

# Things that go bump: Wart & Molluscum

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

---

---

---

---

---

---

---

---

## Disclosures

- Off-label use of products may be discussed
- No relevant financial disclosures
- Consultant: Pfizer, Inc (2017)

---

---

---

---

---

---

---

---

## 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

---

---

---

---

---

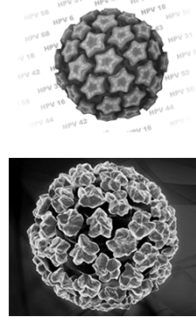
---

---

---

## 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

---

---

---

---

---

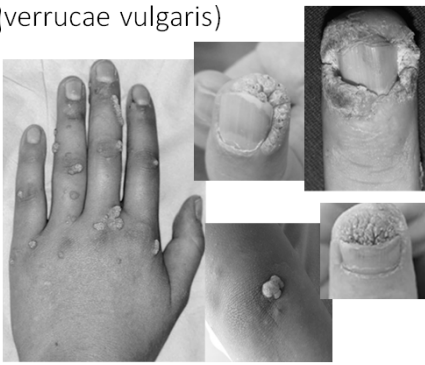
---

---

---

### Common warts (verrucae vulgaris)

- HPV 1, 2, 4 and 7
- Common locations
  - Hands
  - Fingers
    - Periungual
    - Subungual
  - Elbows
- May see "black dots"



---

---

---

---

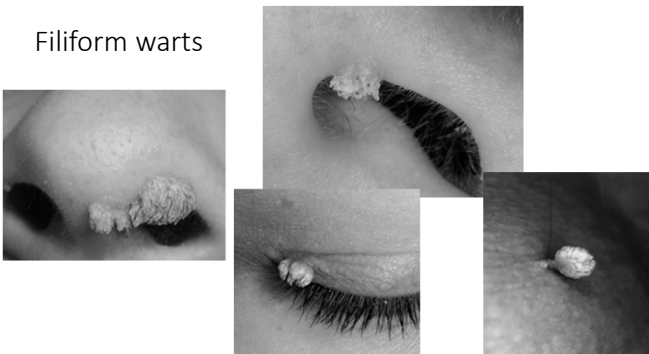
---

---

---

---

### 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



---

---

---

---

---

---

---

---



THE DREADED "PLANTERS" WART.

---

---

---

---

---

---

---

---

## 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

---

---

---

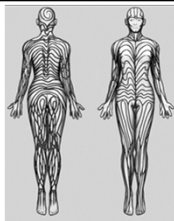
---

---

---

---

### Epidermal nevus



---

---

---

---

---

---

---

### Corn



### Callus



### Talon Noir



---

---

---

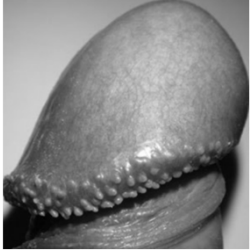
---

---

---

---

Pearly penile papules



---

---

---

---

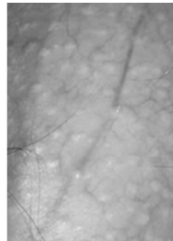
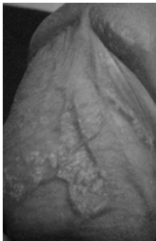
---

---

---

---

Fordyce spots



---

---

---

---

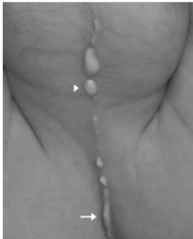
---

---

---

---

Median raphe cysts



---

---

---

---

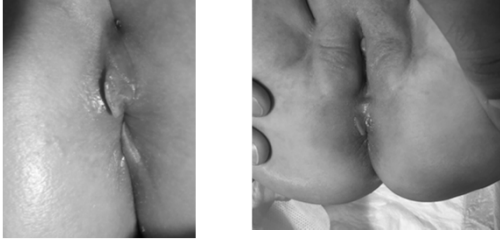
---

---

---

---

Infantile perianal pyramidal protrusion



---

---

---

---

---

---

---

---

Pseudoverrucous papules and nodules



---

---

---

---

---

---

---

---

Molluscum contagiosum



---

---

---

---

---

---

---

---



## Wart Treatments

---

---

---

---

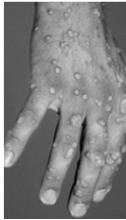
---

---

---

### 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



---

---

---

---

---

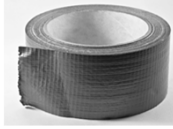
---

---

## 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



---

---

---

---

---

---

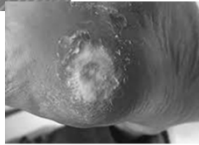
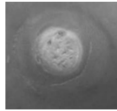
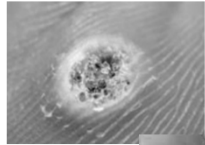
---

---

## 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 to warts > 6 mm with caution
  - "Ring warts" may appear



---

---

---

---

---

---

---

---

## "Ring warts"

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



---

---

---

---

---

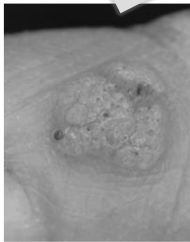
---

---

---

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

**BUSTED**



---

---

---

---

---

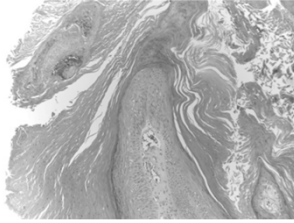
---

---

---

## 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

---

---

---

---

---

---

---

---

## Immunotherapy for warts

### Injected

- Contact immunotherapy
  - Intralesional 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- $\gamma$
  - 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

---

---

---

---

---

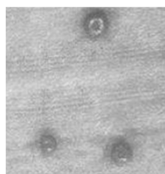
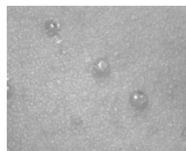
---

---

---

## Molluscum contagiosum

- Common childhood skin infection
- Caused by *molluscum contagiosum*, a pox virus
- Transmission
  - Skin-to-skin
  - Auto-innoculation
  - Fomites
- Typical resolution: within many months to few years
- May leave depressed pox-like scars



---

---

---

---

---

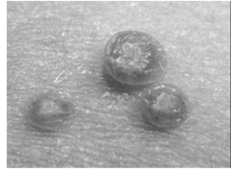
---

---

---

## Molluscum contagiosum

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



---

---

---

---

---

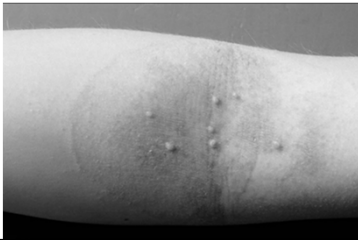
---

---

---

## 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

---

---

---

---

---

---

---

---