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# Achenbach Syndrome: Minor Traumatic Injury as a Possible Etiology

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## ABSTRACT

Achenbach syndrome is a rare cause of acute bluish discoloration and swelling of one or more digits, of unknown etiology. The condition is self-limited and benign but is worrisome for both patients and healthcare providers due to its emulation of peripheral ischemia. Familiarity with the clinical features of Achenbach syndrome allows for rapid diagnosis and mitigation of costs and anxiety associated with unnecessary testing and referrals. We report a case of Achenbach syndrome associated with a puncture wound, which supports a traumatic etiology for this condition.

**Keywords:** blue finger, hematoma, peripheral vascular disease, vascular

## INTRODUCTION

First described in 1958, Achenbach syndrome<sup>1</sup>, also known as paroxysmal finger hematoma<sup>2</sup> or acute blue finger syndrome<sup>3</sup>, is a rare cause of self-limiting, acute bluish discoloration and swelling of one or more digits.

An acute blue finger can be a great cause of worry for both patients and healthcare providers and warrants prompt evaluation and exclusion of embolic phenomena. It is hence important to be aware of rare, benign conditions with similar presentation, such as Achenbach syndrome.

We report a case of Achenbach syndrome associated with a puncture wound.

## CASE REPORT

### History

A 55-year-old female patient presented to the emergency department with a two-hour history of swelling at the right middle finger. The swelling started at the proximal phalanx and progressed to involve the middle and distal phalanges, following which she noticed bluish discoloration of the

finger. It was associated with a feeling of heaviness at the finger, without any pain, numbness, or tingling. She had no history of similar episodes. She denied exposure to a cold environment and did not recall any history of trauma to the finger. Medical history included anxiety disorder (controlled on escitalopram) and diet-controlled hypercholesterolemia. Family history was non-contributory.

### Physical Exam

Vital signs were within normal range. Cardiopulmonary exam was unremarkable.

The right middle finger was edematous and warm. Bluish discoloration of the skin was noted at the palmar aspect of the right middle finger, sparing the distal phalanx. A less than 1 mm puncture wound is noted on the palmar aspect of the proximal phalanx. Physical findings are shown in Figure 1. Radial pulses were intact and normal capillary refill was noted at the distal right middle finger. There was mild tenderness to palpation at the proximal interphalangeal joint.

### Workup

CBC, ESR, CRP, and basic metabolic panel were within normal range. Bedside doppler ultrasonography showed normal radial and distal phalangeal pulses. A radiograph of the right middle finger showed no evidence of fracture. Arterial duplex demonstrated normal radial and digital

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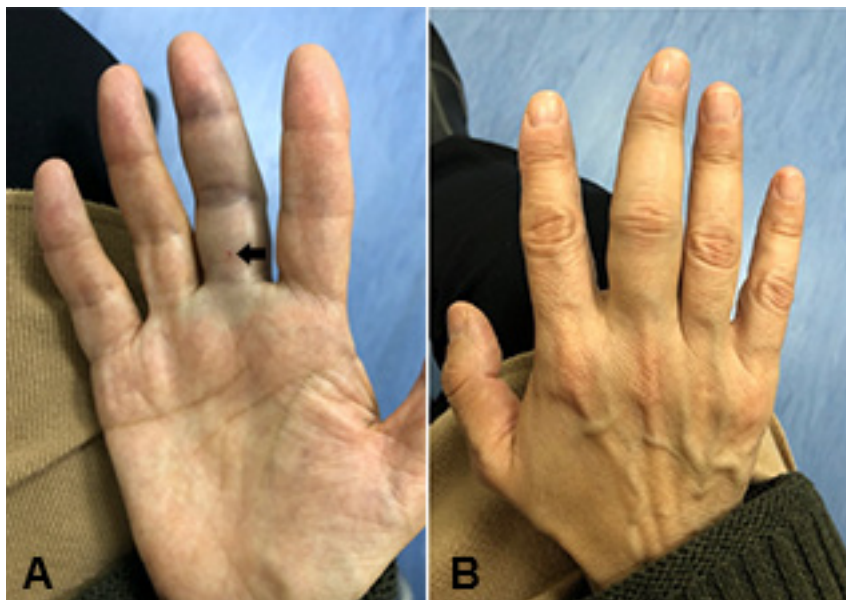
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**Figure 1** Palmar (A) and dorsal (B) aspects of the affected right third digit. Notice the prominent bluish discoloration on the palmar side of the finger and the puncture wound (arrow) on the proximal phalanx. Also notice sparing of the distal tip and dorsal aspect of the digit.

blood flow.

### Management and Follow-Up

The patient was examined by the plastic surgery and vascular surgery teams. She was reassured and discharged with the recommendation to elevate the affected finger in order to promote venous drainage and resolution of the swelling. A follow-up appointment was scheduled with her family physician a week later. Swelling, discoloration and discomfort had completely resolved by the one-week appointment.

### DISCUSSION

The etiology of Achenbach syndrome remains elusive<sup>4</sup>, but its pathophysiology is postulated to be related to subcutaneous bruising secondary to venous bleeding.<sup>5,6</sup> One peculiarity noted in this case is its association with a puncture wound on the palmar aspect of the affected digit, supporting the possibility of trauma as a precipitating factor to Achenbach syndrome. A traumatic or external cause for Achenbach syndrome was previously postulated when this constellation of symptoms was reported in a young man who had recently started weight-training with barbells.<sup>7</sup> Special attention to history or evidence of minor trauma in future cases encountered may help elucidate the etiology of this

cryptic syndrome.

The case reported here is otherwise representative of the typical features of Achenbach syndrome. Indeed, Achenbach syndrome has been disproportionately reported in middle-aged women.<sup>8</sup> It usually involves swelling and discoloration of the volar aspect of one or more digits, spares the distal end of the digit, and generally resolves within a few days up to a few weeks.<sup>2</sup>

It is often, but not necessarily, associated with pain, numbness, or tingling.<sup>2</sup> Most importantly, Achenbach syndrome presents with preserved capillary refill and normal arterial blood flow in the digits, which can be confirmed with bedside doppler ultrasound when physical examination is ambiguous.

Once ischemia is ruled out, familiarity with the clinical features of Achenbach syndrome would allow for efficient diagnosis and prevent unnecessary testing and referrals. It would also help mitigate costs and patient anxiety.

### CONCLUSION

Achenbach syndrome is a benign condition that presents similarly to acute peripheral ischemic disease. Familiarity with the condition allows for rapid clinical diagnosis and prevents unnecessary

testing and referrals. While its etiology remains poorly understood, several case reports have documented an association between Achenbach syndrome and a history of minor traumatic injury.

**Conflict of interest:** the authors declare no conflict of interest or source of funding.

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