

# Surviving Malignant Hyperthermia at an Ambulatory Surgery Center

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## Abstract

**Background:** We report a rare case of malignant hyperthermia during cosmetic surgery at an ambulatory surgery center.

**Case Description:** A 32 year old female with no personal history or family history of adverse reaction to general anesthesia underwent VASER liposuction of flanks, thighs, knees, legs and abdomen with fat grafting to nasolabial folds. Patient had an abrupt increase in end-tidal carbon dioxide, tachycardia and muscle rigidity. She was diagnosed with malignant hyperthermia. Volatile anesthetic was discontinued and the patient was started on intravenous dantrolene.

**Results:** The surgery was aborted. The patient was transferred to a receiving hospital and admitted to the intensive care unit. Patient later returned to the ambulatory surgery center for completion of her cosmetic surgery under total intravenous anesthesia (TIVA).

**Conclusion:** Early recognition, diagnosis and treatment of malignant hyperthermia lead to a favorable clinical outcome. Ambulatory care center (ASC) personnel should be able to recognize the early clinical stages of this rare, yet potentially fatal, complication. ASCs should have the appropriate drugs and equipment available to treat malignant hyperthermia. ASC personnel should be familiar with the guidelines for the transfer of care of the malignant hyperthermia patient.

## Introduction

Malignant hyperthermia is a life-threatening, and acute pharmacogenetic disorder of skeletal muscle that presents as a hypermetabolic response to exposure to volatile anesthetics and/or the depolarizing muscle relaxant succinylcholine. <sup>1,2</sup> Malignant Hyperthermia (MH) is an autosomal dominant disorder. The estimated incidence of MH is 1:50,000 – 1:150,000 anesthetics for adults. <sup>2,5</sup> The estimated prevalence of the genetic abnormalities may be as great as one in 500 individuals. <sup>1</sup> Reactions develop more frequently in males than females at a ratio of 2:1. <sup>1</sup> The prevalence of MH has been estimated at approximately 0.3 per 100,000 New York and New Jersey ambulatory surgery patients. <sup>6</sup> Ambulatory surgery centers provide care to many patients with limited resources and capabilities than large hospitals. <sup>6</sup>

When malignant hyperthermia was first recognized as a complication of anesthesia, the case fatality rate was approximately 70%. <sup>2</sup> With current widespread education pertaining to the causes and clinical manifestation of the syndrome, the introduction of diagnostic testing and utilization of the drug dantrolene has reduced the mortality rate to less than 5% in countries with sophisticated medical delivery systems. <sup>2</sup> Here we report a case of MH during cosmetic surgery, with desflurane as the maintenance anesthetic agent. The anesthesiologist, surgeon, and perioperative personnel should be aware of the early signs of malignant hyperthermia. Prompt diagnosis and treatment of malignant hyperthermia lead to better outcomes. <sup>5</sup>