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Case Report

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The Oncology Team of The Karlovac General Hospital Was the First in Croatia To Perform Ovarian Cancer Surgery Using the Latest ICG Technology-Case Report

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Abstract

Intraoperative mapping of sentinel lymph nodes (SLN) is part of the treatment strategy for a number of tumor types. In order to retrospectively compare the results with pelvic mapping of SLNs for gynecological oncology, using different methods, this insight into different markers will be conducted to determine the clinical significance of SLN mapping in gynecological oncology. The presence of lymphatic metastases is an important factor affecting the prognosis of all type of cancer. In gynecology, surgical treatment is usually combined with radical surgery with a local tumor approach, with full lymphadenectomy in the areas of tumor drainage.

The sentinel lymph node (SLN) procedure was introduced by Cabanas in 1977 to determine metastasis of the first lymph node in relation to the primary tumor. When the lymphatic metastases appear, SLNs will be the first to be involved and it is assumed that if SLNs do not show metastases, the downstream lymph nodes must not show tumor metastases. Concept of lymphatic mapping was introduced by Morton et al at the end of the 20th century, skin lymphoscintigraphy with colloidal gold was used to identified lymphatic drainage patterns of melanoma located at bidirectional sites.

Since 1977, SLN mapping procedures have been included in the treatment of numerous tumor types, including vulva, breast, anus, colon, skin, stomach, bladder, neoplasms of the prostate, lung and esophagus cancer. A number of types of lymphatic drainage markers are used, including radioisotopes, blue dyes, indocyanine green (ICG) and limited number of new assets. This paper is aimed at introducing a short concept of numerous kinds of lymphatic markers and providing guidelines for SLN mapping for gynecological cancers.

Keywords: ovarian cancer, ICG, sentinel lymph node, lymphatic metastases

Introduction

Cancer of the ovaries and fallopian tubes, or adnexa, is the 6th most common malignant disease in women in Croatia (4%) and the first in terms of mortality from gynecological tumors. In 2017, the incidence of ovarian and fallopian tube cancer in Croatia was 21, and that of other unspecified gynecological cancers was 3.2 per 100,000 women [1].

The diagnosis is established on the basis of pathohistological confirmation of the disease, most often during diagnostic and therapeutic surgery (laparotomy, laparoscopy) [2]. The diagnosis of ovarian, fallopian tube and peritoneum cancer can be made on the basis of a tumor biopsy under the control of UZV (ultrasound) / MSCT (multilayer computed tomography) with a wide needle, cytological diagnosis (cytological analysis of ascites/pleural effusion in the form of a cytological block , cytological analysis of the material obtained by aspiration of the lymph node with a fine needle) when clinical, biochemical (tumor markers) and radiological findings are in agreement with this diagnosis, i.e. when due to the extension of the disease (stage IV) and the general condition of the patient (according to the assessment of the MDT that the patient is not a candidate for operatively based diagnosis) defines such a method of diagnosis as optimal [2]. The majority, about 90%, of primary malignant tumors of the ovaries, fallopian tubes and abdomen are tumors of the origin of the covering epithelium - carcinomas [3,4].

The decision on the treatment and follow-up of patients is made by a multidisciplinary team, taking into account the patient's characteristics (age, general condition, comorbidities) and the characteristics of the tumor itself (stage of the disease, histological type and grade of the tumor, homologous recombination status, or BRCA gene status).

The primary treatment of early ovarian and fallopian tube cancer is maximal cytoreduction of the tumor and complete surgical staging with the aim of determining the exact extent of the disease and complete, R0 resection of the tumor [5].

Case presentation

A 63-year-old patient, postmenopausal, with arterial hypertension and coronary artery disease and a previous myocardial infarction, was diagnosed with right ovarian tumor, which indicates operative radical surgery. The diagnosis of the disease was established on the basis of a clinical gynecological examination, MSCT examination of the abdomen and pelvis natively and with the intravenous application of contrast, which showed a solid cystic expansive process from the height of the L4 vertebra caudally into the small pelvis in a length of approximately 13 cm and descending retrouterine, filling the small pelvis and corresponding to a neoplasm ovary. The described process measures LL 11 cm, and AP 12 cm, CC 13 cm. The rectum and the rectosigmoid in certain segments are in

direct contact with this formation and cannot be clearly separated from it. The uterus is dislocated, pulled out, elongated and stretched to the left by the described process with a denser content in the cavity. There were no ascites and no lymphadenopathy. (Figure 1).

Figure 1: MSCT of the abdomen and pelvis.

The patient underwent preoperative preparation, complete laboratory tests (CBC, blood glucose, creatinine, electrolytes, urine, liver tests, PT, blood type, Rh factor), ECG, X-ray of the heart and lungs, preoperative examination of the anesthesiologist (ASA score III) and preoperative tumor marker tests CA 15-3 (patient's result was 52.9), CA 125 (patient's result was 247.5).

The patient was informed in detail about the therapeutic procedure, possible intraoperative and postoperative complications, and the prognosis of the disease.

The operation was performed under general endotracheal anesthesia with a laryngeal mask and postoperative wound care in the intensive care unit and later in the gynecology department. Chemoprophylaxis was also carried out according to the scheme for intra-abdominal surgical procedures (cefazoline 2g IV and metronidazole 500mg IV once).

The operation was performed by an oncology team, an abdominal surgeon, and 2 gynecologists, subspecialists in gynecological oncology.

Results

The patient was operated on in the lithotomy position, medial laparotomy with exploration of the entire abdomen and pelvis. Intraoperatively, the right ovary was found to be cystically-solidly changed with a diameter of approx. 25 cm. (Figure 2) Hysterectomy with bilateral adnexectomy was performed, including appendectomy, omentectomy and paraovarian, paracaval and parailiac lymphadenectomy. (Figure 3).

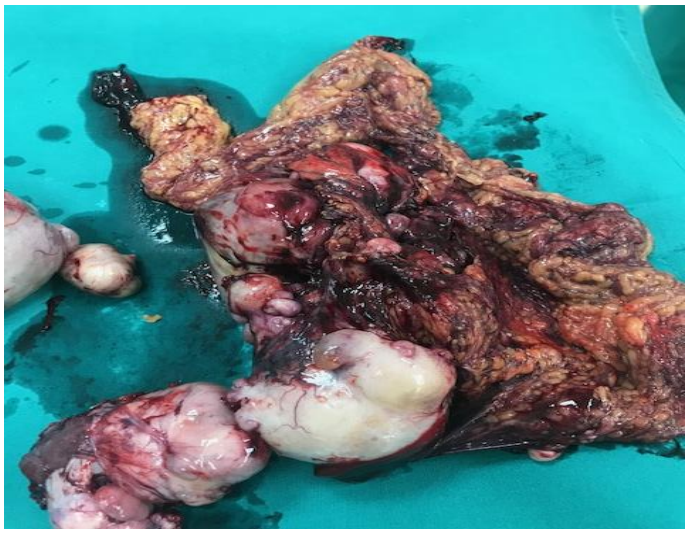

Figure 2: Makroskopski preparat tumora.

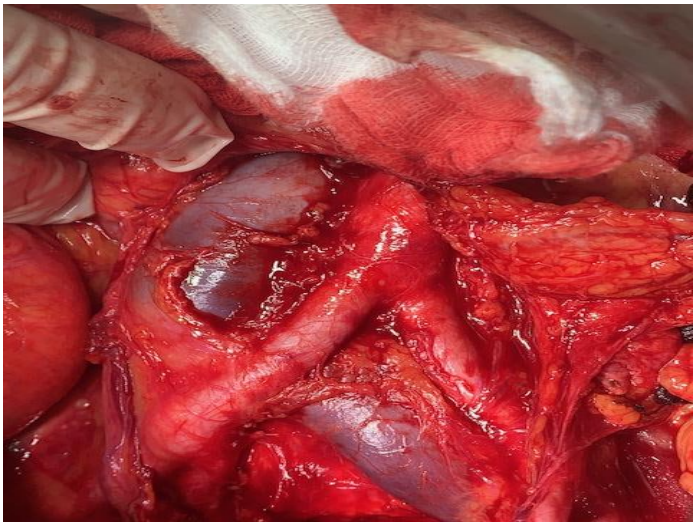

Figure 3: Paracaval and iliac lymphadenectomy.

Using ICG technology, the abdomen and pelvis are examined and no signs of metastasis are found. (Figure 4)

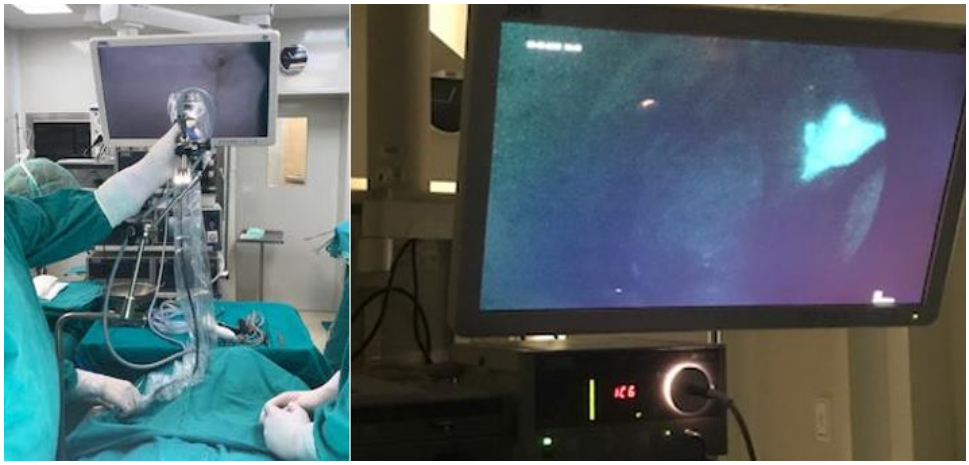

Figure 4: ICG technology.

Intraoperatively, a lavage is also taken and sent for cytological analysis, which shows the presence of a lot of lymphocytes, some granulocytes and numerous erythrocytes, and no foreign cells were found.

The pathohistological diagnosis establishes adenocarcinoma endometroides ovarii, pT1NoMx, and adenocarcinoma endometroides endometrii, pT1NoMx. Clinicopathological findings corresponds to two different primary tumors of the ovary and endometrium of the uterus.

Adjuvant chemotherapy treatment of 3 cycles of PC pakli/carbo AUC 6 was performed in the patient.

The patient was followed up for 5 years by regular gynecological examination with TVS, where the findings showed no free fluid or tumor formations, control MSCT of the abdomen and pelvis, where there was no recurrence of the disease, neither locoregional nor distant metastases. X-ray of the heart and lungs showed no abnormalities. Control Pap smear was without the presence of malignant cells. Tumor markers CA 19-9 (12.0 kU/L), CA 15-3 (22.0 kU/L), CA 125 (18.5 kU/L), CEA (1.8 µg/L) (examinations were made with the immunohistochemical method).

Discussion

Cancer of the ovaries and fallopian tubes, or adnexa, is the 6th most common malignant disease in women in Croatia (4%) and the first in terms of mortality from gynecological tumors [1]. The majority, about 90%, of primary malignant tumors of the ovaries, fallopian tubes and abdomen are tumors of the origin of the covering epithelium - carcinomas [3,4]. The diagnosis is established on the basis of pathohistological confirmation of the disease, most often during diagnostic and therapeutic surgery (laparotomy, laparoscopy).

The decision on the treatment and follow-up of patients is made by a multidisciplinary team. Surgical assessment of the extent of the disease requires laparotomy and a careful examination of the entire abdominal cavity [6]. The primary treatment of early ovarian and fallopian tube cancer is maximal cytoreduction of the tumor and complete surgical staging with the aim of determining the exact extent of the disease and complete, R0 resection of the tumor [5].

When presenting our patient, we used ICG technology to prove the existence of locoregional and distant metastases. The sentinel lymph node did not show involvement by malignancy, and later definitive pathohistological diagnosis of the removed lymph nodes in the ovarian, paracaval and parailiac areas did not show lymph node metastases.

Considering that there was no presence of metastases, there was no need for systemic lymphadenectomy as well as possible resection of other organs, primarily the colorectum in the presentation of our patient's case.

We agree with the authors who state that as long as the sentinel lymph node is not affected by the tumor, there is no indication for retroperitoneal lymphadenectomy, because it has no effect on the patient's survival rate and increases intraoperative risk and postoperative morbidity [7].

Conclusion

Cancer of the ovaries and fallopian tubes, or adnexa, is the 6th most common malignant disease in women in Croatia (4%) and the first in terms of mortality from gynecological tumors [1] Primary treatment of early ovarian and fallopian tube cancer is maximal cytoreduction of the tumor and complete surgical grading with the aim of determining the exact extent of the disease and complete R0 resection of the tumor [5]. The presence of lymphatic metastases is an important factor that affects the prognosis of all types of tumors, including the ovaries. In gynecology, surgical treatment is usually combined with a radical surgical approach to the local tumor, with full lymphadenectomy in the areas of tumor drainage.

That is why intraoperative mapping of sentinel lymph nodes (SLNa) with the help of ICG technology is part of the ovarian cancer treatment strategy.

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