

Madigan Army Medical Center

Referral Guidelines

Warts

Diagnosis/Definition

- Warts are benign tumors of the skin and other epithelial tissues.
- They appear as discrete keratotic papules or plaques and can be classified by their location (plantar, genital, periungual, etc.).
- They are most common in children and young adults.
- The etiologic agents for these infections are a class of double-stranded DNA viruses called papillomaviruses.

Initial Diagnosis and Management

- The initial diagnosis is generally clinical based on physical exam. Location, duration and extent should be noted. If there are lesions near a mucous membrane, these should be examined as well. If the diagnosis is not obvious a biopsy may be indicated.
- Education of the patient is very important. Since warts are the result of the immune system not recognizing the virus as foreign, many of the treatment options are for the purpose of inducing inflammation to activate the immune system, not to kill the virus per se. Therefore, it is often necessary to keep some degree of inflammation on the wart to keep the immune system active in that local area. Sporadic treatment is unlikely to help, and concurrent treatment at home and in the office may be more helpful. Also, before treatment is applied, if the skin over the wart is especially hyperkeratotic/thick, then this skin should be pared down with a #15 scalpel blade (in the office) or a pumice stone (at home). Patients should also be educated that the virus that causes warts is transmissible. Therefore, scratching the skin over the warts may result in spreading. Similarly, genital warts may be spread to a partner by direct contact, if the patient is sexually active.
- Treatment options include:
 - Doing nothing. Most benign warts will eventually resolve on their own, although it may take 1-2 years. In younger children, if the child resists treatment or finds it painful (e.g., cryotherapy), this is always an option.
 - Acids - Salicylic acid preparations on formulary are Occlusal (17%) and Mediplast (40%); with some instructional assistance, patients can use these at home. Similar Over-The-Counter (OTC) preparations are readily available.
 - Cryotherapy - Liquid Nitrogen may be applied for 8-10 seconds by spray or cotton applicator, with frost lasting for 20-30 seconds. Goal is to treat visible wart plus a millimeter "halo". After slow thawing, a second treatment may be applied.
 - Caustics (Podophyllin) - For genital warts (condyloma acuminata), in-office podophyllin may be used, with or without light cryotherapy. Avoid use in occlusive (under foreskin, ventral penis, etc.) environment. Condylox (podophylox) is on the formulary and patient applies gel twice a day for 3 consecutive days a week, repeating up to 4 – 8 weeks for external genital warts only.
 - Immune modulator (Imiquimod 5% [Aldara] cream) - Is on the formulary and may be selected for patients who fail cryotherapy and podophyllin therapy options (mention in "comments" section of CHCS when ordering). Apply once at bedtime, wash off after 6-

- 10 hours 3x/week every other day; treat for 16 weeks maximum. Aldara is not likely to help in plantar warts due to the thickness of the skin.
- Duct tape—Has been shown to actually work. Apply duct tape cut to the size of the wart and leave in place for 5 and preferably 7 days at a time. Replace it if it comes off. Remove on the 5th (or 7th) day and let it air out overnight. Repeat for another 5-7 days until the wart resolves.

Ongoing Management and Objectives

- Patients may be followed up at 2-4 week intervals. Again, it should be emphasized that although they are often refractory to therapy, most warts eventually resolve with persistent treatment.
- Self-treatment between visits is important to increase the rate of success.

Indications for Specialty Care Referral

- Periungual Warts, if large or refractory to the conservative treatment above.
- Markedly extensive warts (may indicate underlying immunodeficiency or disease).
- Large or numerous warts that are resistant to therapy for 6 months.

Criteria for Return to Primary Care

Warts have resolved and/or a suitable treatment plan has been established.
Pictures of [Warts](#) from NZ DermNet - New Zealand Dermatological Society

Last Review for this Guideline: **October 2009**
Referral Guidelines require review every three years.

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