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Case Report

A rare outcome of liposuction complicated by the development of peritonitis following perforation of the small intestine: a case report

Jungwoo Park*, Maymona E. Nageye, Mohammed M. Arain

Department of Surgery, UChicago Medicine AdventHealth Hospital, Hinsdale, Illinois, USA

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***Correspondence:**
Dr. Jungwoo Park,
E-mail: jpark8@angelo.edu

ABSTRACT

There are a growing number of demands for liposuction each year and it is one of the most performed procedures in plastic surgery for aesthetic purposes. Bowel perforation and peritonitis are rare, but life-threatening complications following liposuction. However, there is a lack of awareness of these ill-fated outcomes which are underestimated and under-reported in the literature. We present the case of a 63-year-old male admitted to emergency department (ED) with the symptoms of abdominal pain and distension with anorexia and nausea. The patient stated that he had not been feeling well since the liposuction procedure which he received 6 days prior. During the physical examination, there was mild abdominal distension with tenderness and some guarding in all 4 quadrants. A computed tomography (CT) scan showed pneumoperitoneum. The patient underwent an exploratory laparotomy where multiple small bowel perforations were repaired and a part of the small bowel was resected. The patient eventually recovered well and was discharged on post-op day 12. Bowel perforation which can lead to peritonitis following liposuction is rare, but the risk increases in patients with a previous history of abdominal surgery such as hernia repair, as in this patient. Increased awareness of possible life-threatening complications and close follow-up in patients with risk factors are essential to prevent undesirable outcomes and promptly treat the patient.

Keywords: Liposuction, Complications of liposuction, Bowel perforation, Peritonitis

INTRODUCTION

Liposuction, also referred to as suction lipectomy or lipoplasty, has climbed to the most popular aesthetic surgery performed worldwide.[1] Improvements in patient selection and an increased understanding of the anatomic and biochemical principles of liposuction have led to advancements in aesthetic outcome and patient safety.[1] Nonetheless, there are significant adverse outcomes that are not uncommon following the procedure. Perioperative complications can include anesthesia and cardiac complications, cannula trauma to skin and/or internal organs, and volume loss/overload from bleeding or excess fluid administration.[2] Instances of direct cannula trauma to the bowel, internal organs, or vessels have been reported in the literature.[2,3] Although rare, these complications are related to incomplete preoperative examination (hernia) and overaggressive suctioning or penetration by infiltration cannula.[2] Patients who are obese, with old surgical scars on the abdomen, with divarication of recti and with abdominal wall hernias are at a greater risk for visceral perforation during liposuction.[4] In our case, the patient's previous surgical history of umbilical hernia repair and appendectomy put him at a greater risk for complications.

Aims and objectives

Aim of this case report is to emphasize a rare but life-threatening complication of liposuction and to spread knowledge among surgeons to minimize preventable ill-fated outcomes.

CASE REPORT

A 63-year-old Caucasian male with a past surgical history of liposuction 6 days prior presented to the ED with abdominal pain, anorexia, and nausea. The patient stated that he had not felt well since he received a liposuction procedure which took place in the outpatient setting. The patient denied vomiting, fever, or chills. The patient had a previous surgical history of umbilical hernia repair and appendectomy. Labs demonstrated hyponatremia (sodium level at 119) and normal white blood cell (WBC) count at 10,900. During the physical examination, abdominal distension with tenderness and some guarding in all 4 quadrants were noted.

A computed tomography (CT) scan of the abdomen and pelvis with intravenous (IV) contrast demonstrated a moderate amount of free intraperitoneal air suggesting bowel perforation and dilated loops of proximal small bowel measuring up to 4.5 cm diameter (Figures 1 and 2). Considering the presence of free air and recent surgery, paralytic ileus was considered to be the cause of small bowel dilation.

Figure 1: CT abdomen and pelvis with contrast, axial view showing pneumoperitoneum.

Figure 2: CT abdomen and pelvis with contrast demonstrating dilated loops of small bowel.

An urgent surgery was recommended to the patient due to suspected perforated bowel and peritonitis. An emergency exploratory laparotomy was conducted once informed consent was obtained. During the operation, multiple perforations of the small bowel were noted, mostly in the ileum. There was a cluster of perforations (at least four) with intramural hematoma in the terminal ileum proximal to the ileocecal valve, requiring a segmental resection and end-to-end anastomosis. The anastomosis was placed at least 5 cm proximal to the ileocecal valve. Some scar tissue was noted in the right lower quadrant probably induced by appendectomy. Copious amounts of saline were used to irrigate the peritoneal cavity. All perforations of the small bowel were repaired using interrupted 3-0 silk sutures. A gross examination of the specimen (resected small bowel) was received enclosed with two staple lines, measuring 8.4×3.2 cm (length × diameter). The serosa was purple-gray and glistening with focal overlying tan-pink, patch-like tissue that is consistent with exudative tissue that ranges from 0.3-0.7 cm and lies 3.7 cm from the nearest bowel margin. Attached was dark tan-pink, dusky, and focally hemorrhagic mesentery that ranges from 0.7-2.8 cm in greatest dimension and also demonstrated overlying exudative tissue. Identified within the point of attachment of the adipose to the bowel serosa was a full- thickness perforation measuring 0.8×0.3 cm and lying 1.3 cm from the nearest bowel margin and 2.2 cm from the mesenteric margin.

On post-op day 4, the patient complained of some abdominal distension and pain. NG tube output was less than 200 mL per shift. The patient was placed on a trial of Dulcolax suppository and continued to be on IV fluids, NG tube, and IV antibiotics.

On post-op day 8, an X-ray of the abdomen was ordered due to the patient's persistent bloating. The image demonstrated persistent gas-distended loops of predominantly small bowel suggesting a postoperative ileus, shown in Figure 3.

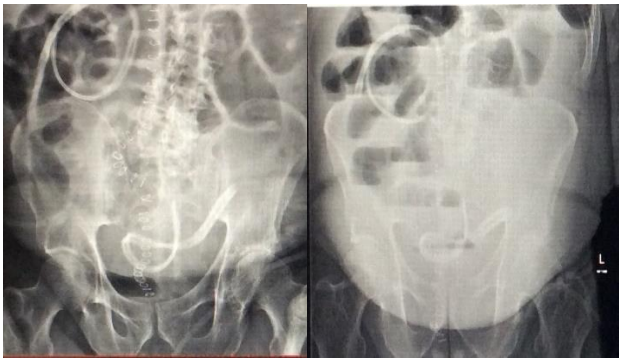

Figure 3: X-ray abdomen, upright views showing distended loops of the small bowel.

On post-op day 9, a small-bowel study with water-soluble contrast was done and the images demonstrated that the contrast reached the right colon. The patient reported improving bowel movements and abdominal distension the following day and was discharged on post-op day 12.

DISCUSSION

Liposuction is one of the most common procedures performed in plastic surgery. With the increased number of cases, the number of complications also increases, ranging from minor complications such as seroma, edema, and pain to more serious, life-threatening complications such as pulmonary embolism, pneumothorax, bowel perforation, and even death.[7-9] Complication rates are reported between 0% to 10% compared to mortality rates reported at <1% at the hands of experienced plastic surgeons.[12] Bowel and visceral perforation during liposuction are rare complications with a reported incidence of <0.1.[12-14] Bowel perforation during liposuction is potentially fatal and is associated with a very high mortality rate.[4] Fatalities have been reported with this condition due to difficult diagnosis, late presentation, the development of peritonitis, and the more complex management.[7]

In this case, bowel perforation was diagnosed when a CT scan revealed pneumoperitoneum. Additionally, the patient exhibited signs of peritonitis including abdominal tenderness, guarding, and rebound tenderness in all four quadrants.

To minimize the most feared complications, Taha et al stated that preoperative abdominal CT scan is crucial to assess the integrity of the abdominal wall (in addition to the clinical assessment), presence of hernias, the condition of the bowel loops, and their relation to the abdominal wall and it could prevent the serious outcomes.[7] During the abdominal liposuction, it is crucial to always feel the tip of the cannula during the infiltration and the suction process (with the surgeon's non-dominant hand).[7] Toledo and Mauad recommend hyperextending the abdomen during liposuction to prevent inadvertent visceral penetration of the cannula.[4,6] Areas of doubtful abdominal wall weakness or defects should not be treated.[7] Additionally, careful monitoring of postoperative clinical course and timely use of radiologic exams are of paramount importance to avoid dramatic consequences.[10]

Patients with severe pain after abdominal liposuction should be assessed carefully to rule out visceral perforation.[4,5] If an abdominal perforation is suspected, a chest/abdominal X-ray and abdominal-pelvic CT scan should be immediately requested.[10] Treatment should be prompt, through laparoscopic or open laparotomy, as well as management of perforations according to their location, size, and time of evolution.[10,11]

CONCLUSION

Liposuction has become one of the most popular cosmetic surgery procedures performed around the world. In the past 40 years, there has been significant evolution of the techniques and technologies available, resulting in improved safety and outcomes.[2] However, systemic complications such as bowel perforation do rarely occur and can lead to fatal outcomes. Therefore, it is critical for surgeons to be aware of these possible ill-fated outcomes and perform a risk assessment before surgery, receive proper training to minimize life-threatening complications, and provide patients with a close postoperative follow-up to ensure earlier diagnosis and appropriate treatment.

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