

Pyogenic Granuloma in a Finger of a Rheumatoid Arthritis Patient

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Received 9 July 2010/ Accepted 21 July 2010

Key Words: Hand, Pyogenic Granuloma, Rheumatoid Arthritis, Vascular Endothelial Growth Factor (VEGF)

ABSTRACT

Pyogenic granuloma is benign soft tissue tumor which mainly occurs in gingiva, lips, tongue and finger. We report the patient of pyogenic granuloma in the distal phalanx of the index finger of the rheumatoid patient. The tumor enlarged rapidly and surgical excision was performed. Pathological examination showed lobular hyperplasia of capillary vessels and the expression of vascular endothelial growth factor at capillary vessels in inside of tumor.

INTRODUCTION

Pyogenic granuloma is benign soft tissue tumor and was described by Poncet first in 1897 as botryomycosis hominis. Pyogenic granuloma mainly occurs in gingiva, lips, tongue and finger. We report the patient of pyogenic granuloma in the distal phalanx of the index finger of the rheumatoid patient. The patient and her family were informed that data from the cases would be submitted for publication and gave their consent.

CLINICAL CASE

A 61-year-old woman was underwent excision of small soft tissue tumor, which was about 2mm in diameter and of which pathological diagnosis was unknown, of the volar skin of the index finger tip at another clinic. However, the surgical wound does not heal and soft tissue tumor recurred at the same portion of her right index finger. The tumor gradually increased and she was referred to our hospital two months after the excisional surgery. She was affected by rheumatoid arthritis for twenty years and takes prednisolone 5mg/day and salazosulfapyridine 1000mg/day.

On clinical examination, the soft tissue tumor was 10mm in diameter, which is almost the same diameter of the affected finger, and was connected to the skin by stalk. Its surface was red color, ulcerated and hemorrhagic (Fig.1). There was neither tenderness nor local heat around the tumor. Blood examination revealed WBC 7800/ μ l, Hb 13.2 g/dl, CRP 0.18mg/dl, rheumatoid Factor 35 and no remarkable inflammatory reaction. On the radiographs, the soft tissue mass was detected on the volar site of the finger tip, however, any bone lesions were

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PYOGENIC GRANULOMA IN RHEUMATOID ARTHRITIS PATIENT

not detected. Magnetic resonance imaging showed the tumor as iso-intensity with muscle at T1 weighted image, high-intensity at T2 weighted image, and the tumor was homogeneously enhanced by Gadolinium (Fig.2). MRI findings suggested that the tumor is hypervascular.

Surgical excision of the tumor, which enlarged to 15mm in diameter at the time of operation, was performed 3 months after the first excision performed at the previous clinic. The tumor was excised with 2 mm margin of normal skin and subcutaneous tissue. There was no adhesion to bone or tendon and the surgical wound was closed primarily.

Pathological examination with hematoxylin and eosin staining showed lobular hyperplasia of capillary vessels and edema of stroma, and invasion of inflammatory cells (Fig. 3 a). In immunolocalization of vascular endothelial growth factor (VEGF), VEGF was detected at capillary vessels in inside of tumor (Fig. 3 b). Any findings of malignant change was not seen, thus it was diagnosed as pyogenic granuloma. The wound healed uneventfully and there is no recurrence of the tumor after one year of the excision.



Figure1. Macroscopic finding of the tumor. The tumor was on the volar skin of index finger tip.

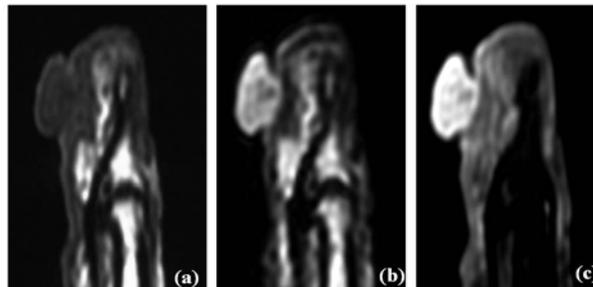


Figure 2. MRI findings of the tumor. Iso-intensity with muscle at T1 weighted image (a), high-intensity at T2 weighted image (b), and homogeneously enhanced by Gadolinium (c).

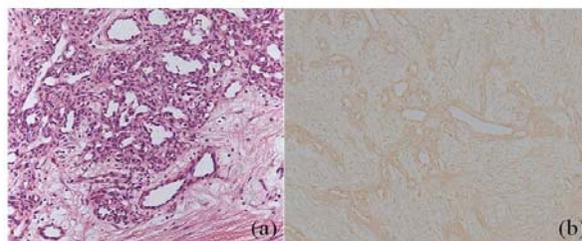


Figure 3. Microscopic findings of the tumor. Hematoxylin-Eosin staining (a), Immunostaining of vascular endothelial growth factor(VEGF) which showed strong expression of VEGF (b).

DISCUSSION

Pyogenic granuloma often occurs in upper limb. It develops rapidly to maximal size in a few weeks, and is considered to be vascular hyperplasia². This tumor is frequent in patient who is in certain condition, such as in pregnancy, suffering from repeated minor trauma, immunocompromised host, taking retinoids or antiretroviral drugs, and inflammatory and infectious agents are also hypothesized as possible factors⁴. Curr reported a case of multiple pyogenic granuloma in a rectal cancer patient who takes 5-fluorouracil and speculated 5-fluorouracil is the cause of pyogenic granuloma¹.

In the present case, we suspected that the tumor is granuloma caused by inflammation because MRI findings suggested that the tumor is hypervascular and the growing speed of the tumor is quite rapid. The pathological diagnosis of the excised tumor is pyogenic granuloma.

We speculated several trigger as cause of pyogenic granuloma in this case. The first trigger is surgical treatment to the finger in former hospital, because pyogenic granuloma often occurs following minor trauma². The second is she affected from RA and her taking immunosuppressive agent. Nthumba reported the tumor likely to develop in immunocompromised host⁴. RA patient has more expression of angiogenic growth factor in synovium and joint⁶, this may affect the rapid growth of pyogenic granuloma because several studies suggest it occurs due to imbalance of angiogenesis enhancer and inhibitor⁵. Yuan reported the expression of VEGF and basic fibroblast growth factor were increased in pyogenic granuloma⁷. In the immunostaining of the present case, VEGF highly expressed at the capillary vessels and this finding is consistent with the previous report.

There are some reports about treatment of pyogenic granuloma, (surgical resection, curettage, lasers, and application of imiquimod 5% cream) and sometimes it recurrences. Although incomplete resection may lead to recurrence of tumor, the recurrence rate is lowest in case of correct surgical resection^{2,3}. In the present report, we excised the tumor with 2 mm margin of normal skin and subcutaneous tissue and the surgical wound healed uneventfully without any recurrence.

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