

Preservation of fertility in 19-year-old patient with mucinous ovarian carcinoma

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Summary

Epithelial ovarian cancer is the leading cause of mortality among gynecologic malignancies. It occurs more often in women in menopause, which facilitates the implementation of adequate surgical treatment. The aggravating approach arises when diagnosed with young patients who have not given birth. Approximately 10% of all epithelial ovarian carcinoma is diagnosed in women under the age of 40. In those cases, it is necessary to find a balance between adequate treatment and a strong desire for achieving progeny. Criteria guaranteeing safe fertility preservation are not clearly identified. Most studies recommend that fertility sparing surgery can be performed in all young women in whom ovarian cancer is detected as Stage IA grade 1. Here the authors report a preservation of fertility in 19-year-old patient with mucinous ovarian carcinoma.

Key words: Mucinous epithelial ovarian cancer; Fertility-sparing surgery in epithelial ovarian cancer.

Introduction

Mucinous ovarian carcinoma is a subtype of epithelial ovarian carcinoma with unique clinical and molecular characteristics. They are manifested as multicystic tumors that produce a large amount of intracellular mucin (it occupies more than 50% of cytoplasm) in more than 90% of tumor cells with very small amounts of extracellular mucin [1]. They are divided into two subtypes, expansile and infiltrative, depending on the mode of growth, with much better prognosis for expansile types [2]. The incidence of their occurrence is 7-14% compared to all invasive epithelial ovarian tumors [3]. They are generally limited to one ovary and the prognosis is favorable when diagnosed at an early stage [4]. Those diagnosed with FIGO Stage I have a recurrence of only 5.8%. Patients at this stage have a 5-year survival rate of 91% and it is justifiable to consider a conservative approach in women who have a strong desire for posterity [5].

Following the FIGO classification of diseases from 2014, fertility health is safe in the early Stage of IA grade 1 and 2 and IC1 [6]. A conservative surgical approach for the preservation of fertility in addition to unilateral salpingo-oophorectomy on the side of the ovarian tumor implies the implementation of a complete staging when evaluating the peritoneal cavity by taking a sample of any suspected site, peritoneal washing or ascites, peritoneal biopsy and omentectomy.

Pelvic and para-aortal lymphadenectomy are not included in the procedure given that in these patients there is no metastasis in the lymph nodes at an early stage. Cer-

tainly every enlarged lymph node should be removed [5].

Case Report

A 19-year-old patient, virgo intact, without chronic diseases, and previous surgeries, was diagnosed with ultrasound cystic tumor on the left ovary, opalescent contents of a diameter of 167×130 mm with a hyperechogenic avascular part within a cyst of 59×35 mm. The right ovary and uterus had common ethnographic characteristics for her age. The patient states that she did not have any pain and other problems, but she noticed that her stomach was enlarged and then went to the gynecologist. Laboratory and biochemical analyzes were regular except for Tu markers CA 19-9, 43.38 U/ml, and ROMA index 14.8. In December 2017, after adequate preoperative preparation, left salpingo-oophorectomy and omentum biopsy were performed. Intraoperative in the area of the left ovary, a 15×10 cm diameter tumor was detected, which filled a large part of the small pelvis and abdomen, cystic with solid parts with solid plate changes of 5 cm diameter. There was no free fluid in the abdomen, the liver was smooth, and peritoneum and omentum were without any susceptible changes. Other organs in the abdomen and small pelvis that were visible and available for palpation were normal. The operational and postoperative flows passed without complications. Control with histopathological report was ordered.

Pathological findings indicated that this was a mucinous ovary adenocarcinoma, an expansile type, HG1 and NG1. The tumor cells were positive for CK7, CK20, villin, EMA, and negative for vimentin, calretinin, estrogen receptor, and inhibin. The fat tissue of omentum and the left fallopian tube were without significant PH changes. Given the fact that no adequate surgery was performed in the case of a malignant tumor, FIGO Stage could not be determined (FIGO stadium ignota). In addition, gastroscopy and colonoscopy were performed and showed no changes.

After a discussion with the patient in order to preserve fertility

in February 2018, an investigative laparotomy was performed, in which a small amount of free fluid was found in the abdomen, the uterus, the right ovary, and the fallopian tube were normal, the serous intestine and the mesenterium without pathological changes, the peritoneum of the abdominal wall was smooth, normal, diaphragm smooth, liver had smooth surface, with sharp edges without pathological deposits, and lymph glands in the small pelvis and para-aortic areas were not palpable. Free fluid from the abdomen, paracolic, and subdiaphragmal swabs were sent to the cytology.

Then a biopsy of the contralateral ovary, omentectomy, a lymphadenectomy of the iliac and opturator regions on the left, and appendectomy were performed. The histopathological findings of the samples showed that there were no significant PH changes and the cytological findings were neat. Based on this and HP findings from the first operation, the disease was ranked according to the FIGO classification as IC1 stadium and the patient received the IV HT cycle in Mono CBDCA mode.

Discussion

Primary mucinous ovarian carcinoma represents between 7-14% of all epithelial ovarian carcinoma [3]. Usually they grow as cystic glandular neoplasms filled with an intracellular mucin, different from those of the gastrointestinal tract in which the mucin is stored extracellularly. Compared with serous types of ovarian cancer, they have a different presentation, development, and response to therapy. Most are limited to one ovary at the time of detection, and prognosis is good when detected at an early stage. In 83% of cases, they are detected in FIGO Stage I, and 17% are at Stage II or higher, while only 4% of serous ovarian cancer at the time of detection are at Stage I of the disease [7]. Many authors have confirmed that the growth of these tumors is limited to one ovary and that they have no detectable metastases in the lymph nodes when they are in the early stage. Of 146 patients with borderline and an invasive mucinous tumor limited to one ovary, they did not have metastases in the lymph nodes. For this reason, pelvic, and para-aortal lymphadenectomy is not necessary as a part of a staging procedure if the tumor is limited to one ovary [5].

In this type of tumor there are no dominant mutations on BRCA1 and BRCA2 gene, as well as the p53 tumor suppressor gene found in serous cancers. Among patients with BRCA mutations, only 2% had mucinous histology [8], while p53 mutations were found in only 16% of cases, in contrast to serous, where they were dominant in about 60% of cases.

Mucinous ovarian tumors exhibit KRAS mutations that occur within the RAS family of G protein responsible for cell division whose mutations lead to tumor growth [9]. These mutations were shown in 40-50% of patients with mucinous ovarian carcinoma [10].

Conservative treatment can be prescribed in the case of FIGO Stage IA and IC Grade 1 and 2 in accordance with FIGO classification of diseases from 2014. Although in patients with less favorable prognostic factors of grade 3 and

Stage IC3 of the disease, a safe conservative approach is not confirmed on the other hand, nor would any radical surgical treatment lead to a better outcome. This is because the outcome of survival is most influenced by the type of tumor and histological gradus [11].

The study compared patients with early-stage mucinous ovarian cancer where one group was subjected to conservative treatment, and the other group to radical surgery. In the group where radical treatment was applied, tumor was not found in any of the contralateral ovaries. In patients with a convicted fertility-sparing surgery of 35 patients, recurrent disease on the remaining ovary occurred in only one patient [10].

Surgeons often face decision-making about how extensive an operation should be done until they have complete information about the type of tumor. Since these tumors most commonly occur on one ovary and are detected at an early stage, women in the reproductive period may resort to a conservative approach without having a bad effect on the prognosis. All patients with a borderline and an invasive type of mucinous ovarian tumor should undergo staging procedures to exclude extra-causal disease spread that would alter the prognosis and recommend adjuvant chemotherapy. Staging procures involves the evaluation of the peritoneal cavity by taking a sample of any suspected site, peritoneal gout, peritoneal biopsies, and omentectomy [5].

Young patients with a tumor diagnosis on ovary must be informed that accessible diagnostic methods, such as ultrasound, CT or MRI, cannot obtain crucial information, like histological type and tumor gradient, and that a decision on treatment will be made after a complete staging which is recommended in such cases.

The majority of patients who were analyzed in a retrospective study dealing with fertility sparing surgery were mucinous subtype of epithelial ovarian carcinoma, nuclear grade I, as much as 42%, and the most common FIGO Stage was IA in 53% of cases [12]. These patients had a good prognosis and a favorable outcome after the applied treatment. This coincides with the characteristics of the present patient who is in the field of the expected benign pathology, diagnosed with mucinous ovarian carcinoma, nuclear grade I. The conduction treatment is consistent with current recommendations. It is additionally shown by several authors that younger patients develop better prognostic factors related to the type of tumor compared to older patients.

Patients who have been promptly diagnosed with an early stage of cancer in the field of expected benign pathology, or when initially did not adequately initiate the stage, require secondary surgical therapy and resuscitation [13]. In keeping with these recommendations, the adequate staging of the present patient is referred to in the second act, thus enabling safe preservation of fertility.

According to valid recommendations, adjuvant chemo-

therapy can be avoided in the Stage IA, grades 1 and 2 of the disease, whereas Stage IA, grade 3 or any Stage IC, the use of three or six cycles of platinum-based chemotherapy is indicated, which was applied in the case of the present patient [14].

Conclusion

Despite the unexpected type of tumor of the ovary in a young woman who had not given birth, the authors managed to make the right decision which ensures adequate treatment in the malignant type of tumor on the one hand, and on the other hand, the patient's desire to achieve the progeny is respected.

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