

Bariatrics – Nutrition and the Knife

Part 1 – Pre-operative



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Bariatric surgery is recognised as the most clinically effective, and also cost-effective, treatment for people with severe and complex obesity.¹ Bariatric procedures comprise of restrictive techniques such as gastric banding and sleeve gastrectomy, malabsorptive techniques such as biliopancreatic diversion and duodenal switch, or a combination of both such as Roux-en-Y (RYGB) and one-anastomosis gastric bypass. The RYGB is currently the predominant surgery performed at the University Hospital of North Midlands NHS Trust (UHNM), consisting of more than 90% of all primary bariatric surgery procedures. All procedures can potentially cause clinically significant nutritional deficiencies.¹

The UHNM bariatric surgical unit consists of five surgeons and a multidisciplinary team (MDT), consisting of clinical nurse specialists (CNS), registered dietitians (RD), endocrinologists, anaesthetists and a psychologist, and has been performing more than 350 surgeries per year. They are one of the few high-volume units within the country, serving patients from Staffordshire, Cheshire, Wirral and Wolverhampton. The dietetic service covers the Staffordshire patients with out-of-area patients being seen by their own dietetic teams.

Patient criteria

As recommended by NICE guidelines, the following patients are eligible to be referred into Tier 4 for consideration for surgery:²

- BMI of 40 kg/m² or more, or between 35-40 kg/m² with other significant comorbidities (e.g., type 2 diabetes (T2DM), high blood pressure) that could be improved if they lost weight.
- BMI of 30 to 34.9 kg/m² who have recent onset T2DM as long as they also receive, or will be receiving, assessment in a Tier 3 service.
- Consider surgery for people of Asian family origin who have recent onset T2DM at a lower BMI than other populations.
- In addition to the criteria listed above, bariatric surgery is the option of choice (instead of lifestyle interventions or drug treatment) for adults with a BMI of more than 50 kg/m² when other interventions have not been effective.
- All appropriate non-surgical measures have been tried but the person has not had or maintained adequate, clinically-beneficial, weight loss.

The service

Figures 1 and 2 show the UHNM bariatric pathway from GP referral to the conclusion of the dietetic pathway.

From GP referral our patients are invited to attend a bariatric seminar where there is a presentation from the surgeon, RD and CNS, designed to introduce patients to some of the team, the different procedures, and dietary changes, patients will be required to follow pre- and post-operatively.

If the patient wants to proceed with surgery they are provided with a patient contract. This was initiated because of concerns over poor attendance and non-compliance. It was designed to help ensure patients understand, and commit to, the pre- and

post-operative guidance and recommendations. It includes agreeing to take responsibility for weight management, committing to follow up care and taking supplements lifelong. It also explains the potential post-operative complications that may arise.

The new patient is then seen in a joint CNS and RD clinic. The CNS does a full medical and psycho-social history, to assess if the patient needs to be referred for a psychological and/or respiratory assessment. Patients are sent for a blood test (**Table 1**).

A full dietetic assessment is undertaken by the RD. We explain the reasons for setting a target weight and design a suitable plan with the patient to facilitate weight loss.

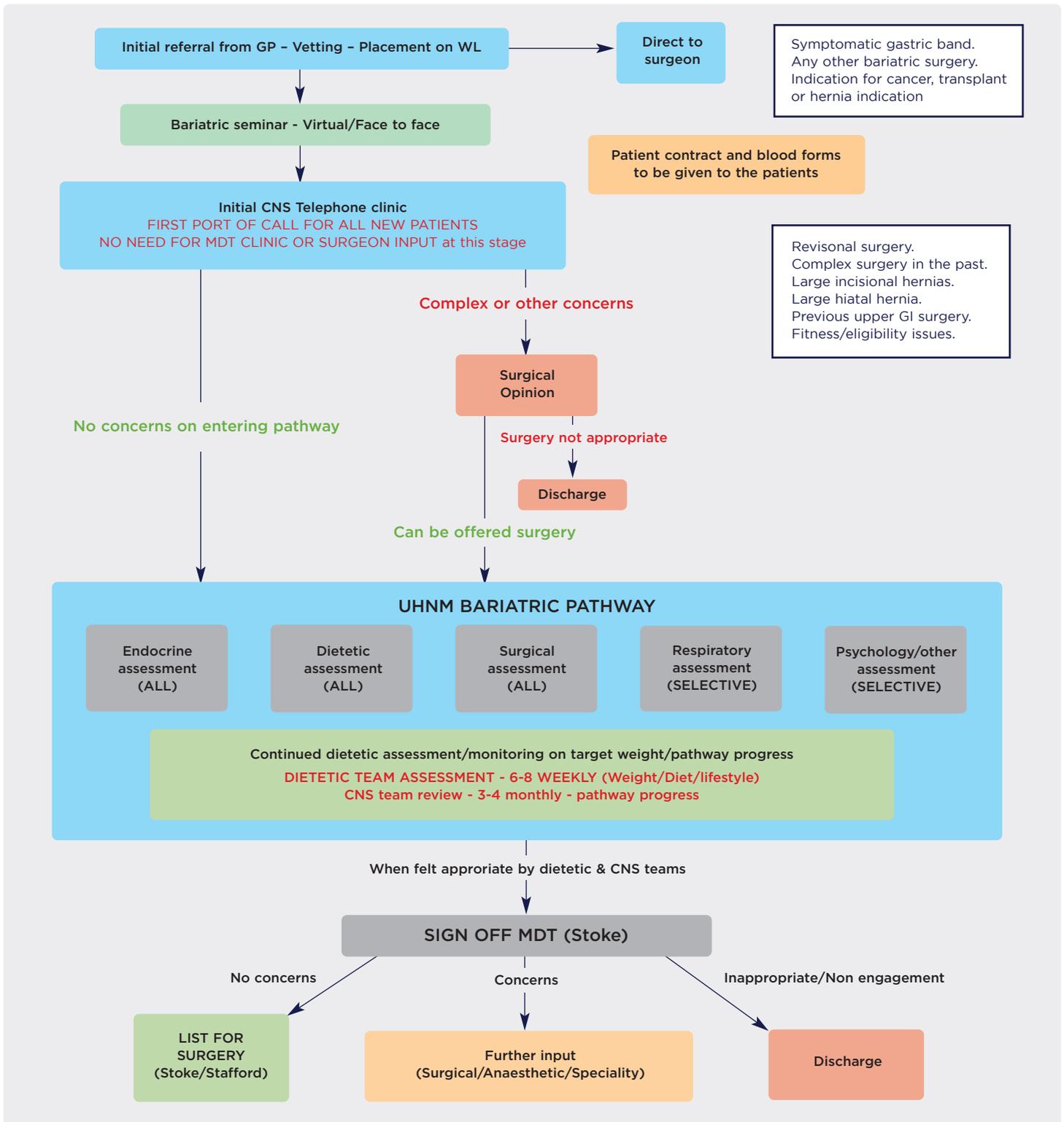
The patient is followed up regularly by the RD either by phone, video conferencing, or face-to-face in clinic, to monitor their progress along the pathway towards their target weight. Once the patient has made improvements to their diet, and met the agreed target weight, as well as being seen by the surgeon and other specialists, they will be put forward to the MDT. During MDT meetings consultants, CNSs, RDs and anaesthetists discuss each patient individually, to be able to either green light them for surgery, or determine if they require further input. The RD plays a key role in identifying when patients are ready for the MDT's consideration.

The role of the dietitian

This begins with a comprehensive nutritional assessment at the CNS-RD joint clinic in which we cover the following areas:

- past medical history,
- social history, including mobility and carers etc.,
- weight, height, BMI, weight history,
- diet history and food frequency,

Figure 1: UHM bariatric patient pathway (from referral to surgery)



- previous weight loss regimes tried e.g., Weight Watchers/Slimming World,
- medications,
- physical activity levels,
- biochemistry,
- vitamin and mineral supplements,
- motivation to change,
- assess current nutritional understanding,
- barriers to change i.e., finances,
- disordered eating,
- behavioural: i.e., speed of eating, cravings,
- reasons for seeking surgery.

This assessment, alongside the follow-up appointments, helps to identify factors that impact nutritional status both pre- and post-operatively. The RD's role is to support patients with behavioural and lifestyle changes necessary for achieving optimal results. These include nutrition education, mindful eating techniques and goal setting. The RD can identify potential nutritional deficiencies through the nutritional assessment that would not necessarily be picked up by blood tests, e.g., calcium.

Patients with obesity have a high prevalence of nutritional deficiencies, if not treated and corrected preoperatively, will increase in severity and may cause additional deficiencies after surgery.³ Vitamin D is reported as the highest prevalence with 99% affected in one study.¹ The nutritional deficiencies identified are corrected either by the RD, or an endocrinologist, usually depending on who sees the patient first after screening.

All patients are required to lose some weight prior to surgery. Currently that is set at approximately 6 kg. Preoperative weight loss is still up for debate among professionals because of a lack of clear evidence on whether it reduces risks around surgery or improves weight loss outcomes post operatively.⁴ However, it continues to be encouraged to engender commitment from the patient to start to change their eating habits, as the surgery alone will not change them. It also allows time to improve the nutritional adequacy of the diet. And given that some of our patients have no Tier 3 service locally, they require longer and more intensive support before surgery.

Pre-op preparations

All patients are required to follow a very low-calorie diet in preparation for surgery in order to reduce the size of the liver to allow the surgery to be carried out more safely. Various Trusts implement different diets, at UHNM we recommend a 14-day liver shrinking diet of three pints of milk or milk alternatives (skimmed or semi) and two diet yoghurts (300 mls max) as well as unlimited water, low-calorie squash, Bovril, tea or coffee. A complete A-Z multivitamin and mineral supplement is recommended. People with T2DM on medication receive advice on altering their medications from the diabetic nurses.

As part of the introductory bariatric seminar, and at later appointment, when the patient is closer to surgery, we discuss what we call the: ‘the practicalities and realities of surgery’ (Figure 3) to ensure patients are well-informed about what they are undertaking.

Managing expectations

Many patients have an unrealistic outlook of what to expect post-surgery including their thoughts around weight loss, body image and the lifestyle change.⁵ It is our role to try to guide patients into a more realistic understanding of what these outcomes will be postoperatively. While expected/hoped for weight loss percentages are often provided to patients – 70-80% of excess body weight loss after a RYGB – the reality is that weight loss after surgery can vary widely because of many factors including nutritional adherence, physical activity levels, metabolic/hormonal and psychological issues. It is important that the patient is made fully aware.

One of the most challenging aspects is helping patients to understand that surgery will not magically change their eating habits, common phrases we hear are: “I need something to stop me from physically eating” or “I’ll be happier once I’ve lost the weight”. Unfortunately surgery alone probably won’t change their relationship with food or themselves. There is limited psychological support preoperatively in our service because of lack of funding, therefore only a few patients are referred to receive a one-off assessment. The preoperative pathway would be significantly improved if there was regular psychological input.

Conclusion

The role of the RD in the pre-operative pathway is to support patients to make dietary, and lifestyle, changes that will hopefully enable them to achieve optimal results post-operatively. We are also responsible for ensuring patients are well informed about what they may expect post-operatively, our role in the post-operative care will be addressed in part two of this series in the November issue.

Figure 2: UHNM dietetic pathway (from MDT to discharge)

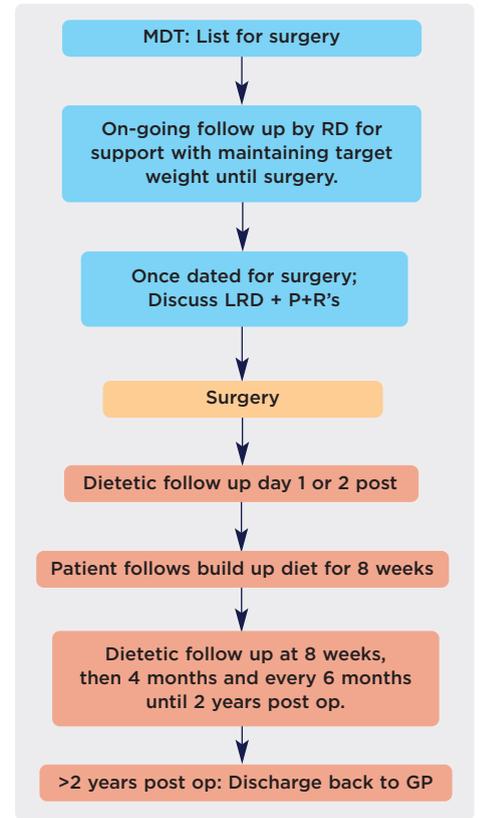
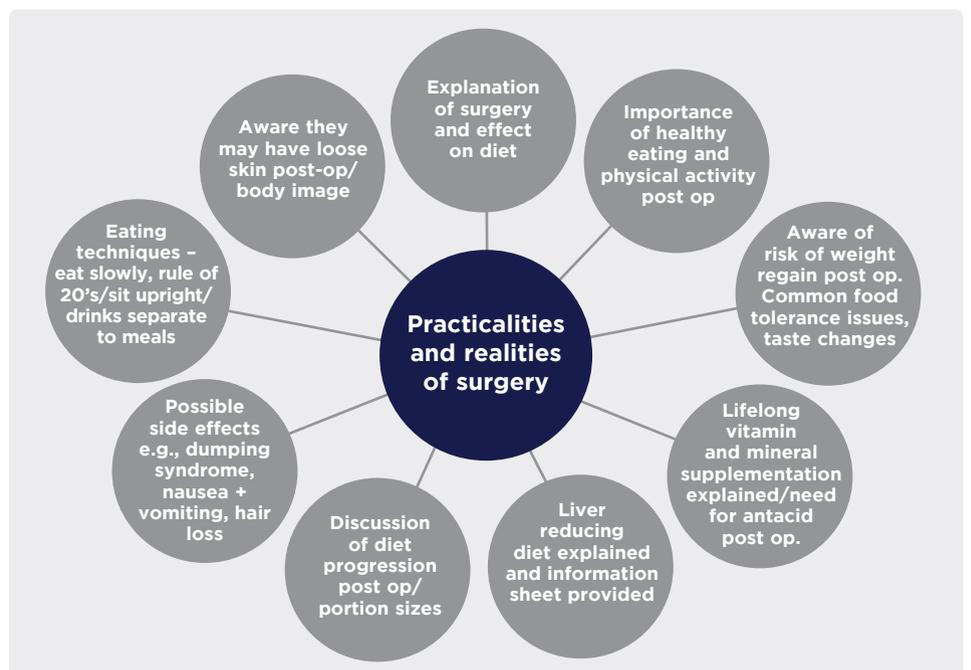


Table 1: Standard preoperative blood test screening

Diabetes: Blood Glucose and HbA1c	Vitamins/Minerals: Vit D, adjusted calcium, B12, folate
Dyslipidaemia: Cholesterol, Triglycerides	Thyroid function: TSH and FT4
Anaemia: Iron and ferritin	Other: U+E's , FBC, eGFR, PTH

Figure 3: The practicalities and realities of surgery



References: 1. O’Kane M, et al. (2020). British Obesity and Metabolic Surgery Society Guidelines on perioperative and postoperative biochemical monitoring and micronutrient replacement for patients undergoing bariatric surgery-2020 update. *Obes Rev*; 21(11): e13087. 2. NICE (2014). Obesity: Identification, assessment and management. Accessed online: www.nice.org.uk/guidance/cg189 (August 2021). 3. Parrot J, et al. (2020). The optimal nutritional programme for bariatric and metabolic surgery. *Current Obesity Reports*; 9(3): 326-338. 4. Bettini S, et al. (2020). Diet Approach before and after surgery. *Reviews in Endocrine and Metabolic Disorders*; 21(3): 297-306. 5. Ames GE, et al. (2016). Talking to patients about expectations for outcome after bariatric surgery. *Bariatric Times*; 13(7): 10-18.