

CASE REPORT

Giant Acquired Digital Fibrokeratoma Occurring on the Left Great Toe

Joon Hee Choi, M.D., So Young Jung, M.D.¹, Ji Sung Chun, M.D.¹, Jong Keun Seo, M.D.¹, Deborah Lee, M.D.¹, Seon Wook Hwang, M.D.¹, Ho Suck Sung, M.D.¹

Department of Dermatology, Maryknoll Hospital, ¹Department of Dermatology, Busan Paik Hospital, College of Medicine, Inje University, Busan, Korea

Acquired digital fibrokeratoma is an uncommon, benign fibrous tumor which usually occurs in adults as a solitary lesion. The most frequent locations are fingers and toes and the size of the tumor is generally small, around 3~5 mm. An 18-year-old female presented with a solitary, skin-colored, round and protruded nodule on the left great toe. The size of nodule was 2.5×1.6×1.4 cm. Histopathologic examination revealed typical findings of acquired digital fibrokeratoma. Herein, we report a giant acquired digital fibrokeratoma. (Ann Dermatol 23(1) 64~66, 2011)

-Keywords-

Acquired digital fibrokeratoma, Great toe

INTRODUCTION

Acquired digital fibrokeratoma is rare, benign fibrous tumor. It commonly occurs in adults as a solitary nodule on fingers and toes^{1,2}. The size of the tumor is generally small, less than 1 cm. Even though an exact definition of the standard size of giant acquired digital fibrokeratoma has not been established, 3 cases of acquired digital fibrokeratoma larger than 1 cm were reported, as giant acquired digital fibrokeratomas, in the dermatologic literatures³⁻⁵.

Herein, we report the biggest case in Korean dermatologic literature of a giant acquired digital fibrokeratoma occurring on the left great toe.

Received December 28, 2009, Revised January 24, 2010, Accepted for publication January 28, 2010

Corresponding author: Deborah Lee, M.D., Department of Dermatology, Busan Paik Hospital, College of Medicine, Inje University, 633-165 Gaegum-dong, Busanjin-gu, Busan 614-735, Korea. Tel: 82-51-890-6135, Fax: 82-51-897-6391, E-mail: btyouth@hanmail.net

CASE REPORT

An 18-year-old woman presented with an asymptomatic, solitary nodule on her left great toe. Two years ago, she noticed a slow growing, flesh-colored nodule on her left great toe. There was no history of trauma. One year ago the lesion was totally excised. After several months, the lesion recurred and gradually enlarged. Physical examination revealed a 2.5×1.6×1.4 cm sized, skin-colored, solitary, round and protruded nodule on the lateral side of her left great toe (Fig. 1).

Histopathologic examination showed marked hyperkeratosis, acanthosis and elongated rete ridges in the epidermis (Fig. 2). The dermis showed thick collagen bundles with dilated capillaries oriented in the direction of the longitudinal axis of the lesion. The histopathologic features were compatible with acquired digital fibrokeratoma. The lesion was completely excised without recurrence for 1 year.



Fig. 1. Skin-colored, 2.5×1.6×1.4 cm sized, solitary, round and protruded nodule on the lateral side of the left great toe.

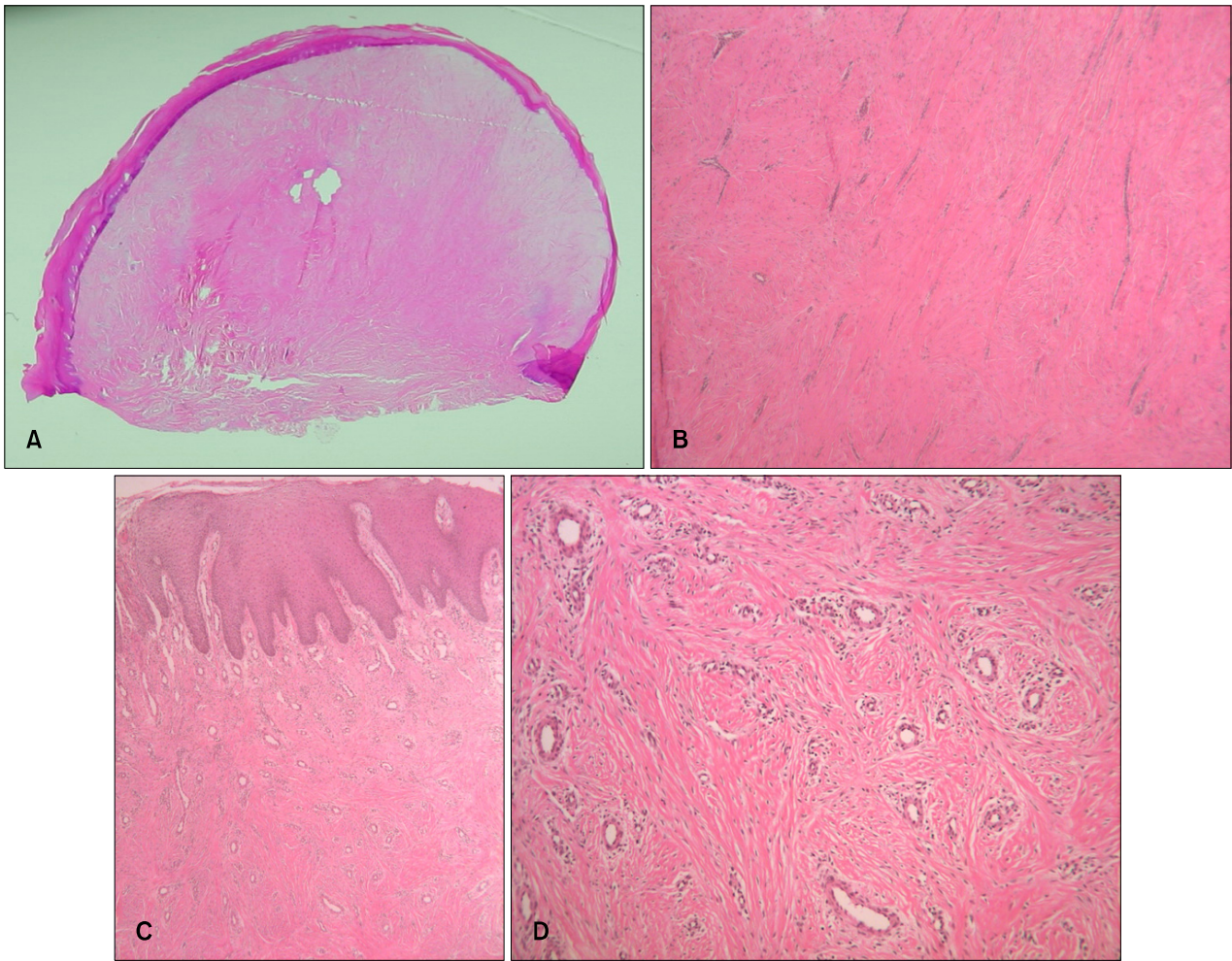


Fig. 2. (A) Histopathologic examination demonstrated a dome-shaped tumor consisting of a thick core lesion and peripheral lesion (H&E, $\times 4$). (B) The core of tumor showed thick dermal collagen bundles oriented along the longitudinal axis of the lesion (H&E, $\times 40$). (C) The peripheral lesion of tumor showed irregular acanthosis, thickening of rete ridges and increased capillaries (H&E, $\times 40$). (D) The close-up view of the peripheral lesion showed thin walled dilated capillaries and thick collagen bundles in dermis (H&E, $\times 100$).

DISCUSSION

Acquired digital fibrokeratoma is an uncommon tumor first reported by Bart et al.¹ in 1968. It is a benign tumor, almost always solitary, can be seen in adults and does not show spontaneous regression. In most cases, acquired digital fibrokeratoma appears as a small solitary nodules mainly on the fingers and toes, occasionally occurring on the lower lip, nose, elbow, pre-patellar area, nail bed and heel^{3,6-8}.

The size of acquired digital fibrokeratoma is generally small, less than 1 cm. Exceptionally, there have been reported cases of giant acquired digital fibrokeratoma. Kakurai et al.⁴ and Bron et al.³ reported $3.2 \times 3.8 \times 1.5$ cm and 3.0×1.5 cm acquired digital fibrokeratoma on the toe and heel as giant one respectively. In Korean dermatologic

literatures, Cho et al.⁵ reported $1 \times 1 \times 3$ cm giant acquired digital fibrokeratoma (Table 1). In our case, the size of the tumor was $2.5 \times 1.6 \times 1.4$ cm, so we suggest that it is a proper case of giant acquired digital fibrokeratoma.

The pathophysiology of an acquired digital fibrokeratoma is unknown. In general, trauma is often thought to be a predisposing factor, especially on the digits⁹. In 1985, Kint et al.² suggested that the acquired digital fibrokeratoma resulted from a neoformation of collagen by the fibroblasts. Because when comparing with the surrounding dermis, the tumor was composed of denser fibers than normal skin and contained more capillaries, more fibroblasts and coarser elastic fibers. Nemeth and Penneys¹⁰ reported that Factor XIIIa, which was found in fibrovascular tumors, was also found in acquired digital fibrokeratoma; therefore this factor might play an important

Table 1. Summary of previously reported cases and present case of giant acquired digital fibrokeratoma

Case	Sex	Age	Site	Size	Onset	Trauma history	Treatment	Prognosis
Cho et al. ⁵	M	62	Lt. little toe	1×1×3 cm	5 years ago	—	Surgical excision	No recurrence
Bron et al. ³	M	77	Heel	3×1.5 cm	Several years ago	Unknown	Surgical excision	No recurrence
Kakurai et al. ⁴	F	33	Rt. great toe	3.2×3.8×1.5 cm	8 years ago	+	Simple excision	No recurrence
Present case	F	18	Lt. great toe	2.5×1.6×1.4 cm	1 year ago	—	Surgical excision	No recurrence

role in the pathogenesis of these tumors. After then, Suh et al.¹¹ observed the factor XIIIa positive dermal dendrocytes were increased in acquired digital fibrokeratoma by immunohistochemical stain and suggested that these cells were associated with collagen synthesis regulation.

Histopathologic examination shows hyperkeratosis and irregular acanthosis in epidermis and thick collagen bundles with dilated capillaries oriented in the direction of the longitudinal axis in dermis. Kint et al.² described 3 types of acquired digital fibrokeratoma by clinical and histopathologic features. Type I acquired digital fibrokeratoma is a dome-shaped lesion which contains fibroblast between collagen bundles, fine elastic fibers and numerous capillaries in dermis. Type II is a mainly tall and hyperkeratotic lesion which contains many more fibroblasts and reduced elastic fibers. Type III is a flat to dome-shaped lesion which is characterized by poorly cellular and edematous structure and no elastic fibers. This case showed typical histopathologic findings of acquired digital fibrokeratoma and was compatible with type I.

The differential diagnosis for acquired digital fibrokeratoma includes supernumerary digit, cutaneous horn and neurofibroma. Supernumerary digit is a congenital digital anomaly, which contains neural bundles in the dermis. Cutaneous horn is uncommon epidermal tumor which consists of a column of keratin arising from a wide range of benign, premalignant or malignant underlying processes. Neurofibroma is soft, polypoid skin colored tumor. On histopathologic examination, the dermis is composed of loosely spaced spindle cells and wavy collagenous strands.

Simple excision is curative. Usually, there is no recur-

rence after complete surgical excision.

Herein, we report an acquired digital fibrokeratoma which occurred as a giant one on the left great toe.

REFERENCES

1. Bart RS, Andrade R, Kopf AW, Leider M. Acquired digital fibrokeratomas. *Arch Dermatol* 1968;97:120-129.
2. Kint A, Baran R, De Keyser H. Acquired (digital) fibrokeratoma. *J Am Acad Dermatol* 1985;12:816-821.
3. Bron C, Noël B, Panizzon RG. Giant fibrokeratoma of the heel. *Dermatology* 2004;208:271-272.
4. Kakurai M, Yamada T, Kiyosawa T, Ohtsuki M, Nakagawa H. Giant acquired digital fibrokeratoma. *J Am Acad Dermatol* 2003;48:S67-68.
5. Cho EA, Lee WS, Kim SY. A case of giant acquired digital fibrokeratoma resembling supernumerary digit. *Korean J Dermatol* 2007;45:319-320.
6. Kim HJ, Lee SH, Park EJ, Kim CW, Jo HJ, Kim KH, et al. A case of acquired fibrokeratoma of the lower lip. *Korean J Dermatol* 2006;44:1438-1440.
7. Hur J, Suh KS, Kim ST. Two cases of acquired fibrokeratoma. *Korean J Dermatol* 2000;38:1116-1117.
8. Jee MS, Lee DP, Chang SE, Choi JH, Sung KJ, Moon KC, et al. Two cases of acquired fibrokeratoma occurring on the prepatellar area and the nail bed. *Korean J Dermatol* 2003;41:403-405.
9. Altman DA, Griner JM, Faria DT. Acquired digital fibrokeratoma. *Cutis* 1994;54:93-94.
10. Nemeth AJ, Penneys NS. Factor XIIIa is expressed by fibroblasts in fibrovascular tumors. *J Cutan Pathol* 1989;16:266-271.
11. Suh HS, Ryu BJ, Choi JH, Sung KJ, Koh JK. A case of acquired digital fibrokeratoma: immunohistochemical stain with anti-factor XIIIa antibody. *Korean J Dermatol* 1994;32:1131-1135.