

Large cutaneous horn in a young African-American female

Jeremy Bosworth, Ashley Modica, Ikenna Nweze, George Angus

ABSTRACT

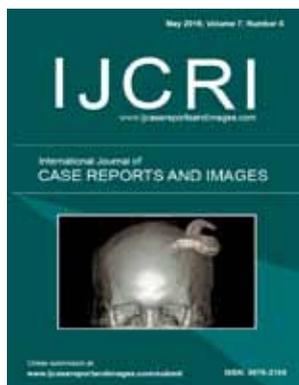
Introduction: Cutaneous horns are hyperkeratotic lesions that can be present anywhere on the body. These horns are not themselves malignant. The base of these horns can harbor a malignant histopathological diagnosis and thus special care must be taken to not only excise the horns, but to obtain clear margins while doing so.

Case Report: A case of a young African-American female with a large cutaneous horn.

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Introduction: Cutaneous horns are hyperkeratotic lesions that can be present anywhere on the body. These horns are not themselves malignant. The base of these horns can harbor a malignant histopathological diagnosis and thus special care must be taken to not only excise the horns, but to obtain clear margins while doing so. **Case Report:** A case of a young African-American female with a large cutaneous horn. **Conclusion:** All horns must be presumed malignant until a pathological diagnosis proves otherwise. While there are general risk factors for the malignant potential of these horns, as reported in other cases, there are no consistent predictors to determine which horns will be malignant.

Keywords: Cutaneous, Horn, Malignancy, *Verruca vulgaris*

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Jeremy Bosworth¹, Ashley Modica¹, Ikenna Nweze¹, George Angus¹

Affiliations: ¹MD, Nassau University Medical Center, Department of Surgery, 2201 Hempstead Turnpike, East Meadow, NY 11554, USA.

Corresponding Author: George Angus L.D MD, Nassau University Medical Center, Department of Surgery, 2201 Hempstead Turnpike, East Meadow, NY 11554, USA; Email: langus@numc.edu

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INTRODUCTION

Cutaneous horns are hyperkeratotic lesions that can be present anywhere on the body; these horns are not themselves malignant. However, they may be harboring malignant cells at their base [1–3]. There is a large variation in the appearance of these cutaneous horns and though some features are more likely to define a hidden malignancy these are not hard and fast rules [1–5]. Studies have shown that some of the most important risk factors for horns concealing malignancy include horns present in sun exposed areas and those with tenderness at the base [1, 2, 4–6]. Cutaneous horns are rare and that owes to the difficulty of having an exact epidemiologic description and treatment plan [2, 3]. It is widely accepted across literature that surgical excision of cutaneous horns is warranted with at least a shave margin of the base to achieve a histologic diagnosis in the area where malignancy is most likely to be located [4, 5]. The recurrence rate of cutaneous horns after excision is not well documented in literature; Mical et al. were able to present multiple cases of giant cutaneous horns (17–25 cm) that were excised without malignancy and were followed from 2–15 years without any evidence of recurrence [7]. Clinicians must be aware that there is not a definite connection between features of a cutaneous horn and their individual tendencies to be malignant therefore every horn encountered must be treated as potentially malignant [1].

CASE REPORT

A 28-year-old African-American female with past medical history significant only for bipolar disease and recent childbirth, presented to the general surgery clinic with a two-year history of a growth on her frontal scalp. She reported the mass grown over a two-year period, became painful, and occasionally bled from the base. She denied any other associated symptoms. Prior to two years ago, she reported no similar issues, no associated family history, and reported family was all from America.

Physical Examination large, spiral, horn-shaped mass protruding from frontal scalp. Length of the mass was approximately 22 cm total length and 3 cm in diameter at the base. Hard and smooth in texture with the feeling similar to a thick finger nail. No active bleeding noted. There was some scaling around the base. However, it was mobile with the scalp and did not appear fixed to the skull (Figure 1).

On follow-up examination, imaging studies consisting of a skull X-ray and CT scan were reviewed (Figure 2 and Figure 3) and the patient was scheduled for excision of the mass. Plastic surgery was consulted in the event a skin graft was necessary.

Patient was taken to the operating room and the mass was excised down to galea with 5 mm margin at the periphery of the base of the horn (Figure 4). The scalp was further mobilized to create skin flaps allowing approximation of wound edges. The wound was closed primarily. The patient was extubated and subsequently discharged with post-surgical follow-up instructions.

On initial follow-up appointment the patient reported doing well with minimal pain. The wound was noted to be healing well with no signs of dehiscence or infection (Figure 5). The pathologic report returned the description of a 5.0x5.0 cm hair bearing skin base in continuity with a 21.0x4.0x4.0 cm smooth, firm, yellow-white serpiginous structure with a diagnosis of *Verruca vulgaris* completely

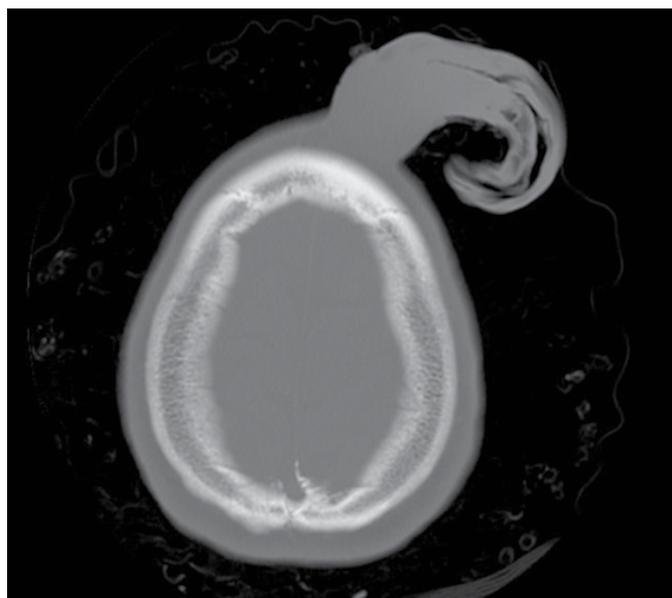


Figure 2: Lesion on computed tomography scan. No bony attachment was seen.



Figure 3: Computed tomography scan, 3-D reconstruction.



Figure 1: Cutaneous horn on initial physical examination.



Figure 4: Excised specimen showing 5 mm margin.



Figure 5: Postoperative surgical scar.

excised. No evidence of malignancy. The remainder of the patient's postoperative course was uneventful.

DISCUSSION

Cutaneous horn is a clinical diagnosis referring to a conical protrusion from the skin that is comprised mostly of compacted keratin [1, 2]. The mechanism of hyperkeratosis and compaction of the keratin is unknown [2, 3]. Cutaneous horns have a similar appearance to animal horns; however they lack the presence of a central bone [3, 4, 8]. These horns can come in different sizes, shapes and multiplicities. The histopathological area of importance is the base of the horn where the diagnosis of an underlying benign, pre-malignant, or malignant lesion can be made [3, 8].

There are no consistently defined distinguishing features between benign or malignant lesions in cutaneous horns. However, there are some observations that have been noted. Malignancy is more likely in the setting of horns that are tender at the base, those found on older male patients, in horns with wide bases or small height to base ratios, and in those patients whose horn is located on a sun-exposed area of their body [1, 2, 4, 5, 8]. Additionally noted, less reliable risk factors favoring malignancy include hardness at the base, the length of time a horn has been growing and a history of trauma to the area of growth [2]. Size by itself is not an indication of malignancy [2, 4]. Given these observations, our patient, a young female was at lower risk for malignancy, and although she did have some pain and bleeding at the base, these symptoms are non-specific. The pain at the

base of the horn is noted as a malignancy risk factor [4, 5], however the size of our patient's horn was so large that it is possible that the weight of the horn was actually causing her pain and discomfort.

Sun exposure is believed by many to be the most important risk factor for cutaneous horn formation. Indeed, the incidence of horn formation is greater in lighter skinned patients and rare in African-Americans [5, 6]. The most common histopathological diagnoses noted at the hyper-proliferative base include actinic keratosis and squamous cell carcinoma, and about 30% of the overall known cases of cutaneous horns have been found on the upper face and scalp [4, 5]. Given the rarity of cutaneous horns, there is no clear consensus on different epidemiological factors [2,3]; however, retrospective case reviews have been done to evaluate trends with respect to these horns. In a retrospective study of 222 cases of cutaneous horns in Brazil, it was noted that these horns were more common in females [65%], more common in patients age greater than 50, and the head and the upper limbs were the two most common locations [35% and 31%, respectively]. In terms of histopathological diagnosis, 41% were benign and 58% were either pre-malignant [83% actinic keratosis] or malignant [93% squamous cell carcinoma] [1]. The most common benign diagnoses at the base of the horns studied in Brazil were warts and keratoacanthoma [5]. Other benign findings identified at the base of these horns included seborrheic keratosis, trichilemmoma, molluscum contagiosum and benign epithelial hyperplasia [1, 5]. Quite often, the process of hyperkeratosis needed to form a cutaneous horn develops over the area of a hyper-proliferative lesion [1]. In the Brazilian study, 80% of the 222 cases reviewed were white subjects and only 15% were "non-white." In a literature review run by Gomes et al. on the major electronic databases, there are very few reports of cutaneous horns, and of those cases there are only a small number of cases reported on darker skinned people [5]. Other reviews have also demonstrated that cutaneous horns are very rare in the African population [6]. It has been reported that these horns can form in an area of repeated trauma such as reported by Gomes et al. Gomes presented a case where a woman had a history of repeated trauma by scratching with her fingernails to an area on her scalp where her giant cutaneous horn grew from. This repetitive trauma was noted as a possible reason for progression of the horn to squamous cell carcinoma [5]. In terms of treatment and removal of these cutaneous horns, it is important to obtain a tissue diagnosis from the base of the horn. There is little literature regarding specific margins and work-up for lesions, however some consistent guidelines have been identified. A shave excision is advised in removal of these horns to obtain adequate tissue sampling and free margins [4, 5]. A 3-mm area of margin is suggested especially in the face where the incidence of malignant lesions is more prominent [2]. Lymph nodes should also be examined and any suspicious nodes should be biopsied [5].

CONCLUSION

Cutaneous horns are rare but can be visually striking as demonstrated by our case. The presence of these horns has significant clinical implications and as such, physicians are to be reminded of their malignant potential. The pathology from the base of the lesion must be obtained to adequately treat the patient and to plan further surveillance after removal. Our patient had a benign growth at the base of her cutaneous horn and has been without recurrence.

Author Contributions

Jeremy Bosworth – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Ashley Modica – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Ikenna Nweze – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

George Angus – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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ABOUT THE AUTHORS

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Jeremy Bosworth is currently a PGY-2 surgical resident at the Nassau University Medical Center, East Meadow, New York. He earned his undergraduate degree (BS) in Biology from the University of Arizona and his MD degree from St George’s University, Grenada



Ashley Modica is a PGY-3 General surgery resident at Nassau University medical Center, East Meadow, New York. She did her undergraduate studies at the State University of New York at Geneseo where she obtained a Bachelor’s of Science degree in Biology. She subsequently attended the American University of the Caribbean where she obtained her MD degree.



Ikenna Nweze is currently a PGY-3 General Surgery Resident at Nassau University Medical Center, East Meadow, New York, USA. He is a native of Canada and attended Medical School at the University of Jos, Nigeria where he obtained a Bachelor of Medicine and Bachelor of Surgery (MBBS). He has published over 10 articles during his surgical training, and has presented at various regional and national surgical conferences in the United States. His research interest lies in understanding molecular pathways involved in sepsis and shock in severely injured patients. Recently, he has been studying trauma care and substance abuse in the underserved population and he plans to continue being involved in various research studies in the future. He intends to pursue an academic career and continue to study pathways in sepsis and shock in future.



George Angus is Director of Trauma and Vice-Chair of surgery at Nassau University Medical Center, East Meadow, New York. He is also an Associate Professor of Clinical Surgery in SUNY @ StonyBrook. He earned a BS degree in biology from Fordham University, Bronx, New York and an MD degree from the Albert Einstein College of Medicine, Bronx, New York. He also received a Master in Public Health from Columbia University, New York, New York. He has published over 65 research papers in national and international academic journals. His research interests include trauma care and management, critical care and acute care surgery and more recently the historical aspects of surgery worldwide. He is also interested in Bariatric surgery and created the first multidisciplinary surgical weight reduction center on Long Island, New York. E-mail: langus@numc.edu

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