

Selenium deficiency may cause cardiomyopathy post-gastric bypass

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Non-compliance with vitamin and mineral supplementation protocols after bariatric surgery could lead to nutritional deficiencies and related health complications, such as heart damage, according to two separate case reports unveiled today at the American College of Gastroenterology's (ACG) 77th Annual Scientific meeting in Las Vegas.

Case Report 1: "Malnutrition Secondary to Non-Compliance with Vitamin and Mineral Supplements after Gastric Bypass Surgery: Complex Problem, Simple Solution"

Multivitamin supplementation is considered the standard of care for any patient undergoing gastric bypass, according to researchers from the University of Missouri who report a case of a non-compliant patient who failed to maintain regular follow-up after undergoing bariatric surgery leading to severe vitamin and mineral deficiencies managed by a multidisciplinary approach.

In this case, a 38-year old female patient underwent Roux-en-Y (RYGB) gastric [bypass surgery](#) but had limited follow-up during the five years since her surgery when she presented with several weeks of fatigue. She lost nearly 104 pounds since her surgery and was poorly compliant with her vitamin and mineral supplements, according to co-investigator Hazem Hammad, M.D.

"When she came in for medical care she was pale and had a slight soft ejection systolic murmur," said Dr. Hammad, who noted that she had hemoglobin of 4.7 g/dL and marked mineral and vitamin deficiencies, including low levels of Vitamin B12, Vitamin D, Zinc, and Iron. After receiving counseling about the crucial benefits from long term follow-up and compliance with [vitamin supplements](#), the patient was discharged to complete an IV [iron supplementation](#) treatment course and to follow up with a bariatric surgery multidisciplinary center, according to the case report. Two weeks following discharge she received additional counseling from her primary care physician and was given a handout that outlined [vitamin supplementation](#) following bariatric surgery along with written information that included how to obtain bariatric vitamins via website, phone and from pharmacies.

Three months following discharge laboratory tests revealed an increase in hemoglobin to 10.8 g/dL and an improvement in her vitamins and mineral deficiency status.

"The pre- and post-operative management of bariatric surgery patients is clearly multidisciplinary. United States guidelines define the primary team as comprising the bariatric surgeon, the obesity specialist and the dietitian," said Dr. Hammad. "Primary care physicians, however, have a significant role in managing and following these patients by providing crucial patient education and support as illustrated in our case."

Selenium Deficiency Causing Cardiomyopathy in a Patient with Gastric Bypass Surgery

In a separate case report, Mustafa Huseini, M.D., Naeem Raza, M.D. and their colleagues from the Geisinger Medical Center in Danville, PA reported that although rare in developed countries, selenium deficiency may occur in individuals with chronic malabsorptive states such as

patients with history of gastric bypass, and long term selenium-deficient parenteral nutrition.

"Selenium is an essential trace element that plays an integral role in normal myocardial function so supplementation may be beneficial for individuals who are at risk of low absorption, such as gastric bypass patients," said Dr. Huseini.

He described the case of a 39 year- female who underwent gastric bypass 7 years before presenting to the emergency department for evaluation of change in mental status, generalized weakness and several days of poor oral intake. On initial evaluation patient was noted to be hypotensive and in mild respiratory distress. After 2 days of hospital admission, she developed respiratory and circulatory collapse requiring endotracheal intubation and mechanical ventilation. A 2D echocardiogram showed a left ventricular ejection fraction of less than 20%. A cardiac catheterization revealed non-obstructive coronary artery disease. Nutritional evaluation revealed decreased levels of selenium (29 mcg/L ; Normal values: 63-160 mcg/L).

"After adequate supplementation with selenium, cardiac function improved and a repeat 2D echocardiogram demonstrated normalized ejection fraction of 55 percent," said Dr. Huseini. "This case emphasizes the role of considering selenium deficiency as a reversible cause of unexplained cardiomyopathy in patients with [gastric bypass](#) besides otherwise impaired nutritional status."

Provided by American College of Gastroenterology

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