

## CLINICAL IMAGES

### Pyogenic Granuloma

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47-year-old African American male presents to the emergency department with a lesion on the distal, palmar aspect of his right second digit. Three weeks previously, the patient noticed a scab on his finger due to unknown trauma. One week ago he picked off the scab and after prolonged bleeding the subsequent lesion developed (Figure 1 and 2). He denies drainage, fevers, chills or previous episodes of similar lesions. No other lesions are present elsewhere on the body. He does note that the lesion is mildly painful and he has a small amount of surrounding swelling.

FIGURE 1



FIGURE 2



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### QUESTIONS

1. The lesion depicted above is consistent with a
  - a. Nevus
  - b. Pyogenic granuloma
  - c. Melanoma
  - d. Basal cell carcinoma
  - e. Furuncle
2. A 32-year-old female presents to your office with a similar lesion. Which of the following medications that she is on may make her prone to lesions such as this?
  - a. Glipizides
  - b. Beta-blockers
  - c. Acetaminophen
  - d. Oral contraceptives
  - e. Daily Vitamins
3. What is the preferred plan of care?
  - a. Apply Neosporin twice daily for 2 weeks
  - b. Tie off the lesion at the stalk
  - c. Spontaneous regression
  - d. Shave excision and electrodesiccation
  - e. Cryosurgery

## ANSWERS

### 1. The lesion depicted above is consistent with a:

**Answer B:** Pyogenic granuloma

**Explanation:** Nevus is a pigmented spot of skin such as a mole that would not have developed as rapidly as the lesion depicted and would have a different appearance. A melanoma is larger than a common mole with borders that are irregular and poorly defined. Color ranges from tan to dark brown shades on a pink background. They have irregular borders that may include notches. They may fade into surrounding skin and include a flat portion level with the skin.<sup>1</sup> A basal cell carcinoma would also not have appeared so quickly, tends to appear on heavily sun exposed areas of the skin, and does not have a stalk like appearance.<sup>2</sup> A furuncle is a skin infection caused by staphylococcal infection. It is smaller and more superficial than subcutaneous abscesses. The case history and image is not consistent with a furuncle.<sup>3</sup>

### 2. A 32-year-old female presents to your office with a similar lesion. Which of the following medications that she is on may make her prone to lesions such as this?

**Answer D:** Oral contraceptives

**Explanation:** Medications have been shown to increase the incidence of pyogenic granuloma including some classes of chemotherapeutics, retinoids, oral contraceptives and protease inhibitors.<sup>4,5</sup>

### 3. What is the preferred plan of care?

**Answer D:** Shave excision and electrodesiccation

**Explanation:** Shave excision and electrodesiccation are the preferred procedures.<sup>6</sup> Removal must be of a complete thickness in an effort to reduce the rate of recurrence, which is about 0.2-5%.<sup>4,7</sup>

## DISCUSSION

A pyogenic granuloma is a benign proliferation of the capillaries found on both skin and mucous membranes of an unknown etiology, likely related to a discrepancy between angiogenic promoters and inhibitors.<sup>6,7,8</sup> It often occurs after an injury or with prolonged irritation.<sup>6</sup> The lesion initially grows rapidly in size over days to weeks before reaching a more stable size later in its course.<sup>9</sup> Despite the name, a pyogenic granuloma is neither an infectious nor a granulomatous process. As such, lobular capillary hemangioma has been proposed as a more accurate designation.<sup>6</sup>

The diagnosis of a pyogenic granuloma is clinical. This lesion is commonly brought to a physician's attention due to its characteristically profuse and easy bleeding.<sup>6,8</sup> Viewed as a solitary friable, smooth red "raw" nodule, it is usually painless and reaches an average size of 6.5 mm.<sup>4,6</sup> A history of trauma often heralds the appearance of the lesion.<sup>4</sup> On the skin, the lesion's borders are well demarcated, commonly forming a hyperplastic epidermal ring called an epithelial collarette.<sup>5,6</sup> The surrounding tissue is frequently normal in appearance.<sup>5</sup> The head/neck and upper limbs are the most common locations to find lesions.<sup>7</sup>

Age is a significant risk factor for the development of pyogenic granulomas. Although seen at any age, children with a median age of 6.7 years old are most commonly effected.<sup>5,9</sup> Pregnancy is another noteworthy risk factor. Pyogenic granuloma of the oral mucosa during pregnancy, known as a granuloma gravidarum or a "pregnancy tumor," occurs in 0.2-5% of pregnancies.<sup>4,7,8,10</sup> Found on the maxillary intraoral surface, they often resolve after a pregnancy when the increased levels of vascular endothelial growth factor seen during pregnancy declines.<sup>6</sup> Medications have also been shown to increase the incidence of pyogenic granuloma including some classes of chemotherapeutics, retinoids, oral contraceptives, and protease inhibitors.<sup>4,5</sup>

Pyogenic granuloma can, albeit rarely, regress spontaneously.<sup>9</sup> Given that they are friable and in cosmetically sensitive areas, dermatologist referral and subsequent removal is the currently favored treatment plan. Shave excision and electrodesiccation are the preferred procedures.<sup>6</sup> Removal must be of a complete thickness in an effort to reduce the rate of recurrence, which is about 5%.<sup>4,7</sup> Histological findings help both confirm the diagnosis and also rule out other more serious processes like an amelanotic nodular melanoma, which can only be differentiated from a pyogenic granuloma via histological examination.<sup>10</sup> Histologically, a pyogenic granuloma demonstrates a lobular organization of benign proliferating capillaries with neutrophils and notable edema.<sup>11</sup> Cryosurgery and laser removal are alternative removal methods but less favored as these procedures can require multiple treatments and offer little advantage over typical management.<sup>6</sup> Topical Timolol and Imiquimod have been used off-label in the past with success, but surgical removal still remains the mainstay of treatment today.<sup>12,13</sup>

## REFERENCES

1. Atypical Moles. American Osteopathic College of Dermatology Web site. <http://www.aocd.org/?PyogenicGranuloma> Accessed March 4, 2015.
2. Basal Cell Carcinoma. American Osteopathic College of Dermatology Web site. <http://www.aocd.org/?page=BasalCellCarcinoma&hhSearchTerms=%22basal+and+cell+and+carcinoma%22> Accessed January 26, 2015.

3. Furuncles and Carbuncles. The Merck Manual Professional Edition. [http://www.merckmanuals.com/professional/dermatologic\\_disorders/bacterial\\_skin\\_infections/furuncles\\_and\\_carbuncles.html](http://www.merckmanuals.com/professional/dermatologic_disorders/bacterial_skin_infections/furuncles_and_carbuncles.html) Accessed January 26, 2015.
4. Pyogenic Granuloma. American Osteopathic College of Dermatology Web site. <http://www.aocd.org/?PyogenicGranuloma> Accessed January 20, 2015.
5. Hardin J. Chapter 13. Cutaneous Conditions. In: Knoop KJ, Stack LB, Storrow AB, Thurman R. eds. *The Atlas of Emergency Medicine*, 3e. New York, NY: McGraw-Hill; 2010.
6. Usatine RP, Smith MA, Chumley HS, Mayeaux EJ, Jr.. Chapter 161. Pyogenic Granuloma. In: Usatine RP, Smith MA, Chumley HS, Mayeaux EJ, Jr.. eds. *The Color Atlas of Family Medicine*, 2e. New York, NY: McGraw-Hill; 2013.
7. Giblin AV, Clover AJP, Athanassopoulos A, Budyn PG. Pyogenic granuloma the quest for optimum treatment: Audit of treatment of 408 cases. *J Plast Reconstr Aesthet Surg*. 2007; 60: 1030-1035.
8. Ferri F. Pyogenic Granuloma. In: *Ferri's Clinical Advisor*, 2015e. Philadelphia, PA: Mosby an imprint of Elsevier Saunders; 2014:1013-1013
9. Pyogenic Granuloma (Generalist Overview). First Consult via ClinicalKey by the Elsevier Web site. <https://www.clinicalkey.com.vcom-proxy.vtls.com/#!/topic/Pyogenic%2520Granuloma> Accessed January 20, 2015
10. Burkhart CN, Morrell DS. Chapter 247. Disorders of the Hands, Feet, and Extremities. In: Tintinalli JE, Stapczynski J, Ma O, Cline DM, Cydulka RK, Meckler GD, T. eds. *Tintinalli's Emergency Medicine: A Comprehensive Study Guide*, 7e. New York, NY: McGraw-Hill; 2011.
11. Wolff K, Johnson R, Saavedra AP. Section 9. Benign Neoplasms and Hyperplasias. In: Wolff K, Johnson R, Saavedra AP. eds. *Fitzpatrick's Color Atlas and Synopsis of Clinical Dermatology*, 7e. New York, NY: McGraw-Hill; 2013.
12. Malik M, Murphy R. A pyogenic granuloma treated with topical timolol. *Brit J Dermatol*. 2014; 171(6):1537-1538.
13. Goldenberg G, Krowchuk DP, Jorizzo JL. Successful treatment of a therapy-resistant pyogenic granuloma with topical imiquimod 5% cream. *J Dermatolog Treat*. 2006;17(2):121-123.