

A Case of Trichoblastic Fibroma

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Trichogenic tumors are very rare and described as cutaneous neoplasms probably derived from hair germ which develops into hair follicles.

We report a case of trichoblastic fibroma on the left parietal scalp of a 45-year-old man. The lesion was a solitary, firm, non-tender, 2x2cm subcutaneous nodule. The histopathological study showed a well circumscribed dermal tumor composed of abundant basophilic palisading basaloid lobules with some keratinous cysts, hair follicle differentiation and fibroblastic stroma. (*Ann Dermatol* 8:(4)265~268, 1996).

Key Words : Trichoblastic fibroma, Trichogenic tumor

Trichogenic tumors or tumors of hair germ are rare primary cutaneous adnexal neoplasms that histologically recount the embryologic development of the hair follicle, and readily differ from other tumors of the hair follicle.

Depending on the combination of epithelial and mesenchymal components and evidence of inductive change toward follicular differentiation, these tumors have been divided into two groups, epithelial and mesenchymal. Epithelial trichogenic tumors can be further subdivided into : 1)trichoblastoma which is a purely epithelial neoplasm, 2)trichoblastic fibroma which is a mixed epithelial-mesenchymal neoplasm that may show only the earliest phase of stromal induction, 3)trichogenic trichoblastoma which shows complete hair follicle formation¹. Trichogenic trichoblastoma is now included in trichoblastic fibroma to simplify the classification². Examples of mesenchymal trichogenic tumors may be trichogenic myxoma and ossifying fibroma¹.

Because of their unfamiliarity, trichogenic tumors have been confused histologically with basal

cell carcinoma or trichoepithelioma. We report a case of trichoblastic fibroma arising from the parietal scalp which is an unusual site.

REPORT OF A CASE

A 47-year-old man presented with a dome-shaped nontender mass of 20 yrs duration on the left parietal scalp(Fig. 1). It was slowly growing and oozing. The lesion was excised.

Histologic examination showed a sharply demarcated, but unencapsulated deep dermal and subcutaneous nodule without connection to the epidermal surface. The nodule was composed of uniform basaloid nests and strands with fibroblastic stroma(Fig. 2). Basaloid nests and strands exhibited interconnecting and frond-like pattern. A large necrotic cyst in basaloid cell nest was also observed, and there were scattered keratinous cysts filled with eosinophilic keratin and papillary mesenchymal bodies throughout the tumor(Fig. 3). Scattered brown pigments were observed in tumor lobules and stroma(Fig. 4), and showed positive response to Fontana-Masson staining. The surrounding interconnecting stroma was fibrocellular and without increased mucin. Mitotic figures were sparse and there was no stromal retraction. Histologic findings were compatible with trichoblastic fibroma. After excision there was no recurrence for

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Fig. 1. A 1.5cm \times 1.5cm sized subcutaneous nodule on the scalp.

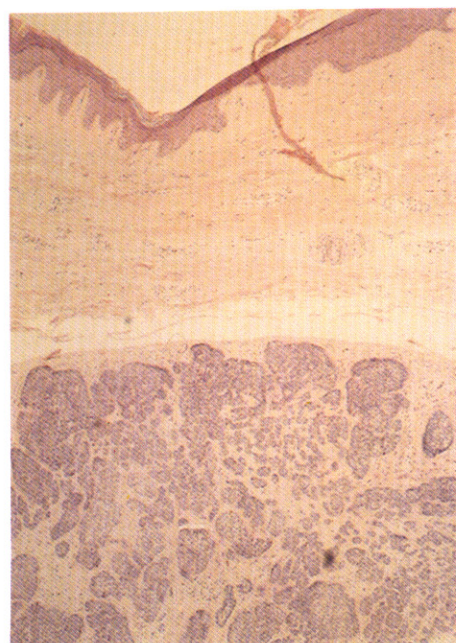


Fig. 2. The deep dermal nodule consists of basaloid interconnecting lobules and nests with fibroblastic stroma ($\times 100$).

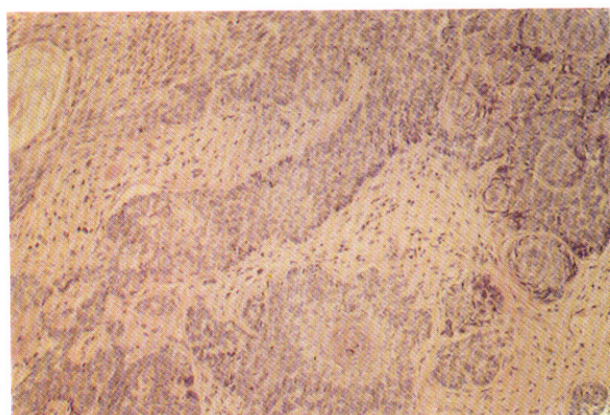


Fig. 3. A keratinous cyst (thick arrow) and papillary mesenchymal bodies (thin arrows) ($\times 100$).

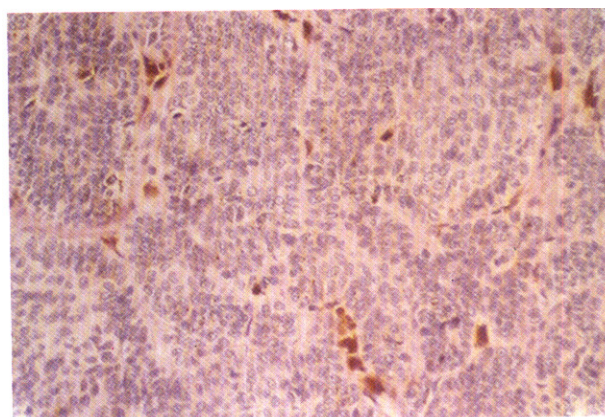


Fig. 4. Basaloid lobules and scattered pigments ($\times 400$).

two years.

DISCUSSION

In 1970, Headington¹ originally described that "trichogenic tumors were derived from hair germ which recapitulated the development of the hair follicle, illustrated an inductive relationship between epithelial and mesenchymal components analogous to that between hair bulb and dermal

papillae, and demonstrated a topographical organization similar to that seen on the skin."

In the spectrum of hair germ tumors, trichoblastic fibroma is a mixed epithelial-mesenchymal neoplasm of hair germ that is localized to skin and subcutis. The fibroblastic component is potentially inductive and histodifferentiation toward follicular structures varies from the earliest phase to the formation of complete hair follicle¹⁻³. The odontogenic analog is the ameloblastic fibroma². Tri-

choblastic fibroma has been reported under various names, including "giant solitary trichoepithelioma"^{4,5}, immature trichoepithelioma⁶, and fibromatoid trichoepithelioma⁷". Trichoblastic fibroma presents as a solitary, firm, well circumscribed subcutaneous and/or intradermal nodule with normal overlying skin. The size of tumor is usually 1 cm to 8 cm in diameter. It appears to have a predilection for the perineal and perianal region, but can occur anywhere on the body except the distal extremities. The ages at presentation are variable and the male/female ratio is approximately equal⁸. Because of sharp histologic circumscription, the tumor is often noted to "shell out" at the time of surgery⁹.

On microscopic examination, trichoblastic fibromas are composed of nests, strands and fronds of cytologically bland basaloid cells, often with peripheral palisading nuclei. Prominent tramtracking or anastomosing pattern are observed in some areas. Follicle induction, evidently by presence of keratinous cysts and numerous papillary mesenchymal bodies are typical^{1,2,9,10}. The wall of the small keratinous cysts shows the features suggestive of outer hair sheath epithelium, and epithelial component can be considered equivalent to the hair germ as well as the mesenchymal components to the dermal papillae¹⁰. The stroma is densely cellular and fibroblastic. There is no retraction artifact. Connection to the epidermis is rare⁸⁻¹⁰.

The interesting findings of our case were scattered pigments and necrotic cyst. Filloppo et al.¹² described that in their case (pigmented trichoblastoma), pigmentations confirmed the hair germ origin because melanocytes in the normal hair bulb were associated only with the matrix cells giving rise to the cortex. The necrotic cyst formation was observed in Resquena and Resquena' report¹³. Clinically this necrotic cyst was presented as a soft focus in the tumor surface in our case. In some reports, although they were not trichoblastic fibroma but other trichogenic tumors, sebaceous and apocrine differentiation were also shown^{12,14}. Because these features may be interpreted as expression of the common embryologic origin of three components of the follicle-sebaceous-apocrine unit, trichogenic tumors can have same findings.

Altman and Mikhail⁹ reported new plaque variant of trichoblastic fibroma, while classical trichoblastic fibroma which was characterized as dermal and subcutaneous nodule was called nodular variant⁹. In

their cases, all plaque lesions were poorly circumscribed and had infiltrative growth nature with more numerous mitosis.

The differential diagnosis of trichoblastic fibroma includes other hair follicle tumors, especially trichoepithelioma. Trichoepitheliomas are considered poorly differentiated hamartoma of hair germ¹. Rosen³ classified trichoepithelioma as a follicular tumor differentiating toward infundibular and/or inferior follicular epithelium. Both tumors demonstrate mixed epithelial-mesenchymal components and similar degree of follicular induction, but trichoepitheliomas tend to be less differentiated² and less deeply situated, and often are in focal continuity with epidermis^{2,9,10}. Clinically, these two lesions are quite different; whereas trichoblastic fibroma is not usually a tumor of the head and neck but a large solitary acquired tumor, trichoepitheliomas are small facial superficial dermal papules and may occur as multiple deeper dermal or subcutaneous lesions inherited as an autosomal dominant trait^{2,9,10}.

Basal cell carcinoma is considered as a differential diagnosis because of the presence of mitotically active basaloid cells within a reactive stroma. The clinical feature of a well circumscribed nodule with normal overlying skin suggests strongly against a diagnosis of basal cell carcinoma⁸. The absence of epidermal connection, stromal retraction, tumor necrosis, stromal mucin or lymphocytic host response should suggest the correct diagnosis of the trichoblastic fibroma^{8,10}. Frondlike or anastomosing tumor islands, papillary mesenchymal bodies and cellular fibroblastic stroma are especially important histologic features in the diagnosis of trichoblastic fibroma⁹. Papillary mesenchymal bodies are fibroblastic aggregations that represent abortive attempts to form the papillary mesenchyme. They are helpful findings in distinguishing of trichoepithelioma from basal cell carcinoma as well as in the identification of other trichogenic tumors with mesenchymal induction¹¹.

The case reported here presented with a larger solitary tumor and it showed a deeply situated nodule with keratinous cysts, basaloid lobules and fibroblastic stroma. Because trichoblastomas have only a fibrotic rim surrounding basaloid lobules, our case was not compatible with trichoblastoma and due to no stromal retraction with no epidermal connection we ruled out the possibility of basal

cell carcinoma. Because trichoepitheliomas present as a small facial superficial dermal papule and tend to be less differentiated, we favored the diagnosis of trichoblastic fibroma rather than trichopithelioma.

Because of different prognosis and treatment, although trichoblastic fibroma is quite rare, we should take account of the possibility of the diagnosis of trichoblastic fibroma for the cutaneous adnexal tumors in the features of follicular differentiation.

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