

Postoperative Rhabdomyolysis after Otopoiesis Reconstruction of the Right Ear: Case Report and Review of the Literature

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DOI: [10.36347/sjmcr.2024.v12i05.101](https://doi.org/10.36347/sjmcr.2024.v12i05.101)

| Received: 16.04.2024 | Accepted: 27.05.2024 | Published: 31.05.2024

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Abstract

Case Report

Background: Otopoiesis, a technique for reconstructing the auricle, represents a real challenge for the surgeon due to the complexity of the structural and three-dimensional anatomy of this region. It is prone to postoperative complications, particularly in the case of prolonged operations, which can lead to complications such as rhabdomyolysis. **Case Report:** We report the case of a patient who developed rhabdomyolysis after reconstruction surgery on the right ear, amputated following an assault. **Conclusions:** Despite the advantages of free fibular flap surgery, clinicians must be aware of the risk of complications, as multiple factors can lead to rhabdomyolysis, such as the duration of the operation, the patient's position and pre-existing conditions such as diabetes and hypertension.

Keywords: Otopoiesis, Rhabdomyolysis, Renal Failure.

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INTRODUCTION

Otopoiesis has undergone considerable progress over the last two decades. Surgeons such as Tanzer [1-3], Brent [4-8], Barinka [9], Nagata [10, 11], and Firmin [12], have established the principles of this surgery. The anatomical and three-dimensional complexity of the auricle, as well as its morphological and aesthetic role, make it a significant surgical challenge. Otopoiesis is indicated in cases of congenital pathologies such as microtia, or in post-traumatic and tumoral amputations. However, despite its advantages, prolonged surgery can present complications such as rhabdomyolysis.

CASE REPORT

Mr. H.B., aged 47, hypertensive for three years and under antihypertensive treatment, was hospitalized for reconstruction surgery on his right ear, amputated following an assault. The procedure, which lasted 8 hours 30 minutes, involved the consumption of 400 mg Propofol, 25 µg Sufentanil, 60 mg Rocuronium and 1 liter isotonic saline. Reconstruction used cartilage harvested from the floating ribs and 8th and 9th right ribs, attached to the remaining ear cartilage and covered by a pedicled flap harvested from the superficial temporal artery and posterior little finger. A thin skin graft then covered the cartilage model.

After awakening, the patient reported left upper limb weakness and right subcostal pain. Arm mobility improved, but lumbar pain persisted. The patient left the clinic after three days.

However, his general condition did not improve. Seven days later, he was taken to emergency with dysuria and arrived in shock. His electrocardiogram revealed grade 3 complete atrioventricular block. Biological tests showed urea 5.35 g/l, creatinine 191.50 mg/l, kalemia 8 meq/l, alkaline reserves 3.60 meq/l, CPK 100,000 IU/l, and troponin I 156 ng/l. The patient died of cardiac arrest.

Autopsy revealed acute tubular necrosis and no specific lesions of the heart.

DISCUSSION

Discussion of postoperative rhabdomyolysis requires in-depth analysis of the pathophysiological mechanisms, risk factors and clinical implications of this serious complication in patients undergoing otopoiesis.

Rhabdomyolysis is a condition characterized by the lysis of skeletal muscle fibers, resulting in the intravascular release of various cellular components, including myoglobin, electrolytes, and intracellular enzymes such as creatine kinase. This release process can lead to serious clinical consequences, such as

cardiac-threatening hyperkalemia and acute renal failure [5].

The mechanisms underlying postoperative rhabdomyolysis are multifactorial. In the context of otopoiesis, the prolonged duration of surgery exposes muscle tissue to prolonged periods of ischemia, compression and trauma, promoting muscle lysis. In addition, perioperative factors such as the use of certain anesthetic drugs and surgical stress may also contribute to myoglobin release and the occurrence of rhabdomyolysis [1].

Risk factors for post-operative rhabdomyolysis include not only technical aspects of the surgical procedure, such as its duration, but also the patient's pre-existing medical comorbidities. Among these, hypertension and diabetes are particularly significant, as they are associated with a higher risk of rhabdomyolysis.

In the specific case presented, the combination of the prolonged duration of the surgical procedure and the patient's high blood pressure created a fertile ground for the onset of rhabdomyolysis. Clinical signs such as muscle weakness and low back pain, together with laboratory results showing significant elevation of muscle enzymes and markers of impaired renal function, confirm the diagnosis of postoperative rhabdomyolysis.

In conclusion, early recognition and appropriate management of postoperative rhabdomyolysis are essential to minimize the potentially serious complications associated with this condition. A multidisciplinary approach, involving surgeons, anaesthetists and nephrologists, is required to closely monitor patients at risk and intervene promptly in the event of suspected rhabdomyolysis, in order to optimize the clinical outcome and safety of patients undergoing otopoiesis.

CONCLUSION

Post-operative rhabdomyolysis is a rare but serious complication after otopoiesis, requiring a thorough understanding of pathophysiological mechanisms and associated risk factors. Early and effective management is essential to prevent serious complications and improve patients' clinical outcomes.

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