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From a prick to a puff: A rare case of subcutaneous emphysema after minor hand trauma

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INTRODUCTION

Subcutaneous emphysema refers to air trapped under the skin, often linked to gas-forming infections. However, it may rarely result from trauma and non-infectious causes. We present a rare case of subcutaneous emphysema of the hand and forearm following a minor nail puncture and hydrogen peroxide irrigation.

CASE DESCRIPTION

A 38-year-old Malay man presented to the emergency department after a nail prick injury to his left hand. He was stable, afebrile, and appeared well. The patient reported swelling and pain extending from the injury site on the thenar area up to his shoulder, which developed after h';LKJ`12345678U9I0O-=\aqsdfghjkl

'ydrogen peroxide irrigation at a clinic. Examination revealed a 1×0.5 cm puncture wound with palpable crepitus tracking from the hand to the shoulder. Neurovascular status was intact.

Blood tests showed leukocytosis (WBC 22×10^9/L), while other parameters were normal. Radiographs confirmed extensive subcutaneous gas shadows within the soft tissues up to the shoulder. He was treated with intravenous antibiotics and analgesia. The patient improved clinically and was discharged after two days with oral antibiotics. A two-week follow-up showed complete resolution of symptoms and full wound healing.

DISCUSSION

Subcutaneous emphysema, while often infectious in origin, can also result from benign mechanisms such as forced air entry or a "one-way valve" effect during wound irrigation. The use of highly concentrated irrigants like hydrogen peroxide, combined with high-pressure or improper technique, may displace air into tissue planes. This risk increases in areas with poor hemostasis, facilitating gas entry into the musculoskeletal and circulatory systems. Modern wound care guidelines are moving away from hydrogen peroxide due to its cytotoxicity, poor hemostatic properties, risk of gas embolism, and negative impact on wound healing.

CONCLUSION

In conclusion majority of the non traumatic subcutaneous emphysema can be treated with conservative measures. However a high clinical suspicious and meticulous workup is mandated to prevent misdiagnosis of life threatening condition such as necrotizing fasciitis as well resulting in surgical consequences and secondary morbidity.

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