Journal of Obesity and Overweight
Volume 3 | Issue 1
ISSN: 2455-7633

Case Report Open Access

Case Report: Are We Prepared to Manage Acute Abdomen in the Super-Obese Patient?

Bigolin AV*, Rinaldi N, Menguer R, Coral RP, Cacilhas P and Cavazzola LT

Department of Digestive and General Surgery, Santa Casa de Porto Alegre. Porto Alegre, Rio Grande do Sul, Brazil

***Corresponding author:** Bigolin AV, M.D, Digestive Surgeon, Department of Digestive and General Surgery, Santa Casa de Porto Alegre. Porto Alegre, Rio Grande do Sul, Brazil, E-mail: andrevicentebigolin@gmail.com

Citation: Bigolin AV, Rinaldi N, Menguer R, Coral RP, Cacilhas P, et al. (2017) Case Report: Are We Prepared to Manage Acute Abdomen in the Super-Obese Patient? J Obes Overweig 3(1): 105. doi: 10.15744/2455-7633.3.105

Received Date: December 28, 2016 **Accepted Date:** May 17, 2017 **Published Date:** May 19, 2017

Abstract

Introduction: The management of acute abdomen in super-obese patients is controversial.

Method: A 55 year-old man with signs and symptoms of severe sepsis was admitted to the emergency department. He is severely obese with a BMI of 80 Kg/ m^2 and a medical history of hypertension and arrhythmia. The abdominal pain was non-specific and the physical examination was impaired by obesity. Ultrasonography (US) was ineffective and no computed tomography (CT) scan was available for a patient of his weight.

Results: The acute abdomen presented an inflammatory etiology. The patient underwent laparoscopy and severe cholecystitis was diagnosed and treated. The patient recovered well, and remained for 36h in the intensive care unit and 5 days in the surgical ward.

Conclusion: Acute abdomen in the super-obese is challenging and demands an early intervention otherwise it may be catastrophic. The laparoscopic approach can be helpful especially when adopted by an experienced team.

Keywords: Obesity; Emergency; Laparoscopy; Morbid Obesity; Bariatric Surgery

List of Abbreviations: BMI: Body Mass Index; US: Ultrasonography; CT: Computed tomography

Introduction

According to The World Health Organization, more than 1.9 billion people aged 18 years or older are overweight. Of these, over 600 million are obese [1].

Obesity is associated with numerous comorbidities, such as atherosclerosis, sleep apnea syndrome and diabetes. Morbid obese patients are highly complex and at considerably greater risk during and after surgery when compared to non-obese patients, as intraoperative and post-operative mortality may reach up to 20% in such patients [2].

A stratification of the morbid obese patient is recommended for extreme Body Mass Index (BMI). Patients with BMI over than 70 kg/m^2 are classified as mega-obese patients. In this population, acute abdomen is highly lethal and the literature is sparse.

While several authors have evaluated the impact of non-bariatric surgery on morbid obese patients, the results are conflicting. There is even less evidence regarding the outcome of such surgery is often poor.

In 7,751 obese trauma injury patients, Liu *et al.* found [3] an increased risk of mortality, longer length of hospital stay and higher rates of complications.

Correctly diagnosing acute abdomen in a morbid obese patient is a challenge. Large quantities of subcutaneous fat tissue hinder abdominal examination. Imaging resources are also affected: the quality of ultrasonographic evaluation is directly impaired by obesity [4], while CT scan images are limited by patient size and in extremely obese patients cannot be executed [5].

The aim of this study was to describe a case of a super-obese patient with acute abdomen and discuss its peculiarities and the role of the laparoscopic approach.

Case report

A 55-year-old Caucasian male, self-employed worker, presented to the emergency department with abdominal pain. Symptoms

onset was two days before and associated with fever. Initially, the pain was diffuse but suddenly became focused on the right abdomen. The patient denied any nausea, vomiting, jaundice, loss of appetite, painful urination or altered bowel movements. The patient appeared disoriented and confused.

Vital signs showed tachycardia-110, tachypnea-20, temperature-38 ºC and SpO_2 88%. Physical examination revealed a solid globular abdomen. The patient reported pain in right flank although there were no signs of peritonitis or lumbar pain.

Laboratory findings revealed total leucocyte count 23000/ cm^2 with 10% of young leucocytes. Creatinine was 2,8mg/dl. Neither anemia nor any other electrolyte disturbance was found. Metabolic and respiratory acidosis was present. Amylase, lipase, bilirubin and transaminases appeared unaltered.

The patient's medical history included: arrhythmia, treated with amiodarone; hypertension, treated with losartan and hydrochlorothiazide; and dyslipidemia, treated with atorvastatin and aspirin. At presentation, the patient's weight was 228 Kg, height 68 cm and Body Mass Index of 80kg/m2. Chest X-ray showed hyperexpansion and diffuse infiltration. Abdominal X-ray excluded pneumoperitoneum but was inconclusive regarding other pathologies due to patient body habitus. Ultrasonography could not clearly evaluate the intra-abdominal organs considering the abdominal complaint. CT scan was unavailable due to the patient's weight.

Results

Diagnostic laparoscopy was undertaken. The surgical team was positioned as for usual cholecystectomy. The surgeon and the first assistant were on the left side of the patient while the second assistant was on the right. The screen was placed opposite the surgeon at an angle of 45º.

Following induction of pneumoperitoneum using the Versastep™ Veress access needle, the first 10mm trocar was inserted above the umbilicus. At the opening, the epiploon was seen to be adhered to the liver edge. Another 10mm trocar was placed in the epigastrium. Two 5mm trocars were placed in the right hypochondrium and right flank. In order to facilitate visualization of the surgical field, an 11mm trocar had to be placed above and 5cm to the left of the first one due to the abnormal position of the gallbladder, which had a vesicular (Figure 1). A 30º scope was used.

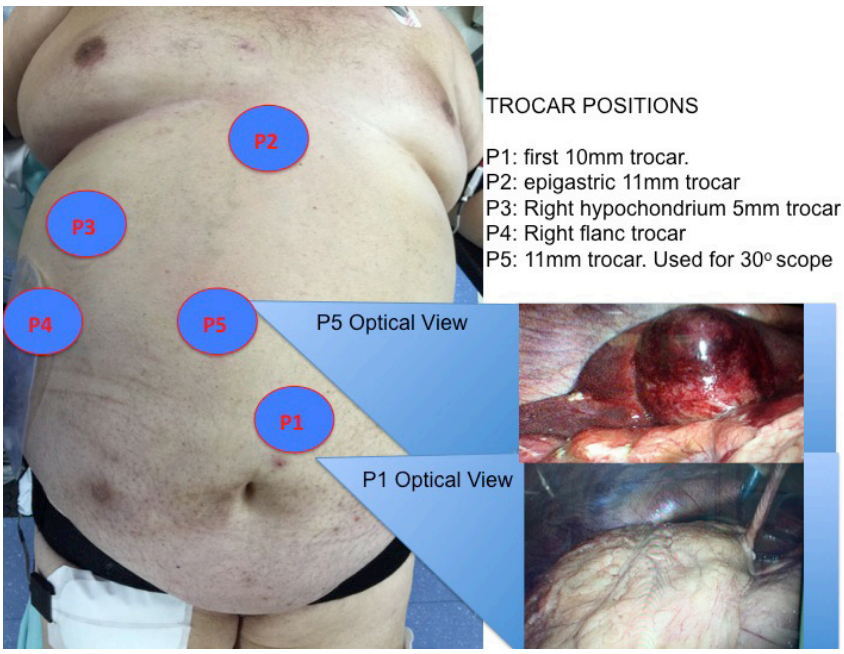

Figure 1: Trocar positions for laparoscopic procedure

After dissection of the epiploon adhesions and exposure of the liver edge, the gallbladder was found and an important inflammatory process with necrosis was identified. Drainage of the gallbladder was necessary, showing a pyogenic material that was sent for bacterial analysis. The empty gallbladder facilitated access to Calot's triangle in order to apply metal clips to the cystic duct and cystic artery. The gallbladder was dissected from liver bed. The specimen was removed through the 10mm epigastric trocar protected by an endobag. The abdominal cavity was inspected and washed with warm saline solution. A drain was placed in the gallbladder bed.

The operative time was 65 minutes and estimated blood loss was 15mL. The patient remained in the intensive care unit for 60 hours. During which time, he spent 48 hours on mechanical ventilation because of narcosis. On the first postoperative day, deteriorated renal function was detected and the creatinine levels reached 4.2mg/dL. However, there was no need for dialysis. No

changes in pH, HCO_3 or potassium were evidenced. After restoring the intra-vascular flow, the renal function was restored. The serum creatinine returned to preoperative levels on the 5th postoperative day.

The patient accepted oral intake on the 3rd postoperative day. The patient was discharged on the 7th postoperative day, when the risk of sepsis was excluded. Renal function was restored without the use of opioids. Antibiotic therapy was concluded orally at home on the 10th postoperative day.

The patient returned on 14th and 21st postoperative days fully recovered, with normal laboratory findings.

Discussion

According to our literature search, this is the first reported case of a mega-obese patient with acute abdomen treated by laparoscopy. Initial presentation suggested a case of sepsis with organ failure. Sepsis was attributed to an acute abdominal syndrome, but the specific diagnosis was unclear. Imaging studies were unavailable for this patient.

Acute abdomen can be classified in different ways [6]. We prefer to divide it in five syndromes according to signs and symptoms (Table 1). In this case, the patient did not have a short onset of symptoms, serum amylase was normal and there was no apparent pneumoperitoneum. The perforated type was unlikely in this scenario. There was no anemia and the pain was well localized which is unusual in hemorrhagic and ischemic syndromes. The absence of nausea, vomiting and the unaltered bowel movement rules out an obstructive cause.

Syndrome	Anemia	Peritonitis	Development	Distention	Fever
Hemorrhagic	+++++	+	+++	-	-
Perforated	-	+++++	++++	**Tense**	+
Obstructive	-	+-	+-	+++++	+
Inflammatory	-	+++	+++	++	+++

Table 1: Classification of acute abdomen and its characteristics

The inflammatory subtype is the most common cause of acute abdomen. Appendicitis continues to be the first cause and could not be ruled out initially in this case. Cholelithiasis is another possibility, since obesity is associated with a 25% increased risk of this pathology [7]. Pancreatitis would be the third possibility, given its high rates of occurrence in obese patients due to the existence of biliary stones. Serum enzyme analysis can discard this scenario [8].

In cases of unclear diagnosis, diagnostic laparoscopy is recommended, as it is often a therapeutic procedure [9].

According to the Tokyo guideline, this case is classified as severe cholecystitis. In this situation, the guideline recommends clinical stabilization and gallbladder drainage as soon as possible [10].

In 1320 patients submitted to early laparoscopy for acute abdomen, 90% had the diagnosis completed by the procedure and 87% were treated at the same time. Laparoscopy is considered the standard approach to the gallbladder even in morbid and mega-obese patients [11].

Mega-obese patients present surgical peculiarities and an increased risk of complications. Papavramidis et al. analyzed 7 mega-obese patients that successfully underwent bariatric surgery. The average length of stay was 15.3 days and the complication rate elevated. Despite the potential risk, no deaths occurred and the patients showed weight loss [12].

About the bariatric procedure, Spyropoulos *et al*. showed higher morbidity and mortality rates in 68 mega-obese patients compared with BMI < 70 patients [13].

Regarding non-bariatric surgery in mega-obese patients, just one successful laparoscopic colectomy has been reported in the literature [14].

Küpper *et al*. evaluated severe obese and morbid obese patients submitted to emergency surgery. They showed high perioperative morbidity. These results were worse in patients with higher BMIs [15].

To date, the only report of urgent non-trauma surgery in a patient with a BMI of 80 kgm^2 was an incarcerated hernia. In this case the patient died after surgery [16].

Regarding the present case, the successful outcome can be attributed to an experienced and multidisciplinary team of surgeons and anesthesiologists and their familiarity with the challenges involved with the morbid obese. In order to successfully operate on this type of patient, an extensive knowledge of acute abdomen and a medical center with a large number of patients are vital. Nevertheless, more studies are required to guide the approach. The bariatric hospital center must be prepared and provide all the diagnostic instruments necessary to deal with complexities involved with this kind of patient.

Conclusion

Treating acute abdomen in a mega-obese patient requires a surgical team with expertise in bariatric surgery. In their hands, the laparoscopic approach can be very helpful and is recommended. The surgical approach must be well planned and conservative management should be considered the exceptional choice, mainly when signs of severity are associated.

References

1. World Health Organization (2016) Obesity and overweight, USA.

2. Schroder T, Nolte M, Kox WJ, Spies C (2001) Anesthesia in extreme obesity. Herz 26: 222-8.

3. Liu T, Chen JJ, Bai XJ, Zheng GS, Gao W (2013) The effect of obesity on outcomes in trauma patients: a meta-analysis. Injury 44: 1145-52.

4. Shmulewitz A, Teefey SA, Robinson BS (1993) Factors affecting image quality and diagnostic efficacy in abdominal sonography: a prospective study of 140 patients. J Clin Ultrasound 21: 623-30.

5. Uppot RN, Sahani DV, Hahn PF, Gervais D, Mueller PR (2007) Impact of obesity on medical imaging and image-guided intervention. AJR Am J Roentgenol 188: 433-40.

6. Dang C, Aguilera P, Dang A, Salem L (2002) Acute abdominal pain. Four classifications can guide assessment and management. Geriatrics 57: 30-42.

7. Xu Q, Tao LY, Wu Q, Gao F, Zhang FL, et al. (2012) Prevalences of and risk factors for biliary stones and gallbladder polyps in a large Chinese population. HPB (Oxford) 14: 373-81.

8. Bonfrate L, Wang DQ, Garruti G, Portincasa P (2014) Obesity and the risk and prognosis of gallstone disease and pancreatitis. Best Pract Research Clini Gastroenterol 28: 623-35.

9. Golash V, Willson PD (2005) Early laparoscopy as a routine procedure in the management of acute abdominal pain: a review of 1,320 patients. Surgical endoscopy 19: 882-5.

10. Miura F, Takada T, Strasberg SM, Solomkin JS, Pitt HA, et al. (2013) TG13 flowchart for the management of acute cholangitis and cholecystitis. J Hepatobiliary Pancreat Sci 20: 47-54.

11. Tiong L, Oh J (2015) Safety and efficacy of a laparoscopic cholecystectomy in the morbid and super obese patients. HPB (Oxford) 17: 600-4.

12. Papavramidis T, Kesisoglou I, Orailoglou V, Baltzopoulos V, Grosomanidis V, et al. (2009) Mega-obese patients weighing more than 250 kg: a problematic group. Acta Chir Belg 109: 61-4.

13. Spyropoulos C, Bakellas G, Skroubis G, Kehagias I, Mead N, et al. (2008) A prospective evaluation of a variant of biliopancreatic diversion with Roux-en-Y reconstruction in mega-obese patients (BMI > or = 70 kg/m(2)). Obes Surg 18: 803-9.

14. Iorio T, Blumberg D (2014) Laparoscopic colectomy is feasible in the mega-obese patient using a standardized technique. Surg Obes Relat Dis 10: 1005-8.

15. Kupper S, Karvellas CJ, Khadaroo RG, Widder SL, Acute C, Emergency Surgery G (2015) Increased health services use by severely obese patients undergoing emergency surgery: a retrospective cohort study. Can J Surg 58: 41-7.

16. Rodríguez-Hermosa JI, Codina-Cazador A, Ruiz-Feliú B, Roig-García J, Albiol-Quer M, et al. (2008) Incarcerated umbilical hernia in a super-super-obese patient. Obes Surg 18: 893-5.