Minimal laparotomy management of a giant ovarian cystic teratoma in adolescence

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Abstract

Giant ovarian cysts in adolescents are very rare. Those treatment by laparotomy or laparoscopic surgery is discussed with gynecologists and pediatric surgeons because of limited working space and the risk of rupture and malignancy. We present a case of minimal laparotomy management of a giant ovarian cystic teratoma in adolescent. A 13-year-old girl presented with abdominal pain and constipation. A CT scan showed a giant simple ovarian cystic tumor in her abdomen measuring 29 × 13 × 24 cm. We made a 3-cm Pfannenstiel incision and inserted an Alexis wound retractor XS. The cyst was completely aspirated without spillage in the intraperitoneal space. In total, 6 L of murky brown fluid was aspirated from the cyst. There was no ovarian tissue visible on the cyst wall. The left tube and right ovary and tube were intact. The cyst wall and left ovary tube were dissected free by using a LigaSure. Postoperative recovery was uneventful. Pathological assessment revealed a mature cystic teratoma. The ovarian tissue was included in the part of the cyst wall. We were able to safely perform with minimal laparotomy. Therefore, we consider the for cases of giant ovarian tumors, minimal laparotomy surgery is useful from the safety and cosmetic perspective.

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1. Case report

A 13-year-old girl presented with abdominal pain and constipation. An abdominal X-ray showed an abnormal gas pattern, and she was referred to our hospital. Abdominal ultrasound showed cystic mass and abdominal computed tomography (CT) scan showed a giant simple ovarian cystic tumor in her abdomen measuring 29 × 13 × 24 cm. The same findings were observed on contrasted CT scan (Fig. 1a and b) and magnetic resonance imaging (MRI). The tumor markers alpha-fetoprotein (AFP) was 1.1 ng/mL, beta-human chorionic gonadotropin (β-hCG) was less than 0.1 mg/mL, and carbohydrate antigen 19-9 (CA19-9) was 35.1 U/mL. Given that the tumor surface was smooth and other malignancy risks of invasion and lymph node metastasis were not present, we consider that the tumor was benign and planed an operation (Fig. 2).

We made a 3-cm Pfannenstiel incision and inserted an Alexis wound retractor XS (Applied medical systems, USA). We located the cyst wall and directly punctured it with a 19-G elaster needle (Hakko, Japan). After the content of the cyst was shorty aspirated, a horizontal mattress suture was placed and a 14Fr Foley catheter was inserted. The cyst was completely aspirated without spillage in the intraperitoneal space. In total, 6 L of
murky brown fluid was aspirated from the cyst. The cyst was extracted from the intraperitoneal space. We noted that the cyst arose from the left ovary; however, there was no ovarian tissue visible on the cyst wall. The left tube and right ovary and tube were intact. The cyst wall and left ovary tube were dissected free by using a LigaSure (Covidien Surgical Solution, Japan) (Fig. 3a and b).

The operative time was 207 min and blood loss was 65 g. There was no complication. Postoperative recovery was uneventful and the patient was discharged on the fifth postoperative days without any problem. Pathological assessment revealed a mature cystic teratoma containing the thyroid gland, bone and lipid (Fig. 4a and b). The ovarian tissue was included in the part of the cyst wall. No problems were detected at the 6-month postoperative follow-up visits (Fig. 5), CA125 levels had normalized (6.9 U/mL) and her menstruation was regular.

2. Discussion

A giant intraabdominal cyst in pediatrics and adolescent patients is derived from ovarian, gastrointestinal, urological and lymphatic tissue. A giant ovarian cyst is a very rare occurrence, with an incidence of 2.6 per 100,000 among individuals aged less than 15 years [1–6]. However some reports have described giant ovarian cysts over 15 cm, while another report has indicated that the cyst could occupy the entire peritoneal cavity [1]. Some author has defined it as reaching above the level of the umbilicus [7].

Laparoscopic surgery is the golden standard for the management of benign ovarian tumors [8,9]. However, this is still under discussion because laparoscopic surgery of giant ovarian tumors for adolescents has to be performed in a limited space within the peritoneal cavity and there is a risk of rupture and spillage [10]. In addition, the risks of malignancy can be ruled out on the basis of history, laboratory data, and images data before performing laparoscopic surgery [11]. In our case, we considered that the risk of malignancy was very low on the basis of the findings of CT images and tumor markers except for CA125.

For the management of giant ovarian cysts, it is necessary to absorb the liquid contents. In laparotomy and laparoscopic surgery, care should be taken to avoid rupture and spillage. In recent years, some researchers reported they performed this safely using ultrasonography [2,5,6]. Most of the cases were removed tumor from minimal laparotomy or umbilical incision [1,2,5,6] and Murawski and Kilincaslan et al. used preserving bag [5,6]. In this case, we opted for minimal laparotomy. Because it was necessary to remove the giant tumor out from the intraabdominal cavity, the size of wound was needed and we didn't need any other port incisions to ovariectomy. It should have been very difficult to put the large tumor into the preserving bag. The use of the wound retractor enabled this and there was only on incisional scar, which is advantageous from the cosmetic perspective.

To ensure fertility, it is appropriate to perform tumor enucleation in pediatric and adolescent patients. However, in this case, the ovarian tissue was part of the cyst wall. I guessed operative rapid pathologic diagnosis method was one of the ways to avoid an ovariectomy. But this could be left the ovary tissue, this might leave other tumor tissue on the other hand: thus, tumor enucleation was very difficult.
3. Conclusion

We were able to safely perform with minimal laparotomy. Therefore, we consider the cases of giant ovarian tumors, minimal laparotomy surgery is useful from the safety and cosmetic perspective.

References


Fig. 3. (a) The giant cyst was drained and taken out from the abdomen through the Pfannenstiel incision. (b) Appearance of the giant ovarian cyst inflated with water after its removal.

Fig. 4. (a) A picture of the pathology. Thyroid (*), lipid (※) and glandular tissue (#) have been seen. (b) A graafian follicle was included in the part of the cyst wall.

Fig. 5. The operative wound 6 months after surgery (4 cm).