Vol.2, No.7, 402-404 (2013)
http://dx.doi.org/10.4236/crcm.2013.27107

Comprehensive laparoscopic surgical staging of ovarian dysgerminoma in a 10-year-old girl—A case report

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Received 4 August 2013; revised 5 September 2013; accepted 20 September 2013

ABSTRACT

Minimal access surgery to stage early ovarian cancer (EOC) is still regarded as an investigation among many gynecologic oncologists. This is a case of comprehensive laparoscopic surgical stage of an ovarian dysgerminoma in a 10-year-old girl described. This patient was referred to the gynecology oncology unit status post left salpingo-oophorectomy through a midline incision when the histopathology showed pure dysgerminoma. We then performed the laparoscopic stage including peritoneal washing; resection of the left infundibulopelvic ligament; systematic pelvic, common iliac, and infrarenal bilateral paraaortic lymphadenectomy; and omentectomy. The uterus and right adnexum were spared to preserve future fertility. The final histopathology showed no metastatic disease (stage ovarian dysgerminoma), and patient has no evidence of recurrence after 52 months follow up. Conclusion: This is the youngest patient reported in the literature with a comprehensive laparoscopic surgical stage for ovarian neoplasm. A full laparoscopic staging for ovarian cancer in a 10-year-old girl is safe and might be considered as an alternative to the stander of care.

Keywords: Ovarian Dysgerminoma; Laparoscopy; Comprehensive Surgical Staging; Child

1. INTRODUCTION

In recent years, minimally invasive surgery (MIS) has been widely used to establish a diagnosis, for staging purposes, and evaluation of recurrent or metastatic disease in children [1,2]. The use of MIS techniques in children is growing with the availability of smaller instruments and equipment more suitable for the pediatric patients [3]. The main indications for use of MIS techniques are diagnostic biopsies (mediastinal or lung tumors, and retroperitoneal extrarenal masses), resection of the primary tumor in patients with thoracic and abdominal neuroblastic tumors, and post-treatment of the residual mass in patients with lymphoma [4]. The role of MIS for surgical staging of the early stage ovarian cancer is feasible [5,6].

This is a case of comprehensive surgical restaging performed in a 10-year-old girl affected by a pure ovarian dysgerminoma apparently confined to one ovary.

2. CASE REPORT

A 10-year-old premenarchal girl was referred to our gynecology oncology unit at King Abdulaziz University Hospital in January 2011 after she had undergone a laparotomy through a midline incision performed by a general gynecologist and left salpingo-oophorectomy was done. At that time, histological analysis of a surgical specimen revealed a pure dysgerminoma, but unfortunately she was not staged. The options were discussed with her parents who elected for her to undergo a restaging procedure.

Her medical history was unremarkable; physical examination revealed a well-healed incision that extended from the midline up to the umbilicus. The patient's weight and height were 25 kg and 140 cm, respectively. Laboratory tests performed revealed preserved renal function and a normal hemoglobin level. The LDH was elevated 4461 U/L, other tumor markers CA 125, CEA, and α-FP were normal. She was prepared and admitted for surgery, and the informed consent form was signed

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by her parents.

Considering the young age of the patient, we performed comprehensive surgical staging via laparoscopy. Intra-abdominal inspection revealed an adhesion of the omentum over the left uterine cornua with no evidence of disseminated disease in the pelvis and upper abdomen. The right adnexum and uterus were carefully examined and appeared normal. Peritoneal washing was performed before starting the procedure. The procedure consisted of systematic bilateral pelvic (including external iliac, internal iliac, and obturator), bilateral common iliac, and infrarenal bilateral paraaortic lymph node dissection (**Figure 1**); omentectomy; and obtaining peritoneal biopsy specimens. The staging procedure was successfully completed in 249 minutes with an estimated blood loss of 200 mL, using a 10-mm umbilical trocar, 3 suprapubic 5-mm ancillary trocars, and one 3-mm ancillary trocar placed in the left hypochondrium at the level of the midclavicular line. Abdominal drainage was placed and removed the next day. The decrease in the patient's hemoglobin (Hb) level was 1 g/dL (Hb before 11 g/Dl-Hb after 10 g/dL), and the postoperative hospital stay was not complicated. The postoperative period was uneventful, and the girl was discharged from the hospital 2 days after the surgery. All other surgical specimens including total of 24 pelvic and para aortic lymph nodes and the peritoneal washing revealed no evidence of neoplastic lesions, so the final diagnosis was a pure ovarian dysgerminoma at Ia stage (FIGO classification).

Follow-up visits with physical examination and evaluation of tumor markers were planned 1 month and 3 months after the surgery and then every 3 months. Her lactate dehydrogenase level soon returned to the normal range with no evidence of recurrence after 52 months follow up.

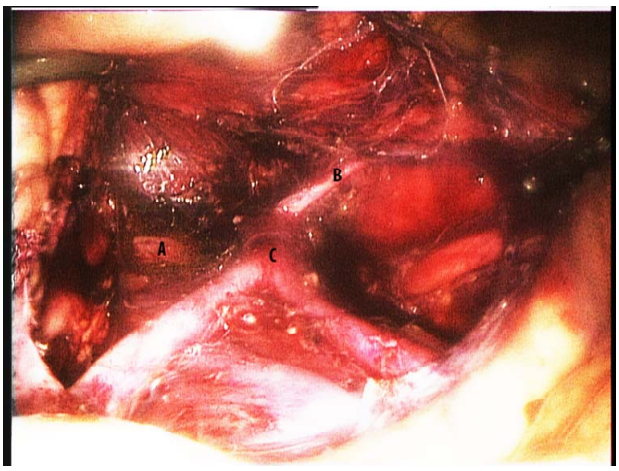

Figure 1. Laparoscopic view of the retroperitoneal space after complete para-aortic lymphadenctomy (A) inferior vena cava; (B) inferior mesenteric artery; (C) aorta.

3. DISCUSSION

Ovarian germ cell tumors are rare neoplasms, representing about 3% to 5% of all ovarian malignancies. Dysgerminomas are commonly diagnosed in the 2nd and 3rd decades of life, approximately 85% - 90% are confined to one ovary [7].

As for other ovarian tumors, the initial management of a dysgerminoma is surgery, and the traditional approach to this condition is staging. Comprehensive surgical staging allows to identify patients with a more advanced stage disease that should receive adjuvant chemotherapy. For unstaged IA ovarian dysgerminoma, the management is still controversial. Vicus reported 4 cases of relapsed patients with unstaged IA ovarian dysgerminoma [8], Kasenda also reported 2 cases of recurrence with apparent IA, surgically unstaged patients. The authors concluded that comprehensive initial surgical staging is mandatory to minimize treatment burden [9].

Traditionally surgical staging performed through a generous midline laparotomy incision. However, the role of MIS for early stage ovarian cancer is feasible [5,6], opening new perspectives for the management of ovarian germ cell malignant tumors. Laparoscopy now allows performance of all procedures required by International Federation of Gynecology and Obstetrics (FIGO) guidelines for surgical staging of ovarian malignancies (*i.e.*, complete removal of ovarian neoplasm, pelvic and paraaortic lymph nodes, and omentum).

Uccella *et al*. reported the first case of comprehensive laparoscopic surgical staging of an ovarian dysgerminoma in a 13-year-old girl [10]. For a 20-cm pelvic mass rising from the right adnexum, she underwent laparoscopic right salpingo-oophorectomy. Pathologic findings were consistent with a diagnosis of pure dysgerminoma. Laparoscopic staging included peritoneal washing; resection of the right infundibulopelvic ligament; systematic pelvic, common iliac, and infrarenal paraaortic lymphadenectomy; appendectomy; and infracolic omentectomy. The uterus and left adnexum were spared to preserve future fertility [10].

Our report of performing comprehensive surgical restaging of an apparent early-stage ovarian dysgerminoma via laparoscopy in a 10-year-old child is of great interest for a number of reasons. This type of neoplasm is largely curable [11], and its chemosensitivity has been proven to be preserved also in cases of recurrent disease. In addition, the postoperative recovery is much faster when the operation is performed laparoscopically compared with via laparotomy. Our patients were able to go home next day with less pain which is certainly much less psychological and physical consequences of having another major abdominal incision. In addition, the lower rate of postoperative adhesions after laparoscopic procedures (when compared with laparotomy) is of utmost impor-

tance in these patients, because it is well known that adhesions can be responsible for infertility [12]. In addition, she was spared the unnecessary adjuvant chemotherapy considering negative staging after the second surgery.

Written informed consent was obtained from her parents for publication of this case report and accompanying images.

4. CONCLUSION

This is the youngest patient reported in the literature with a comprehensive laparoscopic surgical stage for ovarian neoplasm. A full laparoscopic stage for ovarian cancer in 10 year old girl is safe and might be considered as an alternative to the stander of care.

5. ACKNOWLEDGEMENTS

I would like to thank professor Khalid Sait, my team, the anesthesia department and the operating room staff for the their help and assistant.

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