

A Rare Case of Large, Unusual, and Mutilating Verruca Vulgaris With Cutaneous Horns Treated With Plastic Surgery

Aie Xu, MD; Suiquan Wang, MD; Dongqing Cheng, MD; Ping Wang, MD, PhD

Cutaneous horn is a morphologic designation for a protuberant mass of keratin produced by unusual cohesiveness of keratinized material. We report a rare case of large, unusual, and mutilating verruca vulgaris with cutaneous horns in a 39-year-old male peasant. To our knowledge, this is the first case of the underlying phalangeal bones being largely demolished, resulting in serious mutilation. The patient was successfully treated with plastic surgery. Of note in this case is the bone absorption of the terminal phalanges and loss of hand function.

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Case Report

A 39-year-old male peasant had multiple warty growths on both hands for more than 10 years. A papular, warty, dull brown, pea-size lesion on his right middle finger was accidentally noticed in 1985. He had no discomfort. Gradually, asymptomatic lesions grew both in number and size. The fingers of both hands became dramatically involved. The brown hard protrusions varied in shape, such as horns, branches, coral, or clamshells, and were seen over the dorsum of his hands. The hands could not hold objects and stretch, except for the index fingers. The lesions resulted in the loss of the patient's hand function and



Figure 1. Hard protrusions extending from the base of the phalanges of the hands over the patient's fingers and the dorsum of his hands, with varied shapes (ie, horns, branches, coral, clamshells)(A and B).

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Dr. Xu is from the Department of Dermatology, Dr. S. Wang is from the Department of Plastic Surgery, Dr. Cheng is from the Department of Radiology, and Dr. P. Wang is from the Dermatopathology Section, Department of Dermatology, all from The Third Hospital of Hangzhou, China.

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Reprints: Aie Xu, MD, Department of Dermatology, The Third Hospital of Hangzhou, Hangzhou, 310009, P.R. China (e-mail: xuaiehz@msn.com).

impacted his daily life. Drugs, frozen therapy, and laser therapy had been used in another hospital to treat the lesions with no obvious effects. Traditional Chinese medicine showed no improvement either.

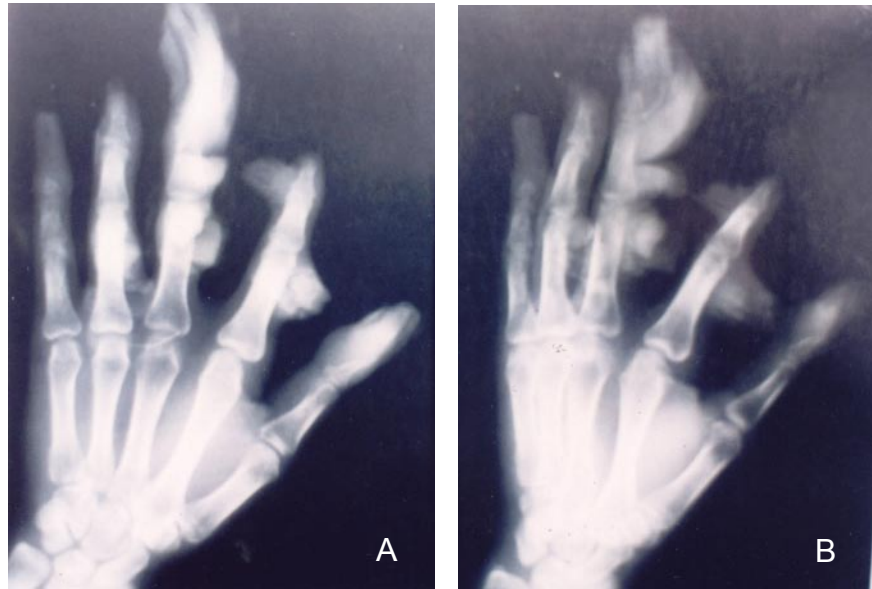
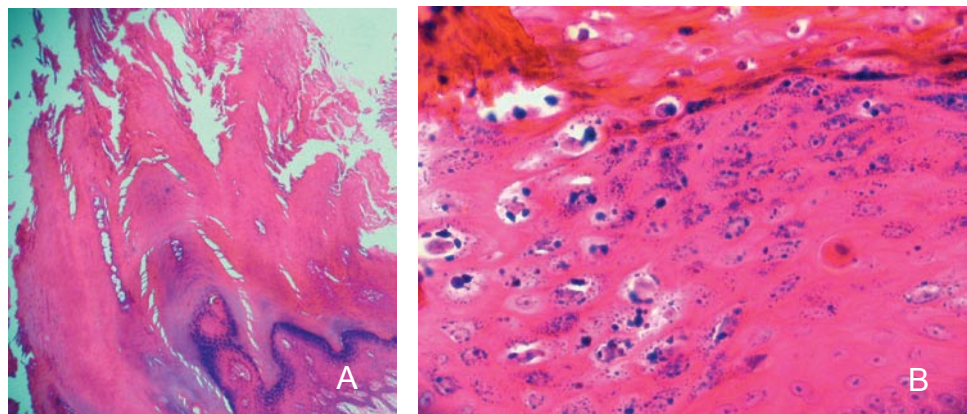


Figure 2. X-ray examination of the patient's hands revealed remarkable damage and absorption of the bone structure at the terminal phalanges of the left thumb, right index finger, right ring finger, left and right middle fingers, and left and right little fingers (A and B).

Figure 3. Biopsies of skin lesions showed hyperkeratosis and parakeratosis, verrucous and papillomatous hyperplasia, and acanthosis (H&E, original magnification $\times 40$)(A). Focal vacuolation and keratohyalin granules could be seen in the granular layer and the upper part of the prickle cell layer (H&E, original magnification $\times 400$)(B).



The patient presented to our hospital in November 1996. On physical examination, there were hard protrusions (approximately 2–15 cm in length) extending from the base of the phalanges of the hands over his fingers and the dorsum of his hands. The hard protrusions looked like horns, branches, coral, and clamshells, and were gray to brown (Figure 1). X-ray examination showed dense dendritic shadows of soft tissue in both hands. Remarkable damage was seen on the phalanges of the left thumb, right index finger, right ring finger, left and right middle fingers, and left and right little fingers (Figure 2). The findings from the routine examination of urine and blood, liver function test, blood sugar test, and blood immunoglobulin levels were normal. The biopsies of skin lesions showed hyperkeratosis and parakeratosis, verrucous and papillomatous hyperplasia, and acanthosis (Figure 3A). Focal vacuolation

and keratohyalin granules could be seen in the granular layer and the upper part of the prickle cell layer (Figure 3B). All excisional lesions were carefully checked by 4 dermatopathologists. The histologic features had no evidence of verrucous carcinoma or other malignancy.

The diagnosis was verruca vulgaris with cutaneous horns. The horn lesions on both hands were excised and skin grafts from the patient's thighs were used on the hands. The bone structure was dramatically absorbed at the terminal phalanges of the left thumb, right index finger, right ring finger, left and right middle fingers, and left and right little fingers. Amputation was performed on these fingers (Figure 4).

At 1-year follow-up, the wounds healed well, and the function of the remaining joints recovered. The lesions had not recurred at 10-year follow-up.

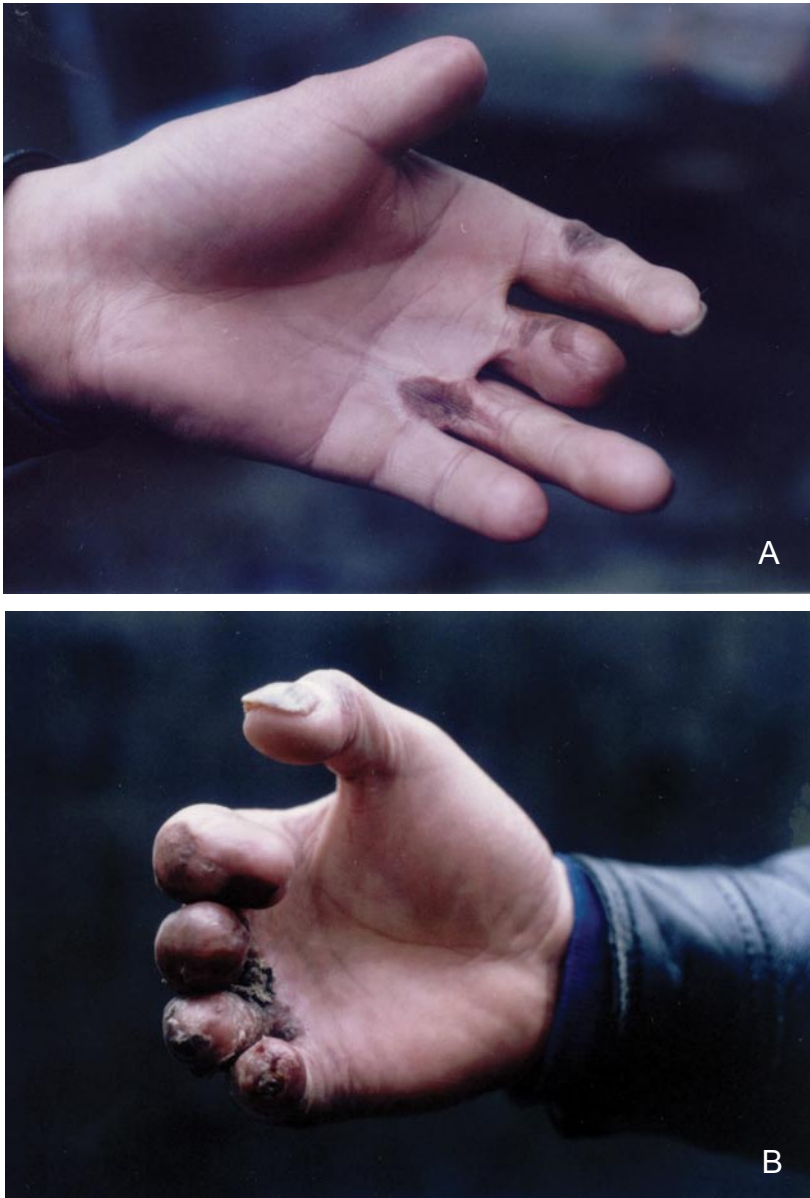


Figure 4. Patient's hands after lesions were excised and skin grafts applied (A and B). Improvement was achieved with plastic surgery and the lesions were replaced by a neat appearance and functional position.

Comment

Cutaneous horn is a morphologic designation for a protuberant mass of keratin resembling the horn of an animal and was described centuries ago.¹ It results from unusual cohesiveness of keratinized material from the superficial layers of the skin or implanted deeply in the cutis. Of importance is not the horn itself, which is dead keratin, but rather the underlying condition,²⁻⁵ which may be benign (ie, viral warts, seborrheic keratosis, epidermal nevus, organoid nevus, ichthyosis hystrix, keratoacanthoma, trichilemmal cyst, lichen planus), premalignant (ie, solar keratosis, arsenical keratosis, Bowen disease), or malignant (ie, squamous cell carcinoma; rarely basal cell carcinoma, metastatic renal carcinoma, granular cell tumor, sebaceous carcinoma,

Kaposi sarcoma). Most commonly, cutaneous horn is a single lesion that arises from seborrheic keratosis. A study by Yu et al⁶ of 643 cutaneous horns found that 39% of the cutaneous horns were derived from premalignant or malignant epidermal lesions and 61% of the cutaneous horns were derived from benign lesions.

Our case was confirmed clinically and histologically to be verruca vulgaris with cutaneous horns. This is a relatively common finding in the literature. Nevertheless, some aspects deserve special attention. First, the largest reported cutaneous horn measured 35 cm in circumference and 20 cm in length; the horn from verruca vulgaris seldom reaches a length of 0.5 cm,¹ but in our case, the horns were large, with a maximum length of

15 cm and involved both hands, which is unusual. Second, verruca vulgaris with cutaneous horns accompanied by absorptive changes of the bone structure at the terminal phalanges are rare. To our knowledge, this is the first case of the underlying phalangeal bones being largely demolished, resulting in serious mutilation. Thappa et al⁷ reported a similar case of extensive verruca vulgaris with cutaneous horns accompanied by absorptive changes of the terminal phalangeal bone of the fingers on both hands, resulting from subungual warty lesions, in a 32-year-old man; however, further treatment and follow-up information were not provided. The mechanism of the bone damage is likely due to the direct pressure of the hard horny and warty lesions on the bone tissues.

Our patient was successfully treated with plastic surgery. The lesions had not recurred at 10-year follow-up.

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