

Prognostic significance of mesenteric lymph node involvement in advanced stage ovarian cancer

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ABSTRACT

Although multiple studies have been conducted so far on the issue of advanced stage ovarian cancer, the overall prognostic of these patients reports a wide variety even in cases in which complete debulking surgery is feasible. Therefore, attention was focused on identifying other prognostic markers which might influence the long term outcomes of these patients. In this paper special attention was focused on studying the impact of mesenteric lymph node involvement in advanced stage ovarian cancer.

Keywords: advanced stage ovarian cancer; mesenteric involvement; lymph node metastases; prognostic

INTRODUCTION

Advanced stage ovarian cancer still represents the most encountered cause of death among gynecological malignancies in developed countries although special attention was focused on improving the surgical skills in

order to maximize the per cent of patients benefiting from maximal cytoreductive surgery [1-3]. In this respect, certain authors conducted their work in order to identify which the most frequently encountered sites for incomplete debulking are [4]. Although traditionally it has been considered that the peritoneal involvement

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represents a significant risk factor for incomplete debulking, especially if bowel serosa is affected, it also seems that the presence of mesenteric lymph node involvement can be also associated with higher rates of incomplete debulking.

MECHANISMS OF MESENTERIC LYMPH NODE INVOLVEMENT IN OVARIAN CANCER PATIENTS

Advanced stage ovarian cancer seem to conduct to the apparition of mesenteric lymph node metastases through different patterns; therefore, in cases in which positive pelvic and para-aortic lymph nodes are encountered, malignant involvement of the mesenteric lymph nodes takes place direct via lymphatic spread while in cases in which peritoneal involvement of the digestive tract serosa occurs, the metastatic involvement of the mesenteric lymph nodes occur similarly to colorectal cancer [5-8].

When it comes to the theory of lymphatic spread, certain authors came to sustain this theory through the fact that the presence of positive mesenteric lymph nodes is usually associated with positive pelvic or para-aortic lymph nodes; however, this theory failed to be validated by other studies [9,10]. Even though, in certain cases presenting positive pelvic or para-aortic lymph node metastases, almost 20% of cases will present a lymph node recurrence at the level of the celiac trunkor.

CLINICAL SIGNIFICANCE OF POSITIVE MESENTERIC LYMPH NODES IN ADVANCED STAGE OVARIAN CANCER

The presence of mesenteric lymph node metastases seem to play a crucial role in determining the overall outcome as well as the necessity of receiving adjuvant oncological treatment in digestive tract malignancies [11].

When it comes to the influence of positive mesenteric lymph nodes in ovarian cancer, it seems that this parameter is also associated with poorer outcomes and might also suggest the necessity of adjuvant therapy administration, consisting of chemotherapy alone or in association with monoclonal antibodies such as bevacizumab [12,13].

ASSOCIATION BETWEEN MESENTERIC LYMPH NODE METASTASES AND LIVER METASTASES

Traditionally, it has been taught that liver metastases might occur via hematogenous or peritoneal route

in ovarian cancer patients and, as expected, patients with peritoneal involvement of the liver will have a better prognostic when compared to cases presenting hematogenous metastases [12]. However, more recently it has been demonstrated that the lymphatic route can be also involved in the development of liver metastases; in such cases, the most widely accepted mechanism consists of tumoral cells dissemination from the mesenteric lymph nodes to the liver through the portal vein flow. Therefore, in such cases we can consider that the liver is contaminated with tumoral cells via hematogenous spread. Moreover it has been demonstrated that the presence of positive mesenteric lymph nodes is positively associated with the presence of hematogenous liver metastases and with a significantly poorer survival outcome [13].

An interesting study conducted on this issue by Tanaka et al was published in 2021 in the Annals of Surgical Oncology journal; the study included 85 patients diagnosed with stages II-IV ovarian cancer submitted to per primam or interval debulking surgery; the authors demonstrated that residual disease, the presence of malignant cells in the ascites liquid as well as the presence of mesenteric lymph node metastases represented independent prognostic factors for progression free survival; moreover, the authors went even further and stratified patients depending on the presence of mesenteric lymph node metastases into three groups: cases with no lymph node metastases, cases with a single mesenteric lymph node metastasis and cases with two or more lymph node metastases and observed that the progression free survival was significantly improved in the first group when compared to the second and respectively with the third group. Meanwhile, the presence of one or more mesenteric lymph node metastases was associated with a significantly higher rate of hematogenous liver metastases. In this respect, the authors concluded that in such cases adjuvant platinum based chemotherapy and maintenance monoclonal antibody therapy [bevacizumab] might improve the outcomes by diminishing the risk of developing hematogenous liver metastases [14].

As for the mechanism of apparition of liver metastases, it has been considered that tumoral cells reach the mesenteric lymph nodes, at the level of the marginal sinus from which they colonize the lymphatic nodes parenchyma and finally they reach the portal vein; furthermore, the tumoral cells will inseminate the liver and will conduct to the apparition of hematogenous liver metastases [15,16].

CONCLUSIONS

The presence of positive mesenteric lymph nodes seem to be a significant prognostic factor in advanced

stage ovarian cancer, therefore their status is mandatory to be known at the time of the initial diagnosis. Therefore, the presence of tumoral contamination at this level should be considered as an important alarm sign for predicting the apparition of liver metastases; in this

respect, once the positivity of these nodes is confirmed, the patient should be submitted to a more aggressive systemic therapy including the administration of monoclonal antibodies in order to minimize the risk of hematogenous spread and liver contamination.

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