suspicious clinical findings

Anogenital warts in children

- Risk of sexual abuse is higher if > 3 years of age

- Non-sexual transmission likely if:
  - Child is < 3 years old at onset of warts
  - Child also has non-genital warts
  - Mother with history of genital warts or abnormal pap smear (vertical transmission)
  - Caregivers have common warts
  - No historical or physical findings suggestive of sexual abuse
Wart Differential Diagnosis: Mimics

Epidermal nevus

- Image of epidermal nevus

- Diagram of body parts

- Additional images of nevus

Corn

- Image of corn

- Image of callus

- Image of talon noir
Infantile perianal pyramidal protrusion

Pseudoverrucous papules and nodules

Molluscum contagiosum
Wart Treatments

Wart Treatment

• No targeted anti-viral therapy for HPV infection

• Insufficient evidence-based medicine

• Many treatments available
  • “The number of treatments for a disease is inversely proportional to their efficacy”

• Therapeutic categories:
  • Destructive
    • Chemical
    • Physical
  • Immunomodulatory

Warts: “To Treat or Not To Treat”

• Indications for wart treatment:
  Warts that are:
  • Painful
  • Extensive
  • Enlarging
  • Cosmetically objectionable

• Treatment: ideally harmless and painless

• Factors that influence treatment choice
  • Age of child
  • Personality of child
  • Number of warts
  • Location of warts
  • Size of warts
  • Prior therapies attempted
Warts: At-Home Destructive treatments

Topical salicylic acid preparations

- With duct tape occlusion cure rates 48-87%
- Mechanism of action: local irritant and keratolytic
- Available over the counter
  - Salicylic acid 17% solution (brand names: compound W solution) ~$5.99-$6.96
  - Salicylic acid 40% stick (brand names: wart stick) ~$8.23/stick
  - Salicylic acid 40% impregnated bandage (brand names: compound W one-step pads) ~$6.96/14 pads

Warts: At-Home Destructive treatments

Home wart therapy: Salicylic Acid

- 17% recommended for standard warts (excluding face, genitals)
- 40% may be helpful for plantar warts or large, thick warts on elbows, knees
- Maceration is very common
  - Advise families prior to treatment
  - Try to limit application to directly over wart
  - Affected adjacent skin heals without scarring

Warts: At-Home Destructive treatments

- Topical retinoids
  - Adapalene gel 0.1% over the counter: cost ~$11
  - Tretinoin cream 0.025% or 0.5%
    - Apply 3-7 nights per week with q-tip to lesions as tolerated
**Warts: In-Office Destructive treatments**

- Cryotherapy (liquid nitrogen)
- Tricarboxylic acid
- Painful
- May be traumatic
- High recurrence rate
- Increased risk of scarring or dyspigmentation
- Warts may worsen with treatment
  - Incompletely treated warts may enlarge
  - Use destructive treatment on warts > 6 mm with caution
  - "Ring warts" may appear

**“Ring warts”**

- Ring wart (aka "fairy ring wart")
- Reminiscent of fairy forts

**Myth:** pick the "seed" out of a wart to make it go away

**BUSTED**
Myth: “seed” warts

• There are NO seeds in warts
• Black dots in warts correlate histologically to dilated superficial capillaries
• Picking dots out may increase risk of spreading to other areas

Immunotherapy for warts

Topical
• Contact immunotherapy
  • Squaric acid dibutylester
  • Diphenylcyclopropenone (DCP)
  • Initial sensitization with 1-2 times weekly application
• Mechanism of action
  • Delayed type hypersensitivity immune reaction promotes clearance of virus
  • Side effects: irritation, itch

Injected
• Contact immunotherapy
  • Intraleisonal Candidal Antigen injection
  • Injections every 4-6 weeks (average about 4 total serial injections)
• Mechanism of action
  • Delayed type hypersensitivity immune reaction promotes clearance of virus
  • Side effects: irritation, itch, swelling
Immunotherapy for warts

Oral

- Cimetidine
  - Boosts T cell response (Th1 cells)
  - Stimulates production of:
    - IL-2
    - IFN-γ
  - Treatment generally requires 3 month trial
- Dosing
  - 30-40 mg/kg/day divided TID

Special wart cases: treatment of condyloma

- Podofilox (Condylox)
  - 0.5% gel or solution
  - Apply 3 consecutive nights each week
- Imiquimod cream 5%
  - Apply 3 nights per week as tolerated
- Other: cryotherapy, tricarboxylic acid (TCA), cimetidine

Molluscum contagiosum

- Common childhood skin infection
- Caused by molluscum contagiosum, a pox virus

- Transmission
  - Skin-to-skin
  - Auto-inoculation
  - Fomites
- Typical resolution: within many months to few years
  - May leave depressed pox-like scars
Molluscum contagiosum

- Pink to skin colored 1-5 mm dome shaped waxy papules
- +/- central umbilication
- Commonly on the trunk, axillae, extremities

Molluscum dermatitis

- Pruritic, scaling patches around molluscum

Molluscum contagiosum: Reasons to Treat

- Discomfort or itching
- Numerous or spreading lesions
- Prevention of superinfection
- Minimization of scarring
- Social stigma
- Parental anxiety
Molluscum contagiosum: treatment options

- “Active non-intervention”
  - Self-limited disease process
- Physical destruction
  - Topical retinoid cream/gel
    - Over the counter: adapalene 0.1% gel
    - Prescription: tretinoin 0.025% cream
  - Cryotherapy
  - Cantharadin
  - Curettage

Cantharadin

- Chemical vesicant extracted from blister beetle
- Used to treat warts and molluscum since 1950s
- Not recommended to treat lesions on face, groin/ genitalia, gluteal cleft
- Generally treat 15-20 lesions per session, repeat q 4 weeks as needed
  - Risk of discomfort

Conclusion: Warts and molluscum

- Viral infections of skin
- Bothersome to families
- Contagious
- Spread with picking
- Risk of school bullying and social stigma
- Both will likely resolve--- molluscum resolution more predictable
- Treatment recommendations: consider symptoms, location, temperament of individual child