

Usefulness of pelvic lymphadenectomy in staging of ovarian dysgerminoma

Utilidad de la linfadenectomía pélvica en la etapificación del disgerminoma de ovario

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Abstract

Objective: To determine the usefulness of pelvic lymphadenectomy in the staging of ovarian dysgerminoma. **Method:** Patients with a histopathological diagnosis of ovarian dysgerminoma who were staged between January 1995 and December 2013 were retrospectively studied. **Results:** We found 39 cases, the mean age was 23.5 years. Histologically, 34 were pure dysgerminomas and 5 were mixed associated with endodermal sinus tumors. According to FIGO, we found stage IA in 15 patients, stage IB in 1 patient, stage IC in 8 patients, stage IIB in 1 patient, stage IIIA in 1 patient, and stage IIIC in 13 patients. Pelvic nodes with metastases were not documented in any of the patients studied. **Conclusions:** The lymphatic spread pattern in ovarian dysgerminomas is always towards the retroperitoneal nodes, both paracaval and paraaortic, but there is no spread towards the pelvic lymph nodes. Therefore, we recommend not performing pelvic lymphadenectomy in surgical staging in these patients.

Keywords: Dysgerminoma. Germinal ovarian cancer. Lymphadenectomy. Lymph node metastases.

Resumen

Objetivo: Determinar la utilidad de la linfadenectomía pélvica en la etapificación del disgerminoma de ovario. **Método:** Estudio retrospectivo de pacientes con disgerminoma de ovario etapificado entre enero de 1995 y diciembre de 2013. **Resultados:** Encontramos 39 casos, con una edad promedio de 23.5 años. Histológicamente, 34 fueron disgerminomas puros y 5 fueron mixtos asociados a tumor de senos endodérmicos. Encontramos etapa IA de la FIGO en 15 pacientes, etapa IB en 1 paciente, etapa IC en 8 pacientes, etapa IIB en 1 paciente, etapa IIIA en 1 paciente y etapa IIIC en 13 pacientes. En ninguna de las pacientes se documentaron ganglios pélvicos metastásicos. **Conclusiones:** El patrón de diseminación linfática en los disgerminomas de ovario fue hacia los ganglios retroperitoneales, tanto paracavales como paraaórticos, pero no hacia los ganglios linfáticos pélvicos. Recomendamos no realizar linfadenectomía pélvica en la etapificación quirúrgica en estas pacientes.

Palabras clave: Disgerminoma. Cáncer de ovario germinal. Linfadenectomía. Metástasis ganglionares.

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Introduction

Germ cell ovarian cancer is the second most common histological type among malignant ovarian neoplasms, accounting for 5% of all cases¹. These neoplasms include a heterogeneous group of tumors with different histological types derived from the germ cells of the ovary, and they exhibit different molecular abnormalities, clinical presentations, and tumor biology². Although dysgerminoma is rare, it is the most common malignant germ cell tumor of the ovary. It is often found in stage IA of FIGO, with bilaterality in 10% up to 15% of cases, and lymphatic metastases being more common than widespread intraperitoneal dissemination³.

Treatment of dysgerminoma, as with other germ cell cancers, is based on staging and surgical cytoreduction similar to that used for epithelial ovarian cancer, preserving fertility in selected cases⁴⁻⁸. Undoubtedly, lymph node metastases in dysgerminoma are a predictor of poor prognosis^{3,7,9,10}. However, the risk of lymph node metastases based on histological type has not been well studied in a large series of patients, and literature does not address whether these metastases occur in pelvic or retroperitoneal lymph nodes, as there are no studies on the lymphatic dissemination pathways of dysgerminoma that determine the incidence of involvement of both pelvic and paraaortic nodes.

Current literature is insufficient to determine whether the lymphatic spread of dysgerminomas follows the same pattern as epithelial cancers or, unlike these, has a preference for retroperitoneal paraaortic nodes rather than pelvic nodes.

The aim of this study is to determine the utility of pelvic lymphadenectomy in the staging of ovarian dysgerminoma.

Method

We conducted a retrospective observational study reviewing the health records of patients diagnosed histopathologically with ovarian dysgerminoma who underwent surgery in the gynecological oncology service at Hospital Luis Castelazo Ayala, Instituto Mexicano del Seguro Social (IMSS), Mexico City, between January 1995 and December 2013. Patients of any age who underwent surgery for ovarian tumors, whose intraoperative histopathological study reported dysgerminoma, and who had undergone complete

surgical staging with systematic lymphadenectomy were included.

For this study, systematic lymphadenectomy included both pelvic and retroperitoneal lymphadenectomy, involving the removal of the common iliac, external iliac, internal iliac, and obturator fossa lymphatic chains in the pelvis, and the excision of intercavaortic, paraaortic, and infrarenal paracaval lymph nodes in the retroperitoneum.

Patients with a prior diagnosis of ovarian cancer before surgery and those who had received preoperative chemotherapy were excluded. The following data were analyzed: demographic data, gynecological and obstetric history, preoperative serum cancer antigen 125 (Ca-125) and lactate dehydrogenase (LDH) levels, definitive histological type, disease stage according to the International Federation of Gynecology and Obstetrics (FIGO), number of lymph nodes resected, and presence or absence of lymph node metastases.

Results

During the study period, 677 cases of ovarian cancer were identified, 72 of which were germ cell tumors, and 43 dysgerminomas (59.7%). However, 4 cases were excluded where no systematic surgical staging was performed; the remaining 39 cases, which met the inclusion criteria, make up our study population.

The mean age of the group was 23.5 years (range: 13-47). The mean number of pregnancies was 2 (range, 0-5). Preoperative levels of Ca-125 and LDH were obtained in only 16 patients, with a mean of 118 U/L (range, 1.46-496) and 2113 U/L (range, 114-11,137), respectively. Conservative fertility-preserving staging surgery was performed in 28 patients (71.8%) and conventional radical surgery in 11 patients (28.2%).

Regarding histology, of the total dysgerminomas, 34 (87.17%) were pure, and 5 (12.82%) were mixed; all the mixed cases were associated with endodermal sinus tumor. The distribution by stages according to FIGO was as follows: 15 patients (38.46%) in stage IA, 1 patient (2.56%) in stage IB, 8 patients in stage IC, 1 patient (2.56%) in stage IIB, 1 patient (2.56%) in stage IIIA, and 13 patients (33.33%) in stage IIIC. None of the patients had pelvic lymph node metastasis. All patients with stage IIIC had retroperitoneal metastatic lymph nodes; of these, 11 also had disease limited to the pelvis, and 2 had widespread abdominal disease. The mean tumor size was 18.5 cm (range, 9-30).

Optimal cytoreduction was achieved in 32 patients (82%) and residual tumor was left in 7 patients (8%), all with tumor localized in the retroperitoneum due to conglomerates infiltrating the vessels.

The mean number of lymph nodes dissected per patient was 21.9 (range, 3-89). When differentiated into pelvic and paraaortic, on average, 17.6 pelvic nodes (range, 4-48) and 9.82 paraaortic nodes (range, 1-41) were dissected.

A total of 23 patients (58.97%) received adjuvant chemotherapy. The mean follow-up time was 83 months (range, 8-240). One patient had peritoneal recurrence that was non-resectable, and after receiving chemotherapy with a good response, the patient remains alive with no tumor activity. Another patient with retroperitoneal metastases and disseminated peritoneal disease continued with disease persistence and progression and died from tumor activity 8 months after surgical treatment.

Discussion

Although dysgerminoma is the most common germ cell cancer of the ovary, its incidence is low, and the small number of cases accumulated in the literature does not support long-term randomized clinical trials with a large sample of patients. The results of this study indicate that, in our population, 59% of germ cell tumors are dysgerminomas, a frequency similar to that reported by other authors in our country^{11,12}, but higher than the 27-38% reported in international literature¹³⁻¹⁵. Our service does not treat pediatric patients, only adult women, and yet the highest frequency of cases occurs in younger ages, with an average of 23.5 years, which is also similar to what has been reported in the literature.

Most patients in our population present in stage I of FIGO (61.5%), similar to what has been reported in other studies^{10,13,15}.

The prognostic impact of lymph node metastases in dysgerminoma has already been determined by several authors^{3,9,10,14}, as well as the influence they have on the recurrence pattern, so the role of lymphadenectomy is undisputed as part of surgical staging in this type of neoplasm. However, the existence of metastases in pelvic lymph nodes has not been previously documented.

Markovits et al.¹⁶ performed lymphangiography on 36 women with dysgerminoma and found that, in these patients, the main lymphatic drainage pathway of the right ovary is toward the lateral side of the

inferior vena cava, and the left ovary drains anterolaterally to the aorta; only a few accessory lymphatics on each side drain to the external iliac node group. This finding may support the results of our study, in which no pelvic lymph node metastases were found in any patient, despite some presenting with disseminated peritoneal disease or retroperitoneal lymph node metastases. On the other hand, the pattern of failure in our patients did not involve the pelvic lymphatic territory. Therefore, we can conclude that the removal of pelvic lymph nodes during surgical staging in the patients studied did not influence their prognosis.

Conclusions

Our results demonstrate that the lymphatic dissemination pattern in ovarian dysgerminomas is always toward the retroperitoneal lymph nodes, both paracaval and paraaortic, but there is no dissemination toward pelvic lymph nodes. Therefore, due to the absence of lymph node involvement in the patients studied, we do not recommend performing pelvic lymphadenectomy as part of the surgical staging in these patients.

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Conflicts of interest

None declared.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors declare that they have followed their workplace protocols regarding the publication of patient data.

Right to privacy and informed consent. The authors declare that this article does not contain patient data.

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