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Case Series

A year of public laparoscopic sleeve gastrectomy

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ABSTRACT

Bariatric surgery is becoming increasingly prominent in Australia, however over 90% is still performed in the private sector. We examined the outcomes of the first year of our publicly funded bariatric surgery program, which includes regular review in a metabolic clinic by an Endocrinologist and Allied Health. The characteristics and outcomes of 22 consecutive patients who underwent publicly funded Laparoscopic Sleeve Gastrectomy with a single surgeon at a South-West Sydney public hospital between March 2023 and May 2024 were retrospectively collected. Data on patient characteristics, operative details and post-operative outcomes was collected and analysed. The majority of patients were women (77%), with a mean age of 48±10.6. Mean initial weight at program commencement was 136.7±25.7 kg, and mean BMI 49±6 kg/m2. All patients had >2 obesity related comorbidities; 45% were diabetic. There were no complications or re-admissions. At 6 months post-op, mean weight loss from baseline weight was 34.3±17 kg, with mean TBWL 24.8% ± 9.6% and EBWL 52%±17.7%. For patients with 12 month follow up data, mean weight loss was 46.6 kg±27.9, with mean TBWL of 33%±14% and EBWL of 68 %±23%. Our first year of public Laparoscopic Sleeve Gastrectomy, in conjunction with a comprehensive metabolic program, has been shown to be safe and effective, with preliminary data demonstrating outcomes equivalent to those previously published.

Keywords: Bariatric surgery, Gastrectomy, Laparoscopic surgery, Obesity, Sleeve gastrectomy

INTRODUCTION

Obesity is a major public health concern as it increases the risk of numerous metabolic conditions, including type II diabetes mellitus, cardiovascular disease, musculoskeletal disorders, some malignancies, sleep apnoea and dementia.[1] In 2018, overweight and obesity ranked as the second leading risk factor in contributing to Australia's total disease burden, after tobacco use.[2] Bariatric surgery is becoming more prominent as a proven method for achieving weight loss in morbidly obese patients, whilst improving obesity related co-morbidities and consequently reducing obesity – related morbidity and mortality.[3,4] It has been proven to be the most effective method of weight loss while also decreasing cardiovascular mortality by 30%[5]. Particularly laparoscopic sleeve gastrectomy (LSG) has shown a steady rise in demand, with the number of sleeves gastrectomies performed increasing from 6,915 in 2016 to 13,064 in 2022 in Australia.[6,7] Most operations were performed within the private sector where payments were made directly by patients or through private health insurance.[7] In 2022, 96.8% of primary bariatric procedures in Australia were privately funded, while 3.2% were publicly funded.[6] Because of this disparity, a significant number of patients who have the most to gain from this surgery lack access to it.

The aim of this case series is to evaluate the initial outcomes of our publicly funded laparoscopic sleeve gastrectomy program, in conjunction with a comprehensive, multidisciplinary metabolic program, and compare to national and international standards both within the public and private sector.

CASE SERIES

The is a study of 22 consecutive patients who underwent publicly funded Laparoscopic Sleeve Gastrectomy with a single surgeon at a South-West Sydney public hospital between March 2023 and May 2024. No exclusion criteria were applied for our study. Data was collected from electronic records from the inpatient stay and pre-operative and post operative reviews.

Patients were initially enrolled in a metabolic program, which is a fully publicly funded clinic, which provides interdisciplinary care to patients who are obese, have obesity related co-morbidities, and are motivated to lose weight. This program is Medicare funded, and patients are regularly reviewed by Endocrinologists, dieticians, physiotherapists and psychologists. Patients are provided with practical opportunities to support their lifestyle change, including free gym classes, nutritional education and meal planning. Patients who were considered appropriate for Laparoscopic Sleeve Gastrectomy were then referred to the surgeon, were reviewed once by the surgeon pre-operatively in rooms, and then booked for the operation if appropriate. Post-operatively, following discharge from hospital, they had ongoing engagement in the metabolic clinic and one follow up appointment with the operating surgeon. Patients had weights checked at 3 months, 6 months and 12 months post-operatively and were provided ongoing multi-disciplinary support.

All operations were performed by the consultant surgeon with a registrar assisting. Sleeve gastrectomies were performed laparoscopically. Patients were all given a pre-operative dose of 5000IU heparin, and post-operatively were given DVT prophylaxis clexane for 2 weeks following discharge.

Patient characteristics

The majority of patients were women (77%), with a mean age of 48±10.6. 1 patient identified as Indigenous/Torres Strait Islander. When commenced on the metabolic program, mean weight was 136.7±25.7 kg, and mean BMI 49±6 kg/m^2. BMI ranged from 35 to 62, with 21 patients (95%) being in the obesity class iii range, and one patient in the obesity class II range (5%).

On average, patients were on the metabolic program for 25±16 months, prior to their surgery. Mean weight immediately prior to surgery was 120±17.3 kg and mean BMI was 43.6. All patients had at least 2 obesity related co-morbidities, the most prominent being Obstructive Sleep Apnoea (OSA), Osteoarthritis (OA) and T2DM (Tables 1-3).

Operative details

All operations were successfully completed laparoscopically. No patients had previous bariatric procedures. 12 patients had synchronous hiatal hernia repair (54%). Mean operative time was 72 minutes.

Post-operative outcomes

Mean length of stay was 54 hours ± 7 (2.25 days). One patient had a planned admission to ICU post-operatively due to known severe OSA, and all other patients were managed on the ward, with no unplanned admissions to ICU. There was no mortality and there were no intra-operative or post-operative complications. There were no 30-day re-admissions or returns to theatre.

Post-operative weight loss

At 6 months post-op, mean weight loss from initial weight was 34.3 kg±17 kg, with mean TBWL 24.8%±9.6% and EBWL 52%±17.7%. For patients with 12 month follow up data, mean weight loss was 46.6±27.9, with mean TBWL of 33%±14% and EBWL of 68 % ± 23% (Table 4).

Table 1: Co-morbidities.

Co-morbidities	Number of patients	% of patients
T2DM	10	45
Hypertension	8	36
Dyslipidaemia	8	36
Obstructive sleep apnoea	13	59
Osteoarthritis	10	45
NAFLD	8	36
PCOS	6	27
Ischaemic heart disease	3	14
Congestive heart failure	1	5

Table 2: Diabetes status.

	Number of patients	% of patients
Nondiabetic	6	27
Pre-diabetes	5	23
T2DM (medications only)	2	9
T2DM (insulin dependent)	8	36
Gestational diabetes only	1	5

Table 3: Number of comorbidities per patient.

No of co-morbidities	Number of patients	% of patients
2	4	18
3	7	32
4	4	18
5	3	14
6	3	14
7	1	5

Table 4: Weight loss outcomes.

Time post op	Mean weight loss (kg)	Mean % TBW lost	Mean % EBW lost	Mean change to BMI (kg/m^2)
6 months (no. of patients=14)	34.3±17	24.8±9.6	52±17.7	12.6±5.7
12 months (no of patients=5)	46.6±27.9	33±14	68±23	13.1±6.8

DISCUSSION

In this study we present an initial experience of publicly funded laparoscopic sleeve gastrectomy in a single centre. In NSW, there is minimal availability for public bariatric surgery, despite proven health benefits. 97% of bariatric surgeries in NSW in 2022 were performed in the private sector.[6] However, this poses a considerable issue, given that it is well established that lower socio-economic status is associated with higher rates of obesity and obesity-related comorbidities and yet, services for treatment of obesity are not readily available.[7-10]

Our health district is one of socioeconomic disadvantage, and thus would benefit greatly from public bariatric services; and until the commencement of our program, had no such services available. Our study area of South West Sydney is one of the highest growing regions in New South Wales and has higher than average rates of obesity, and yet this is the only public bariatric service available in this region. In South West Sydney; 24.5% of people aged over 16 are in the obese weight range (compared with 21% in NSW as a whole), and 6.7 % of adults have Type II diabetes, compared with state average of 5.3% .[11] From a therapeutic point of view, studies have shown that even a 5% loss of total body weight is beneficial to health; and a 15% loss of total body weight can resolve metabolic syndrome, which we have shown to be achievable within 6 months of laparoscopic sleeve gastrectomy.[12] From a cost point of view, public bariatric surgery is thought have benefit. Direct healthcare costs related to obesity are approximately $5.4 billion per year in Australia, with a further $6.4 billion of indirect costs.[13] The cost of a laparoscopic sleeve gastrectomy in Australia with an average of 3.2 days of hospitalization (ALOS) is $19,471.93, according to the National Efficient Price Determination 2024-25.[14] When compared with the cost of obesity and obesity- related complications to the health system over a lifetime, this cost is negligible; randomised control trials investigating this have proven that bariatric surgery is a cost-effective treatment for obesity.[15]

Comparing our cohort to the overall national cohort; 79.7% of patients receiving a primary bariatric surgery were female, comparable to our 77%. In terms of age of patients, the average overall age for patients receiving primary bariatric surgery in Australia is 41.4±11.2 years; significantly younger than our mean age of 48.[6] Previously performed studies have shown that public bariatric surgery patients have higher BMIs and are generally more co-morbid than private patients.[8,16] This is certainly reflected in our study, in which 95% of our patients fall into the obesity class III range, compared with only 62% of patients receiving primary bariatric surgery privately in Australia.[6] Our study patients are significantly more comorbid than patients who receive private bariatric surgery. In our study, greater than 80% of patients had 3 or more obesity related co-morbidities. Furthermore, in Australia in 2022, only 8.8% of patients who underwent primary laparoscopic sleeve gastrectomy were diabetic compared with our significantly larger 45%.[6]

There could be arguments that being a more comorbid group means that post-operative complications would be higher, however this is clearly not demonstrated with our data, given we had no 90-day morbidity or mortality, compared with the national average of 1.3% adverse event rate following primary sleeve gastrectomy.[6] Larger studies that have been performed in Australia comparing safety of public versus private bariatric surgery have also demonstrated that it remains safe despite having a more comorbid group of patients.[8,16] Our length of stay is consistent with other public data in NSW.[17]

Our weight loss outcomes are comparable to those previously published; a larger study in NSW looking at both public and private patients showing % EBW loss at 6 months to be 58%, comparable to our 52%; and at 6 months 76% EBWL compared with our 68%.[10] Another study looking at the efficacy of bariatric surgery in the public sector in Australia has shown weight loss outcomes equivalent to ours, also demonstrating a mean 33% TBWL at 12 months post operatively.[17]

In NSW, the only access to public bariatric services is through a multi-disciplinary metabolic and obesity clinic, in which suitable patients are then referred on to bariatric surgeons. The integration of care with the metabolic clinic and the surgical management in our program is shown to be effective. Rather than the surgery being performed in a vacuum, patients receive interdisciplinary support which begins before the operation and continues post-operatively. This support means that instead of relying entirely on operative management, patients are encouraged to have holistic, supported, lifestyle change to assist in their weight loss. This multi-disciplinary approach has been established and recommended both in

Australia and the UK as the most effective approach in the provision of bariatric services.[18,19]

Limitations of our study relate to its size and retrospective nature. This is a small study representing our local initial results to demonstrate the safety and feasibility of a public bariatric service in our health district. As this program grows and increased funding becomes available, we would like to present a larger data set with longer-term follow up data.

With the growing evidence that bariatric surgery is one of the most effective treatments for obesity, which in turn reduces severity of comorbidities and improves quality of life, there has been an increase in demand.[20] However, further research over a longer timeframe to is required assess weight loss outcomes and to determine if bariatric surgery effectively manages comorbidities in the long term.[17]

CONCLUSION

Preliminary results from our first year of publicly funded Laparoscopic Sleeve gastrectomy have been positive. Our patients are older, larger and more comorbid than patients who receive privately funded laparoscopic sleeve gastrectomy in Australia, however despite this, our program remains safe with outcomes comparable with those previously published. We would be very interested in the long term follow up outcomes and to review a greater data set as this program continues to grow.

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