

SARS-Cov-2 and bariatric surgery: Selection and preparation of patients in times of epidemiological outbreak.

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Summary:

In December 2019, the SARS-CoV-2 outbreak began in continental China, rapidly spreading around the world.

Currently, there is a global pandemic situation, although the initial period of highest pandemic severity has been overcome today. With more or less success, countries like Italy, Spain, France and the United States have initiated a first-rate response. Within this framework, the management of patients with morbid obesity has been greatly affected, from the cancellation of surgeries to the restart of the activity. This article reviews current critical issues and discusses different safety management strategies for patients with morbid obesity, as well as aids decision-making in prioritizing patients. The purpose of this communication is to provide advice to bariatric / metabolic surgeons around the world on the management and treatment of patients with morbid obesity during this COVID-19 pandemic

Keywords:

- Obesity
- SARS-CoV
- Surgery
- Security
- Management
- Patient

Introduction

The bariatric Surgery (BC), despite treating a non-oncological pathology, is not a delayed treatment. (1,2) The delay in accessing surgery can have important implications for the quality of life and survival of patients. (3,4) The peculiarities and care before, with and after the pandemic can vary widely between centers. The pressure of other more urgent pathologies, as well as the speed of recovery to normal care, condition the resources available to restart the bariatric surgery programs. (4)

In this pandemic, as well as other virus that could occur, we might think that the resources for BC will initially be scarce, therefore priority should be given to those patients in whom the delay may imply a greater risk or deterioration. The degree of damage that this delay may entail will vary depending on the baseline status and comorbidities of each patient, as well as the availability and effectiveness of non-surgical therapies that can control the disease until the time of surgery (4, 5,6). For this reason, it is important to be able to define a prioritization of what has been learned during this pandemic, but also in the case that other outbreaks of the same pandemic or other special situations might repeat.

Prioritization of patients and epidemiological status of the health environment

The possibility of being able to intervene patients will be given by the epidemiological situation found in each health environment or even hospital center within the same region. It is important, based on the experience acquired during the March-May 2020 pandemic outbreak, to adjust the activity of our hospitals to the situation in the health environment. In this sense, epidemiological situations will be classified according to the alert level of each center (4). At present and, despite the fact that the incidence of cases has been reduced after confinement and the health crisis seems to be more controlled, there is still no effective treatment or vaccine that allows the pandemic to be considered under control and there are outbreaks described in Spain that require certain precautions to reduce the number of infections. The restart of elective surgery has required careful planning and the establishment of new preventive measures that protect both patients and healthcare personnel.

The prioritization of patients with morbid obesity is determined by two aspects: the baseline status of each patient and their associated diseases (4,6,7,8). In this sense, different organizations, including the Spanish



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Society of Obesity Surgery (SECO) and the Spanish Association of Surgeons (AEC) have described 4 groups of patients that include complications or situations that are more or less serious. These priorities are described in Table 1 (* see Table at the end of the article).

- Urgent or emergent patients
- Priority 1 patients: delay of no more than 30 days
- Priority 2 patients: delay of no more than 90 days
- Elective patients: recommended delay of no more than 6-12 months

The rest of the patients are CB pending.

Primary surgery

The primary obesity surgery will include most of the cases to be operated on. There are scales to assess the degree of prioritization in elective surgery cases already published and known as the Edmonton Obesity Staging System or the King's Obesity Criteria.

Both scales take into account: age, BMI, comorbidities and cardiovascular risk. However, these scales do not include corrective factors, such as times on the waiting list or the degree of social functional impairment (sick leave, work status, job search ...) that the delay in these surgeries may have. Finally, another corrective factor to consider, should be the gestational desire in women of childbearing age and the complications associated with previous BC (22). These patients will be generally classified as priorities 3 or 4.

Revision surgery

Patients awaiting revision surgery should be reviewed according to their situation and the type of complication associated with the previous procedure (s). It should be mentioned that revision surgery includes a wide range of possibilities that go from treatment of "technical" complications, typical of the previous procedure, to management of the failure of the weight loss of a primary procedure. Situations can vary widely from patients who have simply regained weight, to circumstances with serious or life-threatening symptoms. As previously reflected, these more extreme cases should be taken into account for possible prioritization.

All bariatric procedures can present complications and "sequelae". Table 2 (* see Table at the end of the article) summarizes the main indications for revision surgery after primary bariatric procedures currently accepted by the international community. Some of these may require relatively urgent revision or conversion surgeries. In the area of BC, a serious complication does not imply that it requires urgent treatment. (6) As such, there are no guidelines for the prioritization of the revision surgery procedures in obesity surgery, with or without an associated pandemic. In general, patients with previous surgery could have complications from the previous technique (emergent surgeries) or complications with priorities 1 or 2.

Patient care on the waiting list. Optimization of all patients

All patients should be evaluated and prepared for BC during a possible new outbreak that requires a new confinement of the population or either by adjusting the recommendations proposed by the health authorities, such as keeping social distancing, and extreme hygiene measures. Likewise, in patients with morbid obesity, who are on the waiting list, whether or not they are a priority, alternative therapies should be evaluated to control obesity and associated diseases.

In this sense, the SARS-CoV pandemic does not substantially modify the preoperative management, with the exception of the screening of the patient in relation to possible SARS-Cov-2 infection at present. However, the patient must always be informed (and must be included in the medical history) about the special causes of the COVID-19 pandemic situation, including the potential risk of contagion and the increase in perioperative morbidity and mortality in the event of complications. (9,10)

As in a non-pandemic situation, several associated treatments can be assessed depending on the degree of involvement and the characteristics of each patient. The purpose of these therapies is to improve the general condition of the patient related obesity, also, in the potential complication of surgery. (6,10). All therapies to be considered include targeted intensive dietary treatment, pharmacological treatment of obesity, and endoscopic treatment with the eventual use of intragastric devices. Another important aspect is to avoid operating on a patient potentially affected by SARS-Cov-2. This measure has been widely adopted by all organizations and is currently a pre-surgical "sine qua non" condition. (6)

Thus, different organizations and centers, according to guidelines, have sought to minimize contact with the patient prior to intervention or even during follow-up.

Thus, while the patient is on the waiting list for BC, a tool to consider is to keep telematic contact (11). It is advisable to limit the number of face-to-face visits to those that are really necessary and to follow the COVID-19 circuits and protocols established in hospital centers (5)

During these contacts, which will be as frequent as deemed necessary, it is important to evaluate and guide the patients about diet and lifestyle recommendations as well as to give them all the information necessary to facilitate progress in achieving the objectives set in relation to their disease. Reasonable objectives must be formulated for the optimization of the patient prior to intervention. (6)

Adequate control of secondary or obesity-related diseases, such as DM, HTN or OSAS, which may have been affected by the confinement and the effect of the SARS-Cov-2 epidemic on clinical care. (16) (12,13). In case of treating type 2 DM, drugs that have a beneficial effect on body weight, such as GLP-1 analogs or SGLT-2 inhibitors, should be preferred. (14) (Table 3, * see Table at the end of the article).

During the preoperative follow-up, it must be ensured that the patient has adequate knowledge about their disease and the proposed treatment, the recommendations after surgery, the possible complications and the warning signs for which they should see a physician. Online or face-to-face group sessions may better play an important role in

achieving these goals in the COVID ERA . However, we do not have data on them at present. Weight loss prior to the intervention is very important (15) and in times of COVID-19 as well as in normal conditions, it should be optimized.

Safety for the obese patient and healthcare professionals: SARS-COV-2 screening

In the process of taking care of the obese patient, it is advisable to screen for SARS-Cov-2 infection as recommended by the guidelines of the Ministry of Health and the competent authorities. In this sense, safety protocols for professionals and how to care for patients have already been described. (4,6) From the moment that epidemiological conditions allow surgical interventions to be performed, screening for SARS-Cov-2 infection in patients who are to undergo major surgery has two objectives: to prevent a patient who is in the asymptomatic phase of the infection from undergoing surgical intervention and, to protect the professionals who are to care for the patient. All surgical circuits must be kept free of COVID19 for greater patient and staff safety. (4,9,16,17). The impact that the pandemic has had on surgical activity has been important and the ways of treating patients have had to be readjusted. (18)

In the case of BC, screening is especially important in both aspects since people who suffer from morbid obesity and comorbidities, such as hypertension or DM2, have a worse evolution if they develop the disease due to the SARS-Cov-2 infection; so it will be crucial to avoid undergoing major surgery at the time of the onset of infection (6). Likewise, a clinical-epidemiological questionnaire has been used during this period that must be filled in electronically. An example of an epidemiological questionnaire has already been previously described by the authors (6).

Finally, in general terms, but also in obese patients, a SARS-Cov-2 screening test should be done. In general, at present, nasopharyngeal exudation PCR can be considered the most reliable method for screening asymptomatic or incubation patients, and it is recommended for all bariatric patients in the immediate preoperative period (24-48 hours prior to the time of intervention). It is recommended to take measures to avoid subsequent infections in the patient. Likewise, at present, during which there may be patients with past or cured infection, the levels of IgM and IgG are determined. However, with outbreaks and, currently, there are asymptomatic patients with active infection or reinfection despite having IgM + antibodies. Also, the real value of immunity acquired after infection is currently being determined. (19) (Table 4)

On the other side, it is important within the surgical circuit of the obese patient, to implement the highest quality care, to have the Individual Protection Equipment necessary for the different exposure situations that healthcare personnel may face in the context of the SARS-Cov-2 pandemic.

In the case of surgical interventions in patients with negative clinical and epidemiological screening and negative tests, it is considered that the suspicion of SARS-Cov-2 infection is very low, and the usual level of protection can be used. However, with the current means, it is not possible to ensure a zero risk of contagion. (4)

It depends on when the centers that care for patients with obesity are located, the type of patient and their

complications. The epidemiological characteristics of the area where the hospital is located and consider that BC can be restarted in hospitals that are in phases II (de-escalated) or I of the dynamic scale of the evolutionary phases of hospitals during the Association's pandemic Spanish Surgeons. (4)

Also, hospitals have now adopted separate circuits for COVID19 patients + clean non-COVID circuits. In order to safely perform the BC, the existence of a differentiated clean NO-COVID circuit must be ensured in all areas, such as emergencies, hospitalization, consultations, operating rooms, resuscitation and awakening rooms.

In order to optimize the bariatric surgery program during the SARS-Cov-2 pandemic, it is recommended to perform the surgical programming with sufficient margin (14 days) to be able to do the SARS-Cov-2 infection screening, prepare more than one candidate for BC in order to have alternatives in surgical programming in case a suspicion of SARS-Cov-2 infection is detected in any of them. At present and with outbreaks of the infection, it is important to keep the use of PCR, except in the case of areas with a very low incidence of SARS-Cov-2 where it can be considered not to perform PCR as long as there is no community transmission of infection and cases and their contacts are closely controlled in the area. The symptom and epidemiological questionnaire should be kept regardless of the incidence of cases in the area.

In the event that any of the responses to the questionnaire or the PCR is positive and if there is suspicion of SARS-Cov-2 infection, it is recommended to delay the intervention and reevaluate the patient by the multidisciplinary team with the collaboration of the COVID team of the health area or the Preventive Medicine service following the protocol of the action center in cases of suspicion.

If the clinical and epidemiological screening and the tests are negative, the process to perform the intervention will continue. Whenever possible, the patient will be admitted on the same date of the intervention.

In the same way and during admission, in order to protect the patient and the medical team, in the areas of the hospital designated as "Covid-free19" all precautions must continue to be taken to minimize the risk of possible infections as described by the AEC (4) and SECO (6).

Conclusion

The evolution of the SARS-Cov-2 pandemic goes on in our country, although the BC programs have resumed their activity rates typical of the pre-pandemic era. However, we should keep all those measures previously described, adjusting them to the level of epidemiological alteration of each region or hospital center and in accordance with the recommendations of the competent Health authorities. The obese patient is a labile patient, subject to greater complications and who must be optimized in terms of weight and comorbidities in order to improve the quality of their global treatment as well as their safety, before and after the intervention.

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Annexes

EMERGENCY	PRIORITY 1	PRIORITY 2
Obstruction	Patients with complications from previous surgeries	<p>A) Patients with underlying diseases who are at risk if obesity is not treated:</p> <ul style="list-style-type: none"> • Diabetes with poor metabolic control (glycated hemoglobin > 8.0%) despite intensive treatment with oral and / or subcutaneous antidiabetic drugs <ul style="list-style-type: none"> • Patients with high cardiovascular risk • Patients with hypoventilation syndromes or very severe sleep apnea with regular control despite BiPAP or CPAP
Hemorrhage	Severe malnutrition	<p>B) Patients awaiting other vital treatments or those with an impact on their quality of life that cannot be carried out without prior treatment for their obesity:</p> <ul style="list-style-type: none"> • Transplant candidates • Pending orthopedic treatment • Women candidates for fertilization treatments
Gastric band slippage	Severe dysphagia	<p>C) Patients undergoing previous surgical, endoscopic or medical treatment for weight reduction and directed to a definitive surgical treatment:</p> <ul style="list-style-type: none"> • Sleeve gastrectomy in 2-stage surgery cases • Patients in whom an intragastric balloon has been placed for the preparation of bariatric surgery (removal must be performed when appropriate in relation to the date of insertion and the characteristics of the material; removal should not be delayed, as there could be a risk of rupture or partial deflation) • Patients who have started a nutritional program with very low-calorie diets • Patients undergoing optimization treatment with GLP-1 analogues whether they have finished or not
Internal hernia	Incoercible vomiting	<p>D) Patients with sequelae or complications of primary bariatric surgery that have been managed conservatively and require definitive surgical treatment:</p> <ul style="list-style-type: none"> • Stenosis that has previously undergone endoscopic treatment • Gastroesophageal reflux with significant symptoms or esophagitis > B or Barrett's esophagus • Gastric band complications that cannot be managed endoscopically • Severe bile reflux in patients with gastric bypass of an anastomosis • Symptomatic cholelithiasis in patients with bypass surgery
Perforation	Disabling diarrhea	
Marginal ulcer hemorrhage	Severe Hypoglycemia	

Table 1: Prioritization levels of bariatric patients according to their baseline status, associated diseases, clinical situation and possible sequelae derived from the delay in the intervention.

REVISIONAL SURGERY	COMPLICATION		PRIORITY
Gastric band	Mild	Port Disruption - Inadequate Gain and Loss	Priority 2
	Moderate	Erosion	Priority 1
	Severe	Stenosis, slippage	Urgent or emergent patients
Sleeve gastrectomy	Mild	Torsion - Inadequate weight loss or weight regain	Priority 2
	Moderate	Stenosis	Priority 1
	Severe	Reflux	Urgent or emergent patients
Gastric bypass	Mild	Dumping - Stenosis - Intolerance - Inadequate weight loss or weight regain	Priority 2
	Moderate	Marginal ulcer - Diarrhea - G-G fistula	Priority 1
	Severe	Hypoglycemia Malnutrition	Urgent or emergent patients
OAGB	Mild	Dumping - Stenosis - Intolerance - Inadequate weight loss or weight regain	Priority 2
	Moderate	Marginal ulcer Diarrhea - G-G fistula Alkaline reflux	Priority 1
	Severe	Hypoglycemia, malnutrition	Urgent or emergent patients
DBP	Mild	Backflow Dumping	Priority 2
	Moderate	Diarrhea, Marginal ulcer	Priority 1
	Severe	Malnutrition	Urgent or emergent patients
SADI-S	Moderate	Diarrhea	Priority 1
	Severe	Malnutrition	Urgent or emergent patients
Duodenal switch	Moderate	Diarrhea	Priority 1
	Severe	Malnutrition	Urgent or emergent patients

Table 2: Main indications for revision surgery after primary bariatric surgeries currently accepted by the international community and prioritization proposal.

	<i>TIME OF APPLICATION</i>	<i>EFFECTIVENESS IN CANDIDATES FOR BARIATRIC SURGERY</i>	<i>SIDE EFFECTS</i>	<i>COMMENTS IN RELATION TO COVID-19</i>
<i>Conventional hypocaloric diet</i>	<i>Undefined</i>	<i>Important to consolidate healthy eating habits</i>	<i>Very mild</i>	<i>It should be recommended as a basis for treatment</i>
<i>Very low-calorie diet</i>	<i>2-12 Weeks</i>	<i>Weight loss and improvement in comorbidity</i>	<i>Headache, halitosis, gastrointestinal symptoms, usually mild</i>	<i>Assess its use in the last 2-4 weeks before surgery</i>
<i>Liraglutide 3.0</i>	<i>Indefinite, evaluated efficacy and safety up to 3 years</i>	<i>Weight loss and improvement in comorbidity</i>	<i>Gastrointestinal symptoms, usually mild</i>	<i>Of choice in patients requiring sustained weight loss pre-surgery</i>
<i>Intragastric balloon</i>	<i>Usually 6 months</i>	<i>Effective in selected cases, discordant results</i>	<i>Potentially serious</i>	<i>Limit to highly selected cases</i>

Table 3: Main directed preoperative dietary, pharmacological and endoscopic measures to the clinical improvement of the OM patient.