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Case Report

Dermatology Section

Trichofolliculoma in Paediatric Age Group Boy: A Rare Case Report Highlighting Dermoscopic and Histopathological Findings

YERAGONDA SUSMITHA[1], TS RAJASHEKAR[2], K SURESHKUMAR[3]

ABSTRACT

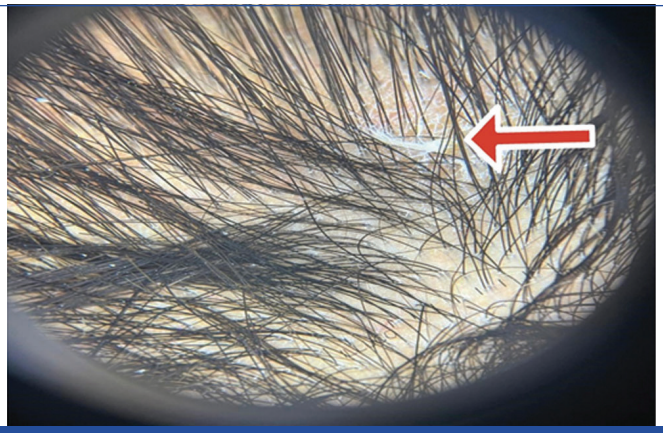
Trichofolliculoma (TF) is a rare, benign skin appendage tumour derived from hair follicle structures, most frequently observed in adults and primarily affecting the head and neck regions. Its occurrence in the paediatric population, particularly on the scalp, is exceptionally uncommon and often overlooked, as it can clinically resemble more prevalent lesions such as dermoid cysts, epidermoid cysts, and pilar cysts. This case report presents a unique situation involving a nine-year-old boy with a solitary, asymptomatic, skin-coloured nodule on the scalp that had slowly increased in size since early childhood. Clinical evaluation revealed a central pore with a tuft of protruding hair, along with mild surrounding erythema and fine scaling. Dermoscopy showed a central white plug of hair, yellowish-white lobular areas, and visible dilated blood vessels, collectively pointing toward a follicular tumour. Complete surgical excision was performed, and histological analysis confirmed the diagnosis of TF, revealing a dilated central follicle giving rise to multiple smaller secondary follicles and keratin-filled cystic areas. This case underscores the importance of considering TF as a potential diagnosis in children presenting with longstanding scalp nodules, even when asymptomatic. Early dermoscopic assessment, followed by confirmatory histopathology, plays a vital role in accurate diagnosis and curative treatment, helping to prevent misdiagnosis and avoid unnecessary interventions. The rarity of this presentation highlights the need for clinical awareness and reinforces the diagnostic value of correlating clinical, dermoscopic, and histological findings in paediatric dermatology.

Keywords: Cutaneous histopathology, Hair follicle tumours, Paediatric skin diseases, Scalp lesions

CASE REPORT

A nine-year-old boy was presented by his parent with a longstanding, asymptomatic lesion on the scalp, which had been present for approximately seven years. It was first observed at the age of two and exhibited slow, progressive enlargement without any associated discomfort, discharge, or episodes of inflammation. The lesion remained clinically stable, with no evidence of trauma or secondary infection.

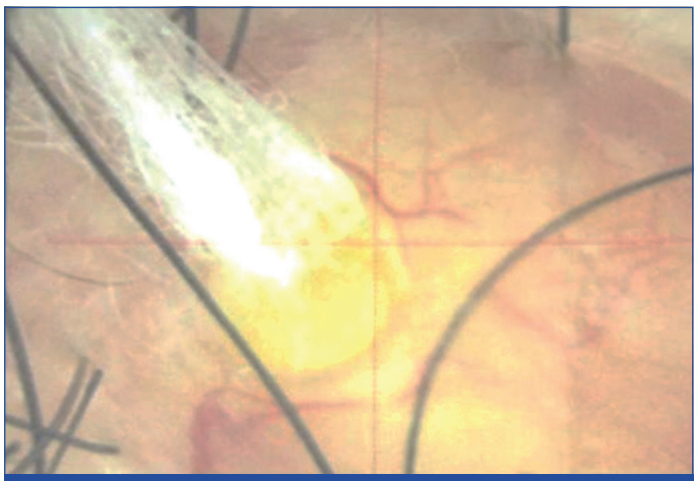
The child's past medical and surgical history was unremarkable. He had no known allergies or chronic health conditions, and the family history revealed no similar dermatological concerns. Clinical examination showed a well-defined, solitary, skin-coloured nodule measuring approximately 1×1×2 cm on the scalp, featuring a central ostium from which a tuft of hair protruded. Mild erythema and fine scaling surrounded the lesion [Table/Fig-1]. Systemic examination findings were within normal limits.



[Table/Fig-1]: Trichofolliculoma - solitary skin colored nodule with central pore with tuft of hair.

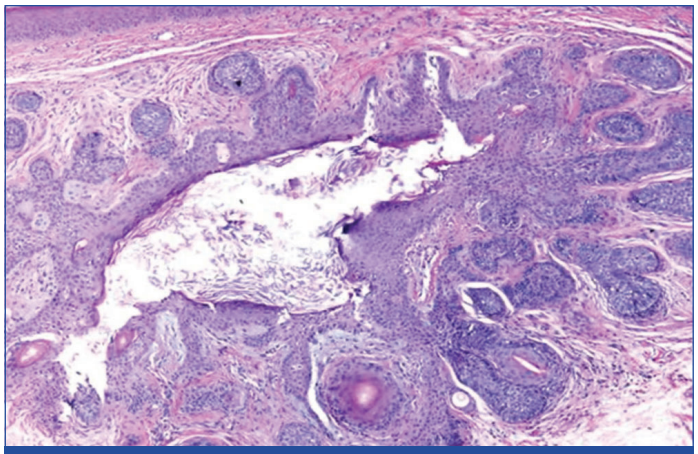
A provisional diagnosis of Trichofolliculoma (TF) was established, with differential considerations including dermoid cyst, epidermoid cyst, pilar cyst, and follicular hamartoma. A complete excisional biopsy was performed under local anaesthesia, and histopathological analysis confirmed the diagnosis, demonstrating multiple secondary hair follicles emanating from a dilated central follicular structure. Complete surgical excision was curative, and the patient was advised to follow-up routinely to assess wound healing and rule out recurrence. No additional interventions were deemed necessary.

On dermoscopic examination, a central pore or opening with a tuft of fine hair protruding from it was noted. White or yellowish lobules surrounding the central pore were also observed. The lack of a pigment network was another dermoscopic feature identified. Ulceration was not seen in dermoscopic examinations [Table/Fig-2].



[Table/Fig-2]: Dermoscopic examination reveals a well-circumscribed yellowish macule featuring a central white hair plug, surrounded by prominent dilated capillaries.

Specimens for histopathological analysis were obtained from the scalp following the complete surgical excision of the lesion under local anaesthesia. Microscopic examination revealed a central dilated follicular structure from which multiple small secondary hair follicles radiated, a characteristic feature of TF. Keratin-filled cysts were observed within the dilated follicles. The lesion was surrounded by fibrous stroma, with no evidence of malignancy or secondary infection [Table/Fig-3].



[Table/Fig-3]: Central dilated follicular structure with multiple small secondary follicles radiating from the central structure. Keratin filled cysts of dilated follicles. Fibrous stroma seen {(Haematoxylin and Eosin (H&E)*40X}.

DISCUSSION

Trichofolliculomas (TFs) are uncommon tumours of the hair follicle lineage, arising from the incomplete or partial differentiation of pluripotent skin cells into follicular structures [1]. The condition was first identified and described by Meischer in 1944 [2]. TFs most commonly occur on the face, particularly around the nose, and are occasionally found on the scalp, with rare involvement of the neck [3]. In 1957, Hyman and Clayman described a comparable lesion and termed it a "hair follicle nevus [4]." However, Kligman AM and Pinkus H argued that the term "nevus" was unsuitable, as histopathological examination revealed various stages of hair follicle differentiation. Consequently, they supported the earlier name "trichofolliculoma" proposed by Meischer, which was subsequently accepted as the appropriate terminology for this tumour [5].

The aetiopathogenesis of TF is still not clearly understood. However, Kan L et al., proposed a hypothesis suggesting that alterations in two cell adhesion molecules may play a role: a reduction in E-cadherin expression, which normally suppresses hair progenitor cell differentiation, and activation of CD44, which facilitates the migration of newly formed cells that contribute to tumour formation [6]. Possible additional routes include member 9 of the bone-derived morphogenic protein family and the chromatin effector PYGO2, which are implicated in the regulation of hair follicle regeneration.

Finally, TF is a genuine tumour, even if it does not always show the signs of one. It does not fall within a range of lesions and is a well-defined clinicopathological entity. TF reveals androgen receptor expression in the stroma, as well as CK17, PHLDA1, and BerEP4 expression [7].

Typically, TF presents as a single, skin-coloured, dome-shaped papule or nodule featuring a central depression from which a tuft of fine vellus hair protrudes. It most commonly occurs in adults, particularly in the head and neck region, while onset during childhood is considered rare [8]. In some instances, a small tuft of hair may protrude from a centrally dilated pore. Although most cases develop spontaneously, there have been reports linking the onset to prior trauma [9,10]. The presence of central hairs emerging from a papular lesion is a notable clinical clue suggestive of TF; however, this feature is not unique to the condition. A similar presentation can be observed in folliculosebaceous cystic hamartoma. Despite this overlap, dermoscopic findings differ between the two entities. In folliculosebaceous cystic hamartoma, multiple yellowish-orange globular areas are typically seen, reflecting the dermal sebaceous component [3].

Paediatric presentations are extremely uncommon [11]. A similar case has been reported in a five-year-old girl who presented with an asymptomatic hairy elevated lesion on her nose since birth. Histopathologically, it was characterised by a dilated central follicular cavity containing keratin and multiple hair follicles at various stages of development. Surgical excision was curative, with excellent cosmetic outcomes and a low recurrence risk [10]. Another case of congenital Tufted Folliculoma (TF) on the right cheek has been reported in a three-month-old boy by Ishii N et al., [12].

Clinically, TF typically appears as a small, dome-shaped, skin-colored or erythematous nodule featuring a central pore, often adorned with a tuft of hair—a hallmark feature. Though benign and asymptomatic, it may mimic other more common cutaneous lesions, thus posing diagnostic challenges [7]. Dermoscopy and histopathology play crucial roles in accurately diagnosing TF, especially in paediatric cases where the clinical suspicion may be low due to rarity.

In this case, dermoscopy revealed a central pore with protruding hair tufts surrounded by yellowish-white lobules and prominent telangiectasia—features suggestive of a follicular tumour. The absence of ulceration or a pigment network helped rule out malignant or melanocytic lesions. Histopathological examination remains the gold standard, confirming the diagnosis by demonstrating a central dilated follicle from which numerous secondary follicles emanate, along with keratin-filled cystic spaces and fibrous stroma. This multi-modality diagnostic approach not only established the correct diagnosis but also avoided unnecessary over-investigation or overtreatment. Emphasising histopathology and dermoscopy is essential as these directly influence treatment decisions and prevent misdiagnosis of similar lesions like basal cell carcinoma or epidermoid cysts.

TF is considered rare, especially in children, and is often under-recognised. Due to its nonspecific appearance and overlapping features with other cystic or adnexal lesions (e.g., dermoid cyst, epidermoid cyst, pilar cyst, follicular hamartoma), clinicians may face diagnostic uncertainty [5]. In this case, the lesion's long-standing presence without symptoms, combined with its clinical appearance, raised several differential diagnoses. However, dermoscopy facilitated a focussed diagnostic pathway by highlighting key visual features suggestive of a follicular tumour. Histopathological confirmation provided definitive evidence, underscoring the value of correlating clinical, dermoscopic, and microscopic findings.

Management of TF is typically surgical. Complete excision is curative and also serves as diagnostic confirmation, with minimal risk of recurrence when adequately removed [3]. In this patient, surgical excision not only resolved the lesion but also reassured the family regarding its benign nature. Therefore, timely use of dermoscopy and histopathology can optimise clinical decision-making, avoid diagnostic delays, and ensure appropriate treatment.

CONCLUSION(S)

TF is an uncommon benign tumour of follicular origin, with its occurrence in the paediatric population—especially on the scalp—being exceptionally rare. This case underscores the need for clinicians to maintain a broad differential diagnosis when evaluating paediatric scalp nodules, as TF can resemble more frequently encountered entities such as dermoid or epidermoid cysts. The presence of a central pore with emerging hair, along with dermoscopic features such as yellowish-white lobular structures, a central hair plug, and visible telangiectasia, can be valuable in guiding the diagnosis. Definitive confirmation relies on histopathological evaluation, which typically reveals a central dilated follicle giving rise to multiple secondary follicles. Awareness of this rare entity is crucial to prevent diagnostic errors and avoid unwarranted interventions. In paediatric cases where clinical suspicion may be low, the integration of dermoscopic

assessment with histopathology enables prompt diagnosis and curative surgical excision. This case reinforces the importance of considering TF in the differential diagnosis of persistent scalp nodules demonstrating follicular characteristics, thereby facilitating timely and appropriate management while providing reassurance to caregivers.

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PARTICULARS OF CONTRIBUTORS:
1. Final Year Postgraduate Student, Department of Dermatology, Sri Devaraj Urs Academy of Higher Education and Research, Kolar, Karnataka, India.
2. Professor and Head, Department of Dermatology, Sri Devaraj Urs Academy of Higher Education and Research, Kolar, Karnataka, India.
3. Associate Professor, Department of Dermatology, Sri Devaraj Urs Academy of Higher Education and Research, Kolar, Karnataka, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. TS Rajashekar,
Professor and Head, Department of Dermatology, Sri Devaraj Urs Medical College and Hospital, Kolar-563101, Karnataka, India.
E-mail: rajashekardermat@sduaher.ac.in

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