

A Case of Trichoblastic Fibroma

Sung-Tae Chung, M.D., Chi-Woo Suh, M.D., Jee-Ho Choi, M.D.,
Kyung-Jeh Sung, M.D., Kee-Chan Moon, M.D., Jai-Kyoung Koh, M.D.

*Department of Dermatology, Asan Medical Center, College of Medicine, University of Ulsan,
Seoul, Korea*

Trichoblastic fibroma is a rare, benign trichogenic tumor that has both an epithelial and mesenchymal component. This tumor may be confused clinically and/or histologically with basal cell carcinoma and other tumors with hair follicle differentiation. We describe here a patient with trichoblastic fibroma on the nose. For further characterization of the tumor, we studied the bcl-2 expression in this case and compared it with those of trichoepitheliomas and basal cell carcinomas. The bcl-2 expression in this case and trichoepitheliomas were positive at the periphery of the tumor nest only, whereas those of basal cell carcinomas were positive diffusely throughout the tumor nest. (*Ann Dermatol* 11(2) 94~97, 1999).

Key Words : Trichogenic tumor; Trichoblastic fibroma; bcl-2

INTRODUCTION

Trichogenic tumors are very rare benign neoplasms derived from hair germ cells which develop into hair follicles. These tumors can be classified according to their degree of mesenchymal induction toward follicular differentiation ; trichoblastoma, trichoblastic fibroma, trichogenic trichoblastoma and trichogenic myxoma^{1,2}. Trichoblastic fibroma is a trichogenic tumor with partial induction toward follicular differentiation^{3,4,5}. It has been referred to as various other names in the literature, including giant solitary trichoepithelioma⁶, immature trichoepithelioma⁷ and fibromatoid trichoepithelioma⁸. Although this tumor has distinctive histological features that should be distinguished from other tumors of follicular origin and from keratotic basal cell carcinoma, it has often been confused with trichoepithelioma and basal cell carcinoma because of its unfamiliarity. In the present report, we describe a patient with trichoblastic fibroma and the result of her bcl-2 expression was

compared with those of trichoepitheliomas and basal cell carcinomas.

CASE REPORT

A 67-year-old woman presented with a pea-sized, round, firm nodule on the left side of her nose (Fig. 1). It was first noticed as a tiny skin colored papule 7 years ago and had enlarged slowly. During the last 2 months, she noticed a slight elevation of the lesion, but it did not cause any discomfort except for being a cosmetic problem. On examination, the lesion was a 1.2 × 1.0cm-sized, non-tender, mobile, flesh colored, firm nodule with central pigmentation. It was removed with an ellipse under the impression of basal cell carcinoma or other adnexal tumors. A histological examination revealed a well-circumscribed, unencapsulated tumor nodule throughout the entire dermis and subcutaneous tissue without connection to the epidermis (Fig. 2). The nodule was composed of nests and strands of basaloid cells with cellular fibrotic stromas (Fig. 3). There were a few scattered keratinous cysts and numerous papillary mesenchymal bodies (Fig. 4). Atypical mitotic figures and eccrine, apocrine or sebaceous differentiations were not seen. The surrounding and intervening stroma was composed of plump spindle cells of the fi-

Received May 2, 1998.

Accepted for publication August 18, 1998.

Reprint request to : Sung-Tae Chung, M.D., Department of Dermatology, Asan Medical Center, College of Medicine, University of Ulsan, Seoul, Korea.

Fig. 1. Solitary 1.2×1 cm-sized, round, firm nodule on the lateral side of the nose.

broblastic type in a collagenous background. There was no stromal retraction artifact or tumor necrosis. An immunohistochemical study with monoclonal antibodies against bcl-2 protein

Fig. 2. Well-circumscribed, uncapsulated tumor nodule throughout the dermis and subcutaneous tissue (H&E stain, $\times 40$).

(mouse anti-human bcl-2 oncoprotein, DAKO, Carpinteria, CA., U.S.A.) revealed that the bcl-2 expression of the peripheral cells of the tumor nests was stronger than that of inner basaloid cells (Fig. 5). We performed a bcl-2 immunohistochemical study on several typical basal cell carcinomas and trichoepitheliomas. The patterns of bcl-2 expression of the tumor cell nests in the cases of basal cell carcinomas were uniform, however, those of trichoepitheliomas were similar to the results of this case. The patient remained well, without evidence of recurrence, for 8 months after the excision.

Fig. 4. Basaloid epithelial nest with papillary mesenchymal body (H&E stain, $\times 400$).

Fig. 3. Round to oval shaped basaloid epithelial cell nests and strands are intimately associated with a cellular fibroblastic stroma. (H&E stain, $\times 100$).

DISCUSSION

Trichogenic tumors were first described by J.T.

Fig. 5. The bcl-2 expression of basal cell carcinoma (left). In this case (right), the bcl-2 expression of peripheral cells of the tumor nest is stronger than that of inner basaloid cells.

Headington in 1970 as "cutaneous neoplasms probably derived from hair germs which recapitulate the development of the hair follicle and illustrate an inductive relationship between epithelial and mesenchymal components analogous to that between the hair bulb and dermal papilla". These tumors are classified as trichoblastoma, trichoblastic fibroma, trichogenic trichoblastoma and trichogenic myxoma, depending on whether the neoplasm is epithelial, or mesenchymal, or mixed epithelial and mesenchymal, and the presence or absence of hair follicle differentiation. The predominantly epithelial trichogenic neoplasm is termed trichoblastoma; the predominantly mesenchymal trichogenic neoplasm is termed trichogenic myxoma; the mixed epithelial and mesenchymal trichogenic neoplasm with follicular differentiation is termed trichogenic trichoblastoma, and the mixed trichogenic neoplasm without follicular differentiation is termed trichoblastic fibroma². Trichoblastic fibroma is an exceedingly rare benign skin tumor of hair follicle origin with partial mesenchymal induction toward follicular differentiation. Classically, the clinical appearance of this tumor is described as a large solitary dermal or subcutaneous nodule, 1 to 8 cm in diameter³. The age at presentation and the location are variable, yet some authors have noted a predilection for the

perineal regions⁴ and face⁵. The occurrence in male and female subjects is equal. Histologically, the well-circumscribed nodule is composed of complex nests and strands of basaloid cells with partial mesenchymal induction which are arranged in a moderately cellular fibrotic stroma. Because of its sharp histological circumscription, the tumor nodule is often noted to 'shell out' at the time of surgery⁵. Our case exhibited typical clinical and histological features, and was diagnosed as trichoblastic fibroma. However, in many cases, trichoblastic fibroma is often confused with other tumors of follicular origin and basal cell carcinoma, and must be differentiated from these tumors. Recently, there was a report that an immunohistochemical study with anti CD34 and anti bcl-2 antibody may be helpful in distinguishing basal cell carcinomas from trichoepitheliomas⁹. Smoller et al. described in this report that the cells of trichoepitheliomas were stained at the peripheral layers only, whereas those of basal cell carcinomas were stained throughout the tumor nests. Therefore, we performed immunohistochemical staining for bcl-2 to compare the expression patterns of our case with those of basal cell carcinoma and trichoepithelioma. Bcl-2 is a recently described proto-oncogene which is involved in programmed cell death¹⁰. It is expressed extensively in fetal cells and in some mature human tis-

sues, and its expression is principally limited to cells with a capacity for continuous regeneration, such as hematopoietic precursor cells. In normal skin, bcl-2 is expressed within basal keratinocytes and in the portions of the follicular epithelium which is continuously proliferating. Thus the staining patterns in some tumors are useful in helping to understand the natures of the proliferating cells⁹. In this study, the bcl-2 expression of trichoblastic fibroma and trichoepithelioma are not uniform as that of basal cell carcinoma. The expression of the peripheral cells of tumor nests is stronger than that of inner basaloid cells in both tumors as like the previous report⁹. Therefore, the immunohistochemical staining of bcl-2 would be a useful method in differential diagnosis between trichoblastic fibroma and basal cell carcinoma, but we do not think it possible to distinguish it from other tumors of hair follicular differentiation such as trichoepithelioma by the staining pattern only. Moreover, in the other report¹¹, Swanson et al. noted there was substantial overlap between trichoepitheliomas and basal cell carcinomas in the staining pattern of bcl-2. We think that immunohistochemical staining with bcl-2 appears to be a helpful method in differential diagnosis between basal cell carcinomas and benign tumors of hair follicular differentiation. However further studies are required to confirm it.

REFERENCES

1. Headington JT: Differentiating neoplasm of hair germ, *J Clin Pathol*, 23:464-471, 1970
2. Rosen LB: A review and proposed new classification of benign acquired neoplasms with hair follicle differentiation, *Am J Dermatopathol*, 12:469-516, 1990.
3. Headington JT: Tumors of hair follicle, In Farmer ER, Hood AF(eds): *Pathology of the skin*. 1st ed, Prentice Hall, East Norwalk, 596-614, 1990.
4. Gilks CB, Clement PB, Wood WS: Trichoblastic fibroma - A clinicopathologic study of three cases, *Am J Dermatopathol*, 11:397-402, 1989.
5. Altman DA, Mikhail GR, Johnson TM, et al.: Trichoblastic fibroma - A series of 10 cases with report of a new plaque variant, *Arch Dermatol*, 131:198-201, 1995.
6. Czernobilsky B: Giant solitary trichoepithelioma, *Arch Dermatol*, 105:587-588, 1971.
7. Long SA, Hurt MA, Santa Cruz DJ: Immature trichoepithelioma, *J Cutan Pathol*, 15:353-358, 1988.
8. Grouls V, Hey A: Trichoblastic fibroma (fibromatoid trichoepithelioma), *Pathol Res Pract*, 183:462-468, 1988.
9. Smoller BR, Rijn D, Lebrun D, et al.: Bcl-2 expression reliably trichoepitheliomas from basal cell carcinomas, *Br J Dermatol*, 131:28-31, 1994.
10. Williams GT: Programmed cell death: apoptosis and oncogenesis, *Cell*, 65: 1097-1098, 1991.
11. Swanson PE, Fitzpatrick MM, Ritter JH, et al.: Immunohistologic differential diagnosis of basal cell carcinoma, squamous cell carcinoma, and trichoepithelioma in small cutaneous biopsy specimens, *J Cutan Pathol*, 25(3):695-700, 1998.