

Research Article

Weight Loss in Orthognathic Surgery

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Abstract

Objective: To analyze the changes of weight and body mass index in patients undergoing orthognathic surgery

Methods: A descriptive study, using variables of age, weight and index- corporeal mass obtained from a database of a doctoral project (2013-2015 data) with orthognathic surgery patients. The values of body weight in kilogram preoperatively and forty-five days of the postoperative period were extracted and calculated the index- corporeal mass.

Results: The analysis of the mean change in body weight of the patients was $-1.7 + 2.7$ kg ($p = 0.000$). When separated by gender the mean change for women was $-1.6 + 2.9$ kg and for males $-1.8 + 2.4$ kg. The body mass index evaluated in the preoperative period averaged $25.5 + 4.5$, and postoperative $24.9 + 4.8$.

Conclusion: There was significant weight change after surgery, this can may interfere with wound healing and increase the risk of surgical site infection.

Keywords

- Orthognathic surgery
- Weight loss
- Body mass index
- Perioperative nursing

INTRODUCTION

The orthognathic surgery comprises different surgical techniques, which may or may not be combined: bilateral sagittal split ramus osteotomy, intraoral vertical ramus osteotomy, LeFort I osteotomy combined with or without mentoplasty, osteotomy segment of the maxilla (disjunction jaw) [1].

The surgical procedure causes a functional change in chewing, swallowing, speech and breathing, and also the aesthetic change the face [2]. Patients who completed the orthodontic surgery process reported a variety of psychological benefits such as improved self-confidence, self-esteem and facial attractiveness. This functional aesthetic improvement contributes to better interpersonal relationships [3].

Among the possible surgical complications are described: nerve damage, infection, problems with fixing material, temporomandibular dysfunction, improper fracture, abnormal wound healing, bleeding, osteotomy, pain exacerbated, condylar absorption, soft tissue laceration, open bite, surgical recurrence, dental injury, nasal septum deviation and malocclusion [4].

During the postoperative period, the patient assessment should consider the functional evolution of oral structures due to edema, limited opening of the bite, possible nerve damage, evaluation of sensitivity, motor function, pain management, early detection of complications and management of symptoms related to the postoperative [5-7]. The follow-up after surgery usually occurs for about two months. At the end of the surgical treatment

follow-up after about two months, the patient is referred to the orthodontist to begin orthodontic refinement, and finally complete the process of reestablishment of maxillary function.

Regarding diet, the patient is subjected to a liquid diet postoperatively to prevent accumulation of waste and bacterial proliferation, and to encourage the rest on site⁸. However, often, the diet is not balanced, which causes malnutrition and significant loss of body mass, with surgical wound healing impairment.

During follow-up of these patients in the postoperative period, the observation of considerable weight loss and the possibility of complications related to this fact arouses the interest in analyzing the weight loss in the surgical process. This study aims to analyze the change in weight and body mass index in patients undergoing orthognathic surgery.

MATERIALS AND METHODS

This is a descriptive study with comparative analysis and used information from a database of a doctoral project with the theme "Evaluation of an educational technology in the perioperative education orthognathic surgery: a randomized controlled trial" approved by opinion No. 193,454 / 13 the Ethics Committee of the Nursing School of the University of São Paulo, Brazil.

Inclusion criteria for the study were patients undergoing orthognathic surgery (surgical technique: bilateral sagittal splitramus osteotomy, intraoral vertical ramus osteotomy, LeFort I osteotomy combined with application or not mentoplasty and

osteotomy segment of the maxilla and maxillary expansion) by the same surgical team, who attended an office of traumatology and maxillofacial surgery located in São Paulo city (Brazil). Exclusion criteria were patients undergoing reoperation orthognathic surgery; or with cleft lip and palate.

The patients were followed from the preoperative period until forty-five days of the postoperative period, with clinical evaluation in all surgical returns to the doctor's office between August 2013 and August 2015 (day 7th, 15th, 30th and 45th). A total of 40 patients were evaluated. Orthognathic surgeries in Brazil are not so frequent because the aesthetic procedure is not covered by the public healthcare system, people have limited access to occlusal functional care and the study included only patients from a surgical team.

Clinical information on patients undergoing orthognathic surgery, age of the patients and the values of body weight in kilogram measured preoperatively and forty-five days after surgery were extracted from the database. The period of 45 days was chosen because after this period the patient should already be feeding soft foods. The measure of weight preoperatively was obtained in the medical consultation at the last visit before the surgery, which occurred in the week of surgery, and later during the postoperative returns. Patients were recommended to follow a postoperative diet protocol: up to 15 days a liquid diet, from 16 to 25 days liquid paste diet, from 16 to 45 paste consistency diet, 46 to 60 days soft foods, then solid foods. The scale used for weighing patients consisted of a digital domestic weighing scale. Body mass index was calculated using Microsoft Excel® for Mac 2016. Data were analyzed by Student's t paired and one way ANOVA with a significance level of 5% using SPSS 20.0 software.

RESULTS

Patients had a mean age of 27.1 ± 7.5 years and 50% were female. Regarding the surgical procedure, 11 patients underwent osteotomy segment of the maxilla, ten to LeFort I, ten patients to bilateral sagittal split ramus osteotomy, eight to LeFort I osteotomy combined with osteotomy mandibule and one to LeFort I with mentoplasty. Inter maxillary fixation was performed with mini plates and mini screws, without maxillary nerve block and after surgery patients have a limited mouth opening.

The body mass index evaluated in the preoperative period averaged 25.5 ± 4.6 , and postoperative 24.9 ± 4.9 . The average change in body weight was -1.7 ± 2.7 Kg ($p = 0.000$) comparing the measure before surgery and after 45 days of follow up.

The average weight of patients in the preoperative period was 68.5 ± 16.8 kg and after 45 days of surgery 66.9 ± 17.2 kg. Of the patients, 27.5% ($n = 11$) showed weight gain in after 45 days of postoperative period (range from 3.6 kg to 0.2 kg); 72.5% ($n = 29$) showed a weight loss (range from 9 kg to 0.3 kg) and, one patient maintained his initial weight. The follow up of patient showed a significant weight loss between the preoperative weight and the first measurement after seven days of surgery ($p=0.044$), the same happen between seven and fifteen days of peri operative (p , and small changes of weight loss after that ($p=0,017$). When separated by gender, the average weight loss for women was -1.6 ± 2.9 kg and for males -1.8 ± 2.4 kg at the end of the follow up ($p=0,881$).

There was no difference between weight loss and surgical technique ($p=0,432$), even grouped in one or two jaw surgery ($p=0,249$).

DISCUSSION

The average age was similar to another study on the nutritional assessment in patients undergoing orthognathic surgery⁸. The quantitative gender differs from another state, with results mainly female [8].

The weight loss was statistically significant comparing the weights before and fifteen days after surgery and weight loss is also reported in other studies [9,10]. Two other studies showed a significantly weight loss four weeks postoperatively [11,12], however differences between single - two jaw surgery or gender was not significant [11]. Both studies recommended the use of oral nutritional supplementation to control weight loss.

Malnutrition and significant body weight loss can compromise wound healing and increase the risk of infection, it is recommended that the patient understands the necessity of a smooth, nutritional high calorie diet after surgery to maintain their body weight, accelerating their recovery [5,9,13].

A study⁷ on the perception of patients on this surgical procedure reported as postoperative difficulties the elastic handling, edema, pain and paresthesia, also considered factors that affect supply.

CONCLUSION

There was a significant change in body weight between the preoperative and postoperative in the fifteen days after surgery. This factor should be considered during the perioperative period to prevent postoperative complications, malnutrition of patients undergoing orthognathic surgery and reflect the need for guidance on diet postoperatively, mainly directed to frequency of feeding and high protein liquid diet and nutritional supplements.

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