

Inflammation and infection

Acute lung injury following penile ischemia and reperfusion

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Introduction

Acute lung injury following lower torso ischemia-reperfusion has been described, typically from the lower limbs. We present a case of acute respiratory failure following removal of a metal ring from an ischemic penis.

Case presentation

The patient is a 51 year old male who presented to an outside facility with an incarcerated penis ring for 3 days. He had no significant past medical history. The distal penis was found to be necrotic, and the ring was removed under procedural sedation, after which he began to require supplemental oxygen via a non-rebreather mask (Figs. 1 and 2). His chest x-ray at the time was wholly unremarkable, but he was transferred to our institution, where his respiratory function began to decline, and a repeat chest x-ray revealed bilateral infiltrates (Fig. 3). He was started on broad-spectrum antibiotics and taken to the operating room for a partial penectomy. He could not be extubated immediately post-operatively and was transferred to the ICU. He was extubated on POD1 but had to remain on BiPAP. By POD5, his respiratory status and serial chest x-rays did not improve, so he underwent a Chest CT that was concerning for acute respiratory distress syndrome (ARDS). He was started on steroids, and on POD6, he was reintubated for bronchoscopy and bronchoalveolar lavage (BAL). There was no evidence of alveolar hemorrhage or pulmonary alveolar proteinosis. He could not be extubated for another 3 days. Finally, on POD10, he was extubated and stable for transfer to the floor, from which he was discharged home shortly afterwards on supplemental oxygen. Blood, urine, and respiratory cultures were all negative, as well

as the BAL. The patient was seen in clinic for follow-up several weeks after discharge and was voiding well from his urethral stump. He no longer required supplemental oxygen.



Fig. 1. Distal ischemia of penis.

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Fig. 2. Ring removed from penis.

Discussion

ARDS is a severe form of acute lung injury that is associated with a high fatality rate. Nearly 20% of all ARDS cases are due to an indirect insult to the lung parenchyma.¹ There is a well-known association between acute lung injury and ischemia-reperfusion events, which are typically after major vascular surgeries, tourniquets on extremities, hemorrhagic shock, and severe blunt traumas.² The etiology of ischemia-reperfusion induced lung injury is thought to be due to an acute decrease then dramatic increase in circulating neutrophils and cytokines leading to tissue injury in remote sites, such as the pulmonary microvasculature.³ The above patient was in good health with no significant past medical history or predisposing factors to lung injury. An extensive work-up was undertaken to elucidate the etiology of his

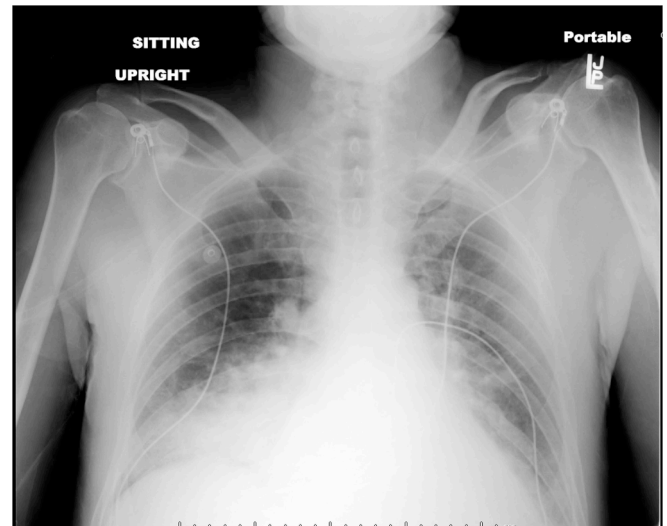


Fig. 3. Chest X-Ray following ring removal.

ARDS, but no infectious, immune, or physical explanation was discovered.

Conclusion

Ischemia-reperfusion induced lung injury may be possible outside of ischemia of the extremities.

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