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Imaging for primary and secondary surgery

Bazot M.
Hôpital Tenon, Paris, France

Key words: Ovarian Neoplasms; Gynecologic Surgical Procedures; Diagnostic Imaging; Neoplasm Staging; Magnetic Resonance Imaging; Tomography, X-Ray Computed; Ultrasonography; Biopsy; Positron-Emission Tomography

Ultrasonography is the primary imaging modality in assessing a suspected adnexal mass (1). Conventional 2D and color (or power) Doppler are required for optimal evaluation. Ultrasonography is operator dependent and the expertise of the operators affects the management of adnexal masses(2). Even though ascites usually indicates peritoneal dissemination, ultrasonography does not provide sufficient data for exact preoperative mapping (e.g. upper abdominal peritoneal implants, lymph nodes).
In the presence of indeterminate or complex adnexal mass, MR imaging is required to determine if the ovarian lesion is malignant or not (i.e. borderline or invasive). Conventional (multiplanar 2D T2- and 2D or 3D T1-weighted MRI without or with fat-suppression technique) and functional imaging (perfusion and diffusion) should be performed for optimal evaluation(3). When malignancy is suspected, staging ovarian cancer is necessary. The goals of preoperative staging of ovarian cancer are to exclude ovarian metastases from a primary site (e.g. stomach, colon, appendix, and pancreas) and to assess tumor burden, site and complications in adjacent organs (e.g. bowel obstruction, hydronephrosis, venous thrombosis). These data allow referring patients to referral cancer center for appropriate surgery or alternatives such as image guided core biopsy followed by primary neoadjuvant chemotherapy. Although MRI provides the same performance in staging as CT, it is recommended as second line modality for staging ovarian cancer (contraindications of helical CT).
Multidetector CT is currently the imaging modality of choice for staging ovarian cancer, because it renders all relevant information in a short examination time(4). The coverage for staging ovarian cancer by CT includes imaging from the upper thorax to the inguinal region. Different classifications are available to define criteria for "non-optimally resectable" disease. These criteria vary depending on the aggressiveness of the oncologic surgeon and on the medical condition of the patient. This is why it can only be used as basis for a multidisciplinary consensus.
The mainstay of assessment of the treated patient is clinically supported by CA-125 measurement. Multidetector CT is used to assess treatment response, and to assess suspected relapse as there is usually a post-treatment baseline CT to compare with. Multidetector CT is reproducible, widely available and well understood. Ultrasonography is often used to investigate new pelvic locations or to evaluate potential upper abdominal metastases (e.g. liver, spleen). MRI is reserved as a problem-solving device to clarify the nature of indeterminate masses. In this setting, diffusion-weighted MR imaging gives promising results. There is emerging data that PET-CT may help in assessment of patients with elevated CA125 but negative CT(5).

References

1 Kinkel K, Hricak H, Lu Y, Tsuda K, Filly RA. US characterization of ovarian masses: a meta-analysis. *Radiology*. 2000;217(3):803-11.
2 Yazbek J, Raju SK, Ben-Nagi J, Holland TK, Hillaby K, Jurkovic D. Effect of quality of gynecological ultrasonography on management of patients with suspected ovarian cancer: a randomized controlled trial. *Lancet Oncol*. 2008;9(2):124-31.
3 Thomassin-Naggara I, Toussaint I, Perrot N, et al. Characterization of complex adnexal masses: value of adding perfusion- and diffusion-weighted MR imaging to conventional MR imaging. *Radiology.* 2011;258(3):793-803.
4 Tempany CM, Zou KH, Silverman SG, Brown DL, Kurtz AB, McNeil BJ. Staging of advanced ovarian cancer: comparison of imaging modalities - report from the Radiological Diagnostic Oncology Group. R*adiology*. 2000;215(3):761-7.
5 Forstner R, Sala E, Kinkel K, Spencer JA. ESUR guidelines: ovarian cancer staging and follow-up. *Eur Radiol*. 2011;20(12):2773-80.

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Surgical treatment of ovarian cancer – situation in Serbia

Đurđević S.
Clinical Center of Vojvodina, Novi Sad, Serbia

Key words: Ovarian Neoplasms; Gynecologic Surgical Procedures; Serbia

Ovarian carcinoma is an intraabdominal and chemosensitive disease. The fundamental principle of treatment is based upon the maximal reduction of tumor mass, which is to enable an additional effect of cytostatic therapy. An ideal goal of operative treatment is complete reduction and removal of tumor, i.e. placing of peritoneal implants, which individually should not exceed 5 mm in diameter. Surgical treatment of ovarian carcinoma, its selection, kind and the scope of procedure are all planned depending on the intraoperative findings, i.e. the clinical FIGO stage of the disease, histological type of the tumor, age and physical status of the patient, wish for preservation of the reproductive function, expertise of the surgical team and the equipment of the facility, where the treatment is to be conducted. Expert literature mentions a crucial role of a well-trained surgeon as a "prognostic factor" in treatment of advanced FIGO III and IV stages of the disease. Only initial FIGO stage I A of ovarian carcinoma is treated exclusively surgically, while in all other stages, there is an additional chemotherapy administered. Conservative surgical procedure with preservation of reproductive function, i.e. one ovary, is reserved for initial stages of FIGO I A – in exceptional cases for I C stage of the disease in the group of patients of younger age. In the stages FIGO I B and higher, a maximal reduction of tumor is conducted with resection of all parts of abdominal cavity involved, which depends on the degree of the disease spread. Routine procedure includes performance of hysterectomy with bilateral adnexectomy and omentectomy, a biopsy of all suspect parts within pelvic and abdominal cavity, taking of smears for cytological analysis. This is also the most usual surgical procedure in treatment of ovarian carcinoma performed in Serbia. If necessary and depending on the stage of the disease and the expertise of the surgical team, pelvis and diaphragm peritoneum is removed, resection of involved parts of small intestine and colon, urinary bladder, spleen and liver is performed and pelvic lymph nodes as well as the lymph nodes in the paraaortic region are removed.

References

1 Pažin V, Đurđević S, Đorđević B, Vasović S, Kesić V. Epitelijalni tumori jajnika. In: Đurđević S, Kesić V, et al. Ginekološka Onkologija. Novi Sad: Scan studio; 2009. p. 223-59.
2 Morice P, Pautier P, Lhomme C, et al. Systematic lymphadenectomy in advanced stage ovarian cancer: is discussion closed? *J Natl Cancer Inst.* 2005;97:1620-1.
3 Lee M, Wun Kim S, Paek J, et al. Comparisons of surgical outcomes, complications, and costs between laparotomy and laparoscopy in early-stage ovarian cancer. *Int J Gynecol Cancer.* 2011;21:251-6.
4 Brand AH. Ovarian cancer debulking surgery, survey of practice. *Int J Gynecol Cancer.* 2011;21:230-5.
5 Gershenson DM. Management of ovarian germ cell tumors. *J Clin Oncol.* 2007;25:2938-43.

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Timing of surgery for advanced ovarian cancer

Popović M.
Oncology Institute of Vojvodina, Sremska Kamenica, Serbia

Key words: Ovarian Neoplasms; Neoplasm Staging; Gynecologic Surgical Procedures; Time Factors; Neoadjuvant Therapy; Chemotherapy, Adjuvant

Fierce debate has been going on upon the timing of surgery in stages IIIc and IV of advanced ovarian cancer between advocates of two strategies: primary debulking surgery followed by adjuvant chemotherapy on one side and neoadjuvant chemotherapy followed by interval debulking surgery, on the other side.
Common grounds for both sides is that primary debulking surgery (PDS) followed by platinum and taxane based chemotherapy (CT) is considered the standard of care for patients with advanced ovarian cancer, although never proven by a randomized trial. The standard was accepted based on retrospective studies showing that the amount of residual disease is the most important independent prognostic factor and it directly correlates to overall survival. A current standard for optimal surgery is that there is no residual tumor after primary or interval debulking surgery.
The other strategy implies neoadjuvant chemotherapy followed by interval debulking surgery/ NACT-IDS/. Two randomized controlled trials comparing PDS-CT and NACT-IDS were published. Both were designed as non-inferiority trials, both treatment groups had similar outcomes in terms of PFS and OS, postoperative complications and mortality rate were lower after interval debulking surgery. One randomized controlled trial was closed to recruitment and the results are expected to be combined with EORTC trial. Both sides agree that neoadjuvant approach is alternative treatment option for stage IIIc and stage IV ovarian cancer patients in whom optimal cytoreduction is not feasible. There is a difference in the number of patients selected for neoadjuvant approach between Institutions of the main opponents 10% vs. 50%. Criteria for correct patient selection for either procedure need to be harmonized.
Also, indisputable fact is that surgical skills in the effort of maximal cytoreduction, especially in the upper abdomen, remain pivotal in treatment of advanced ovarian cancer. However, very aggressive surgery should be tailored according to the performance status of the patient and the extent of the disease.
It seems that the more important issue is the extent of surgery than the timing. One maximal surgical effort, to remove all visible tumor load, should be performed by gynecological oncologist in cooperation with an experienced team at the expert center (percentage of optimal debulking surgery for advanced ovarian carcinoma is 75% or higher).

References

1 Bristow R, Chi DS. Platinum based neoadjuvant chemotherapy and interval surgical cytoreduction for advanced ovarian cancer: meta analysis. *Gynecol Oncol.* 2006;103:1070-6.

2 Kang S, Nam BH. Does neoadjuvant chemotherapy increase optimal cytoreduction rate in advanced ovarian cancer? Meta analysis of 21 studies. *Ann Surg Oncol.* 2009;16:2315-20.
3 Vergote I, Trope CG, Amant FA, et al. Neoadjuvant chemotherapy or primary surgery in stage IIIc –IV ovarian cancer. *NEJM.* 2010;363:943-53.
4 Chi D, Eisenhauer E, Land J, Haddad L, Abu-Rustum N, Levine D, et al. What is the optimal goal of primary cytoreductive surgery for bulky stage IIIc epithelial ovarian carcinoma (EOC)? *Gynecol Oncol.* 2006;103:559-64.
5 Chi DS, Shwartz P. Cytoreduction vs. neoadjuvant chemotherapy for ovarian cancer. *Gynecol Oncol.* 2008;111:391-9.

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Surgery of upper abdomen in optimal cyto-reduction

Pazin V.
Gynecological and Obstetric Clinic ''Narodni front'', Belgrade, Serbia

Key words: Gynecologic Surgical Procedures; Endometrial Neoplasms; Ovarian Neoplasms; Pelvis; General Surgery

Upper abdominal surgery has always been very challenging for a gynecologic surgeon. Pelvic surgery, probably equally demanding, on the other hand, represents the practice of everyday's work. That is the main reason of much more comfortable feeling of a gynecologic surgeon in surgery of the pelvis and the rest of the abdomen regardless the occasions. Cytoreductive surgery, in the vast majority of cases, refers to a FIGO IIIc ovarian cancer, and significantly less to advanced endometrial, metastatic, or solitary recurrent cancer. It has been the milestone of surgical treatment of ovarian cancer for the last decade, and, basically, still is. The goal of cytoreductive surgery is to cut down the disease to a stage 0, or, if not possible, to remove the tumor tissue so that remaining implants measure less than 1 cm in diameter. That is called "the optimal debulking". That procedure enables effective postoperative treatment by other means. Surgery in the upper abdomen requires special training for a gynecologic surgeon, proper knowledge of regional anatomy, and a lot of work with serious abdominal surgeons. Depending on the occasion, it may be necessary to have one of them in the operative team. Surgical authorities and competence are overlapping partially regarding this region and medico-legal aspects are frequently poorly defined.
Due to complexity of organic systems and the vascular elements, cancer surgery becomes very difficult, sometimes even dangerous. Maybe the easiest way to start is to remove the omentum, open the omental pouch and make the access to the other organs. Ultrasonic knife can make omentectomy easier and faster. Once you removed the omentum, you can perform splenectomy if necessary, but the hilus of the spleen is frequently affected by the disease. The next issue is consideration of large bowel surgery. Ovarian cancer usually leaves place to a surgeon to free the bowel of tumor deposits without the need for resection. That is important even more if Hartmann procedure has already been done. After that, removing of surface liver metastases can be a problem in the hardly accessible places. Many oncologic surgical reports support peritonectomy of the right diaphragmatic pouch. Argon plasma coagulation could be a safe alternative. If you need retroperitoneal surgery and gastric resection after all, then interval debulking seems to be more rational.

References

1 Cannistra S A. Cancer of the Ovary. N Engl J Med. 2004;351:2519-29.
2 Rose PG, Nerenstone S, Brady MF, Clarke-Pearson D, Olt G, Rubin SC, et al. Secondary Surgical Cytoreductionfor Advanced Ovarian Carcinoma. N Engl J Med. 2004;351:2489-97.
3 Bristow RE, Tomacruz RS, Armstrong DK, Trimble EL, Montz FJ. Survival effect ofmaximal cytoreductive surgery for advanced ovarian carcinoma during the platinum era: a meta-analysis. J Clin Oncol. 2002;20:1248-59.
4 Eisenkop SM, Spirtos NM, Lin WM. Splenectomy in the context of primary cytoreductive operations for advanced epithelial ovarian cancer. Gynecol Oncol. 2006;100:344–8.
5 Cliby W, Dowdy S, Feitoza SS, Gostout BS, Podratz KC. Diaphragm resection for ovarian cancer. Gynecol Oncol. 2004;94(3):655–60.