

Suspected Retropharyngeal Abscess Resulting in Quadruple Amputation: A Case Report

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Background

- **Malignant hyperthermia** is a rare and life-threatening pharmacogenetic disorder.
 - Presents as a hypermetabolic response to volatile anesthetic agents and depolarizing muscle relaxants.
 - Circulatory shock is a recognized, life-threatening, sequelae, typically managed with intravenous vasopressors.^{2,3}
- **Vasopressors** used in critically ill patients poses a serious risk of peripheral limb ischemia.^{1,5}
- **Antiphospholipid syndrome** is an autoimmune disorder driven by autoantibodies against surface phospholipids and binding proteins that results in a hypercoagulable state.^{4,6}

Initial Presentation

27-year-old male

CC: Painful swallowing and high fevers

HPI: Patient presents to ED with malaise, sore throat, nausea, emesis, diarrhea, and generalized weakness for 7 days. He reported anorexia secondary to odynophagia and endorsed photophobia and neck stiffness. Incomplete childhood immunizations. No known drug allergies.

In the ED: PT was febrile (Tmax 104°F). SIRS positive. Negative viral, bacterial cultures, and lumbar puncture. Initial head CT was concerning for possible *retropharyngeal abscess* [Fig. 1]. He was admitted for surgical exploration the following day.

Hospital Course

Surgical exploration: Discovered no purulence in the retropharyngeal space, suggesting no abscess. During the surgery, he developed high fever, diaphoresis, and elevated creatine kinase. The *malignant hyperthermia* protocol was initiated, and the patient was treated with dantrolene. The patient remained intubated post-op and was transferred to the intensive care unit.

ICU: Nine hours later, he developed severe hypotension and was treated on epinephrine, norepinephrine, and vasopressin infusions for two, eighteen, and nine days, respectively. Over the course of 3 weeks, the patient remained septic while *profound distal ischemia* and tissue necrosis developed in all four distal extremities. Acute renal injury also occurred requiring complete renal replacement therapy.

Extensive skin grafting and surgical amputation occurred in stages as the ischemia progressed, resulting in bilateral below the knee and radial amputations [Fig. 2]. Further workup included identification of positive *anti-phospholipid antibodies*. The patient was treated at this facility for 91 days and discharged to a skilled nursing facility.

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Case Images

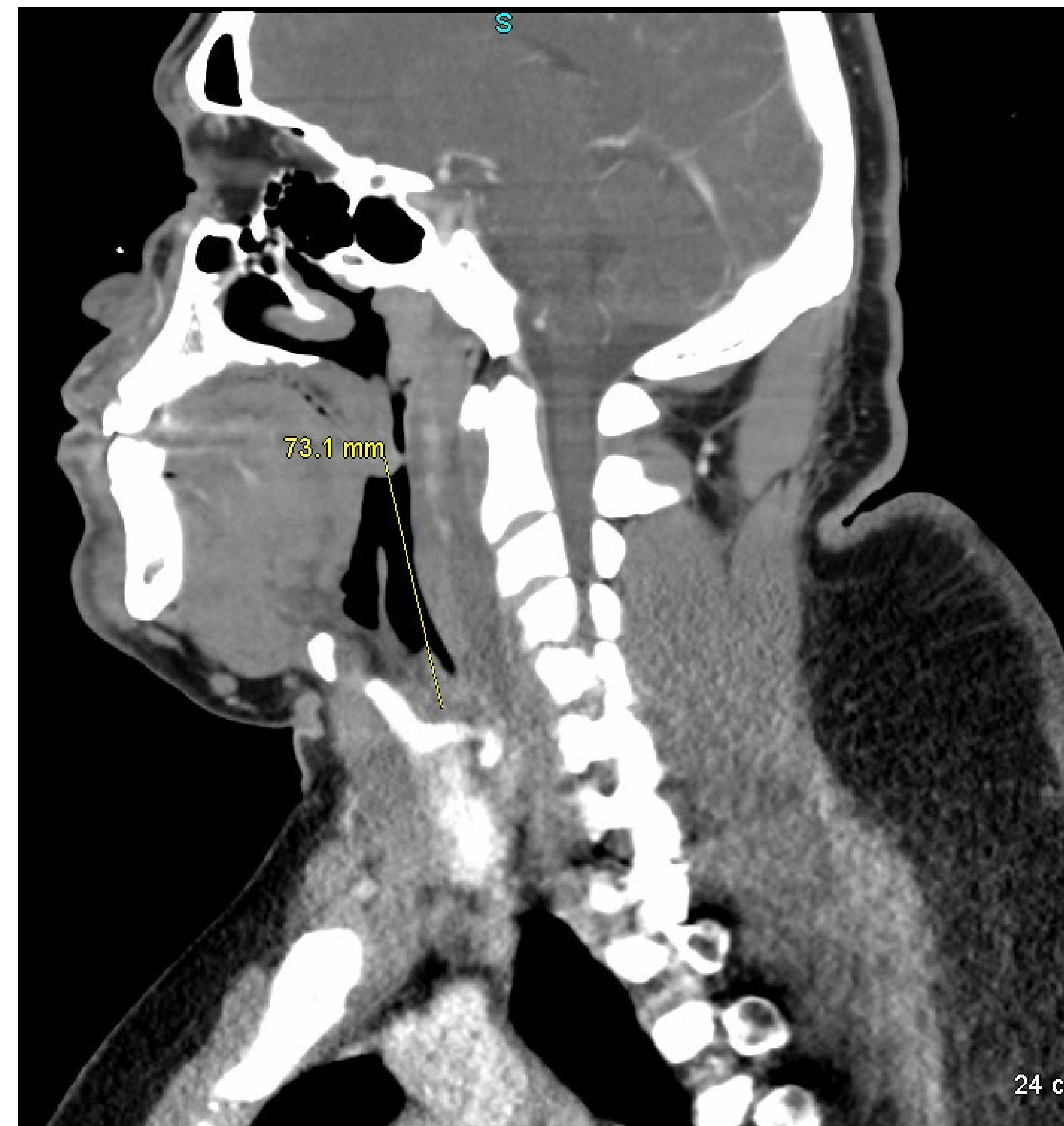


Figure 1. CT Soft Tissue Neck with Contrast Impression: Hypoattenuating fluid collection measuring 2.7 x 1.3 x 7.3 cm in the retropharyngeal space with concern for extension into the interspace posteriorly, findings are concerning for retropharyngeal abscess.



Figure 2. Clinical Images A) Right arm day 4. B) Right hand day 28. C) Right Arm day 90.

Discussion

- Malignant hyperthermia's hypermetabolic state and antiphospholipid syndrome's thrombotic characteristics compound the risk of circulatory shock and tissue ischemia.
- Using vasopressors to manage shock may have led to the complications seen in this patient due to his unique genetic profile.
- In patients with co-morbid thrombotic autoimmune conditions, a less invasive approach to address an RPA (e.g. transoral needle aspiration or incision & drainage) may be worthwhile to attempt before considering surgical exploration under general anesthesia.
- Patients such as this one require multidisciplinary collaboration to care for their immediate and long-term needs, such as: surgery, internal medicine, as well as both physical and occupational therapy.
- Treatment strategies for malignant hyperthermia should take into account patient's with diagnosed antiphospholipid syndrome to avoid exacerbating an ischemic event, while still managing the acute symptoms.

Conclusion

- Investigations into the possible early detection and prevention strategies could prevent future adverse events from occurring in similar patient populations.

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