ORIGINAL RESEARCH PAPER
Volume - 14 | Issue - 07 | July - 2025 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

DECODING TRICHOEPITHELIOMA: THE HAIR FOLLICLE TUMOUR ENIGMA

Dermatology

Dr. Ilanjiyan M* MD DVL, Junior Resident Department Of Dermatology, Venereology & Leprosy, Sree Balaji Medical College And Hospital. *Corresponding Author

Dr. Santhosh S MD DVL, Junior Resident Department Of Dermatology, Venereology & Leprosy, Sree Balaji Medical College And Hospital.

ABSTRACT

Trichoepithelioma is a benign adnexal skin tumour arising from hair follicle structures. It typically presents as small, firm, skin-coloured papules on the face, often in a familial pattern. While benign in nature, it may mimic basal cell carcinoma clinically and histologically, necessitating accurate diagnosis. Advances in dermoscopy and histopathology have improved differentiation, and management ranges from observation to surgical excision depending on the lesion's extent and cosmetic concern.

KEYWORDS

basal cell carcinoma, horn cyst, follicular neoplasm, lasers

INTRODUCTION:

Trichoepithelioma belongs to the spectrum of follicular neoplasms and usually manifests during adolescence or early adulthood. It may occur sporadically or follow an autosomal dominant inheritance pattern, particularly in multiple trichoepithelioma syndromes. The lesions predominantly affect the central face and are more common in females.[1] Genodermatoses such as Brooke-Spiegler syndrome may include trichoepithelioma as part of a broader clinical presentation, underlining the need for thorough genetic and clinical assessment.[1]

Case-Report:

A 41-year-old female came to the dermatology OPD with complaints of skin colored raised lesion present over the scalp for past 5 years. It was insidious in onset and gradually progressive in nature. History of difficulty in combing the hair present. There was no history of any drug intake prior to the onset of lesion, photosensitivity, trauma, fever, Itching, pain. Patient is a known case of diabetes mellitus for 6 months and hypertension for 6 years, under regular medication. No other known co-morbidities. No history of similar lesions in the family.

General and systemic examination were normal. Cutaneous examination revealed skin colored nodule of size 2x3 cm over the left parietal area of the scalp [Figure-1]. Nodule was firm, pedunculated, non-tender. No other abnormal findings were seen. Differential diagnosis of cylindroma, basal cell carcinoma, trichoepithelioma was made and excision biopsy done.

Excision was done from the scalp lesion, Histopathology section showed epidermis with underlying neoplasm arranged in multiple well-defined nodules. Nodule consisting of solid nests, adenoid pattern with horn cyst formation. Occasional foci of entrapped fat seen. The epithelial cells show vague basaloid and squamous differentiation. The intervening stroma is hyalinized. [Figure.2A & 2B]. Based on clinical features & histopathological features, a provisional diagnosis of trichoepithelioma was made.

DISCUSSION:

Trichoepithelioma presents both diagnostic and therapeutic challenges due to its morphological overlap with basal cell carcinoma. Although benign, its clinical presentation in solitary or atypical forms can closely mimic Basal Cell Carcinoma.[1] The presence of translucent, dome-shaped papules with telangiectasia in high-risk zones like the nose and cheeks may raise concern, necessitating biopsy in uncertain cases.[2]

Histologically, trichoepitheliomas display nests of basaloid cells with peripheral palisading, horn cysts, and a fibrocytic stroma, but unlike Basal Cell Carcinoma, they lack aggressive features such as stromal retraction or mitotic figures.[3] Immunohistochemical markers like Ber-EP4 which is positive in both and Bcl-2 can aid differentiation. Furthermore, CD10 staining patterns and the absence of cytokeratin 17 overexpression also assist in distinguishing the two entities.[4]

Genetically, familial multiple trichoepitheliomas have been linked to mutations in the CYLD gene, a tumour suppressor gene also implicated in other adnexal tumours such as cylindromas and spiradenomas. This mutation underlies syndromes like Brooke-Spiegler and Familial Cylindromatosis, where patients may present with various adnexal tumours simultaneously.[5] Genetic counselling becomes essential in such scenarios to guide long-term surveillance and family planning.

Therapeutically, treatment is often conservative, especially in asymptomatic or minimally visible lesions. For cosmetically or psychologically distressing cases, options include surgical excision, dermabrasion, electrosurgery, and laser therapies like CO_2 and Er:YAG lasers.[6] Topical agents like imiquimod or retinoids have been tried with variable success, primarily in non-invasive or early-stage lesions. In diffuse or syndromic cases, repeated surgeries may be required, highlighting the need for multidisciplinary care involving dermatologists, geneticists, and occasionally oncologists.[7]

Finally, ongoing research into the molecular pathways involved in adnexal tumours may pave the way for targeted treatments in the future, particularly for syndromic or recurrent forms. Long-term follow-up is recommended in familial cases to monitor for transformation or development of other adnexal tumours.

CONCLUSION:

Trichoepithelioma, while typically found on the central face, can occasionally present at unusual anatomical sites, posing a diagnostic challenge. Such atypical presentations may lead to confusion with other adnexal tumours or cutaneous malignancies, especially when solitary or occurring outside classical distribution patterns. Recognition of its varied morphological spectrum, supported by dermoscopy, histopathology, and immunohistochemistry, is essential for accurate diagnosis and appropriate management. Clinicians should maintain a high index of suspicion when encountering indolent nodules in uncommon locations and consider trichoepithelioma in the differential, particularly in patients with no prior history of skin cancer or relevant syndromic features. Early biopsy and histopathologic confirmation remain the cornerstone of diagnosis, enabling timely intervention and ruling out malignancy.

Conflicts Of Interest: nil.
Acknowledgements: nil.
Financial Aid: nil.

Figure.1: skin colored nodule of size 2x3 cm over the left parietal area of the scalp.

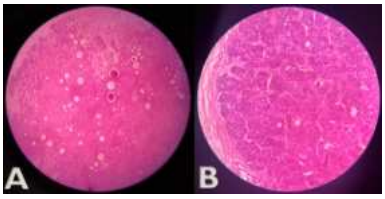

Figure.2A & 2B: Nodule consisting of solid nests, adenoid pattern with horn cyst formation seen with occasional foci of entrapped fat. The epithelial cells show vague basaloid and squamous differentiation with intervening stroma being hyalinized.

REFERENCES:

1. GRAY HR, HELWIG EB. Epithelioma adenoides cysticum and solitary trichoepithelioma. Archives of Dermatology. 1963 Jan 1;87(1):102-14.
2. Johnson H, Robles M, Kamino H, Walters RF, Lee A, Sanchez M. Trichoepithelioma. Dermatology online journal. 2008 Oct 1;14(10).
3. Sobh M, Alluri A, Clendenes-Salazar CA, Paulus R, Magdal L, Seferoglou I, Ali SN, Justo D, Sari Z, Jahoda J, Aziz M. Solitary Trichoepithelioma of the Scrotum, an Uncommon Site of an Uncommon Tumor: Report of a Case with a Brief Literature.
4. Wang Q, Ghimire D, Wang J, Luo S, Li Z, Wang H, Geng S, Xiao S, Zheng Y. Desmoplastic trichoepithelioma: a clinicopathological study of three cases and a review of the literature. Oncology letters. 2015 Oct 1;10(4):2468-76.
5. Nanda R, Srivastava D, Nijhawan RI. A Systematic Review of the Epidemiology, Clinical Characteristics, Treatment, and Outcomes for Desmoplastic Trichoepithelioma: Underscoring Mohs Micrographic Surgery in Management. Dermatologic Surgery. 2024 Aug 1;50(8):695-8.
6. Taylor A, Rice AS. Desmoplastic Trichoepithelioma. InStatPearls [Internet] 2024 Oct 6. StatPearls Publishing.
7. Luo S, Gu S, Xu R, Yang E, Tu L, Liang H, Huang X, Ren J, Zan T. A treatment recommendation for trichoepithelioma: Thoughts on selection of treatment timing and method. Chinese Journal of Plastic and Reconstructive Surgery. 2024 Mar 1;6(1):37-40.