Hyperplastic mesothelial cells in pelvic and abdominal lymph node sinuses mimicking metastatic ovarian microinvasive serous borderline tumor

G. Kir[1], S. Eren[2], M. Kir[3]

[1]Department of Pathology and [2]Obstetrics and Gynecology, Zeynep Kamil Maternity Hospital, Istanbul (Turkey)
[3]Department of Obstetrics and Gynecology, University of Michigan Ann Arbor, MI (USA)

Summary

Hyperplastic mesothelial cells within pelvic and abdominal lymph nodes were encountered in the staging procedure of a 32-year-old woman with a left ovarian microinvasive serous borderline tumor. Mesothelial hyperplasia was noted in the pelvic and abdominal peritoneum. Intranodal mesothelial cells occupied the subcapsular sinus with subadjacent interfollicular sinuses involved less strikingly. These mesothelial cells were originally misdiagnosed as a metastatic serous borderline tumor. Histologic review and immunohistochemistry confirmed mesothelial origin. This case represents the second reported example of mesothelial cells within the lymph nodes of patients with ovarian serous tumors. Similar involvement of the mediastinal, cervical and internal mammary lymph nodes has been described in several patients with pleural effusions without neoplastic cells. Intranodal mesothelial cells should be distinguished from metastasis – an error ending in upper staging of a case.

Key words: Lymph node; Serous borderline tumor; Ovary; Mesothelial hyperplasia.

Introduction

The presence of exogenous cells in lymph nodes is generally suggestive of metastasis. Recently, benign mesothelial cells have been reported in mediastinal lymph nodes. Many of the reported cases have been associated with fluid collection within serosal cavities without any documented neoplasm [1-7]. There are also reports of benign mesothelial cells seen in sections of pelvic and occasionally abdominal lymph nodes removed for staging of gynecologic cancer [8-10]. A case of ovarian microinvasive serous borderline tumor with mesohelial cells in the lymph nodes is described.

Case

A 32-year-old woman with a left adnexal mass underwent laparotomy revealing a serous borderline tumor with multiple microinvasive foci. It was predominantly a solid tumor, 16 cm in diameter, with papillae on the surface. Sections from the surface of the right ovary demonstrated a non-invasive serous implant and florid mesothelial hyperplasia. A total of 27 pelvic and the paraaortic lymph nodes were dissected. One lymph node from paraaortic and one from the pelvic region contained suspicious epitheloid cells in subcapsular and interfollicular sinus distribution. They appeared predominantly as single cells and small clusters (Figure 1). The nuclei were bland and the nuclei/cytoplasmic ratio was low. The cells had large homogeneous cytoplasm and prominant membrane borders. The original diagnosis was serous borderline tumor metastasis. Histologic review and immunohistochemistry however confirmed a mesothelial origin. Calretinin, vimentin, keratin intensely stained the epitheloid cell clusters in the lymph node sinuses (Figure 2). Ber-EP4, carcinoembryonic antigen, epithelial membrane antigen, CD 15 and S-100 immunohistchemical stains were all negative.

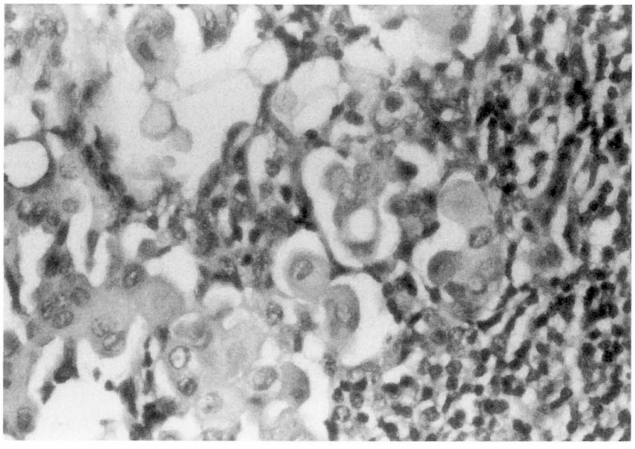
Discussion

Benign mesothelial cells involving pelvic lymph nodes were originally described by Hsu *et al.* in 1980 [8]. They described 12 cases of mesothelial inclusions seen in routine sections of pelvic lymph nodes removed for staging of 337 cases of gynecologic cancers [8].

Benign mesothelial cells involving mediastinal lymph nodes were described by Book *et al.* in 1990 [6]. They described mesothelial cell groups in two patients with pleuritis and pleural effusions [6]. In 1994 Rutty and Lauder reported an additional case of mesothelial cells within mediastinal lymph node sinuses associated with pleural and pericardial effusion [6]. Argani and Rosai presented six cases of hyperplastic mesothelial cells within the lymph node sinuses in association with serosal effusions in five cases [7]. Groisman *et al.* described hyperplastic mesothelial cells within a single supraclavicular lymph node without any documented neoplasm [5]. In 1999 Parkash *et al.* reviewed mediastinal lymph nodes without any associated neoplasm. They defined eight cases of mesothelial-like cells in the lymph node sinuses of which five had stained positive for mesothelial markers. Isotalo *et al.* documented a patient with hyperplastic mesothelial cells localized both in the mediastinal lymph node sinuses and extranodal lymhatics to confirm mode of lymphatic transport to the lymph node sinuses [4].

Clement and Scully in 1996 described two cases of hyperplastic mesothelial cells within intra-abdominal

Revised manuscript accepted for publication July 24, 2003



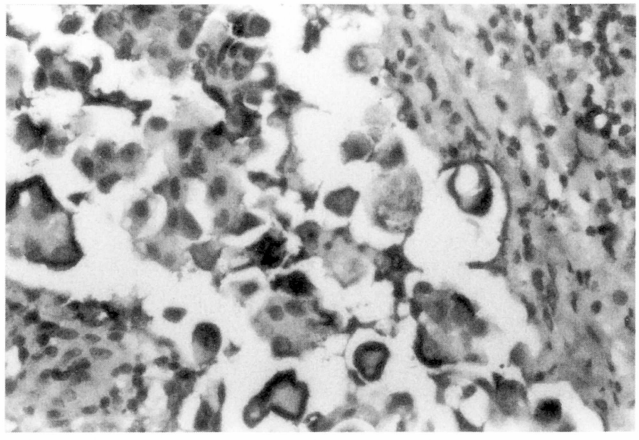


Figure 1. — Suspicious epitheloid cells in sinus distribution (H-E x 400).
Figure 2. — Calretinin intensely staining epitheloid cell clusters in the lymph node sinuses (Calretinin x 400).

lymph nodes removed for the staging procedure – one for a bilateral ovarian serous borderline tumor and the other for a Sertoli-Leydig cell tumor of intermediate differentiation [10]. This was the first reported case of hyperplastic mesothelial cells involving abdominal lymph nodes in a patient with ovarian serous borderline tumor. There are several publications defining lymph node involvement by ovarian serous borderline tumors with stromal microinvasion [11, 12].

The most recent report by Isatalo *et al.* on this issue is paraaortic lymph node involvement by metastatic angiosarcoma and benign sinus mesothelial cells. Mesothelial pelvic lymph node inclusion mimicking metastatic thyroid carcinoma has also been reported [9].

The case presented herein illustrates the presence of hyperplastic mesothelial cells within pelvic and abdominal lymph nodes that were removed as part of staging laparotomy in a patient with left ovarian microinvasive serous borderline tumor. This is the second report of reactive mesothelial cells within the abdominal lymph nodes of a case with ovarian serous borderline tumor. It is obviously important not to misdiagnose mesothelial cells within the abdominal lymph nodes as metastatic disease. The differential diagnosis of benign mesothelial cells in the lymph nodes includes nodal involvement by metastatic carcinoma, malignant melanoma and malignant mesothelioma [10]. In this case the distinction between intranodal mesothelial cells and metastatic tumor was more difficult because of the histologic type of associated ovarian tumor [10]. The pattern of mesothelial cells suggesting metastasis by serous borderline tumor is the presence of bland epithelial cells with eosinophylic cytoplasm within subcapsular sinusoids [13].

This case illustrates that the distinction of intranodal hyperplastic mesothelial cells from metastatic microinvasive serous borderline tumor may be quite difficult in routinely stained sections. If one is aware of this entity, ordering immunohistochemical stains will facilitate the differential diagnosis.

From 25 to 50% of lymph node involvement by ovarian serous borderline tumors has been reported [14, 15, 10]. These publications also noted excellent prognosis in spite of nodal involvement [14-16]. Many of the reports do not mention the type of lymph node involvement or immunohistochemical studies. Tan *et al.* observed that the patterns of lymph node involvement at initial surgery and at recurrent presentation were in fact quite different; being focal, predominantly intrasinusoidal and massive vs intraparenchymal, respectively. As a result investigators reporting nodal involvement by these tumors should exclude the possibility of a mesothelial origin especially in those cases with the first type of nodal pattern. Otherwise one will yield a higher percentage of lymph node metastasis and unexpectedly better survival for these patients.

References

[1] Parkash V., Vidwans M., Carter D.: "Benign mesothelial cells in mediastinal lymph nodes". *Am. J. Surg. Pathol.*, 1999, *23,* 1264.
[2] Rutty G.N., Lauder I.: "Mesothelial cell inclusions within mediastinal lymph nodes". *Histopathology,* 1994, *25*, 483.
[3] Isatalo P.A., Jabit M., Wenkebach G.F.: "Periaortic lymph node involvement by metastatic angiosarcoma and benign sinus mesothelial cells". *Pathology,* 2001, *33*, 239.
[4] Isatalo P.A., Veinot J.P., Jabi M., FRCPC.: "Hyperplastic mesothelial cells in mediastinal lymph node sinuses with extranodal lymphatic involvement". *Arch. Pathol. Lab. Med.*, 2000, *124*, 609.
[5] Groisman G.M., Amar M., Weiner P., Zamir D.: *Arch. Pathol. Lab. Med.*, 1998, *122,* 282.
[6] Brooks J.S., LiVolsi V.A., Pietra G.G.: "Mesothelial cell inclusions in mediastinal lymph nodes mimicking metastatic carcinoma". *Am. J. Clin. Pathol.,* 1990, *93*, 741.
[7] Argani P., Rosai J.: "Hyperplastic mesothelial cells in lymph nodes: report of six cases of benign process that can simulate metastatic involvement by mesothelioma or carcinoma". *Hum. Pathol.,* 1998, *29*, 339.
[8] Hsu Y.K., Parmley T.H., Rosenshein N.B., Bhagavan B.S., Woodruff J.D.: *Obstet. Gynecol.,* 1980, *55*, 83.
[9] Cohn D.E., Folpe A.L., Gown A.M., Goff B.A.: "Mesothelial pelvic lymph node inclusions mimicking metastatic thyroid carcinoma". *Gynecol. Oncol.*, 1998, *68,* 210.
[10] Clement P.B., Young R.H., Oliva E.O., Summer H.W., Scully R.E.: *Mod. Pathol.,* 1996, *9,* 879.
[11] Tavassoli F.A.: "Serous tumor of low malignant potential with early stromal invasion (serous LMP with microinvasion)". *Mod. Pathol.,* 1988, *1*, 407.

[12] Bell D.A., Scully R.E.: "Ovarian serous borderline tumors with stromal microinvasion: a report of 21 cases". *Hum. Pathol.,* 1990, *21,* 397.
[13] Bell D.A., Scully R.E.: "Clinicopathological features of lymph node involvement with ovarian serous borderline tumors (abstr.)". *Mod. Pathol.,* 1992, *5,* 61A
[14] Seidman J.D., Kurman R.J.: "Ovarian serous borderline tumors: a critical review of the literature with emphasis on prognostic indicators". *Hum. Pathol.,* 2000, *3,* 539.
[15] Camatte S., Morice P., Atallah D., Pautier P., Lhomme C., Haie-Meder *et al.*: "Lymph node disorders and prognostic value of nodal involvement in patients treated for a borderline ovarian tumors: an analysis of series of 42 lymphadenectomies". *J. Am. Coll. Surg.,* 2002, *195,* 332.
[16] Tan L.K, Flynn S.D., Carcangiu M.L.: "Ovarian serous borderline tumors with lymph node involvement. Clinicopathologic and DNA content study of seven cases and review of the literature". *Am. J. Surg. Pathol.,* 1994, *18,* 904.

Address reprint requests to:
G. KIR, M.D.
Soyak Gokyuzu Konutlari
B-Blok D: 46
81150 Kosuyolu-Istanbul (Turkey)