



CLINICOPATHOLOGICAL EVALUATION OF CUTANEOUS HORNS AT UNUSUAL ANATOMICAL SITES: AN EIGHT-PATIENT CASE SERIES FROM A TERTIARY CARE CENTRE IN EASTERN INDIA

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ABSTRACT

Background: Cutaneous horn is a conical projection of compact keratin that may arise from benign, premalignant, or malignant epidermal pathology. Because clinical morphology alone cannot reliably identify the underlying lesion, histopathological evaluation is essential. Regional data on cutaneous horns presenting at unusual anatomical sites in Eastern India remain limited.

Objective: To describe the demographic profile, anatomical distribution, surgical management, histopathological findings, and postoperative outcomes of patients presenting with cutaneous horns at a tertiary care centre in Eastern India.

Methods: This observational descriptive case series included eight consecutive patients with clinically diagnosed cutaneous horn lesions who underwent excision biopsy in the Department of General Surgery, Deben Mahata Government Medical College and Hospital, between 1 January 2024 and 31 December 2024. Demographic details, occupation, socioeconomic status, lesion site, duration, treatment, histopathology, and postoperative outcome were summarized descriptively.

Results: The series included six males and two females, with a mean age of 49.6 +/- 14.3 years (range, 35-75 years). Seven patients belonged to a low socioeconomic background and one to a low/lower-middle socioeconomic background. Lesions involved the head and neck region in four patients, trunk in three, and hand in one. The mean duration of pathology was 21.4 +/- 10.2 months (range, 8-42 months). All patients underwent day-care excision biopsy under local anaesthesia, and the postoperative course was uneventful. Histopathological examination showed orthokeratotic hyperkeratosis in five cases, seborrheic keratosis in two cases, and trichilemmal keratinization in one case; all lesions were benign.

Conclusion: In this small single-centre case series, cutaneous horns at unusual sites occurred predominantly among patients from low socioeconomic backgrounds and were histopathologically benign. Nevertheless, the known malignant potential of cutaneous horn bases supports complete excision biopsy and mandatory histopathological assessment in all cases.

Keywords: Cutaneous Horn, Cornu Cutaneum, Orthokeratotic Hyperkeratosis, Seborrheic Keratosis, Trichilemmal Keratinization, Excision Biopsy.

INTRODUCTION

Cutaneous horn, or cornu cutaneum, is a clinical term describing a conical, hyperkeratotic projection from the skin that resembles an animal horn. The horn itself consists of compact keratin; however, the pathology at the base may range from benign lesions to premalignant conditions and invasive malignancy.



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Reported benign substrates include seborrheic keratosis, verruca vulgaris, and trichilemmal keratinization, whereas squamous cell carcinoma remains a major malignant association. Cutaneous horns are commonly reported on sun-exposed sites such as the scalp, face, ears, forearms, and dorsum of the hands, particularly in older adults.² Large lesions or lesions at unusual sites may cause visible disfigurement, pain, functional inconvenience, difficulty with clothing, and psychological distress. Importantly, the external morphology of a cutaneous horn does not reliably predict whether the underlying lesion is benign, premalignant, or malignant. Therefore, complete excision biopsy with histopathological examination is both diagnostic and therapeutic. Published data from

Eastern India on cutaneous horns at unusual anatomical locations remain limited. This case series describes the clinicopathological profile of eight patients presenting with cutaneous horn lesions to a tertiary care centre in Eastern India, with emphasis on demographic characteristics, lesion distribution, histopathological findings, operative management, and early postoperative outcome.

METHODS

Study design and setting

This was an observational descriptive case series conducted in the Department of General Surgery, Deben Mahata Government Medical College and Hospital. The study period was 12 months, from 1 January 2024 to 31 December 2024.

Participants

Eight consecutive patients with clinically diagnosed cutaneous horn lesions who were willing to undergo excision biopsy were included. Patients unwilling to provide consent or patients with incomplete clinical or histopathological records were excluded.

Data collection

Clinical details recorded included age, sex, occupation, socioeconomic status, anatomical site, duration of pathology, symptoms when documented, treatment, histopathological diagnosis, and postoperative outcome. Clinical photographs were obtained after consent and with maintenance of confidentiality.

Surgical management and histopathology

All patients underwent excision biopsy under local anaesthesia using aseptic precautions as day-care procedures. Excised specimens were submitted for histopathological examination. Postoperative follow-up was used to assess wound healing and complications.

Statistical analysis

Data were analysed descriptively. Continuous variables are presented as mean $\pm$ standard deviation with range, and categorical variables are presented as frequencies and percentages.

RESULTS

Demographic and clinical profile The series included eight patients: six males (75.0%) and two females (25.0%). The mean age was 49.6 $\pm$ 14.3 years, with a range from 35 to 75 years. Seven patients (87.5%) belonged to a low socioeconomic background, and one patient (12.5%) belonged to a low/lower-middle socioeconomic background. Occupations included farmer (n=2), blacksmith (n=1), homemaker (n=1), labourer (n=1), housemaid (n=1), traffic police personnel (n=1), and street vendor (n=1). The anatomical distribution was heterogeneous. Four lesions (50.0%) occurred in the head and neck region, including the parietal scalp, left medial canthus, right posterior auricular-

temporal region, and right forehead. Three lesions (37.5%) occurred on the trunk, including the left anterior chest wall and upper back. One lesion (12.5%) involved the right thumb near the nail. The mean duration of pathology was 21.4 $\pm$ 10.2 months, ranging from 8 to 42 months. Among the documented symptoms, patients reported cosmetic concern, intermittent pain, embarrassment or psychological distress, functional difficulty, and difficulty wearing clothes. Symptom-wise frequency could not be calculated because the available summary dataset did not provide complete symptom documentation for every individual case. Individual case summaries Case 1 was a 65-year-old male farmer from a low socioeconomic background with a 24-month cutaneous horn on the left anterior chest wall. Documented concerns included cosmetic disfigurement, intermittent pain, embarrassment, functional difficulty, and difficulty wearing clothes. Excision biopsy showed orthokeratotic hyperkeratosis and the postoperative course was uneventful. Case 2 was a 55-year-old male blacksmith from a low socioeconomic background with a 12-month lesion near the nail of the right thumb. Excision biopsy showed orthokeratotic hyperkeratosis and the postoperative course was uneventful. Case 3 was a 37-year-old female homemaker from a low socioeconomic background with a 42-month lesion over the parietal scalp. Excision biopsy showed seborrheic keratosis and the postoperative course was uneventful. Case 4 was a 48-year-old male labourer from a low socioeconomic background with a 24-month lesion over the upper back. Excision biopsy showed orthokeratotic hyperkeratosis and the postoperative course was uneventful. Case 5 was a 42-year-old female housemaid from a low socioeconomic background with an 8-month lesion near the medial canthus of the left eye. Excision biopsy showed trichilemmal keratinization and the postoperative course was uneventful. Case 6 was a 35-year-old male traffic police personnel from a low/lower-middle socioeconomic background with a 17-month lesion in the right posterior auricular-temporal region. Excision biopsy showed seborrheic keratosis and the postoperative course was uneventful. Case 7 was a 40-year-old male street vendor from a low socioeconomic background with a 24-month lesion over the upper back. Excision biopsy showed orthokeratotic hyperkeratosis and the postoperative course was uneventful. Case 8 was a 75-year-old male farmer from a low socioeconomic background with a 20-month lesion on the right side of the forehead. Excision biopsy showed orthokeratotic hyperkeratosis and the postoperative course was uneventful. Histopathological findings and outcome All eight lesions were benign on histopathological examination. Orthokeratotic hyperkeratosis was the

most common histopathological finding, identified in five patients (62.5%). Seborrheic keratosis was identified in two patients (25.0%), and trichilemmal keratinization in one patient (12.5%). No premalignant or malignant lesion was identified in this series. All patients underwent excision biopsy under local anaesthesia as day-care procedures, and the postoperative course was uneventful in all cases.

DISCUSSION

Cutaneous horn is a descriptive clinical diagnosis rather than a specific histopathological entity. Although the visible horn is composed of compact keratin, the lesion at its base may represent a benign, premalignant, or malignant process. This distinction is clinically important because the external morphology of a horn alone cannot reliably determine the nature of the underlying pathology. In the present case series, all eight patients had benign histopathological findings after excision biopsy, with orthokeratotic hyperkeratosis being the most frequent finding, followed by seborrheic keratosis and trichilemmal keratinization. This supports the principle that histopathological examination of the base is essential even when the lesion appears clinically innocuous.

The benign outcome in all cases contrasts with several larger histopathological studies in which a substantial proportion of cutaneous horns were associated with premalignant or malignant pathology. Yu et al., in a retrospective study of 643 cutaneous horns, reported that 61.1% arose from benign lesions, whereas 38.9% were associated with premalignant or malignant epidermal lesions.² Similarly, Mantese et al., in a 222-case histopathological study, found benign pathology in 41.44% of cases and premalignant or malignant pathology in 58.56% of cases, with actinic keratosis predominating among premalignant lesions and squamous cell carcinoma being the major malignant association. Copcu et al. also emphasized that although most lesions in their series were benign, malignant lesions including squamous cell carcinoma and basal cell carcinoma were identified, reinforcing the need for histological confirmation in every case.

Compared with these studies, the absence of premalignant or malignant lesions in the present series may reflect the small sample size, the relatively younger mean age of the cohort, the inclusion of several non-classical anatomical sites, or local referral patterns. Therefore, the 100% benign rate observed here should not be interpreted as evidence that cutaneous horns at unusual sites are biologically harmless. The age and sex distribution of this series also differs partly from larger published cohorts. The mean age in the present series was 49.6 years, whereas Mantese et al.

reported a mean age of 67.42 years.² Yu et al. found that premalignant or malignant change was associated with older age and male sex.¹ Although the present series showed male predominance, with six of eight patients being male, no malignant lesion was detected.

This discrepancy again suggests that sex alone is insufficient for risk stratification and must be interpreted alongside age, site, lesion morphology, symptoms, and histopathology. The younger age profile in the present study may have contributed to the benign histological pattern, but the sample size is too small to draw a definitive conclusion. Anatomically, cutaneous horns are most frequently reported on sun-exposed areas such as the face, scalp, ears, forearms, and dorsum of the hands. In the study by Mantese et al., lesions were most commonly located on the head and upper limbs.² Yu et al. similarly found that premalignant and malignant lesions were more likely to occur on sun-exposed sites, including the nose, pinnae, backs of hands, scalp, forearms, and face.¹ In the present study, half of the lesions involved the head and neck region, which is consistent with the established predilection for sun-exposed sites. However, the series is notable for its heterogeneous anatomical distribution, including the anterior chest wall, upper back, periungual thumb region, medial canthus, posterior auricular-temporal region, and forehead. The trunk lesions and the periungual thumb lesion highlight that cutaneous horns may arise outside the classical distribution and should not be dismissed because of an unusual location.

The thumb lesion in this series is particularly relevant when compared with reports of cutaneous horns occurring at uncommon acral sites. Nair et al. described a cutaneous horn over the palmar aspect of the middle finger with underlying actinic keratosis, emphasizing that even unusual sites may harbour premalignant pathology. In the present series, the thumb lesion showed orthokeratotic hyperkeratosis and was benign. Nevertheless, comparison with such reports supports the view that acral or periungual horns require complete excision and histological evaluation, especially in patients with occupational exposure, chronic trauma, or delayed presentation. The case near the medial canthus also deserves attention because periocular cutaneous horns have specific diagnostic and functional implications. Mencia-Gutierrez et al. studied 48 eyelid cutaneous horns and showed that periocular horns may be associated with benign as well as premalignant and malignant base lesions. In the present series, the medial canthus lesion showed trichilemmal keratinization and had an uneventful postoperative course. Although benign, this finding underlines the need for careful surgical planning in cosmetically and functionally sensitive areas and

supports early excision before lesions enlarge or cause ocular irritation, cosmetic concern, or patient anxiety. Orthokeratotic hyperkeratosis was the most common histopathological pattern in this series. This finding indicates a benign hyperkeratotic process, but it is important to recognize that the histological diagnosis of a cutaneous horn depends on adequate sampling of the base. Superficial removal of only the keratin projection may miss dysplasia or invasive malignancy in the underlying epidermis. Seborrheic keratosis, identified in two patients, is a well-recognized benign substrate for cutaneous horn formation and has also been reported in larger studies.^{2, 3} The single case showing trichilemmal keratinization is also consistent with the spectrum of benign follicular lesions that may present clinically as a horn. Brownstein described trichilemmal horn as a distinct benign clinicopathological entity characterized by massive horn formation with trichilemmal keratinization at the base. The present case therefore expands the clinicopathological diversity of the series and reinforces the role of histopathology in identifying the specific underlying process. Several clinical features have been proposed as predictors of premalignant or malignant pathology. Yu et al. reported that older age, male sex, sun-exposed site, wide base, and a low height-to-base ratio were associated with premalignant or malignant change.¹ Pyne et al. further observed that horns associated with invasive squamous cell carcinoma were more likely to have a height less than the diameter of the base, absence of terrace morphology, erythema at the base, and pain. In the present series, some patients reported pain, cosmetic concern, functional difficulty, embarrassment, or difficulty wearing clothes, but lesion dimensions and standardized documentation of base morphology were not available for all cases. Therefore, no clinicopathological correlation between morphology and histology could be assessed. This limitation is important because systematic recording of horn height, base diameter, erythema, tenderness, induration, ulceration, and dermoscopic features would strengthen future studies. The socioeconomic and occupational profile of this series is also noteworthy. Most patients belonged to a low socioeconomic background and several had occupations associated with outdoor activity or manual labour, including farmers, a labourer, a street vendor, and traffic police personnel. The mean duration of pathology was more than 21 months, suggesting delayed presentation. This delay may be related to limited health awareness, financial constraints, normalization of slow-growing lesions, occupational priorities, or embarrassment associated with visible lesions. However, because this was a small descriptive series without a control group,

socioeconomic status cannot be interpreted as an independent risk factor. It may instead reflect the patient population served by the tertiary care centre. All patients underwent excision biopsy under local anaesthesia as day-care procedures, and the postoperative course was uneventful in every case. This supports excision biopsy as a safe, practical, and definitive approach for small to moderate cutaneous horns in a general surgery setting. Complete removal provides tissue for histopathological diagnosis and may be curative for benign lesions.

In cases where histology reveals actinic keratosis, Bowen disease, squamous cell carcinoma, basal cell carcinoma, or other malignancy, further management should be guided by tumour type, margin status, depth of invasion, anatomical site, and regional lymph node assessment. The main strength of this case series is that it provides regional clinicopathological data on cutaneous horns from a tertiary care centre in Eastern India, including lesions at relatively unusual anatomical sites. However, the findings must be interpreted in light of several limitations: the sample size was small, the study was single-centre and descriptive, lesion dimensions were not uniformly recorded, symptom documentation was incomplete, dermoscopic assessment was not included, and follow-up was limited. Future prospective studies with standardized clinical photography, dermoscopy, lesion measurements, histological margin assessment, and longer follow-up would help clarify the relationship between clinical morphology and underlying pathology in Indian patients. Strengths and limitations This case series provides regional clinicopathological data from a tertiary care centre in Eastern India and includes lesions from diverse anatomical sites. The main limitations are the small sample size, single-centre design, absence of standardized lesion dimensions in the available dataset, incomplete symptom-wise documentation for all cases, and limited follow-up data. Long-term recurrence and late complications could not be assessed.

CONCLUSION

Cutaneous horns at unusual anatomical sites in this eight-patient series occurred predominantly among individuals from low socioeconomic backgrounds and were histopathologically benign. Orthokeratotic hyperkeratosis was the most frequent histopathological finding. Because cutaneous horns may overlie benign, premalignant, or malignant pathology, complete excision biopsy with mandatory histopathological examination remains essential. Early presentation and timely surgical management can reduce cosmetic, psychological, and functional morbidity.

Tables and Figures

Table 1. Clinicopathological profile of the eight patients

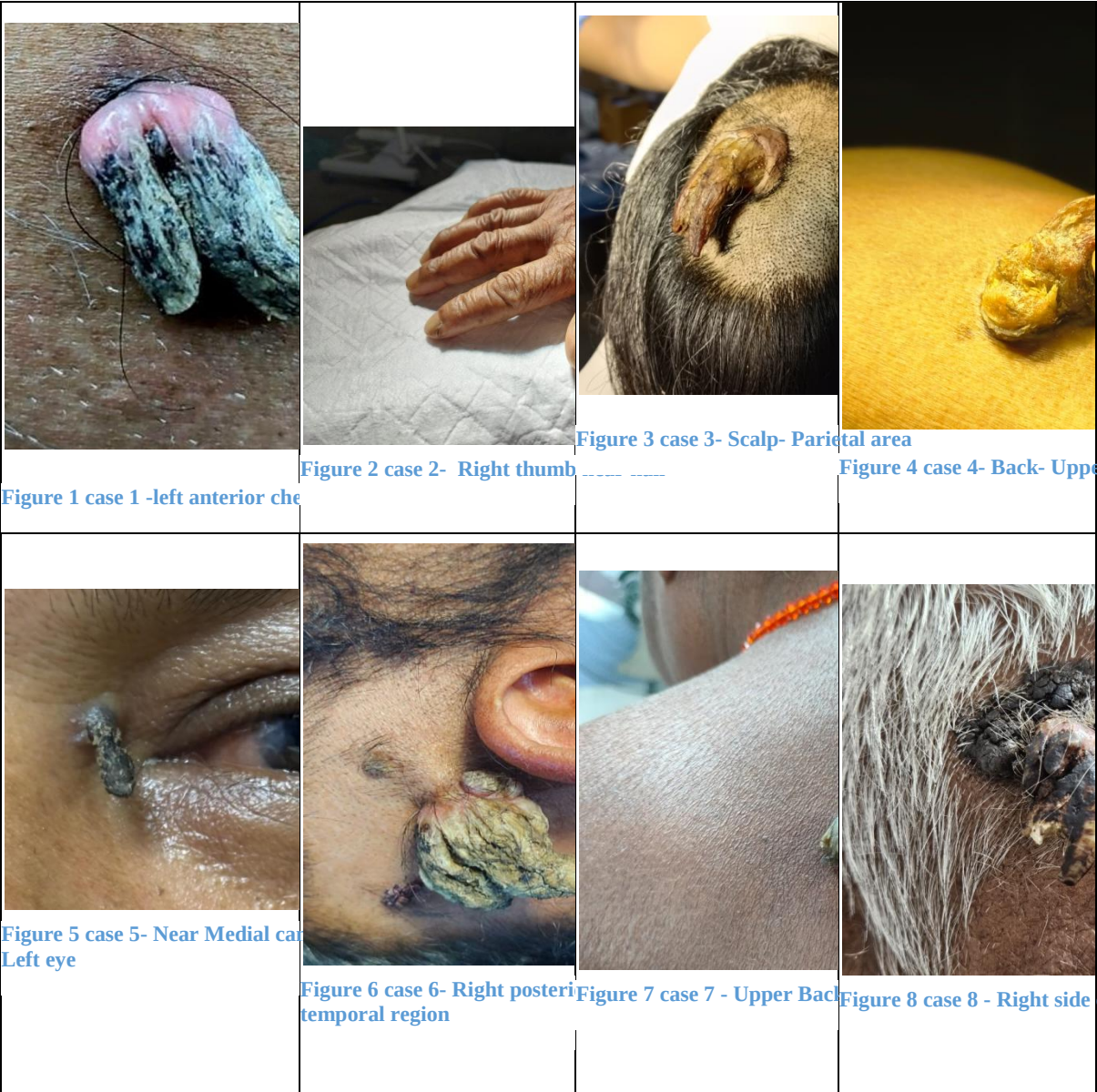
Cas e	Age (years)	Sex	Occupation	Socioeconomic status	Site	Durati on	Treat ment	Postoper ative course	Histopath ology	Nat ure 1
Traf fic poli ce	Low/lo wer middle	Right poster ior auricu lar-tempo ral region	17 months	Excision biopsy under local anaesthesi a; day-care procedure	Uneve ntful	Seborr heic keratos is	Benig n 7	40	Male	Stre et ven dor
Cas e	Age (years)	Sex	Occupation	Socioeconomic status	Site	Durati on	Treat ment	Postoper ative course	Histopath ology	Nat ure 1
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Cas e	Age (years)	Sex	Occupation	Socioeconomic status	Site	Durati on	Treat ment	Postoper ative course	Histopath ology	Nat ure 1

Table 2. Summary of demographic, anatomical, and histopathological findings

Variable	Finding
Number of patients	8
Age	Mean 49.6 +/- 14.3 years; median 45 years; range 35-75 years

Sex distribution	Male 6 (75.0%); female 2 (25.0%)
Socioeconomic status	Low 7 (87.5%); low/lower-middle 1 (12.5%)
Anatomical distribution	Head and neck 4 (50.0%); trunk 3 (37.5%); hand 1 (12.5%)
Duration of pathology	Mean 21.4 +/- 10.2 months; median 22 months; range 8-42 months
Treatment	Excision biopsy under local anaesthesia as day-care procedure in all patients
Postoperative outcome	Uneventful in all patients
Histopathology	Orthokeratotic hyperkeratosis 5 (62.5%); seborrheic keratosis 2 (25.0%); trichilemmal keratinization 1 (12.5%)
Pathological nature	Benign 8 (100.0%); premalignant/malignant 0 (0.0%)

Figure 1. Clinical photographs of the eight cutaneous horn lesions included in the case series. A: left anterior chest wall. B: right thumb near nail. C: scalp, parietal area. D: upper back. E: near medial canthus of left eye. F: right posterior auricular-temporal region. G: upper back. H: right side of forehead.



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