

# **Verrucae Vulgaris (Warts)**

## **Background**

1. Benign epidermal neoplasms, cutaneous manifestations of human papilloma virus (HPV)
2. Manifest in different forms depending on location and specific strain of HPV
  - Common warts (*Verrucae vulgaris*)
  - Plantar warts (*verrucae plantaris*)
  - Flat or planar warts (*verrucae plana*)
  - Genital warts (*condyloma acuminata*)

## **Pathophysiology**

1. Pathology of disease
  - Most HPV types infect peripheral cutaneous portions of the body
    - Certain types associated with specific locations, such as:
      - HPV type 1 which is associated primarily with plantar warts, commonly affecting soles of the feet
      - HPV types 6 and 11 which commonly affect anogenital areas
  - Incubation period of virus following exposure is 2-6 months
2. Epidemiology
  - Occurs in approx. 10% of children and young adults
  - Greatest incidence 12-16 yo with greater predilection of girls over boys
  - Peak incidence 13 yo in females and 14.5 yo in males
3. Risk factors
  - Transmitted by skin to skin contact, with sites of skin trauma being most vulnerable to inoculation of the virus (Koebner phenomenon)
  - Certain occupations more susceptible to infection such as handlers of meat, poultry, and fish
4. Morbidity/mortality
  - Most neoplasms are benign
    - Some subtypes associated with carcinoma
  - Condylomata caused by HPV types 16 and 18 are associated with penile and cervical cancer

## **Diagnosis**

1. Dx primarily clinical
2. Location (genital, plantar, palmar, face, hands, etc.)
3. Morphology
  - Common warts
    - Dome-shaped, flesh-colored with black dots on the surface
  - Filiform warts
    - Flesh-colored projections stemming from a base
  - Plantar wart
    - Tender, round nodules
    - Typically on the sole of the foot
  - Flat warts
    - Small (0.1-0.3 cm), flat-topped papules
4. Pinpoint bleeding upon debridement

- If uncertain, shave biopsy can be obtained and sent to pathology for confirmation of diagnosis

### **Differential Diagnosis**

1. Amelanotic malignant melanoma
2. Porokeratosis
3. Lichen planus
4. Seborrheic keratosis
5. Acrochordon
6. Clavus ("corn")
7. Callus
8. Squamous Cell Carcinoma
9. Traumatic black heel

### **Therapeutics**

1. Warts will spontaneously clear in 40% of children in about 2 years
2. Consider removal of warts that cause pain, bleeding, or question of malignancy
3. Topical:
  - Salicylic acid (17% solution)
    - Requires at least 6-12 weeks before results are noted
  - Dinitrochlorobenzene (DNCB) 2% solution (contact immunotherapy)
  - 10% silver nitrate solution
    - Every other day
    - Side effects include mild-moderate burning and itching
    - Transient discoloration of skin may occur, usually resolves in about 1 week post treatment
  - Zinc sulfate (5%, 10% applied 3 times daily for 4 weeks)
    - Works well for plane but not as effective for common warts
  - Zinc oxide ointment (20%, 40% applied BID)
    - Similar efficacy as salicylic acid
  - Topical alpha-lactalbumin plus oleic acid
    - No significant side effects noted
  - Imiquimod 5% cream applied BID (Aldara)
    - Effective for recalcitrant warts
    - Side effects may include erythema, erosions, pruritus and bacterial infections
    - Pregnancy category C
  - Formic acid puncture technique
    - 85% formic acid may be applied topically or via needle puncture to lesion
  - 5-Fluorouracil (5% cream applied daily)
    - When used in conjunction with occlusive therapy, improves effectiveness
    - Small percentage of patients developed onycholysis
  - Retinoids
    - Useful for flat warts
    - May cause systemic side effects and local irritation
    - Pregnancy category C
  - Duct tape

- Wart tape may be utilized for treatment of periungual warts in order to avoid damage to nail bed growth plate from cryosurgery or electrosurgery
- Recommended time frame is 4-6 weeks (grade C recommendation)
- Evidence shows only modest benefit from using duct tape

#### 4. Intralesional:

- Injection of skin test antigens
  - Improves wart clearance
  - No significant difference noted when compared to interferon alfa-2b alone with saline
- Injection of Candida antigen (0.1 mL)
- Injection of mumps or Candida skin test antigens
- Intralesional bleomycin (250-1000 units/mL)
  - Has shown to be effective for palmar, plantar and periungual warts
- Intralesional 5-fluorouracil (200 mg/4 mL), lidocaine (20 mg/1 mL) and epinephrine (0.0125 mg/mL)
  - Side effects include local hyperpigmentation, erythema, edema, ulceration and scarring

#### 5. Oral:

- Oral medications not shown to be effective in Tx
- Zinc sulfate (10 mg/kg/day, max. of 600 mg/day)
  - High rate of adverse effects
  - These include nausea, vomiting and mild epigastric pain
  - Also, itching, an increase in size and number and tenderness were noted to occur prior to resolution of warts
- Cimetidine: there is insufficient evidence to support the use of cimetidine for the treatment of warts
- Levamisole (Ergamisol)
  - Insufficient evidence to support use for warts

#### 6. Surgery:

- Not recommended due to risk of scarring

#### 7. Alternatives:

- Cryotherapy
  - No significant difference when compared to placebo
- Photodynamic therapy
- Pulse dye laser
  - Effective for palmoplantar warts

### **Follow-up**

1. Warts that have been unresponsive to treatment should be considered for referral to a dermatologist
2. Warn patients to avoid skin-skin contact with involved areas

### **Evidence-Based Inquiries**

1. Are oral agents effective for the treatment of verruca vulgaris?
2. What non pharmacological treatments are effective against common non genital warts?
3. Is duct tape effective for treatment of common warts?

## References

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