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CASE REPORT
Cosmetic

Aesthetic Surgery in a Patient With Situs Inversus: A Rare Case Report About the Practical Concerns

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Summary: Aesthetic surgery has gained substantial popularity over the last decade due to enormous projections in the media. These procedures have not only attracted Westerners but also the Middle Eastern and Saudi populations. Situs inversus is an extremely rare congenital anomaly with an incidence of 1 in 10,000 live births. Its association with Kartagener syndrome, cardiac anomalies, asplenia, and vertebral column deformities are well documented in the literature. A wide range of procedures have been described for people with situs inversus with special technical considerations, but an aesthetic procedure has never been published for them before this report. We provide a brief report of a 53-year-old woman with a known case of situs inversus who underwent a body contouring procedure.
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Over the last decade, the media has been promoting aesthetic surgical procedures, leading to a substantial rise in cosmetic surgery procedures.[1] The popularity of aesthetic procedures is rising in Saudi Arabia as well, and women are reported to be keener on these procedures as compared with men, mainly due to social, cultural, and peer pressure.[2] Historically, Pitanguy brought abdominoplasty into vogue to reinforce anterior abdominal wall hernia repair in 1967. The popularity of this procedure has risen over time. According to a recent international report, more than 130,000 abdominoplasty procedures were performed during the year 2018 by certified plastic surgeons in the United States.[3] A unique scenario of lipoabdominoplasty is being depicted in this case report after bariatric surgery in a multiparous patient with situs inversus totalis. Situs inversus is one of the rare congenital anatomical anomalies that is highlighted by the unusual location of intraabdominal and/or intrathoracic organs. It has an autosomal recessive mode of inheritance, and the prevalence is reported to be 1.1 per 10,000 live births in the United States.[4] This condition may be associated with Kartagener syndrome, accessory spleen syndrome/asplenia, and cardiac anomalies.[5]

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CASE PRESENTATION

Our patient was a 50-year-old nonsmoker, married, multiparous, Saudi woman, and mother of 8 children, who was diagnosed with situs inversus totalis. She reduced her weight from 73 to 56 kg by diet control and exercise for 3 years before the cosmetic surgery. Her body mass index (BMI) was 22.4 kg/m^2 preoperatively. She had a history of 2 cesarean sections. She was assessed by a thorough history, including all pertinent questions regarding risk factors for the congenital anomalies. The patient did not have any other medical history or complications related to situs inversus. Her systemic examination was indicative of situs inversus totalis as the apex beat was palpable in the right fifth intercostal space, and the heart sounds were normal and audible in the same location. Furthermore, the liver was palpable below the left costal margin. A focused examination was performed to rule out other syndromic associations. On local examination, lipodermal redundancy and the extent of dermal striae were assessed by the pinch test, whereas myofascial laxity was assessed by the diver's test (Fig. 1). All these findings of physical examination were confirmed by a chest radiograph and ultrasound of abdomen, which ruled out ventral hernia as well. (**See figure, Supplemental Digital Content 1**, which displays a posterior-anterior view chest x-ray showing cardiac silhouette projected in the right hemithorax; the hepatic silhouette is observed in the left upper abdomen, with the distribution of gastric/colonic gas shadowing in the right upper abdominal area. **http://links.lww.com/PRSGO/D658**.)

Disclosure statements are at the end of this article, following the correspondence information.

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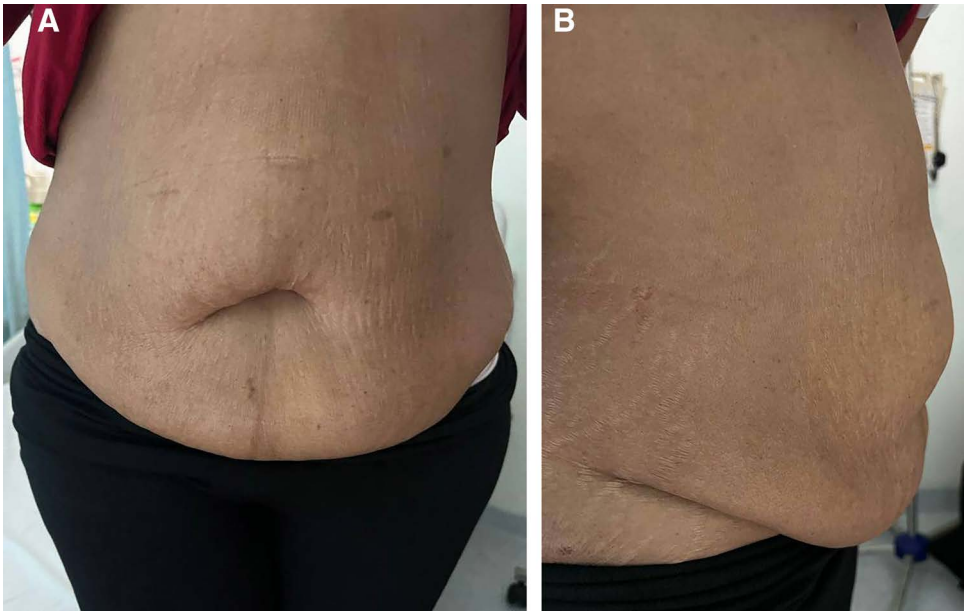

Fig. 1. Photographs of the patient 1 week preoperative. A, Anterior view. B, Lateral view.

Her complete blood count, coagulation profile, liver, and renal profile were within normal limits.

Based on all the above parameters, her anesthesia fitness was obtained. Standard markings were made for liposuction and abdominoplasty procedures. Prophylactic antibiotics were given for Gram-positive organism coverage, a urinary catheter was inserted, compression stockings and a pneumatic compression device were applied intraoperatively, and ambient temperature control and a thermal blanket were used to avoid hypothermia during the procedure. Electrocardiogram electrodes were placed in opposite locations for dextrocardia before the induction of anesthesia. She underwent lipoabdominoplasty under general anesthesia in a supine position. Suction-assisted liposuction was performed by infiltrating 1000 mL of tumescent (modified Kleen's) solution in the anterior abdominal wall and flanks bilaterally. A total of 800 mL of lipoaspirate was retrieved by suction assisted lipectomy. The umbilicus was dissected free from the anterior abdominal wall. A meticulous surgical elevation of the ventral abdominal wall made from the anterior rectus sheath, starting from pubic symphysis to the xiphisternum. Recti diastasis was addressed by nonabsorbable double-layer plication in a beach chair position. A long-acting local anesthetic, bupivacaine, was injected on both sides of the suture line to ameliorate postoperative pain. End inspiratory pressure was checked at the end of the plication through the anesthesia machine to ensure adequate diaphragmatic excursion. Perfect hemostasis was achieved, and the wound was closed in 3 layers using absorbable sutures over 2 large-size suction drains. The umbilical stalk was positioned at the midpoint of the plane, passing through both the anterior and superior iliac spines, and stitched in a double layer. A tight compression garment was applied after steristrips, and a padded dressing was placed over the wound. The resected specimen/flap weighed 1345 g. Intravenous antibiotics, analgesics, and low-molecular-weight heparin were prescribed postoperatively. Early mobilization, frequent incentive spirometry, an early enteral diet, and anti-DVT measures were recommended. The urinary catheter was removed on the first postoperative morning. The patient's recovery was uneventful. The drains were removed after a couple of days when the drainage volume was reduced to less than 25 mL of serous fluid, and she was discharged home.

She visited the outpatient clinic at 2 weekly intervals for 6 weeks and then every 6 months for 2 years. Her BMI 6 weeks postoperatively was 21.8 kg/m^2. Her surgical wound healed well after 3 weeks (Fig. 2). Scar therapy started after 4 weeks and was allowed for light exercise after 6 weeks postoperatively. No complications were noticed during her postoperative course, and no unfavorable effects were observed after 2 years of surgery due to her congenital anomaly.

DISCUSSION

In ancient times, Aristotle (BC 384–322) found situs inversus in animals, whereas Fabricious described this anomaly in humans during the 17th century.[6] This condition can be suspected by history and cautious physical examination. Ferencz and Loffredo described 6 important risk factors in the literature, including a family history of congenital heart and other anomalies, lower-income families, a diabetic mother, the intake of cough suppressants during pregnancy, and a father's smoking.[7] In our patient, none of the above-mentioned risk factors were present.

A wide variety of interventions and surgical procedures have been reported in the literature for patients with situs inversus, including percutaneous and endoscopic procedures on the biliary tree, upper and lower GI endoscopy, endoscopic

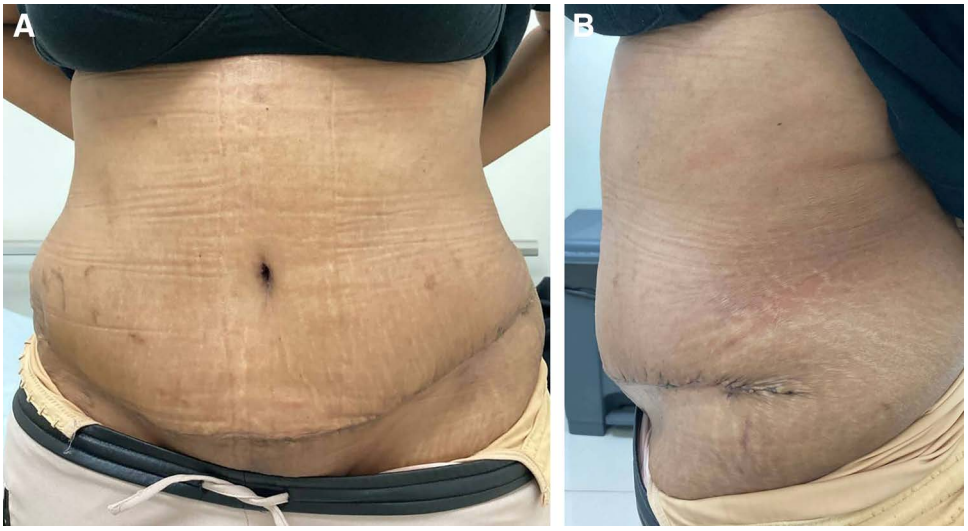

Fig. 2. Photographs of the patient 3 weeks postoperative. A, Anterior view. B, Lateral view.

retrograde cholangiopancreatography-guided papillotomy, and common bile duct stone removal. Additionally, laparoscopic and open surgical procedures, including appendectomy, cholecystectomy, and bariatric surgery, are performed with special precautions for appropriate side trocar introduction and making surgical incisions.[8]

The majority of surgeons are right-handed; usually, they have to face difficulties in using instruments, such as operating on a diathermy paddle with the left foot while approaching the intraabdominal organs in patients with situs inversus. These practical problems have a deterrent effect on surgical outcomes.[9]

Zavalza et al[10] published a case report in 2021 describing several technical modifications for a sleeve gastrectomy in a patient with a BMI of 49.1 kg/m² with levocardia and situs inversus. On the other hand, all these technical difficulties were avoided in our patient because most of the aesthetic surgical procedures, including lipoabdominoplasty, do not involve intraabdominal organ manipulation. The reported procedure was performed extraperitoneally without any technical issues, and the postoperative recovery was also smooth.

CONCLUSIONS

An exponential rise in the number of cosmetic procedures has been observed globally over the past couple of decades. This case report embarks upon a comprehensive preoperative workup of all aesthetic surgery candidates to rule out comorbidities as well as common and rare congenital anomalies such as situs inversus which may have an association with Kartagener syndrome, cardiac anomalies, splenic malformations, and vertebral column abnormalities. These patients may be asymptomatic due to their compensated state of health, but surgical stress can unveil the silent congenital malformations or syndromes. In-depth knowledge of all these conditions in our patients is the key to safe anesthesia, uneventful recovery, and promising results after cosmetic procedures.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

ETHICAL APPROVAL

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

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