



Dietary management and challenges in a malnourished short bowel syndrome patient– A case report

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ABSTRACT

We here present a rare case of the Dietary Management and Challenges in a malnourished short bowel syndrome patient. Nutritional rehabilitation with a novel dietary approach needed to improve the patient's nutritional outcomes is narrated in this case report.

Keywords: Short bowel syndrome, Semi elemental formula, Nutrition care

1. INTRODUCTION

Short bowel syndrome (SBS) is an intestinal failure resulting from an inadequate length of intestine following intestinal resection. Intestinal failure refers to a condition that results in inadequate digestion or absorption of nutrients or both so that an individual becomes malnourished and requires specialized medical and nutritional support¹. The symptoms of SBS vary from patient to patient; however, they are typically characterized by diarrhea, fatty stools, abdominal pain, malnutrition, and dehydration^{2,3}.

1.1 Case report: A 57 year female during surgical intervention elsewhere for an incisional hernia was found to have a large section of small intestine, had to be resected as it was entangled in the hernia sac. A jejunio-ileal anastomosis was done then. The exact length of bowel remaining following resection was <1m. Loose, watery stools developed postoperatively then gradually settled over a period of 3-4 months. She had recently lost approximately 20kg body weight over a period of 8-9 months due to decreased appetite. She was found to have bilateral pedal edema with hypoproteinemia and hypoalbuminemia. She was referred here for future management. The patient was referred to a dietician for nutritional support. As a first step, the nutritional assessment was done and nutritional intervention was planned.

1.2 Anthropometric assessment

Height 143cm

Weight: 36kg with oedema

Usual weight-58kg

BMI-18 KG/m²

DBWT: 44-45Kg @ 21-22BMI

Non-Ambulant

1.3 Nutritional assessment: Nutritional assessment performed revealed severe malnutrition which was primarily due to inadequate intake, poor digestion and poor absorption due to the short bowel. Approximately 38% weight loss was observed over a period of few months from 58 Kg to 36 Kg. The review of dietary intake revealed a significantly reduced intake of only approximately 500 to 600 Kcal/ day.

1.4 Nutrition intervention: Considering the previously reduced intake she was slowly started on ~ 600 Kcal and 20gm of protein on the first day and gradually increased up to 1400 Kcal and 54 gm of protein in about 10 days.

Table 1: Shows the biochemical parameters of the patient.

PARAMETERS	1 st Week	2 nd week
ALBUMIN	2.0**	2.6
POTASSIUM	3.1*	4.8*
SODIUM	136	136
CREATININE	0.4	0.3
VITAMIN D	5	-
CALCIUM	7.2	7.4
PHOSPHORUS	3.7	2.0
MAGNESIUM	1.9*	1.3*

- **Nutritional care plan-** Since the patient has been consuming food in the form of liquids for quite a long period of time; initiation of nutrition intervention was a real challenge for the dietitian. Initially, the patient was started on a semisolid diet of 600kcal along with Semi Elemental Formula (SEF). Elemental diet formulas are used to provide nutrients in a form that is easily and readily assimilated and better absorbed and tolerated in patients with malabsorptive conditions and are more palatable than conventional elemental formulations. It contains 100% whey protein, a high-quality protein, pre-digested into smaller protein fragments known as peptides, which supports more rapid stomach emptying (digestion). It also contains medium chain triglycerides (MCT), which is easily digested and rapidly absorbed⁴.
- **Challenges:** It was challenging task for the dietitian to feed the patient because the patient was so scared to eat because of the GI disturbances. The dietitian made it a point to visit and talk to the patient daily about the importance of adequate food intake for the betterment of health and gave counseling to come out of the fear.
- **Stepping of nutrients-** A semisolid and semi-elemental diet was tailor-made according to the nutrient requirements of the patient since the patient intake was very poor over several months and sudden increase of energy and protein may not be much appreciated, hence the dietitian gradually tried to increase energy and protein requirements depending on the tolerance. On the second day, along with semi-solid diet, SEF 10 gm (1 scoop) was introduced and gradually increased to 9 scoops on a daily basis. And also protein-rich foods like egg, chicken, fish, dhal were introduced on a daily basis after the 4th day of nutrition intervention. The patient was regularly monitored on the tolerability. Table 2 indicates that energy and protein were consistently increased on daily basis.

Table 2: The increment of energy and protein during the admission period

Days	Type of Diet	Energy (kcal)	Protein (g)
1	Soft Solid	500 – 600	20
2	Soft Solid + 1 Scoop SEF	647	21.7
3	Soft Solid + 2 Scoop SEF	694	23.7
4	Soft Solid + 3 Scoop SEF	741	25.4
5	Soft Solid + 4 Scoop SEF	805	30
6	Soft Solid + 5 Scoop SEF	892	31.7
7	Soft Solid + 6 Scoop SEF	939	33.4
8	Soft Solid + 7 Scoop SEF	1036	41.5
9	Soft Solid + 8 Scoop SEF	1133	50
10	Soft Solid + 9 Scoop SEF	1400	54
11	10th-day diet was followed till discharged		

* 1 scoop = 10 gms

2. DISCUSSION

Nutrition plays a significant role in achieving optimal health, but in certain high-risk patients with significant systemic illnesses, achieving adequate nutrition with a traditional oral diet may be difficult, secondary to inability to tolerate, digest, and absorb whole foods. Numerous clinical studies have demonstrated significant health benefits with semi-elemental diets in all phases of the dietary process in terms of digestion, absorption, and tolerance outcomes. Semi-elemental diet improves the patients' tolerability better than parenteral nutrition as indicated by several scientific and medical literatures⁵. In addition, other beneficial outcomes, such as improved mortality and economic advantages, have been reported.

The most important dietary intervention for patients with SBS includes the recommendation of frequent, soft small meals, avoidance of all types of simple sugars, and encouragement of chewing food well. Low fiber and complex carbohydrates are readily digested and absorbed. Hence, these should be the primary macronutrient source. Patients with SBS are malnourished and may benefit from increased protein intake⁶. Protein sources with high biological values are always preferred rather plant protein which was very much evident in this report.

At the time of discharge, she was hemodynamically stable and ambulant, 2kg of oedematic fluid lost in about 10 days after the intervention of nutritional support. Her serum albumin increased from 2.0-2.6g/dl

Recommendation during discharge:

Patient was discharged with an advice to follow 1400kcal and 55gm protein as suggested by dietitian because the patient was much comfortable with the present suggested diet without any gastrointestinal disturbances, and as the bowel adapts and absorption improves, it is possible that nutrient recommendations can be increased further. It was also advised to increase the quantity of food to meet the nutrient requirement if the patient continues to tolerate well.

3. CONCLUSION

In conclusion, nutrition therapy is crucial for the successful management of patients with SBS. Managing patients with SBS is complex and requires a comprehensive, multidisciplinary approach and attention, although there are limited data regarding nutritional management of patients with SBS, it is apparent in terms of clinical practice that careful and meticulous nutritional intervention can facilitate feeding⁷. The long-term likelihood of achieving nutrition autonomy is improved by the use of appropriate oral diets coupled with semi-elemental diet, education, and monitoring. Patients with SBS require lifelong monitoring, and management goals often change over time.

This case report shows that patient having difficulty in digestion or absorption of normal diets, or those who are unable to attain adequate nutrition shall achieve improved health outcomes and nutritional goals through the use of semi-elemental diets along with small, soft, frequent oral diet which was described in this case report.

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5. REFERENCES

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