GAVIN PUBLISHERS

Journal of Obesity and Nutritional Disorders

Baltasar A. J Obes Nutr Disord: JOND-112.
DOI: 10.29011/JOND-112.100012

Case Report

Nine Years Follow Up of the 1st Adolescent Bariatric Surgery in Spain

Aniceto Baltasar*

Alcoy Hospital, Alcoy, Spain

*Corresponding author: Aniceto Baltasar, Chief of Surgery, Alcoy Hospital, Alcoy, Spain. Tel: +34606600927; Email: baltasarani@gmail.com

Citation: Baltasar A (2017) Nine Years Follow Up of the 1st Adolescent Bariatric Surgery in Spain. J Obes Nutr Disord: JOND-112. DOI: 10.29011/JOND-112.100012

Received Date: 03 July, 2017; **Accepted Date:** 28 July, 2017; **Published Date:** 05 August, 2017

Abstract

This is an update of the 1st Adolescents Bariatric Surgery (ABS) done in Spain in a 10-year-old boy with BMI-45 Kg/m^2. A Laparoscopic Sleeve-Forming Gastrectomy (SFG) was performed. Nine years later, his BMI is 26 and his % Expected BMI loss (%ExBMIL) is 112% better than expected.

Keywords: Adolescent Bariatric Surgery; Children Bariatrics; Sleeve-Forming Gastrectomy

Introduction

Adolescent Bariatric Surgery (ABS) is a new concept of bariatric surgery in full evolution. As in adults, the epidemic of obesity affects also children, with an incidence that is now increasing. Over the past 20 years, the prevalence of overweight in the US has tripled, reaching more than 17.2% of the child and adolescent population [1].

Pediatric obesity is considered from the 95th percentile for age and gender [2]. It has also been seen that between 70-80% of children with childhood obesity will present obesity in adulthood [3]. Although dietary treatment and lifestyle changes are the basis for managing childhood obesity, conservative treatments are often ineffective, especially in cases of severe obesity (BMI ≥40 Kg/m^2). Since substantial benefits have been demonstrated in obese adult patients undergoing bariatric surgery ABS is becoming more important in younger patients who cannot control excess weight and present complications.

The rate of ABS procedures tripled to an estimated 771 procedures nationwide between 2000 and 2003 [4]. Since then, case volumes have continued to increase, with an estimated 1600 procedures in 2009 [5]. At present, bariatric surgery in children and adolescents may play an important role in the treatment of obesity, but today however clinical guidelines to guide us have not been standardized. We published the 1st case of ABS in Spain in 2008 [6]. A boy 140 cm in height (4' 7'') and 88 (188 lbs) Kg of weight, with severe obesity (BMI-45, 99th percentile) with associated co morbidities that hindered his quality of life. Now, after 9 years after surgery, the case is reviewed.

Clinical Case

As a 10-year-old boy, BMI-45 K/m2 had severe Blount disease with fractures of both knees (tibia vara) due to obesity. He was using a wheelchair (Figure 1).

Figure 1: IMC-45 pre-op.

Both parents also had Morbid Obesity. His BMI-64 mother (Figure 2) also was using a wheelchair and had Opens Duodenal Switch (ODS) surgery in 2002.

Figure 2: BMI-64 AND THEN BMI-33 at 5 Years.

Then in 2004 his father with BMI-46 had also a ODS (Figure 3).

Figure 3: BMI-46 and then BMI-29.

In March 2007, after the evaluation of all the cognitive aspects of the patient and the consent of the patient and family, surgical intervention was decided. A LSG was performed [6] with a 12 mm. bougie, including an antral resection starting at the pylorus and a lesser omentum patch to prevent rotation of the sleeve [7,8]. Surgery and the postoperative course were uneventful. At that time, he was the 1st child to have this surgery in Spain.

Results

Nine months after surgery his BMI dropped to 27 and had a %EBMIL-90%. Subsequently, Blount disease correction surgery was performed on both knees with good results and ability to roam favorably.

Now aged 19, nine years after surgery, he has a height of 1.57 m. and weights 64 Kg, his BMI is 26, %EBMIL-95%. The patient currently has grown 17 cm. (Figure 4).

Figure 4: 9 Years Later BMI-26; Expected BMI-27 And % EBMIL-112%.

He has excellent BAROS quality of life [9] has been greatly improved (+3). His %EBMIL-95% and the % of the expected BMI lost (PExBMIL) is 112%, are better than expected! [10].

Discussion

Bariatric surgery in adults is usually performed in patients with a BMI ≥ 35 Kg/m² with associated co morbidities or ≥ 40 kg / m² with or without co morbidities. However, in children and adolescent's surgery is more conservative: they must present at least BMI ≥ 40 Kg/m² with associated obesity related co-morbidities that could improve with weight loss (like type 2 diabetes mellitus, obstructive sleep apnea) or BMI ≥ 50 Kg/m² with or without co-morbidities co-morbidities [11]. In addition, according to clinical guidelines [3], they must have developed pubertal development of Tanner 4-5 and at least 95% of adult height based on bone age, as well as having demonstrated psychological maturity.

Our patient did not meet the established requirements, however, the clinical judgment of the bariatric team should finally determine the option of surgery in an individualized way, since the effectiveness of bariatric surgery in the patient's weight loss decreased co-morbidities when long-term conservative treatment is not sufficient [2].

There are several publications currently on bariatric surgery performed on children who do not meet the criteria, with good initial results. Dan et al. [12] reported the case of a 6-year-old girl with morbid obesity (BMI 53.18 Kg/m²) with associated Blount disease as described in our patient. LSG was performed without complications and with good short-term results: BMI of 33.33 Kg/m² with %EWL-37% and 50% of %EBMIL.

Mohaidly et al. [11] have published a case of a 2-and-a-half-year-old child with LSFG due to morbid obesity (BMI 41 Kg/m²) and significant co morbidities (sleep apnea and tibia vara). After surgery, short-term results were also very satisfactory, with weight

reduction (BMI 24 Kg/m²) and resolution of co morbidities. Villalonga [12] presented in his Initial Approach to Childhood Obesity [9], conducted by a multidisciplinary group of experts, that there was no agreement on variability inclusion criteria in bariatric surgery in children and adolescents.

Regarding the type of surgery, this same study suggests that there is currently no consensus, the two most prevalent options being LSG and Roux-En-Y Gastric Bypass (RYGB). Biliopancreatic Diversion (BPD) is not recommended due to the greater risk of complications after surgery and the possibility of malabsorptive complications, given the short age of the patients. As for the adjustable gastric band, although it is less invasive and with a lower rate of complications, its long-term results in adult patients are lower than in other techniques. In addition, gastric banding has not been approved by the "US Food and Drug Administration" in children under 18 years [9].

The RYGB has good long-term weight loss results, but since it consists of a mixed technique (restrictive and malabsorptive), there is a risk of developing metabolic and nutritional alterations that can compromise the growth of the child. In addition, they are not exempt from major complications such as leakage, pulmonary thromboembolism, intestinal obstruction, internal hernias.

As for the LSG, it is the most commonly used technique at present [12]. The technique is simpler, has fewer risks in terms of surgical and malabsorptive complications and can always be converted to a RYGB if surgery was not effective. However, we lack long-term studies to confirm their effectiveness. Actually, Ahmad has reported [13] that our Baltasar [7] work where we recommended this operation for children has the 61st highest citation work in the history of bariatric surgery.

Conclusion

Bariatric surgery in children and adolescents is an effective tool when dietary and lifestyle change measures are not helpful. The co morbidities that can be generated after obesity in the long term will significantly affect the quality of life of these patients, so it is necessary to avoid these complications early.

There is no consensus at present on which type of surgery is most effective, although it is suggested that LSG and RNYGB are adequate for these patients. Although it has been shown that its efficacy with respect to conservative measures is greater [11], there are still not enough studies comparing which of them is more favorable in this type of patients.

It is necessary to review the inclusion criteria in the ABS since there are cases of patients who do not meet these requirements but will benefit greatly from the surgery; and above all individualize each case according to the BMI their co morbidities.

Acknowledgements and Disclosure

I confirm that I have not any support organizations and I have no any appropriate grants numbers.

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