Original Article

Study of Extranodal Histiocytic Sarcoma developed from Esophagus,Breast and Pleura

Ping Chen[1] ,MD ,Lin-na Xu[2] ,MD ,Tao Liu[3],Ying Han,MD[1],Lei Gong[1],Xian-jun Liu[1],Wei Liu[4]

1 Department of Pathology,Jilin Central Hospital, Jilin,132011,China

2 Graduate Student of Pathology and Pathophysiology of YanBian University, Jilin,133002, China

3 LongTan Hospital, Jilin, ,132021,China

4 BeiHua University, Jilin, 132001,China

ABSTRACT **Objective:** To extend the knowledge of histiocytic sarcoma(HS). **Methods:** The pathological features, clinical characteristics, treatment and prognosisare of the 3 cases of extranodal histiocytic sarcoma were diagnosed. **Results:** Extranodal histiocytic sarcoma could be easily misdiagnosed. Clear pathological diagnosis is based on the morphology, mainly on the results of immunohistochemistry.

Conclusion: The character of these 3 HS is invasive growth and high malignancy. There is undefined treatment. Surgery and chemotherapy are generally performed, but the effects of such therapy, and prognosis for patients are poor.

.

Key Words: Sarcoma;Pathological features;Clinical feature

Introduction

Histiocytic sarcoma(HS) refers to limitations of malignant cell proliferative disease of monocyte-macrophage system, called true histiocytic lymphoma. HS is rare, only 0.5% in all non-Hodgkin's lymphoma [1]. HS is more common in men than in women. HS occurrs to people of all ages, but more frequently in the middle-aged, with a median age of 46 years old[2-4]. HS can be located in both lymph nodes and extranodal. Extranodal histiocytic sarcoma is more common [1]. In the present study,the extranodal histiocytic sarcoma were diagnosed in esophagus, breast and pleura, which are very unusual.

The authors have no commercial,proprietary,or financial interest in the products or companies described in this article.

Corresponding author:Dr Ping Chen,MD, Department of Oncology Pathology, Jilin Central Hospital, Jilin, 132011, P.R.China, e-mail: E-mail:drchenping@yahoo.cn, Tel:0442-62167182.

Materials and Methods

Materials

These 3 cases of histiocytic sarcoma were identified from 2009 biopsy cases in Jilin Central Hospital which has not been reported before. The clinical data are shown in Table 1.

Derived from the table, these 3 HS were in women and has different site ,clinical presentation and treatment, but their pathological diagnosis is HS.

Methods

Hematoxylin-eosio(HE) dyeing: samples were fixed in 10% formalin, conventionally dehydrated, paraffin embedded, sliced and HE dyed. Structural features of tumor cells are observed under olympus microscope. Immunohistochemistry dyeing: Reagents(Vi, CK, CD34, CD68, Ly, LCA, MPO-, S100, villin, CD117, CD38, CD138et al) were purchased from Maixin-Bio. First One antibody is concentrated, second antibody is ready-to-use. Ultrasensitive TM S-P(Mouse/Rabbit) kit was performed

with dyeing procedure according to kit instructions. Phosphate buffered saline(PBS)was used instead of primary antibody as a negative control.

Table 1 Comparation of the pathology and clinical features among the 3 cases

The number of cases	Age	Sex	Site occurred	Clinical features	Physical examination	Supplementary examination	Pathological features
1	50	Female	Pleura	Irritating cough for three weeks, with right back pain	Thoracic is symmetrical. No intercostal space was widened and narrow, lungs did not hear dry and wet rales.	Lung CT imaging: soft tissue density shadow of block was seen in the later part of the right lung tip. Right across the chest wall near corner and spine ribs were visible mass soft tissue density shadow with density and smoothness. Clinical diagonosis considered benign. Routine laboratory tests: Hemoglobin 132g / L, WBC 3.59 × 109 / L, platelets 251 × 109 / L. Urine inspection was normal.	Gray and gray red pile of broken tissue, was 8 cm × 8 cm × 3 cm with fish-like, fine quality and necrosis.
2	52	Female	Breast	Right breast tumor was for 18 years, with significant swelling for 3 months	Bilateral breast were asymmetric. Right outer limit may reach 8.0cm × 7.0cm tumor with hard, poor activity, no tenderness. A small amount of bloody discharged from right nipple. The right armpit can reach 5.0cm×5.0 cm with swollen lymph nodes.The tumor is not touched in the left breast, left axilla and supraclavicular lymph nodes.The clinical diagnosis was right breast cancer.	Routine laboratory tests: hemoglobin 84 g / L, WBC 35.37 × 109 / L, platelets 412 × 109 / L. Urine inspection was normal.	A piece of breast tissue was 7cm × 5.5cm × 5 cm. A tumor of 6.0cm diameter was seen in its section, with gray red and gray, like fish-shaped, necrosis, a little fine quality.
3	69	Female	Esophagus	Eating dysphagia for 2 months		Esophageal microscopy: A tumor of 2cm diameter was visible in esophageal , ill-defined. It is diagonosed as esophagus.	A pile of mucosa was 0.5 cm × 0.4cm × 0.3 cm, with gray red and gray, soft.

Derived from the table, these 3 HS were in women and has different site ,clinical presentation and treatment, but their pathological diagnosis is HS.

RESULTS

Microscopic examination

Tumor cells showed diffuse, scattered or sheet. They are large. Their shape is varied and relatively abnormal. Nucleus were round, oval or irregular with prominent nucleoli. The cytoplasm of some tumor cell is light with vacuoles and foam. Phagocytosis and mitosis were seen in part of some tumor cells. More lymphocytes, plasma cells, eosinophil infiltration can be seen among tumor cells. (Figure legend 1,2,3)

Immunohistochemical inspection

Vi +, CK-, CD34-, CD68 +, Ly + / -, LCA + / part +, MPO- and S100-3 were expressed in all 3 cases, but appeared differently in the immunohistochemical.Villin-,CD117-,CD34-,Ki-67+25%,MelanA- and CD1a- were expressed in esophagus.CD38-,CD138+,CD3-,CD20-,CD79a-,CD15-,CD30-,CD31-,F8-,CD34-,K- and-were expressed in breast. CD21-,CD45Ro part +,CD3-,CD20-,PLAP- and D2-40 were expressed in pleura. Different sites of tumor should be identified with different antibodies. All results supported the pathological diagonosis of histiocytic sarcoma. (Figure legend 4,5,6)

DISCUSSION

HS is a malignant tumor of lymphoid system. HS was known as a rare independent disease in 2001 World Health Organization(WHO) classification of tumors of hematopoietic and

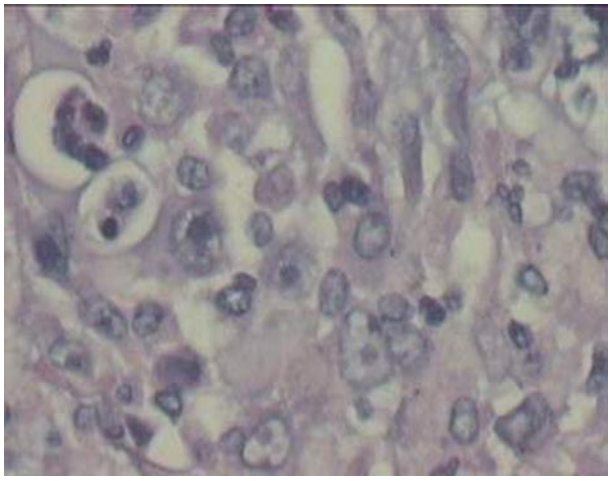

Figure legend 1 histiocytic sarcoma of esophagus HEx400

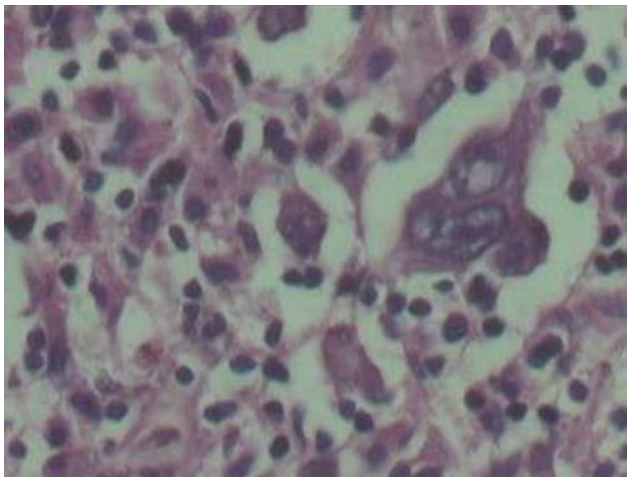

Figure legend 2 histiocytic sarcoma of breast HEx400

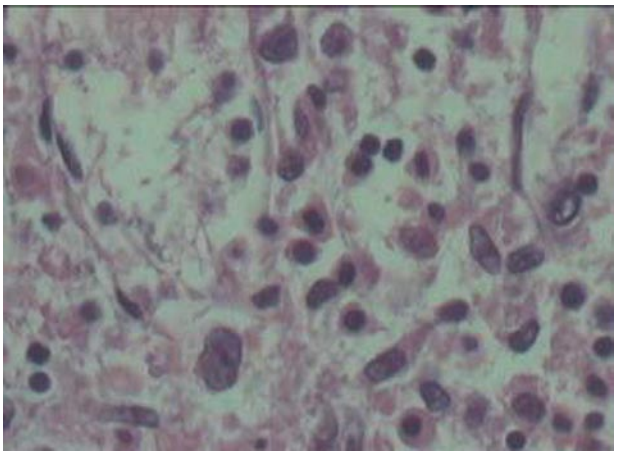

Figure legend 3 histiocytic sarcoma of pleura HEx400

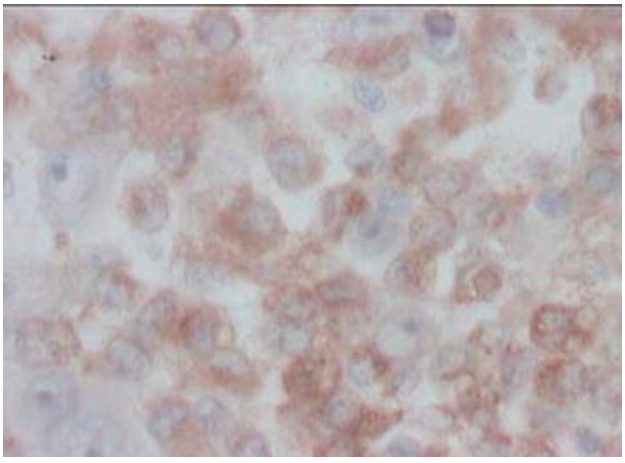

Figure legend 4 histiocytic sarcoma CD68+ SPx400

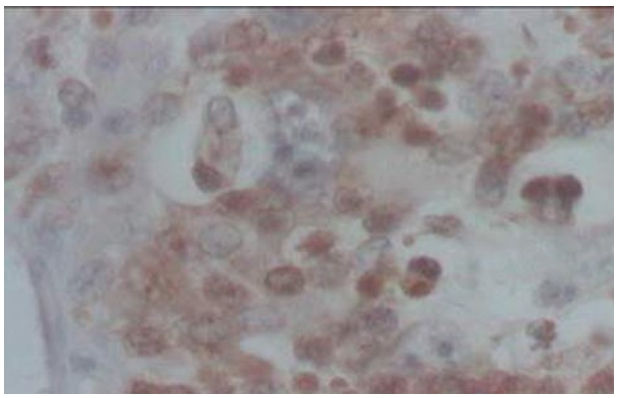

Figure legend 5 histiocytic sarcoma of Lysozyme+ SPx400

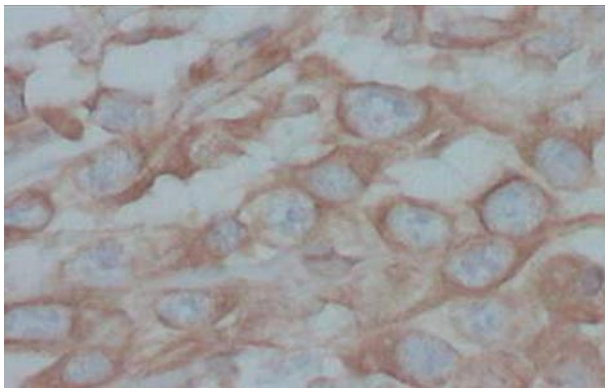

Figure legend 6 histiocytic sarcoma VI+ SPx400

lymphoid tissues [5]. It may originate from mature cells.It is similar to mature tissue cells in shape performance and immunophenotype [6]. Forty-eight cases have been reported [7]. So far 18 cases of histiocytic sarcoma have been reported in China. Before immunohistochemistry and molecular were widely applied ,HS were usually misdiagnosed based on morphology. However, with the advancement of immunohistochemistry and molecular biology, those used to be diagnoised as "Organization cell lymphoma "are mostly identified as anaplastic large T, diffuse large B cell non-Hodgkin's lymphoma, or lymphoma associated with reactive histiocytosis [7].

Clinical and pathological features

We summarized 3 cases of HS and reviewed the reported 18 domestic cases . The clinical and pathological characteristics: HS can occur in any age. The age range is between 12 and 71 years old. It is more common in adults. The average age is 45.10 years old. The tumor involved lymph nodes (4 patients), isolated or focal skin (7 cases), extranodal other parts (7 cases), pancreas (1 case), brain (1 case), lung (2 cases), spleen (1 case), small intestine (1 case) and fibrous tissue (1 case).The origins of our 3 cases are esophagus, breast and pleura , which are very unusual and has not reported before. Clinical signs are mostly solitary mass, 0.5-20.0 cm diameter in size. Different sites are associated with different clinical symptoms. The one with HS in esophagus has difficulty in swallow.The one with HS in pleural has irritating cough. The one with HS in the breast was examined with breast swelling and a small amount of bloody nipple discharge.

The results of immunohistochemistry and differential diagnosis

Immunohistochemistry often uses the following antibodies: expression of cell markers (CD68, Ly), the expression of lymphocyte markers (CD45, CD45RO), S100, T cell markers (CD2, CD3, CD5, CD7), B cell markers objects (CD19, CD20, CD22, CD79a), dendritic cell marker (CD1a, CD21, CD35), myeloid markers (MPO, CD34), CD30, HMB-45, EMA, CK. The diagnosis of HS is based on the results of immunohistochemistry. Tumor cells expressed cell markers (CD68), Ly lysozyme and lymphocyte markers (CD45, CD45RO), not expressed T cells and B cell-specific markers. The exclusion of other diseases and diagnosis of 3 cases and 16 cases in the literature were supported by immunohistochemical results. Without immunohistochemical results, it is difficult to distinguish HS from large cell lymphoma. If immunohistochemitry was not widely applied, HS would be frequently misdiagnosed large cell lymphomas, myeloid lymphoma, metastatic cancer, malignant melanoma, malignant fibrous histiocytoma and accumulation of disease.

Treatment and prognosis

HS is invasive growth with high degree of malignancy. There is unified treatment plan at present. Operation and chemotherapy are generally performed, but the effects of such therapy, and prognosis for patients are poor. Most patients died in 2 years [8]. Among the 18 cases reported in the literature, the survival time varied from 1 month to 2 years. The 3 cases under study were from 2009 cases. All 3 patients are still alive 1 year after operation with no recurrence and metastasis.

REFERANCES

1. MG Zhue ditor. Diagnosis of malignant lymphoma. Guangzho:Guangdong Science and Technology Press 2003.178—182.
2. Pileri SA, Giogan TM, Harris NL, et al. Tumours of histiocytes and accessory dendritic cells: an immunohistochemical approach to classification from the Intemational Lymphoma Study Group based on 61 cases. Histopathology

2002,41(1):1-29.

3. Homick JL, Jaffe ES, Fletcher CD. Extranodal histiocytic sarcoma: clinicopathologic analysis of 14 cases of a rare epithelioid malignancy.Am J Sury Pathol 2004,28(9):1133-1144.
4. Sun W, Nordberg ML, Fowler MR. Histiocytic sarcoma involving the central nervous system: clinical, immunohistochemical, and molecular genetic studies of a case with review of the literature. Am J Surg Pathol2003,27(2):258-265.
5. Kobayashi S, Kimura F, Hama Y, et al. Histiocytic sarcoma of the spleen: case report of asymptomatic onset of thrombocypenia and complex imaging features. Int J Hematol2008,87(1):83-87.
6. X Lv, YH Wang, L Chen, et al.Tissue sarcoma, and dendritic cells in the WHO classified the tumor. Clinical and Experimental Pathology 2005, 21(5):525—528.
7. YJ Gao, W Zhang. Histiocytoma 1 case report.Beijing Medical 2008,11(30):694-695.
8. WY Zhang, FD Li, WP Liu, et al.True histiocytic sarcoma.Chinese Journal of Pathology 2002,4(31):368—369.