

Management of Root Like Man: Case from Gatot Soebroto, The Indonesian Army National Hospital

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Background: Patients and clinicians experience the frustration of cutaneous viral warts due to human papilloma virus (HPV) infection. Verruca vulgaris, the common warts, appear in various forms at different body sites. Over 118 types of papilloma virus have been identified. The most common cutaneous warts are caused by types 1, 2, 4, 27, 57, and 19 HPV. The rare cases of generalized warts around the world are suspected to be caused by type 2 HPV. There are many treatment modalities for this disease but none is 100% effective yet.

Patient and Method : We report a 39-year-old male patient with generalized warts on various body parts (scalp, forehead, trunk, arms, lower leg and foot). The team consist of plastic surgeons, dermatologist, psychiatrist, pathologist, medical rehabilitationist, and internist. The treatment goals were to remove all warts, prevent recurrence of the disease, and improve the immunological status of the patient. Serial excisions were performed and closure attained using a combination of primary sutures, skin grafts (split- and full-thickness), and skin flaps. 5 Fluorouracil was administered on the raw surfaces before closure. Staged excisions were performed 11 times, with 3-4 weeks interval over a 1-year period. Interferon and cimetidine injection were also given to augment the immune system.

Results : All lesions were successfully excised and reconstructed. On a few fingers, hypertrophic scar and minor contracture ensued after closure by skin graft. Patient is able to carry out daily living activities independently. Patient was profoundly delighted and his quality of life improved.

Summary : Management of a rare generalized verruca vulgaris through a team approach, by multiple staged excision, 5-FU application before defect closure, combined with antiviral therapy, proved effective in a case.

Keywords : Generalized cutaneous warts, human papilloma virus, serial excision

Pendahuluan: Veruka vulgaris yang disebabkan oleh infeksi Human Papiiloma Virus (HPV) pada kulit sulit untuk disembuhkan. Veruka vulgaris ini bermanifestasi dalam bentuk yang berbeda pada area tubuh yang berbeda. Terdapat lebih dari 118 tipe HPV yang telah diidentifikasi. Veruka vulgaris pada tangan dan kaki disebabkan oleh HPV tipe 1, 2, 4, 27, 57 dan 19. Di dunia terdapat beberapa kasus langka generalized cutaneous warts yang disebabkan oleh HPV tipe 2. Terdapat banyak modalitas terapi untuk menatalaksana veruka vulgaris ini namun belum ada modalitas yang terbukti 100% efektif.

Pasien dan Metodologi: Seorang pria 39 tahun datang dengan veruka vulgaris pada seluruh tubuhnya (kepala, dahi, badan, tangan, betis dan kaki). Tim yang merawat terdiri dari berbagai disiplin ilmu yaitu bedah plastik, kulit kelamin, psikiatri, patologi, rehabilitasi medik, dan penyakit dalam. Tujuan dari terapi adalah untuk mengangkat seluruh lesi veruka vulgaris, mencegah kekambuhan, serta meningkatkan sistem imun pasien. Dilakukan eksisi veruka secara bertahap dan defek kulit ditutup dengan kombinasi modalitas jahit pimer, tandur kulit (split thickness dan full thickness skin graft), serta flap kulit. Sebelum ditutup diberikan 5 fluorourasil pada defek luka. Dilakukan sebanyak 11 kali operasi eksisi bertahap, dengan jeda waktu 3-4 minggu dalam kurun 1 tahun. Pasien juga mendapatkan injeksi cimetidin dan interferon untuk meningkatkan sistem imun.

Hasil : Seluruh lesi veruka berhasil dibuang dan direkonstruksi. Pada beberapa jari tangan, terjadi parut hipertrofik dan kontraktur ringan setelah ditutup dengan graft. Pasien dapat menjalani aktifitas sehari-hari tanpa memerlukan bantuan orang lain. Pasien sangat puas dan kualitas hidupnya dirasakan meningkat.

Ringkasan: Penanganan sebuah kasus veruka vulgaris generalisata dengan pembentukan tim, dimana pasien menjalani eksisi serial bertahap, diberikan 5-FU sebelum defek ditutup, serta pemberian kombinasi antiviral, dapat menangani sebuah kasus dengan hasil yang cukup baik.

Human papilloma virus (HPV) infection on the skin and genital area manifests as verrucal lesions. Infection is acquired

through direct or indirect contact to virus, exposures are found such as in the swimming pool or common washroom. Minor trauma or

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epithelial maceration heightens the risk of infection, allowing virus to enter the cutaneous basal membrane, an area mainly targeted by this virus. To date, about 118 types of HPV have been identified, each affecting different body areas.¹ Verrucas that are commonly found on the hands and feet are caused by type 1, 2, 3, 27, and 57 HPV.¹ Viral activity is depends upon the host immune system.^{1,2} The incidence of non genital verruca is found in 7-10% of the general population, mostly among the 12-16 year-old, affecting men as much as women. Approximately 23% of verruca will resolve spontaneously within 2 months, 30% within 3 months, and 65-75% in 2 years.

Although rarely life-threatening, verruca vulgaris invokes distress because they affect patients' quality of life, subjecting them to social embarrassment due to deformities presented by the lesions. This is especially true for the rare cases of generalized cutaneous warts where the majority of body areas are affected, such as in this case. To date, no single therapeutic modality cures HPV 100%. Several options which have been studied include (1) psychologic suggestive therapy through hypnosis to increase immunity;⁴⁻⁶ (2) application of occlusive duct tape to initiate local irritation which stimulates the immune system;^{1,7} (3) cryotherapy;^{1,8,13} (4) ablation of lesions through surgery or by electrical cauterization;^{1,9} (5) chemical peel by salicylic acid;^{1,4,13,14} (6) heat therapy using hot water, exothermic patches, ultrasound hyperthermia, lasers microwave, radiofrequency ablation, or photodynamic therapy;^{1,13,16} (7) antiviral therapy including cidofovir, blutaraldehyde, formaldehyde, and formic acid;¹ (8) and immunotherapy using alpha interferon such as 5-fluorouracil (5-FU), zinc supplementation, and cimetidine.^{9,18,19}

Verrucas also frustrate both the patients as well as doctors because lesions so often recurs, hence treatment is not always indicated. The American Academy of Dermatology agreed on a consensus for the therapeutic indication of verruca: (1) patient's wish; (2) symptoms of pain, bleeding, itch, and burning sensations; (3) lesions which exert either functional and/or aesthetic disability; (4) big and

numerous lesions; (5) to prevent further infection to the normal unaffected skin or other people;(6) immunocompromized patients; and (7) anogenital verruca.¹The frequent recurrence of verruca after treatment including surgical removal of lesions is attributable to a latent reinfection process. Patients who have had prior verrucas are also more prone to reinfection compared to the normal population.

This paper reports a successful management of a rare generalized cutaneous warts in the Gatot Soebroto National Army Hospital, Jakarta, Indonesia. A multi-disciplinary team was formed to treat the patient, consisted of plastic surgeon, dermatovenerologist, internist, pathologist, psychiatrist, and medical rehabilitationist.

PATIENT AND METHODS

A 39-year-old male was referred from a district hospital to our hospital in May 2008 complaining of hard, irregular, generalized skin lesions affecting most of his body areas. The lesion first occurred 15 years prior to admission, beginning on the right and left foot which then spread to hands and head. Lesions slowly grew and infiltrated other body parts. Tenderness and pruritus occasionally occurred, followed by fungal superinfection of the lesions which caused unpleasant odor. The lesions had undergone excisions several times at a local district hospital, but the lesions recurred and grew larger, hindered movements, and patient then had difficulty in performing daily tasks. For many years he chose to live in isolation due to shame, he built a small hut on the inner suburb and lived there alone.

Physical examination revealed a man with a blunted mood affect. Patient seemed withdrawn and uncooperative. On the skin surface, congregated hyperkeratotic lesions were found mainly on the upper and lower extremities; some solitary warts were found on the scalp, face, trunk, and the back (Fig. 1-2). The majority of lesions were covered by whitish malodorous hyphae. The lesions were rockhard and difficult to cleanse. Trichloroacetic acid (TCA) were applied and after several cleansing, the hyphae and odor were reduced. Laboratory

and radiologic exams were within normal limits. Immunology screening revealed normal IgM, IgG, IgA, CD4, and CD8 levels. IgE was elevated (2491 IU/mL, normal adult level <100 IU/mL) on admission, which went down to 884 IU/mL after a 1-year period of treatment. No other secondary infection such as HIV nor hepatitis were found. Patient was diagnosed with generalized verruca vulgaris with fungal secondary infection, and severe depression.

The main objectives of therapy were to eliminate all verrucal lesions, and prevent warts recurrence by boosting the immune system. Due to the great size and surface of lesions, multiple staged surgical excisions were scheduled. Full-thickness dermal excision of warts were performed with initial exsanguination and tourniquet application to control for bleeding. Open surface was then packed by 5-FU soaked gauzes, then closed using either primary sutures, skin grafts, or local flaps as

according to the reconstructive ladder in plastic surgery.¹⁰⁻¹² Skin graft donor was taken from areas with healthy unaffected skin such as the upper thigh, abdomen and back using an electric dermatome. Grafts were meshed to cover a large surface defect. An interval of 3-4 weeks was allowed between surgeries to give time for the donor area to heal. Smaller solitary lesions were cauterized by the dermatovenereologist. Postoperative intravenous antibiotic administration were given to prevent wound infection. Patient was also on antiviral therapy. A total of 11 surgeries were required to remove all lesions over a period of 1 year. Excisions were first performed on the upper extremities, scalp, followed by lower extremities (Fig. 3-7). At the end of the procedures, patient received 9 alpha interferon injections within one month.

During the course of treatment and wound care, pain level was tolerable. Dressings



Figure 1. Generalized verruca vulgaris presenting as cutaneous warts on various body parts mainly the extremities, scalp, trunk and the back.



Figure 2. Congregated hyperkeratotic malodorous lesions covered by hypae (whitish coating) on the ventral and dorsal side of arms and hands.



Figure 3. In the first surgery, lesions on the right volar arm was removed and covered by split-thickness skin graft (STSG) from the abdomen. Histopathological examination confirmed the diagnosis of generalized filliform verruca vulgaris with no signs of dysplasia.



Figure 4. Second surgery further excised the right upper limb lesion. Defect on the hand was covered by the combination of full-thickness skin graft (FTSG) from the inguinal, and STSG from the right thigh.



Figure 5. Three weeks after the second surgery, warts on the scalp were removed. Scalping rotational flap was used to covered the resultant defect. Some lesions on the back were excised and closed by primary suturing.

were first changed 4 days after surgery, and every 3 days thereafter until full epithelialization achieved. Skin graft donor dressings were changed 14 days after surgery. Pressure garments were then worn both on the donor as well as recipient sites until wound completes the remodeling phase. Patient underwent

regular physical therapy especially on the extremities to prevent joint stiffness. Psychiatric assessment and counseling was conducted regularly.

At the end of treatment course, almost all lesions were removed, all defects covered, and donor areas fully healed (Fig. 8). Patient



Figure 6. The fourth operation (left), and fifth surgeries (middle and right) removed lesions from the left upper extremity. Defect closure by combination of STSG and FTSG.



Figure 7. In the sixth operation (left), seventh operation (middle), and eighth operation (right) respectively, lesions from the left lower extremity were removed from the knee region, cruris, followed by foot. In the 9th to 11th surgeries, similar staged excision were performed on the right lower limb.

compliance on wearing pressure garments and committing to physical rehabilitations was fairly well, however hypertrophic scars and minor contractures developed on several fingers (Fig. 9). Patient was still able to independently perform activities of daily living such as eating, dressing, and writing. He was very satisfied with the result, his mood, affect, and quality of life were improved. He no longer suffered from severe depression, although slight adjustment was required to help him settle back into the community. A bimonthly alpha interferon

injection were continued in the outpatient clinic, and pressure garments were to be worn for up to two years after the last surgery.

RESULT

Generalized verruca vulgaris is a rare manifestation of cutaneous HPV infection. This article reports one such case successfully managed in our center with a multidisciplinary team approach targeting the multiple aspects problem presenting in the patient. Patient had previously seek medical help with multiple operations but lesions kept recurring and he



Figure 8. Final appearance of patient from anterior (left) and posterior view (right) after undergoing 11 staged excisions of generalized verruca vulgaris.

gave up. With the spread of the lesion, his ability to perform daily activities was hindered to a point where he could not properly clean himself, fungal infection grew on the lesions, became malodorous, and patient withdrew himself from the community. It was quite fortunate that a foundation managed to locate the patient and brought him for further treatment.

The choice of surgical intervention in this patient was based on the possibility that the active HPV infection attacking the basal dermal layer may cause further spread to the surrounding healthy skin, hence excising the whole dermal thickness will remove the infected areas as well as prevent further progression.^{1,9,21} Operations were staged for two reasons, first to minimize physiological upset due to intraoperative bleeding in excising certain surface area of the skin, and second because of limited availability of skin graft donor. Raw surface areas were reconstructed based on the reconstructive ladder principle, using a combination of primary suturing for smaller lesions on the face, trunk and back regions; rotational flap for the scalp, and the larger surface covered by grafts.¹⁰⁻¹² Electrical dermatome was used to harvest the skin graft instead of the conventional scalpel or Humby,



Figure 9. Postexcision of lesions, flexion contractures developed on the second and fifth digit of the left hand (left), and extension contractures on the second and third digit of the right hand (right).

with the advantage of obtaining a more consistent thin STSG which allows re-epithelialization of donor area within 3-4 weeks and hence the areas can be re-harvested. Thin STSG also gives the advantage of a greater graft take. To cover a larger surface area, grafts were manually meshed. Fixation sutures were implemented, combined with splinting directly after grafting to immobilize joint extremities to aid graft take-process. Dressings were changed only after the 4th day considering the inosculation process of graft healing which occurs after the 2nd day.^{12,23} Physical rehabilitation exercises were performed after 2 weeks of total immobilization, with pressure garments consistently applied. These will prevent joint stiffness, and give the advantage of avoiding the development of contractures and hypertrophic scars. Some contractures still inevitable developed on several fingers. This however, did not limit patient's ability to perform daily tasks. To correct these immature contractures, night-splinting and continuous pressure garments were applied.

Intraoperative topical 5-FU was applied onto the defects in hope to halt the latent viral mitosis and prevent recurrence. This effect is augmented by intravenous administration of Cimetidine and alpha interferon.^{1,13,18,19} Although

no preexisting infections were found in the patient, an elevated IgE level was found and improved overtime with the above antivirals. This enhanced immunity is also expected to prevent further warts recurrence.

Another important aspect to be noted is how at the beginning patient was having psychological problems, was severely depressed, withdrawn, and hesitant to go on with the treatments. With a psychiatrist in the team, proper counseling and treatment aided the patient to go through with all the planned therapies.

SUMMARY

With a team-approach and multiple therapeutic modalities, supported by patient's compliance with treatment protocols, we successfully managed a rare case of generalized verruca vulgaris and achieved all treatment goals. Patient was very satisfied, able to perform activities of daily living independently, and is expected to return into his community as a functional being.

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