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Short Communication

The Dermal Adnexa - Trichoadenoma

Anubha Bajaj*

Chemical Pathology and Haematology, Histopathologist in A.B. Diagnostics, India

***Corresponding Author:** Anubha Bajaj, Chemical Pathology and Haematology, Histopathologist in A.B. Diagnostics, India.

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Preface

Trichoadenoma is an exceptional, benign, cutaneous adnexal neoplasm engendered from the hair follicle, particularly infundibular portion of pilo-sebaceous unit. The neoplasm was initially scripted by Nikolowski and described as an "organoid follicular hamartoma" in 1958. Trichoadenoma chiefly represents an abortive, mature differentiation towards hair follicular structures. Currently, trichoadenoma is considered as a histological enigma although immune histochemical evaluation indicates morphological differentiation towards a distinctive follicular neoplasm [1].

Disease characteristics

Trichoadenoma of Nikolowski is a benign, cutaneous, follicular neoplasm representing as a gradually evolving dermal nodule. The verrucous variant is an exceptional entity which clinically simulates benign keratosis. Generally, trichoadenoma is preponderant in the adults and demonstrates an equivalent gender predilection. Majority (> 50%) of lesions arise upon the face and approximately 25% nodules are confined to the buttocks. Occasionally, trichoadenoma can be appear in concurrence with nevus sebaceous [1,2].

Trichoadenoma often differentiates towards infundibular segment of the pilo-sebaceous canal. Trichoadenoma represents unique microscopic features as the lesion is primitive as compared to trichofolliculoma and appears to be mature and differentiated, in contrast to trichoepithelioma [1,2].

Clinical elucidation

Trichoadenoma can manifest as solitary, painless, firm, flesh coloured dermal nodule or papule appearing at various sites such as the face, eyebrow, buttocks and demonstrating a variable magnitude betwixt few centimetres to a few millimetres.

Topographical distribution of trichoadenoma denominates a proportion of 57.4% lesions upon the face and an estimated 24.2% nodules restricted to buttocks although the neck, upper arm, thigh, shoulder or penile shaft can be infrequently incriminated [2,3].

Additionally, a gradually progressive nodular lesion can be exemplified within the oral cavity, particularly upon the junction of mucous membrane of upper lip and vestibular gingiva. A preceding history of oro-dental infection along with an exophytic, expansive, painless mass and a discernible granulomatous inflammation can be exhibited. A firm to hard, elastic, yellowish nodule can appear which is adherent to deep-seated tissues [3,4].

Histological elucidation

Trichoadenoma delineates the occurrence of well circumscribed cellular aggregates, epithelial strands or islands, principally confined to the dermis, in addition to the characteristic emergence of significant proportion of numerous, cyst-like configurations. Certain cysts can rupture and consequently evoke an inflammatory reaction along with demonstrable foci of calcification. Cyst lining is composed of stratified squamous epithelium and recapitulates the layering of benign hair follicular infundibulum and epidermoid cysts [3,4].

Trichoadenoma depicts a morphological organization intermediate to a trichofolliculoma and trichoepithelioma although the histological enunciation is distinctive from aforementioned neoplasms.

Trichoadenoma commonly arises as a well defined dermal nodule with characteristic multiple, infundibulo-cystic articulations exhibiting a layering of stratified squamous epithelium with a prominent granular cell layer. Nodular lining essentially demonstrates an epidermoid variety of differentiation and recapitulates multitudinous cross- sections of infundibular segment of the hair follicle. Nevertheless, the lesion is devoid of mature hair shafts [3,4].

Multiple keratinous cysts exemplify a lining of stratified squamous epithelium intermingled with keratinizing cellular islands. Cellular zones are circumscribed by aggregates of eosinophilic cells, attempted glandular configurations and an encompassing myxoid

stroma. Aforesaid cellular islands simulate a tricho-epithelium and the neoplasm essentially lacks hair follicular articulations.

Trichoadenoma can simulate a few microscopic features of desmoplastic trichoepithelioma. Aforesaid lesions exhibit a proportion of Merkel cells, a feature adopted for segregating a basal cell carcinoma.

Pertinent follicular neoplasm such as trichofolliculoma typically enunciate numerous secondary hair follicles with a demonstrable radiating pattern, emerging from primary, centroidal, distended hair follicles and an encompassing well- organized, fibro-vascular stroma [3,4].

Figure 1: Trichoadenoma with numerous cystic cavities lined by stratified squamous epithelium, a granular cell layer and absence of mature hair follicles [9].

Figure 2: Trichoadenoma with several infundibulo-cystic articulations, a layering of stratified squamous epithelium and an intervening myxoid stroma [10].

Figure 3: Trichoadenoma with multiple cystic articulations lined with squamous epithelium, a granular cell layer and an absence of mature hair shafts [11].

Figure 4: Trichoadenoma demonstrating profuse, infundibulo-cystic articulations with a coating of stratified squamous epithelium, occurrence of a granular cell layer and an encompassing myxoid stroma [11].

Figure 5: Trichoadenoma with an abundance of infundibulo-cystic articulations layered with squamous epithelium and a circumscribing myxoid stroma besides an absence of mature hair follicles [12].

Figure 6: Verrucous variant of trichoadenoma with several cystic cavities lined by stratified squamous epithelium and an abundance of enveloping myxoid stroma [13].

Figure 7: Trichoadenoma with cystic cavities lined by mature, stratified squamous epithelium and a surrounding myxoid stroma [14].

Figure 8: Trichoadenoma with several, closely aggregated cystic cavities with a squamous epithelial lining and an absence of mature, secondary hair follicles [15].

Figure 9: Trichoadenoma with cystic cavities coated with several layers of mature squamous epithelium, a prominent granular cell layer and an encompassing myxoid stroma [16].

Immune histochemical elucidation

Immune histochemical evaluation of trichoadenoma and desmoplastic trichoepithelioma demonstrates an immune reactive cytokeratin 20 (CK20) which is contemplated as a cogent immune-marker of epithelial neuroendocrine cells of Merkel.

Androgen receptors (AR) can be enunciated in basal cell carcinoma whereas trichoadenoma and desmoplastic trichoepithelioma are universally non reactive, thereby categorizing the benign nature of aforesaid follicular neoplasm.

Also, Ber- Ep4 is consistently expressed in a majority of desmoplastic trichoepithelioma whereas trichoadenoma does not manifest an immune reactivity to Ber-Ep4 [5,6].

Infiltrative variant of infundibulocystic squamous cell carcinoma can be contemplated as an equivalent of trichoadenoma pertaining to classically delineated cellular architecture or histologic pattern.

Occasionally, trichoadenoma can clinically simulate a sebaceous cell carcinoma, especially in lesions appearing on the face or eyelids.

Trichoadenoma can also appear as a distinct neoplasm arising in concurrence with nevus sebaceous or as a tumefaction simultaneously occurring with intradermal melanocytic nevus [5,6].

Differential diagnosis

Trichoadenoma is a distinctive neoplasm. However, adjunctive tumours such as trichoepithelioma or basal cell carcinoma delineate an identical cystic component although cystic articulations are extensive and predominant in trichoadenoma.

Several varieties of cutaneous adnexal neoplasm can recapitulate the clinical and dermoscopic appearance of basal cell carcinoma (BCC), particularly benign follicular tumours.

Exceptionally enunciated benign follicular cutaneous neoplasm are principally represented by trichoblastoma, trichoepithelioma or infrequent subcategories as encountered with trichoadenoma, trichofolliculoma and panfolliculoma [6,7].

Trichoadenoma necessitates a segregation from desmoplastic trichoepithelioma and trichoadenoma could be contemplated as a variant of the aforesaid tumour. However, the neoplasms are considered as disparate entities.

Clinical demarcation of trichoadenoma is mandated from basal cell carcinoma, seborrheic keratosis or an epidermal cyst [7].

Investigative assay

Dermoscopic evaluation of trichoadenoma can be achieved with a contact polarized dermoscope. Comprehensive picture recapitulates the appearance of a basal cell carcinoma. Specifically, crystalline structures are enunciated along with an ovoid, bluish- grey zone arising at the tumour margin and diffuse, on- focus linearly articulated blood vessels which can be enhanced and made visible upon minimal pressure. Diffusely distributed, miniature, off-white spherical arrangements are exemplified, in contrast to basal cell carcinoma [6,7].

Crystalline configurations are cogitated within cutaneous adnexal neoplasm and basal cell carcinoma whereas shimmery, white lines and spherical arrangements are typically enunciated within adnexal tumours, although are absent in basal cell carcinoma.

White, spherical arrangements are histologically concurrent with infundibulo-cystic configurations which are characteristic of a trichoadenoma.

Radiographic examination can be devoid of oral, periodontal or infection of the circumscribing soft tissue [7,8].

Therapeutic options

A comprehensive surgical eradication of the lesion is mandated followed by a cogent tissue evaluation which is recommended in order to exclude the occurrence of a basal cell carcinoma. Adequate surgical extermination of the lesion is accompanied by an absence of tumour reoccurrence [8].

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9. Image 1 Courtesy: Wikipedia.

10. Image 2 Courtesy: Histopathology.india.net.

11. Image 3 and 4 Courtesy: Basic medical key.

12. Image 5 Courtesy: Twitter.

13. Image 6 Courtesy: Indian Dermatology Online Journal.

14. Image 7 Courtesy: Dermnet NZ.

15. Image 8 Courtesy: Dermpedia.com.

16. Image 9 Courtesy: Dx.path.com.