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Case Series
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Two Cases of Lobular Capillary Hemangioma in the Finger Suspected of Malignancy due to Rapid Growth

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Abstract

Lobular capillary hemangioma is a benign vascular tumor that occurs in tissues such as the skin and mucous membranes, and it is sometimes difficult to distinguish from a malignant tumor in terms of its clinical course and appearance. We present two cases of lobular capillary hemangioma that rapidly grew over a period of less than one month, raising suspicions of malignancy. Case 1 was a 50-year-old man who developed a tumor with bleeding in a nail bed, which rapidly grew to 2.0 cm × 2.0 cm over a month. Immediate partial biopsy revealed inflammatory granulation tissue. Three weeks later, the mass had further enlarged to 4.0 cm × 2.5 cm, so excisional biopsy was performed, and it was diagnosed as lobular capillary hemangioma. Case 2 was a 79-year-old man who had an easily bleeding tumor at a fingertip that had appeared one month earlier and rapidly grown to 1.0 cm × 1.0 cm. He underwent an excisional biopsy and received a diagnosis of lobular capillary hemangioma. In case 1, accurate diagnosis could not be made because the preoperative partial biopsy was inadequate. We also discuss precautions for preoperative biopsy of lobular capillary hemangioma.

Keywords: Biopsy; Lobular capillary hemangioma; Pyogenic granuloma; Finger; Rapid growth

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Introduction

Lobular capillary hemangioma, also called pyogenic granuloma, is a benign vascular tumor that occurs in tissues such as the skin and mucous membranes [1]. Macroscopically, the lesions appear as very friable, solitary, red, pedunculated papules with exophytic growths and often ulcerated surfaces. This hemangioma is a relatively common tumor and is never malignant [2]. However, its characteristics such as rapid growth and easily bleeding ulceration make it difficult to differentiate from malignant tumors such as squamous cell carcinoma and malignant melanoma, which is problematic surgeons [3,4]. We present two cases of lobular capillary hemangioma that developed on a finger and rapidly grew within a month, making it difficult to distinguish from a malignant tumor.

Case Series

Case 1

A 50-year-old man presented to our medical center for treatment of a neoplasm of the right ring fingernail bed. The tumor had appeared a month earlier with pain and bleeding, but it had rapidly increased in size, and at the time of the initial examination, it was a 2.0 cm × 2.0 cm hard, round, raised tumor with necrosis on the surface, easily bleeding, and producing a foul odor (Figure 1A). Plain radiographs showed bone resorption on the dorsal side of the distal phalanx at the base of the mass (Figure 1B). Immediate histological analysis of the partial biopsy specimen revealed an increase in inflammatory granulation tissue. However, given the clinical course of acute enlargement and necrotic ulcers with bleeding, the possibility of malignancy could not be ruled out, and excisional biopsy was performed 3 weeks later (Figure 1B). At that time, the mass had further enlarged to 4.0 cm × 2.5 cm (Figure 1C).

Intraoperative findings showed that the tumor was polypoid with a stalk of 5 mm in diameter in the center of the nail bed, and the base had invaded the cortex of the distal phalanx, so it was excised in one piece, including the bone cortex (Figure 2A). The exposed bone area was covered by advancement of the nail bed and sutured (Figure 2B). After 6 months, the patient showed no tumor

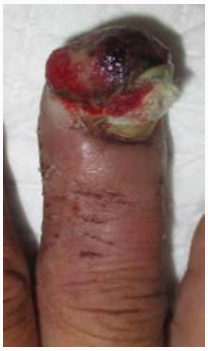

Figure 1A: The photo shows neoplasm in the nail bed of the right ring finger in case 1 at the time of initial examination. The tumor was a hard, round bulge measuring 2.0 cm × 2.0 cm, with a necrotic surface, easily bleeding, and producing a foul odor.

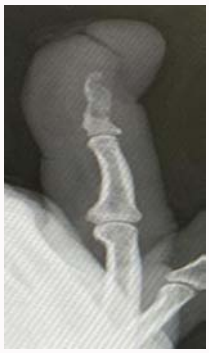

Figure 1B: The photo shows a plain X-ray taken at the initial examination. Bone resorption was observed on the dorsal side of the distal phalanx.

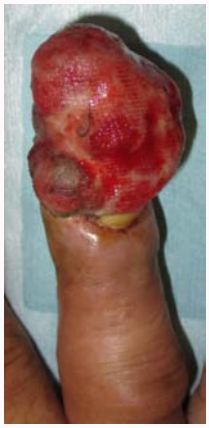

Figure 1C: The photo shows the tumor before surgery. The tumor had further expanded to 4.0 cm × 2.5 cm.

relapse (Figure 2C).

Pathological findings showed that the tumor was divided into superficial and deep parts (Figure 3A). Small blood vessels increased in the tumor surface, granulation with neutrophil infiltration, hemorrhage, and necrosis covered the tumor surface, and no tumor cells were observed (Figure 3B). In the deep part of the tumor, small blood vessel proliferation and dilated vascular spaces accompanied by thrombus formation were observed. There were no abnormalities in the cells, and the diagnosis was lobular capillary hemangioma (Figure 3C). He had no experienced recurrence as of 6 months after

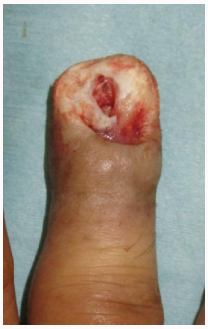

Figure 2A: The photo shows intraoperative findings that the tumor was excised including the bone cortex.

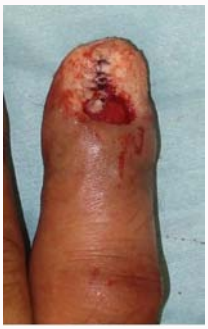

Figure 2B: The photograph shows intraoperative findings that the exposed bone was covered with advancement of the nail bed.

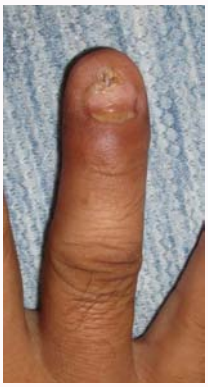

Figure 2C: The photo shows the affected area two months after surgery. The tumor has not recurred and the nail bed has regenerated.

the surgery.

Case 2

A 79-year-old man presented with a tumor that appeared on the tip of his left middle finger, which tended to bleed easily. The tumor was painful and grew rapidly over the course of one month, reaching 1.0 cm × 1.0 cm (Figure 4A, 4B). He underwent excisional biopsy. The tumor was polypoid with a stalk of 5 mm in diameter at its base and had invaded the vicinity of the periosteum, so it was excised as a whole, including the periosteum. He had no experienced recurrence as of 3 months after the surgery (Figure 4C, 4D).

The histopathological findings also showed that the tumor structure was divided into superficial and deep parts. The superficial layer is covered with necrotic and granulation tissue, and beneath it, an increase in capillary proliferation is observed, supporting the

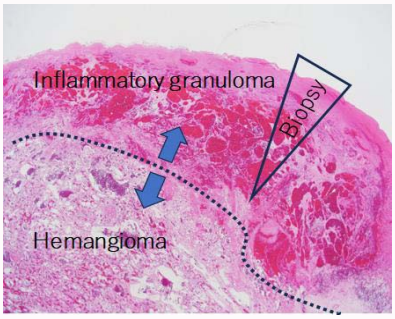

Figure 3A: The photo shows pathological findings at low magnification. It was found that the tumor structure was divided into superficial and deep parts.

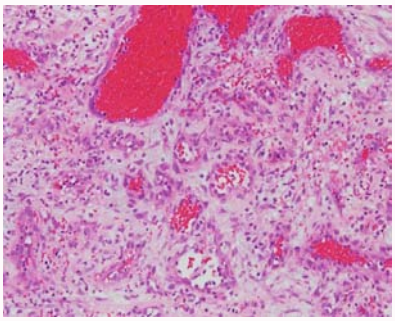

Figure 3B: The photograph shows a highly magnified image of the tumor surface layer. Small blood vessels increased in this area, the tumor surface was covered with granulation with neutrophil infiltration, hemorrhage, and necrosis, and no tumor cells were observed.

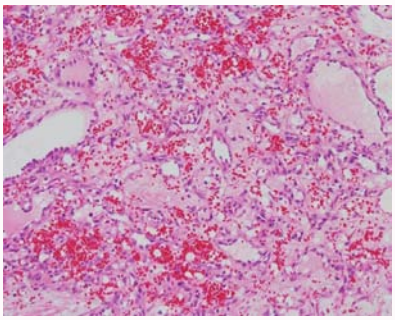

Figure 3C: The photo shows high magnification of the deep part of the tumor. Proliferation of small vessels and dilation of the vascular lumen with thrombus formation can be observed, which supporting the diagnosis of lobular capillary hemangioma.

diagnosis of lobular capillary hemangioma (Figure 5).

Discussion

Lobular capillary hemangioma, also called pyogenic granuloma, is a benign exophytic vascular tumor. It most often occurs as a solitary lesion on the gums, lips, nasal mucosa, trunk, fingers, and toes, varying in color from bright to dark red with a shiny surface, and 5 mm to 10 mm in diameter. It typically appears as smooth-toned dome-shaped or papules [5]. Histologically, lobular capillary hemangioma is a proliferation of lobular capillaries, with each lobule containing a central feeding vessel surrounded by smaller capillaries. Although this tumor has historically been called a pyogenic granuloma due to its appearance, it is actually neither suppurative nor granulomatous. In 1980, Mills et al. [2] proposed the term lobular capillary hemangioma,

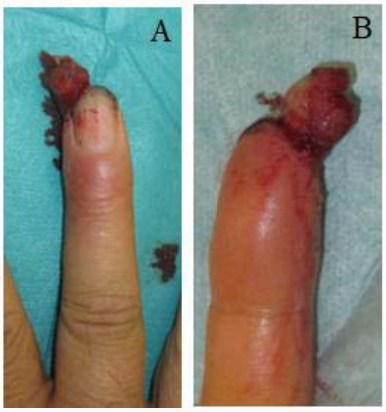

Figure 4A and 4B: The photos show the neoplasm on the tip of the left middle finger of case 2 at the time of initial examination. The tumor was 1.0 cm × 1.0 cm, firm, and round, with a necrotic surface that bled easily.

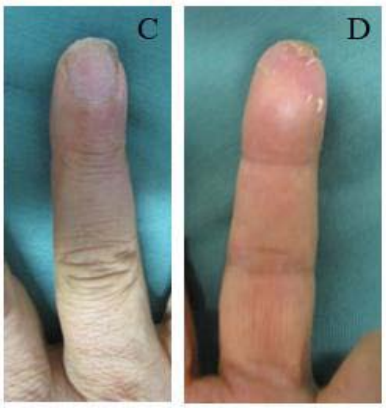

Figure 4C and 4D: The photos show the affected area 3 weeks after surgery. The tumor has not recurred and shows excellent appearance.

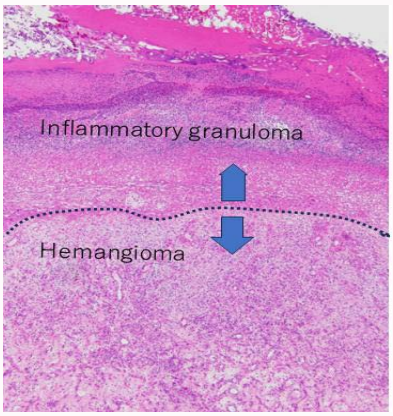

Figure 5: The photo shows pathological findings at low magnification. It was also found that the tumor structure was divided into superficial and deep parts. The superficial layer is covered with necrotic and granulation tissue, and beneath it, an increase in capillary proliferation is observed, supporting the diagnosis of lobular capillary hemangioma.

but the term pyogenic granuloma continues to be used.

It is known that the pathogenesis of lobular capillary hemangioma is closely related to hormonal changes, certain drugs, trauma, and chronic stimulation [6,7]. Oral contraceptives or hormonal changes, particularly progesterone changes during pregnancy, may

be associated with the development of transient lobular capillary hemangioma [8]. Retinoid therapy for acne and psoriasis has also been shown to induce lobular capillary hemangioma [9].

Lobular capillary hemangioma tends to heal spontaneously [1,2,5]. However, the lesions persist for several months and are sometimes accompanied by temporary and heavy bleeding, which is distressing for the patient. Although this tumor never becomes malignant, it often recurs with conservative treatment [5,10]. Non-surgical treatments such as laser therapy and cryotherapy are associated with a recurrence rate of up to 50%, but recurrence after excision is rare. Therefore, complete resection is the first choice [11-13].

This highly vascularized tumor sometimes grows rapidly and can form large nodules that bleed easily, as in the two cases we introduced here. The problem with removing this type of lobular capillary hemangioma is that it is often difficult to distinguish it from a malignant tumor. Subungual squamous cell carcinoma often occurs as a chronic ulcer on the distal phalanx of the thumb or index finger and is often misdiagnosed as lobular capillary hemangioma [3]. There was also a report that lobular capillary hemangioma developed on the fingertip after trauma and was treated conservatively, but was actually an advanced malignant melanoma [4]. Basal cell carcinoma and pyogenic granuloma-like Kaposi's sarcoma are difficult to differentiate because their clinical course and morphology are consistent with lobular capillary hemangioma [14-16].

Partial biopsy before resection is essential to avoid missing malignant tumors. However, in the case of a rapidly growing type of lobular capillary hemangioma like our cases, the hemangioma surface may be covered with thick inflammatory granulomas due to repeated bleeding and subsequent wound infection. Furthermore, because the tumor itself is loose and easily bleeds, it is difficult to obtain a sufficient amount of tissue. If the biopsy does not reach the deep tumor itself and remains in this area, the diagnosis will be incorrect (Figure 2A) [17].

Therefore, when resecting a lobular capillary hemangioma, the surgeon must suspect the possibility that the tumor is actually malignant and pay close attention to the histopathological results of the entire resected specimen. In addition, it is necessary to prepare a surgical schedule for prompt and extensive resection in case the tumor is found to be malignant by histopathological examination.

Conclusion

Lobular capillary hemangiomas may be difficult to distinguish from malignant tumors based on their course and appearance. Because the surface of the tumor may be covered with inflammatory granulation tissue, an accurate diagnosis may not be possible even with a partial biopsy. Therefore, it is desirable to plan for simple resection assuming that the tumor is found to be malignant after removal.

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