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Case Report

Diffuse large B cell lymphoma of ovary

Shruti Bansal[1], Kavita Mandrelle[1,*], Preethi Anni Mercy Paul[2], Ketan Modak[3]

[1]*Dept. of Obstetrics and Gynaecology, Christian Medical College and Hospital, Ludhiana, Punjab, India*
[2]*Dept. of Pathology, Christian Medical College and Hospital, Ludhiana, Punjab, India*
[3]*Dept. of Haematology, Christian Medical College and Hospital, Ludhiana, Punjab, India*

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ABSTRACT

Primary lymphoma of the ovary are unusual. Malignant lymphoma of ovary are seen most commonly as a sequalae of disseminated nodal disease. We in this case report have discussed the case of primary diffuse large B-cell lymphoma with unilateral ovarian involvement in a 47-year-old woman which was diagnosed incidentally. Preoperative ultrasonic imaging showed multiple hemorrhagic follicles along left ovary with largest measuring 19x12mm. Total Hysterectomy with bilateral salpingo-ophorectomy was done. The present diagnosis of primary ovarian diffuse large B cell lymphoma of ovary was made after immunostaining.

1. Introduction

The female genital tract is not a common site for the malignant lymphomas. Ovaries are however the most common site involved by the same.

Malignant lymphoma of ovary may present as:

1. Primary malignant lymphoma.
2. Secondary to an extraovarian disease.
3. Secondary to widely disseminated disease.

Primary ovarian Non Hodgkin Lymphoma (PONHL) contributes about 0.5% of all Non Hodgkin lymphoma(NHL) and 1.5% of all ovarian tumors. The incidence of deaths from primary ovarian lymphoma has been found to be around about 25%.[1]

Most common type of primary ovarian NHL seen is diffuse large B cell lymphoma (DLBCL) which contributes about 20% of PONHL cases.[2] The involvement of ovary by malignant lymphoma is often seen secondary to a disseminated nodal disease.

It is highly essential to distinguish between PONHL and secondary ovarian involvement as primary extranodal lymphomas have much less aggressive course and a better 5-year survival rate in comparison to secondary disseminated disease.[3]

We hereby report a case of primary ovarian large B cell lymphoma whose diagnosis is confirmed using immunohistochemistry.

2. Case Report

A 47-year-old woman, para 1, was admitted to the hospital with complaints of irregular heavy menstrual bleeding accompanied by dull-aching abdominal pain since 2 $\frac{1}{2}$ years prior to admission.

Her physical examination and pelvic examination were normal. Routine hematology and chemistry showed no abnormality.

* *Corresponding author*.
E-mail address: kavitamandrelle@gmail.com (K. Mandrelle).

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Ultrasound examination showed a bulky left ovary with volume of 30 cc and multiple hemorrhagic follicles seen with largest measuring 19x12mm whereas the right ovary was normal. Uterus: 7.1x5.4cm bulky, normal in shape and echo texture with endometrial thickness of 16mm and multiple, small hypoechoic (at least 3) lesions in anterior and posterior myometrium, largest 1.5x0.9cm in intramural location on anterior myometrium. Based upon the ultrasonographic picture and clinical profile of patient, patient was taken up for total hysterectomy and bilateral salpingo oophorectomy.

On gross examination left ovary seemed to be enlarged as compared to right ovary.

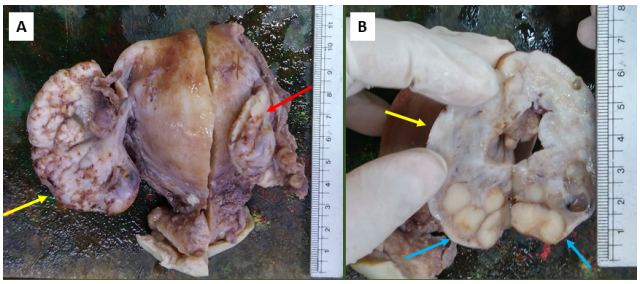

Fig. 1: Gross photographs of hysterectomy specimen showing **A**) Enlarged left ovary (yellow arrow) as compared to right ovary (red arrow). **B**) Cut section through the left ovary (yellow arrow) showed a multinodular yellowish tumour (blue arrows) at one end measuring 3.2x3x2.5 cm

2.1. The histology of specimen was malignant

Microscopic examination (Figure 2) revealed diffuse growth pattern of tumor cells with large lymphoid cells admixed with few small lymphocytes at periphery. Neoplastic large lymphoid cells were seen having centroblastic morphology along with raised mitotic activity i.e. centroblasts having scant basophilic cytoplasm, vesicular nuclei, chromatin margination and 2-4 memberane bound nucleoli.

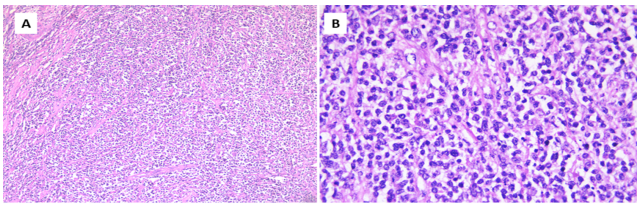

Fig. 2: Photomicrographs of left ovarian lymphoma showing **A**) Diffuse sheets of large lymphoid cells; **B**) showing centroblastic morphology on hematoxylin and eosin.

Immunohistochemistry (Figure 3) of the neoplastic lymphoid cells showed diffuse strong positivity for LCA (CD45) and CD20. The cells were found to be non-reactive to inhibin, Cyclin D1, and PLAP. These typically correspond to the diagnosis of diffuse large-cell lymphoma of B-cell lineage with malignant potential.

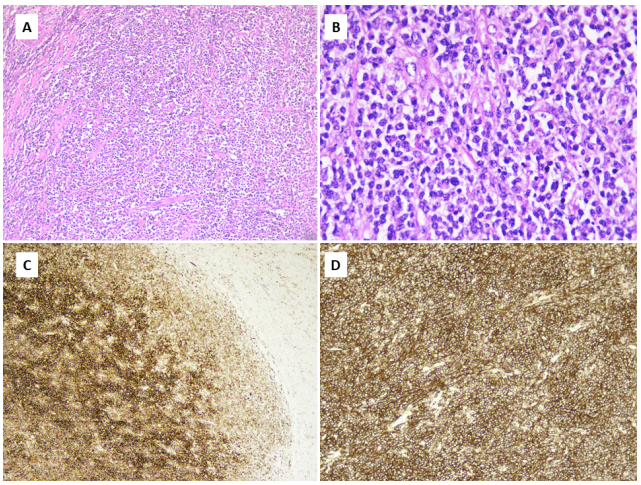

Fig. 3: On immunohistochemistry the neoplastic lymphoid cells showed diffuse strong positivity for **C**) LCA (CD45); and **D**) CD20

3. Discussion

PONHL constitutes about 0.5% of all NHLs and 1.5% of all ovarian tumors. Diffuse large B cell lymphoma (DLBCL) forms the most common type of primary ovarian lymphoma contributing about 20% of PONHL cases(2). Ovarian involvement secondary to disseminated malignant lymphoma is found in 7–26% of cases.[4]

Diffuse large B cell type contributes about 20% to PONHL[2] which can be explained based on the absence of lymphoid tissue within ovary. Lymphocytes surrounding blood vessels at the level of hilum are most common source of PONHL.

The diagnosis of PONHL as proposed by FOX et al is based on following criteria's:[5]

1. The lymphoma should be clinically confined only to the ovary with no evidence of lymphoma demonstrated elsewhere.
2. The peripheral blood and bone marrow should be free of any abnormal cells.
3. There must be a time lapse of several months between the presentation of the ovarian and extraovarian lesion in case lymphomatous lesions are seen at sites remote from the ovary.

Maximum incidence of ovarian lymphoma's among women are find in age group of 40's.

Incidence of primary ovarian lymphoma is less than 1% involving either unilateral or bilateral ovary however patients with secondary ovarian lymphomas usually have pelvic or abdominal symptoms which might be accompanied by the history of leukemia or non-Hodgkin

lymphoma. They most often present with bilateral ovarian involvement.

The nonspecific clinical features and rare incidence has made clinical diagnosis of PONHL difficult. Clinical symptoms may vary from unexplained fever, weight loss, night sweats to abdominal lymph node enlargement and hepatosplenomegaly.

Ultrasound findings corresponds to mildly vascularized hypoechoic lesions. However on CT they present as hypodense lesions with only mild enhancement on contrast.

Histopathological diagnosis is challenging due to overlapping features among different tumors These can be of centroblastic type - most common associated with predominant centroblasts and scant amphophilic and basophilic cytoplasm. Immunoblastic type- >90% of cells are immunoblasts with centrally located nucleolus and abundant basophilic cytoplasm. Most commonly associated with extramedullary involvement. Anaplastic variant – large cells with bizarre nuclei and may resemble neoplastic cells of anaplastic large cell lymphoma.

Immunohistochemistry, thus plays a pivotal role in arriving at a final diagnosis. B cell markers are CD19, CD20, CD22, CD79A and PAX5. KI-67 is a marker for proliferative index.

Ovarian tumors must be differentiated from leiomyosarcoma, other germ cell tumors, neurogenic tumour, granulosa cell tumour, hydrosalpinx, cystadenoma, endometriosis, dysgerminoma, mesenteric cysts.

There is no absolute treatment protocol for DL-BCL of ovary however the most conventional treatment approach is nonsurgical and involves chemotherapy. The basic principle behind chemotherapy is that ovarian lymphoma occurs secondary to systemic disease.

RCHOP regimen is the most preferred chemotherapy treatment for diffuse large cell lymphoma of ovary. CD20(+) could be an indicator for use of rituximab.

Prognosis of ovarian lymphomas is often poor. Clinical staging, mode of onset, histology are some of the useful prognostic indicators.[6,7] Unilateral ovarian tumors with focal involvement of the ovary are associated with good prognosis while Rapidly enhancing pelvic mass with severe systemic symptoms and bilateral ovarian involvement have poor prognosis.

Survival rate of PONHL varies from 0% to 36%, with an average time period of less than 3 years.[2,8]

Osborne and Robby 21[9] reported overall 5-year survival for lymphoma confined to one ovary to be 60%, 33% when both ovaries were involved and 23% when disease had spread outside the ovary.

Nakamura et al[10] reported 5 cases of lymphoma involving the genital tract, of which two patients were seen suffering from primary ovarian lymphoma. Deaths were reported of these patients within 16 months of diagnosis. Their first patient died 10 months post-diagnosis and the second one is alive and disease-free 7 years after the initial diagnosis

Ferrozzi et al.[11] reported eight patients with ovarian NHL (two primary lymphomas and six systemic NHLs) based on their most typical imaging patterns. Ovarian lymphomas were found to be bilateral, homogeneous, without any ascites, and greater than 5 cm in diameter. Ultrasound depicted homogeneous, hypoechoic tumours with mild vascularisation.

Yamada et al.[12] reported a case of an advanced diffuse large B cell ovarian lymphoma, which was appropriately treated by CHOP regimen.

4. Conclusion

Primary involvement of ovary by lymphoma is uncommon. It is generally seen secondary to systemic disease. The basic principles for the treatment and the prognosis of these lymphomas are same as that of other nodal NHLs. They are known to have favorable outcome with appropriate management.

5. Source of Funding

None.

6. Conflict of Interest

None.

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Author biography

Shruti Bansal, Resident

Kavita Mandrelle, Professor and HOD https://orcid.org/0000-0002-4074-6371

Preethi Anni Mercy Paul, Professor

Ketan Modak, -

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