

Capillary Hemangioma of the Finger in an Adult after a Burn: A Unique Case Mimicking Pyogenic Granuloma

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Learning Point of the Article:

It is important to remember the importance of sending neoplastic samples for histopathology as various tumors can often mimic each other on clinical exam.

Abstract

Introduction: Capillary hemangiomas and pyogenic granulomas are benign vascular neoplasms that are usually identified clinically by their characteristic features. Capillary hemangiomas most commonly develop in infancy on the head and neck and nearly all spontaneously regress by the teenage years. Pyogenic granulomas, however, typically present in adults and can be induced by trauma. It is exceedingly rare for capillary hemangiomas to present in adulthood or after trauma. We present an extremely unusual case of capillary hemangioma on the tip of the finger of an adult male presenting immediately after a burn. The mass was clinically diagnosed as pyogenic granuloma but histopathologically diagnosed as a capillary hemangioma. To our knowledge, this is the only presentation of its kind.

Case Report: A 29-year-old African American, right-hand-dominant male laborer presented to the outpatient orthopedic hand clinic with a 2–3-week-old growing mass on the tip of the right small finger. A clinical diagnosis of pyogenic granuloma was made. Silver nitrate therapy was ineffective, though surgical excision resulted in complete resolution of the mass. Surprisingly, the histopathological diagnosis was instead consistent with capillary hemangioma.

Conclusion: Clinicians should maintain a high clinical suspicion for both pyogenic granulomas and capillary hemangiomas in children and adults with a vascular soft tissue mass, even after trauma. With this in mind, health-care providers should maintain a low clinical threshold to send soft tissue masses for histopathology to obtain an accurate diagnosis and to provide the best care possible.

Keywords: Adult, benign vascular neoplasm, capillary hemangioma, hand, pyogenic granuloma, vascular malformation.

Introduction

Capillary hemangiomas and pyogenic granulomas are well-known benign vascular neoplasms. Although they have macroscopic features that can typically allow them to be identified clinically, a diagnosis is most accurately made histologically [1]. Pyogenic granulomas, also known as lobular capillary hemangiomas, can appear at any age, though they are most common in children and young adults. They are most commonly found on fingers and mucous membranes [1]. Several predisposing factors have been

identified for pyogenic granulomas, though as many as 76.7% may occur spontaneously. These predisposing factors include trauma, foreign body reactions such as bug bites, and some dermatologic conditions [2,3]. They are identified clinically as solitary red papules or polyps that grow rapidly over weeks to months. These lesions rarely resolve spontaneously, and therefore, surgical removal is often required as they can bleed [4,5]. By comparison, capillary hemangiomas are the most common vascular tumors of infancy and can be found on skin, mucous membranes, and internal viscera [1]. Many occur sporadically, though there is likely a genetic association. They

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Figure 1: (a) Dorsal view of the right small finger showing soft tissue mass, (b) palmar view of the right small finger with soft tissue mass.



Figure 2: AP view of the hand showing soft tissue mass without bony involvement.

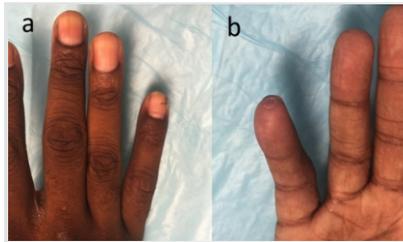


Figure 3: (a) dorsal view of the right small finger status post mass resection, (b) palmar view of the right small finger status post mass resection.

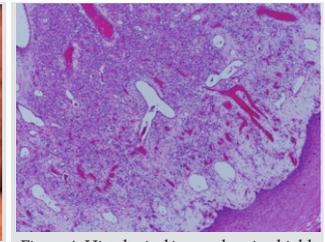


Figure 4: Histological image showing highly vascular soft tissue mass, diagnosed histologically as capillary hemangioma.

almost always present before the age of one, and it is extremely rare for them to develop past the teenage years[6]. Clinically, they are identified as bright red papules, nodules, or plaques. These lesions can grow rapidly, but most do not require treatment, as 90% will regress by age 9[1,2,7]. Capillary hemangiomas can also be treated with laser therapy and beta-blockers; surgery is rarely indicated[8,1]. We present an extremely unusual case of capillary hemangioma on the tip of the finger of an adult male presenting immediately after a burn. The mass was clinically diagnosed as pyogenic granuloma but histopathologically diagnosed as a capillary hemangioma. To our knowledge, this is the only presentation of its kind.

Case Report

A 29-year-old African American, right-hand-dominant male laborer presented to the outpatient orthopedic hand clinic with a 2–3-week-old growing mass on the tip of the right small finger. He first noticed the mass after burning the tip of the finger. Over the next 2 days, he developed a blister that ruptured and bled profusely. Soon after, a soft tissue mass began growing at this location, prompting him to come to the clinic. His only other complaint was swelling of the finger over the past 2 days. Otherwise, the patient denied pain, fevers, weakness, or numbness in the hand, or other complaints. Physical examination showed a 1.6 cm × 1.1 cm × 1.1 cm reddish-brown, oval-shaped soft tissue mass extending from the right small finger on a broad-based stalk (Fig. 1). There was mild swelling of the finger. The mass was painful at its base if moved, but sensation and motor function were intact throughout. Examination of the hand was otherwise normal. Multiview radiographs of the hand showed a soft tissue mass extending from the distal aspect of the right small finger without bony involvement (Fig. 2). Given the age of the patient and clinical presentation (including the recent history of a burn), a provisional diagnosis of pyogenic granuloma was made. Options were discussed with the patient including surgical resection and silver nitrate therapy. Per patient request, silver nitrate therapy was begun along with Keflex 500mg QID × 7 days. After 2 weeks and multiple rounds of silver nitrate therapy, the mass persisted unchanged. The patient elected to have the

mass resected in the clinic. Follow-up of 2 years and wound healing from this point forward were uneventful and without recurrence (Fig. 3). The mass was submitted for pathological examination by the university pathology department. Surprisingly, the histopathological report showed a highly vascular soft tissue mass containing capillaries lined with a single layer of endothelium, consistent with capillary hemangioma (Fig. 4).

Discussion

Previous reports have shown that capillary hemangioma is often confused with pyogenic granulomas[2]. A report by Jananni et al. described two cases of adult capillary hemangioma where both clinically resembled pyogenic granuloma[4]. The first case was a 24-year-old male with a longstanding sessile mass of the mouth, and the second case was a 50-year-old female who developed a sessile mass in the mouth after trauma. Both cases were treated successfully with surgical excision. Similarly, our case was difficult to identify clinically and required histological examination for proper diagnosis, though these cases occurred within the mouth and not the hand. Post-traumatic capillary hemangiomas of the hand are exceedingly rare and have only been described in a few previous reports. Habibi et al. described the case of a 12-year-old who developed multiple hand nodules after trauma[9]. The only other case of capillary hemangioma of the hand after trauma was published in 1974 by Ben-Menachem and Epstein[10]. In this case, an adult formed nodular masses in the hand soon after a crush injury. Our case is unique in that it occurred in an adult, was exophytic in nature, and occurred after burn. The ambiguity that is associated with these lesions can be rather confusing and can lead to erroneous diagnosis of other more serious conditions, such as squamous cell carcinoma, Kaposi's sarcoma, and bacillary angiomatosis. Capillary hemangioma and pyogenic granuloma have characteristic features that typically allow for them to be diagnosed clinically, though histopathology is the most accurate means of diagnosis. Microscopic examination of pyogenic granuloma shows the lobular arrangement of capillaries surrounded by stroma that may contain inflammation and granulation tissue. Plump endothelial cells line the

capillaries, and vessel lumen may vary in size[5]. Capillary hemangiomas also contain lobules of thin-walled capillaries, though they express glucose transporter 1 which differentiates them from other lesions, including pyogenic granuloma[7].

Conclusion

Clinically, a vascular soft tissue mass in an adult that presents after trauma represents several key characteristics of a pyogenic granuloma. Interestingly, histological examination, in this case, showed the mass to be a capillary hemangioma. Multiple rounds of silver nitrate therapy were ineffective, though surgical resection provided excellent results without recurrence. This report highlights the importance of having a high clinical

suspicion for both pyogenic granulomas and capillary hemangiomas in children and adults with a vascular soft tissue mass somewhere on the body. With this in mind, health-care providers should maintain a low clinical threshold to send soft tissue masses for histopathology to obtain an accurate diagnosis and to provide the best care possible.

Clinical Message

Physicians should have a high index of suspicion for both pyogenic granulomas and capillary hemangiomas in children and adults with a vascular soft tissue mass somewhere on the body, as they can closely resemble each other clinically.

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