Malnutrition in post mini gastric bypass - A case study

A.N. Malleswari[1,*], Mubasira Siddiqa Sameera[2]

[1]Chief Dietitian, [2]Clinical Dietitian, [1,2]Dept. of Nutrition and Dietetics, Gleneagles Global Hospitals, Hyderabad, Telangana, India

***Corresponding Author: A.N. Malleswari**
Email: nagu0508@gmail.com

Abstract
Bariatric surgery often improves health outcomes for morbidly obese patients and is increasing in popularity. Nutritional deficiencies represent a relevant long-term clinical problem in patients who underwent bariatric surgery as a result of modifications to the gastrointestinal anatomy and physiology, which could impact macro- and micro-nutrient absorption and occasionally lead to protein-energy malnutrition[3] (PEM). Nutritional deficiency due to loss of follow up and non-compliance with routine mineral and multivitamin supplements is not uncommonly encountered following bariatric surgery.

Keywords: MGB-Mini gastric bypass, IV-Intravenous, TPN-Total parenteral nutrition, OPD-out-patient department.

Case Scenario

A 61 years old male pharmacist admitted with complaints of generalised weakness and myalgia since 20 days. Decreased power in both lower limbs, bed ridden, associated with swelling of both lower limbs and numbness. Low grade fever associated with chills, decreased urine output associated with burning sensation and productive cough since 1 week. Increased frequency of stools (foul smelling), regurgitation of food with reflux exaggerated since 3 days

Past history of Lap MGB in July 2014, morbidly obese with hypertension (BMI 46.9 kg/m2) Biochemical parameters pre bariatric surgery Haemoglobin of 14.2g%, Serum albumin 4.1gm/dl, Serum ferritin 11.9 ng/mL, Vitamin B12- 322 pg/mL, Folic acid- 12.51 ng/mL and endoscopy - Mild Antral gastritis. After Surgery patient followed a prescribed diet (low calorie and high protein) with the necessary vitamin and minerals supplementation, lost 21kgs in 8 months and off anti-hypertensive medications. Later lost for follow ups and admitted with above complaints in June 2016.

On admission (June 2016).

1. **Anthropometric Assessment:** Height: 173cm, Weight: 63kg, Body mass index: 21.3 kg/m2 (lost 75 kg in 2 years, EWL%: 115).
2. **Bio-chemical parameters**: Haemoglobin: 6.7gms/dl; Serum Magnesium 1.7 mg/dl; Serum Phosphorus 1.4 mg/dl, Serum Albumin 1.2 gm/dl, Serum Calcium 6.6 mmol/L, Serum Folate 25.2, Serum Ferritin 431.9 ng/mL, Serum Vitamin B12 >1500pg/ml, Serum Creatinine 1.2 mg/dL, Serum cortisol 16 ug/dL, Serum Cholesterol 37 mg/dL.
3. **Clinical Examination**: Patient poorly built and malnourished, emaciated, lethargic, dehydrated, skin was lax, wrinkled and xerotic, loss of buccal fat pad, showing pallor, red beefy tongue, with bilateral pitting pedal oedema.
4. **24 hours dietary Re-call**: 300kcals &10 grams protein since the past 15 days. Eating with a fear of passing stool and gastrointestinal intolerance.
5. **PES (problem aetiology solution):** PEM related to inadequate oral intake and malabsorption of both micro and macro nutrient as evidenced by his recall and medical diagnosis.

Management and outcome

Medical Prognosis

Central line was placed and he was catheterized in view of his very low urine output. Started with appropriate antibiotics, along with proton pump inhibitors, Antiemetic's, TPN (total parenteral nutrition), Multi-vitamin injections, Thiamine, Folic acid supplementation along with thromboprophylaxis. Received blood transfusions and IV iron supplementation. He was also supplemented with IV albumin.

Dietary Prognosis

On admission patient at nutritional risk (NRS -2002 - score >3). BMI: 18.6 Kg/m^2 (calculated on dry body weight) Serum albumin: 1.2 gram/dl.

Initially nutrition was initiated slowly to avoid re-feeding syndrome, sips of orals, supplemental TPN and phosphorous was started along with trace elements and multivitamin supplementation. RDA (recommended dietary allowance) was fixed at 20 kcal/kg Ideal body weight[1] and 1gm/kg body weight, to be revised later. Oral's as tolerated (patient was meeting 10% RDA through oral and TPN contributed to 50% RDA). TPN continued and ONS (oral nutrition supplementation) started on second day. Patient continued to have dysphagia and could tolerate only 2-3 tea spoons of semi solids till day 3. Day 4 and 5 in view of consistently low oral intake emphasis was laid more on encouraging ONS. Loose stools persisted but frequency and quantity came down. On 6th day of admission, patient could meet 30% RDA orally and rest supplemental TPN took over. Patient was reassured about tolerance and re-educated on high biological valve protein.

Patient improved neurologically following supplements of vitamins B12, Folate and thiamine. With the help of physiotherapy he was able to walk with support from bed ridden status. Next step was to taper TPN, continue orals

and discharge by 8th day. On the day of discharge patient met 50% of RDA orally. Re-counselled and followed up in the OPD for future prognosis.

Conclusion

Nutritional deficiency due to loss of follow up and non-compliance with routine mineral and multivitamin supplements is not uncommonly encountered following bariatric surgery. The patient under discussion was admitted with PEM related anasarca with lower respiratory tract infection with urinary tract infection and motor neuropathy (Nutritional deficiencies Folate and thiamine). All this improvement could be achieved with a multidisciplinary team approach involving medical and allied healthcare professionals in concentration with the patient and the patient's family. Counselling regarding the need of regular follow up and the importance of vitamin supplements was performed.

Comments

Nutritional surveillance is an essential component in the management of bariatric patients for the following reasons: (1) increases the patients' adherence to healthy dietary habits and appropriate supplementation regimens; (2) prevents the risk of weight regain; (3) facilitates the detection of possible nutritional deficiencies that could develop despite medical therapy; and (4) contributes to maintaining a good quality of life.

Conflicts of Interest: None.

Reference

1. ASPEN 2016 critical care guidelines
2. NCBI – Bariatric guidelines for Indian population – 2016.
3. Roberta lupoli- Bariatric surgery and long term nutritional issues. World diabetes 2017;15:8(11): 464-474.
4. Ahmad DS[1]- malnutrition secondary to non-compliance with vitamin and mineral supplementation after gastric bypass surgery: what can we do about it? 2012;13:209-13. doi: 10.12659/AJCR.883335. Epub 2012 Aug 29.

How to cite this article: Malleswari AN, Sameera MS, Malnutrition in post mini gastric bypass - A case study, *J Nutr, Metab Health Sci,* 2019;2(1):18-19