

# A Case of Abdominoplasty after Removal of Giant Ovarian Cyst

Masamitsu Kuwahara, MD,  
PhD  
Akira Taniguchi, MD, PhD  
Satoshi Yurugi, MD  
Yuji Yamanaka, MD  
Hideki Asai, MD  
Chikako Sasaki, MD  
Takashi Nakanishi, MD

**Summary:** When treating a giant ovarian cyst, management of inferior vena cava (IVC) syndrome, bleeding, abdominal competence, and cosmetic appearance are difficult. The details of abdominoplasty for patients with such a cyst have not been discussed. We present a patient requiring 85,000 ml of fluid evacuation before surgery. (*Plast Reconstr Surg Glob Open* 2014;2:e195; doi: 10.1097/GOX.000000000000150; Published online 5 August 2014.)

**W**hen treating a giant ovarian cyst, management of inferior vena cava (IVC) syndrome, bleeding, abdominal competence, and cosmetic appearance are difficult. The details of abdominoplasty for patients with such a cyst have not been discussed. We presented a patient requiring 85,000 ml of fluid evacuation before surgery. Redundant skin was removed by “anchor-line abdominoplasty,”<sup>1</sup> and distended muscles and fascia were folded toward the umbilicus. We pressed the wound margin by snare before skin excision to reduce bleeding.<sup>2</sup> Total blood loss was 1414 ml. Chest and abdominal shape improved about 6 months later. The complications included serous fluid pooling and abscess formation between the folded muscles. Although there are some disadvantages, we think abdominal muscle plasty for an extremely loosened abdominal wall is appropriate to maintain abdominal wall competence.

## PATIENT

We review the case of a 34-year-old woman with a giant abdominal mass who consulted our gynecologic

department (Fig. 1). She had lost the use of her leg muscles and had had amenorrhea for a few years. Chest x-ray showed bilateral diaphragmatic elevation and diminished lung fields without pleural effusion. She could not fit into the computed tomography machine due to the giant abdominal mass. The abdominal ultrasonography could not be interpreted, but had no evidence of malignancy. No ascites were noted in the abdomen. The preoperative diagnosis was a giant benign ovarian cyst. Preoperative cardiac evaluation revealed no signs of congestive heart failure. Based on these findings, an operation was performed. To prevent decreased venous return caused by mass effect of the cyst, a total of 85,000 ml of yellow serous fluid was evacuated at a slow rate (1000 ml/min) under local anesthesia by puncturing the abdomen and the cystic mass while the patient was in sitting position. She presented with no persistent hypotension or hypoxemia. Subsequently, general anesthesia and endotracheal tube intubation were performed in a supine position. The resected specimen weighed 1.5 kg. Blood loss was 459 g during the tumor resection. Diagnosis of serous cystadenoma was confirmed by histology. Thereafter, abdominoplasty was performed sequentially under general anesthesia; the operation took 3½ hours.

We pressed the wound margin before excision of the skin by snare with a Nelaton catheter<sup>2</sup> (Fig. 2). Moderate bleeding was evident as a result of dilated nutrient vessels in the abdominal skin.

We removed redundant skin of the abdomen according to “anchor-line abdominoplasty”<sup>1</sup> and fold-

From the Center for Plastic Surgery, Nara Medical University Hospital, Kashihara, Nara, Japan.

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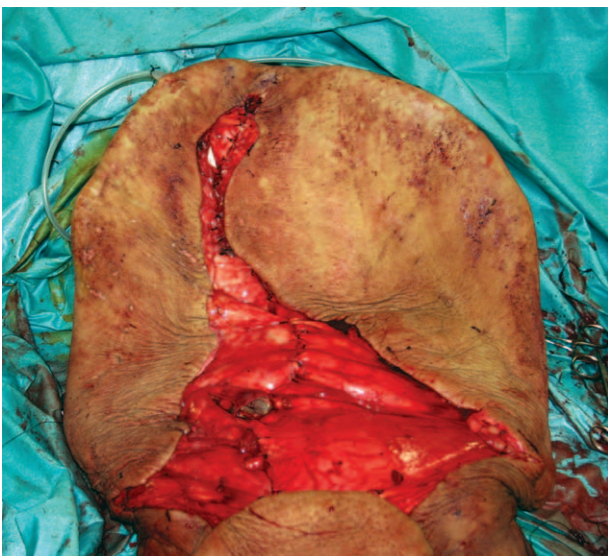


**Fig. 1.** To manage inferior vena cava syndrome, a total of 85,000 ml of fluid was evacuated at a slow rate under local anesthesia in sitting position.

ed the distended muscles toward the umbilicus and sutured them together (Fig. 2). Abdominal shape improved, but chest wall deformity became evident. Three suction drainage tubes were placed between the folded muscles.

Total blood loss was 1414 ml and a transfusion was performed. Intraoperative echocardiogram revealed no significant abnormalities.

The drainage tubes were removed on the sixth postoperative day (POD). But on the 20th POD, 800 ml of serous fluid had collected. A secondary drainage tube was placed and then removed on the 27th POD. She was discharged from the hospital on the 32nd POD.



**Fig. 2.** The wound margin was pressed before excision of the skin by snare and folded the distended muscles toward umbilicus.

She was requested to wear a girth around her chest and abdomen for 4 months. Six months later, chest wall deformity had gradually improved. However, there was pus discharge, and computed tomography revealed abscess formation between the folded muscles. After open drainage of the abscess, it spontaneously shrank in 2 months. The rectus abdominus muscle was unclear in computed tomography (Fig. 3). Regarding her abdominal muscle strength, she could not do sit-ups. Throughout the follow-up period, her abdominal muscles were not strong enough to allow her to sit-up without using her arms (Fig. 4).

### DISCUSSION

When treating a giant ovarian cyst, there are severe problems concerning diagnosis<sup>3</sup> and management of IVC syndrome, including operative posture, bleeding, and abdominal competence associated with cosmetic appearance. But few reports are discussing about details of the way of abdominoplasty and outcome for plastic surgeon.

Excision of the cyst is associated with considerable mortality<sup>4-8</sup> mainly due to IVC syndrome. To prevent this, various ways of preoperative aspiration of the cyst are performed.<sup>9-12</sup> Usually, the operation does not start in the supine position, and the operative posture may change depending on the plan of the gynecologist or anesthesiologist.<sup>10-12</sup>

Several reports have noted intraoperative bleeding of 1200–5300 ml.<sup>10,11</sup> We used a snare to reduce bleeding,<sup>2</sup> which proved effective.

To achieve good postoperative cosmetic appearance is also challenging. A case without plasty resulted in wrinkled skin,<sup>13</sup> and another case required a special brace to stabilize the abdominal wall and a secondary plasty.<sup>14</sup> Recently, simultaneous abdominoplasty with tumor removal has been recommended.<sup>10,11</sup> However, there have been few reports that have detailed the plasty and outcome. There have been



**Fig. 3.** After open drainage of the abscess, it spontaneously shrank in 2 months. The rectus abdominus muscle was unclear in computed tomography.





**Fig. 4.** Chest wall deformity became evident at the end of the surgery, but the deformity had improved gradually 6 months later.

some reports on vertical elliptical excision of distended white line<sup>12</sup> and transverse elliptic incision.<sup>15</sup>

We excised only the redundant skin and folded the muscles because the border between the rectus and external oblique muscle was unclear. We thought it would be better to preserve these muscles for competence of the abdominal wall (Fig. 2). This procedure took a relatively long time of 3½ hours and resulted in about 1000 ml of blood loss.

Serous fluid pooled and an abscess between the muscles formed. The unevenness of the folded muscles in the abdomen resolved gradually after open drainage of the abscess. Although we intended to preserve the functional rectus abdominal muscle, the shape was unclear in computed tomography (Fig. 3) and the strength was not enough to allow her to sit up. The chest wall deformity improved conservatively within 6 months by use of a girth (Fig. 4) as we expected from a report by Kim et al.<sup>13</sup>

## CONCLUSIONS

In conclusion, although there was a relatively large amount of blood loss, the operation took a long time, serous fluid pooled after the operation, and there was abscess formation, we think that abdominal muscle folding plasty for an extremely loosened abdominal wall is more theoretically appropriate to maintain abdominal wall competence than the treatments in other reported cases.

**Masamitsu Kuwahara, MD**

Center for Plastic Surgery, Nara  
Medical University Hospital  
840 Shijocho, Kashihara  
Nara 634-8522, Japan  
E-mail: makuwa@naramed-u.ac.jp

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