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Case Report

Thymoma Associated with Hypergammaglobulinemia: A Case Report

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ABSTRACT

Thymoma is a term that should be restricted to neoplasms of thymic epithelial cells, irrespective of the presence or the number of lymphocytes. The usual location of thymoma is the antrosuperior mediastinum; however, this tumor can also occur in other mediastinal compartments, in the neck, within the thyroid gland, in the pericardial cavity, the pulmonary hilum, within the lung parenchyma, or the pleura itself (sometimes coating it in a mesothelioma-like fashion). The association of thymoma with hypogammaglobulinemia, Mucocutaneous candidiasis, systemic lupus erythematosus and myasthenia gravis is well known. Here we present a patient admitted in our hospital with buttock rashes regarded to be zoster of the buttock. In his past medical history he had recurrent cutaneous infections, lupus erythematosus, hypergammaglobulinemia, recurrent oral candidiasis and B- cell dysfunction. During the patient evaluation, a mass was found in the mediastinum and percutaneous needle biopsy confirmed the diagnosis of thymoma(type B3). This is the second case reported having thymoma in association with hypergammaglobulinema.

Keywords: Thymoma, Hypergammaglobulinema, Systemic lupus erythematosus

Introduction

Thymoma is a term that should be restricted to neoplasms of thymic epithelial cells, independently of the presence or number of lymphocytes. Seminoma, Carcinoid tumor, Hodgkins lymphoma, and non-Hodgkins malignant lymphoma, can all involve the thymus; thus they can be viewed as thymic tumors but should not be regarded as variants of thymoma. Nearly all thymomas present in adult life. Thymomas in children are exceptional; most of the cases so diagnosed in the past actually represent lymphoblastic lymphomas of the thymus. However, some well-documented cases exist, most of them occurring near the age of puberty, with an appearance and behavior equivalent to that of their adult counterpart, including an occasional association with myasthenia gravis. Thymoma is divided into A, B1, B2, B3 and C types, and is associated with a variety of diseases (1).

The most important of which are: Systemic lupus

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erythmatosus (2-6), Mucocutaneous *candidiasis* (7,8), hypogammaglobulinemia (9-12), myasthenia gravis (13), T-cell and B-cell immune deficiency(14-16) and pure red cell aplasia (17).

In our case report, thymoma is associated with hypergammaglobulinemia ,which is the second case report having thymoma in association with hyperg ammaglobulinemia.

Case report

A 43 year-old man admitted in Alzahra Hospital (Esfahan, Iran) for zoster of the buttock region. He was found to have Systemic lupus erythematosus previously treated with Prednisolon and Chloroquine.

Also he had a history of recurrent oral candidiasis, mean while he was a known case of B-cell dysfunction with negative CD19 and CD20 markers in the Flowcytometry of peripheral blood (normal=87 to 536) and hypergammaglobulinemia.

Physical examination revealed decreased breathing sounds and in the chest X-ray, a mass was found in the antrosuperior mediastinum.

CT scan of the thorax confirmed the mediastinal mass and also a mass found in the right lung parenchyma.

Lab data : ANA = 3+, ds DNA = 260 (Positive)

IgG = 2450 mg/dl (800-1900), IgM = 225 mg/dl (50-250), CD19 = Negative, CD20 = Negative

IgA = 265 mg/dl (70-350), C3 = 45 (50-140),

C4 = 6 (10-40), CH50 = 115 (120-350)

In the next step, CT guided percutaneous needle biopsy of both the mediastinal and pulmonary lesions were performed.

After microscopic evaluation, the diagnosis of thymoma (type B3) was made (A type of thymoma mainly composed of epithelial cells having a round or polygonal shape and exhibiting no or mild atypia). They are admixed with a minor component of lymphocytes, resulting in a sheet like growth of the euplastic epithelial cells] (Fig. 1, Fig. 2).

The Immunohistochemical staining results were as follows: CD20: Negative / CD5: Negative / CD99: Positive / CK: Positive in epithelial cells.

We decided to treat the patient with chemotherapy in order to reduce the tumors size and make them operable.

The chemotherapy regimen, included Cyclophosphamide, Adriamycin, Cysplatin, Bleomycin, Etoposide and Prednisolon , and his treatment is being continued.

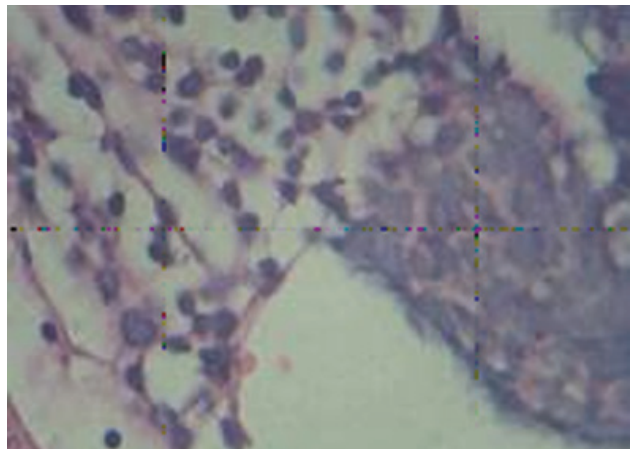

Fig. 1: Epithelial cells are admixed with lymphocytes. (H & E staining ×400)

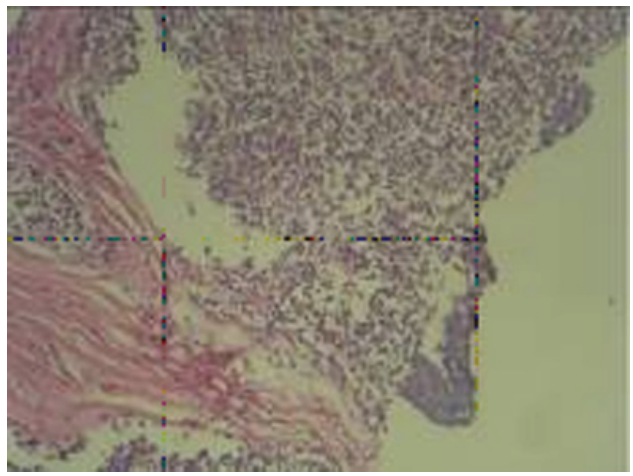

Fig. 2: Epithelial cells are admixed with lymphocytes. (H & E staining ×100)

Discussion

Thymoma is a term that should be restricted to neoplasms of thymic epithelial cells, independently of the presence or number of lymphocytes. Almost all thymomas present in adult life. Thymomas in children are exceptional; most of the cases so diagnosed in the past actually represent lymphoblastic lymphomas of the thymus However, some well-documented cases exist, most of them occurring near the age of puberty, with an appearance and behavior equivalent to that of their adult counterpart, including an occasional association with myasthenia gravis (1).

The usual location of thymoma is the antrosuperior mediastinum; however this tumor can also occur in other mediastinal compartments (although a posterior location is very rare), in the neck (18), within the thyroid, within the pericardial cavity, in the pulmonary hilum, within the lung parenchyma (19) or in the

pleura itself sometimes coating it in a mesothelioma-like fashion (20,21).

Radiographically, thymoma usually presents as a lobulated shadow that may be calcified. CT scan and MRI are the methods of choice for preoperative diagnosis and evaluation of its extent (22). Fine needle aspiration has been used with success, the diagnosis of thymoma being based on a finding of a dual population of epithelial cells and lymphocytes with the appropriate cytologic feature (23).

The differential diagnosis of thymoma includes: Germ cell tumors, lymphoma, lymphangioma, Teratoma, Thoracic goiter, Thymic carcinoid tumor and Thymic cyst (24,25) .

In many case-reports the association of thymoma with Systemic lupus erythematosus (2-6), Mucocutaneous candidiasis (7,8), Hypogammaglobulinemia (9-12), Myasthenia gravis(13) and pure red cell aplasia (17) is reported but there was only one article about the association of thymoma and hypergammaglobulinemia, which is reported by San Filippo J in Cutis in 2006 (2).

Case report

As stated above, the association of thymoma with hypogammaglobulimia is mentioned in a great number of articles and also in the pathology literatures.

While in the two cases mentioned above thymoma is associated with hypergammaglobulinemia.

In our case thymoma is associated with hypergammaglubolinemia despite negative CD19 and CD20 markers in peripheral blood smear.

Considering the paucity of reported cases of thymoma associated with hypergammaglobulinemia, large multicenter studies are still required to best identify this correlation.

References

1. Rosai J. Surgical Pathology. 9th ed. Edinburgh: Mosby; 2004.

2. San Filippo J. Chronic Mucocutaneous candidiasis associated with malignant thymoma and SLE with hypergammaglobulinemia: A case report and literature review. Cutis 2006; 78(1):57-60.

3. Karras A, de motpreville V,Fakhouri F,Grunfeld JP, Lesavre P, Group d Etudes des. Nephropathies Associees aux thymomes. Renal and thymic pathology in thymoma – associated nephropathy: report of 21 cases and review of the literature. Nephrol Dial Transplant 2005; 20(6): 1075-82.

4. Urbanska-RVS H, Robak E, Kordek R, Bartkowiak J, Rieske P, Wozniacka A ,*et al*. Multiple myeloma in a patient with SLE, myasthenia gravis and non-familial diffuse palmoplantar Keratoderma.Leuk lymphoma 2004; 45(9):1913-18.

5. Martinek V, Matousovic K, Dvorak D, Bartunkova J, Stejskal , chadimova M. The kaleidoscope of autoimmune disorders: thymoma and SLE .Vnitr Lek 2001; 47(10):715-9.

6. Genty I, Jean R, Cretel E, Xeridat B, Astoul P, Poulain P, *et al*. Thymoma and disseminated lupus erythematosus: Two cases and review of the literature. Rev med Interne 2001; 22(5):475-84.

7. Tarr PE, Sneller MC, Mechanic LJ, Economides A, Eger CM, Strober W,*et al*. Infections in patients with immunodeficiency with thymoma (Good syndrome):report of 5 cases and review of literature. Medicine (Baltimore) 2001; 80(2):123-33.

8. Kirkpatrick CH. Chronic mucocutaneous candidiasis. J Am Acad Dermatol 1994; 31:14-7.

9.Hon C, Chui WH, Cheng LC, Shek TW, Jones BM, Au WY.Thymoma associated with Keratoconjunctivitis, Lichen planus, Hypogammaglobulinemia and absent circulating B cells. J Clin Oncol 2006; 24(18):2960-1.

10. Miyakis S, Pefanis A, Passam FH, Christodulakis GR, Rousson PA, Mountokalakis TD. Thymoma with immunodeficiency (Goods syndrome): review of literature apropos three cases. Scand J Infec Dis 2006; 38(4):314-9.

11.Tsai YG, Lai JH, Kuo SY, Chen HC, Chang DM. Thymoma and hypogammaglobulinemia (good's syndrome): A case report. J Microbiol Immunol Infect 2005; 38(3):218-20.

12.Di Renzo M, Pasgui AL,Bruni F,Voltolini L , Gotti G,Auteri A. Hypogammaglobulinema and thymoma (Good's syndrome). Ann Ital Med Int 2005; 20(1):58-61.

13.Soppi E, Eskola J, Roytta M, Veromaa T, Panelius M, Lehtonen A. Thymoma with immunodeficiency (Goods Syndrom) associated with myasthenia gravis and benign IgG gammopathy. Arch Intern Med 1985; 145(9):1704-7.

14.Agarwal S, Cunningham–Rundles C. Thymoma and immunodeficiency (Good syndrome): A report of 2 unusual cases and review of literature. Ann Allergy Asthma Immunol 2007; 98(2):185-90.

15.Yel L, Liao O, Lin F, Gupta S. Severe T-and B-cell immune deficiency associated with malignant thymoma.

Ann Allergy Asthma Immune 2003;91(5):501-5.

16.Sicherer SH, Cabana MD, Perlman EJ, Lederman HM, Matsakis RR, Winkelstein JA. Thymoma and cellular immune deficiency in an adolescent. Pediatr Allergy Immunol 1998; 9(1):49-52.

17.Duchmann R, Schwarting A, Poralla T, Meyer Zum Buchenfelde KH, Hermann E. Thymoma and pure red cell aplasia in a patient with Systemic lupus erythematosus. Scand J Rheumatol 1995; 24(4):251-4.

18. Martin JM, Randhawa G, Temple WJ. Cervical thymoma. Arch Pathol lab Med 1986; 110(4):354-7.

19. Green WR, Pressoir R, Gumbs RV, Warner O, Naab T, Qayumi M. Intra pulmonary thymoma. Arch Pathol lab Med 1987; 111(11):1074-6.

20.Attanoos RL, Galateau-Salle F,Gibbs AR, Muller S, Ghandour F, Dojoinov SD. Primary thymic epithelial tumors of the pleura mimicking malignant mesothelioma. Histopathology 2002; 41(1):42-9.

21. Fushimi H, Tanio Y, Kotoh K. Ectopic thymoma mimicking diffuse pleural mesothelioma: a case report. Hum Pathol 1998; 29(4):409-10.

22. Keen SJ, Libshitz HI. Thymic lesions. Experience with computed tomography in 24 patients. Cancer 1987; 59(8):1520-3.

23.Chhieng DC, Rose D, Ludwing ME, Zakowski MF. Cytology of thymomas: Emphasis on morphology and correlation with histologic subtypes. Cancer 2000; 90(1):24-32.

24. Ellis K, Austin JH, Jaretzki A 3rd. Radiologic detection of thymoma in patients with myasthenia gravis. AJR Am J Roentgenol 1988;151(5):873-81.

25-Fraser RG, Pare JAP, Pare PD, Fraser RS, Genereux GP. Diagnosis of diseases of the chest. 3rd ed. Philadelphia: WB Saunders; 1991.