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Giant Incisional Hernia: Which Treatment? Case Report and Review of Literature

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Abstract

BACKGROUND: Incisional hernias are one of the most common complications developing in 3.8–11.5% after abdominal surgery. The management of giant incisional hernia (GIH) with loss of abdominal domain remains a surgical challenge with a high recurrence rate of 30%, elevated comorbidity and a mortality rate between 0% and 5%.

CASE REPORT: A 70-year-old woman presented at our emergency room with a 24 h history of abdominal bloating. She had severe comorbidities and GIH with loss of domain (LOD). Abdominal _TC scan demonstrated a GIH about 10 × 11 cm, associated with colon and ileus with "LOD."

CONCLUSION: Different risk factors are important for developing an incisional hernia as old age, vascular disease, diabetes, obesity, renal failure, hepatic disease, protein deficiency, immunosuppression, and smoking. Surgical treatment should be centralized to discuss every case with a multidisciplinary team (general surgeon, plastic surgeon, and radiologist).

Introduction

Incisional hernias are one of the most common complications after abdominal surgery especially in patient with high-risk factors for developing an incisional hernia as old age, vascular disease, diabetes, obesity, renal failure, hepatic disease, protein deficiency, immunosuppression, and smoking [1]. Incisional hernias develop in 3.8–11.5% after abdominal surgery [2]. "Loss of domain" (LOD) is defined when the ratio of the volume of the hernia sac to the volume of the abdominal cavity is >0.5 [3]. It is necessary to measure the volume through the sagittal and axial reconstruction of the computed tomography (CT) scan, 50% according to the literature. The management of giant incisional hernia (GIH) with loss of abdominal domain remains a surgical challenge with high recurrence rate of 30%, elevated comorbidity and a mortality rate between 0% and 5%. Patients with complex hernia repairs experiencing post-operative failure have a higher mortality rate [4]. We present a case of 70-year-old Caucasian woman with many comorbidities, questioning if it is right to perform or not operation.

Case Report

A 70-year-old woman presented at our emergency room with a 24 h history of abdominal bloating. She reported no vomiting. Her medical history included arterial hypertension, diabetes mellitus, and obesity due to body mass index 35 kg/m^2. She had a previous surgical history of an open umbilical hernia repair without the use of prosthetic mesh a year ago. She had a Glasgow Coma Scale of 15. Her vital signs showed hypertension with arterial blood pressure of 180/100 mmHg, not tachycardia and not fever. Routine blood investigations not showed leukocytosis, normal hemoglobin, and protein chain reaction in the range. Arterial blood gas was normal. On physical examination, she presented with a surgical scar in the middle abdomen, abdominal bulge, and GIH. Incisional hernia showed expansile impulse on coughing, no tenderness, it had a uniform consistency, mobile, there were no pulsations. It contained large and small intestine, partially reducible. The defect was about 10 cm in diameter and there were no complications. No signs of peritoneal irritation. Abdominal TC scan demonstrated a GIH about 10 × 11 cm, associated with colon and ileus with "LOD," not distended ileus with thickening of the intestinal

wall and air-fluid levels (Figures 1-4). The patient refused operation, but we made a multidisciplinary meeting to discuss how to treat other future cases like this.

Discussion

Approximately 200,000 incisional hernia repairs are performed each year in the United States alone at a financial cost of nearly 2.5 billion dollars [5]. High-risk factors for developing incisional hernia are old age, vascular disease, diabetes, obesity, renal failure, hepatic disease, protein deficiency, immunosuppression, smoking, not correct technical closure, and wound infection [6]. In literature, incidence of giant hernia occurs 11–23% [7]. Of these, 11% of patients have a defect>15 cm [8]. The overall morbidity rate was a median 32%, mortality rate of 0–5%, and recurrence rate from 10% to 50% [9]. "Loss of abdominal domain" occurs when the intra-abdominal contents can no longer stay within the abdominal cavity [10]. Giant

Figure 1: Giant incisional hernia

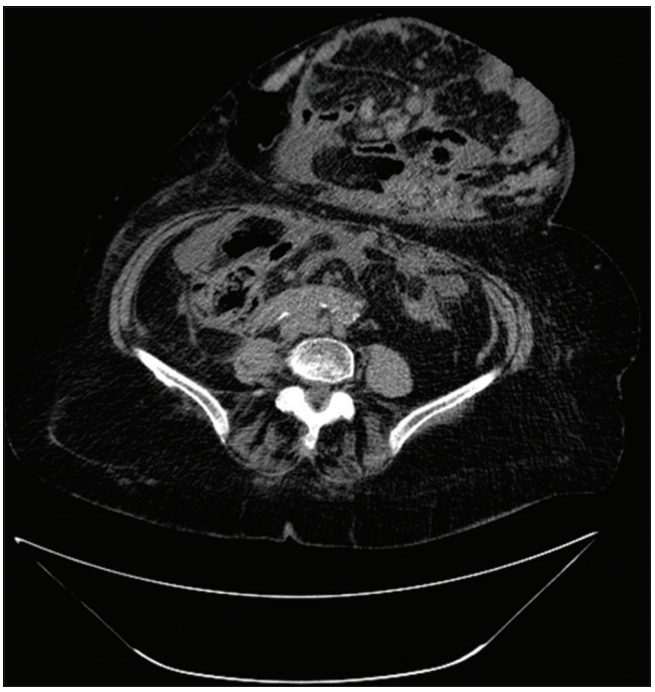

Figure 2: Air-fluid levels

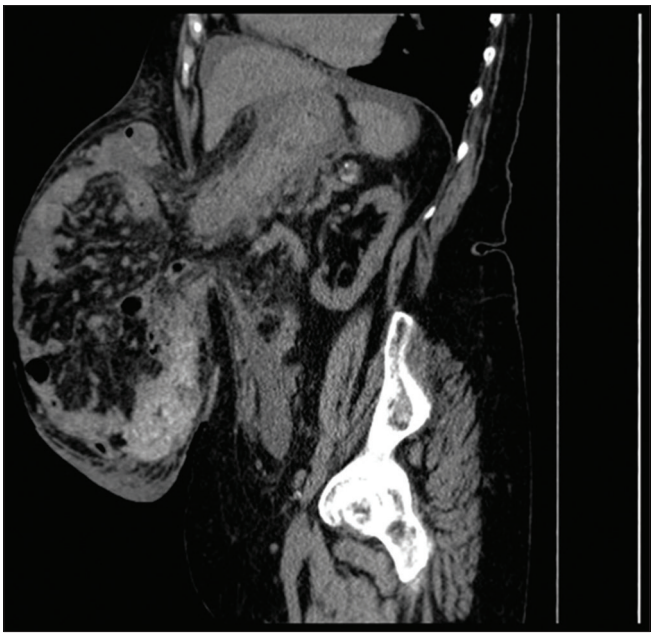

Figure 3: "Loss of domain"

Figure 4: Not distended ileus with thickening of intestinal wall

ventral hernias are considered in cases where the hernia orifice is >10 cm [11]. Surgical repair for GIH is a high-risk surgical procedure with more liable to complications [12]. First, reduction of the contents is difficult [13]. Second, the risk of recurrence is high [14]. Finally, the residual skin needs excision for cosmetic reasons [15]. There are many options to repair huge hernia such as pneumoperitoneum, abdominal flap, component separation, bowel resection, or mesh use [16]. Every technique has very high post-operative complications such as elevated abdominal pressure, contamination, infections, seromas, hematomas, hemorrhage, cardiovascular disease, pulmonary insufficiency, pulmonary embolism, fistulas, and mortality. Carbonell *et al*. recommend percutaneous vena cava filter, anti-thrombotic medication, placement of insufflation catheter, liquid diet with protein, incentive spirometry, daily cure of skin, pneumoperitoneum insufflation monitoring vital signs, repeated CT scan after 7 days of insufflation to decide the suitability of the abdominal repair, or continue pneumoperitoneum for other 4–5 days. Component separation technique with sublay mesh appeared to be better with lower morbidity and lower recurrence rates compared with other methods. Surgical technique is not standard but is a taylored procedure. Surgical treatment should be centralized to discuss every case with a multidisciplinary team (general surgeon, plastic surgeon, and radiologist) [17], [18], [19], [20]. Well-designed randomized trials are seriously warranted. We present this case to ask to riders what they do in abdominal loss of domain.

Conclusion

Loss of abdominal domain occurs when the intra-abdominal contents can no longer lie within the abdominal cavity [10]. Giant ventral hernias are considered in cases where the hernia orifice is >10 cm. Surgical repair for Giant Incisional Hernia (GIH) is a high risk surgical procedure with more liable to complications.

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