Thymoma a Clinicopathological Study in Iraqi Patients

Rana Zuheir Naji[1] *FICPath*, **Faeza Aftan AlRawi** [2] *MSc, FICPath*

Abstract

Background: Thymoma is a rare tumor, it represent 0.09% of all tumors in Iraq still it's the most frequent anterosuperior mediastinal tumor.

Aim of the study: Study the clinicopathological features of thymoma in Iraqi patients.

Materials and Methods: A retrospective study on Fifty-one cases of thymoma, randomly selected from three specialized cardiothoracic centers in Baghdad for the period from Jan.1991 to Oct.2004. Paraffin blocks were collected, and 4 micrometers sections were stained with Hematoxyline & Eosin stain. Thymoma was classified according to the most recent WHO histopathological classification (1999). And staged according to Masaoka`s staging system (1981), TNM staging system (1991) and GETT staging system (1991.

Results: The fifty one cases included 19 females (37.25%) and 32 males (62.75%) their age ranged from 11-67 years with a mean of (39 +13.6) years. About half of the patients (54.9%) were found to have myasthenia gravis. WHO sub typing revealed that B2 was the most frequent subtype (35.3%). A significant correlation was found between WHO classification system &, Masaoka`s &TNM staging system, and with the sex of the patients.

Conclusion: MG was the only paraneoplastic syndrome diagnosed in this study. A significant correlation was found between WHO classification system & Masaoka`s & TNM staging system, and with the sex of the patients.

Key Words: Thymoma, Myasthenia gravis, Mediastinal tumors.

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Introduction

Thymoma is the neoplasm of thymic epithelial cells, independently of the presence and/or the number of lymphocytes [1, 2].

According to Iraqi cancer registry the frequency of thymoma in IRAQ is 23.5% of all mediastinal tumors, and 0.09% of all cancers in IRAQ [3] In USA the over all incidence of thymoma is 0.15/100,000 persons with slight female predominance. While in Europe the incidence of thymoma is 0.18/100,000 for male and 0.10/100,000 for females [4].

[1]Dept. Histopathology, Central Public Health Lab, [2] Dept. Pathology and Forensic Medicine, College of Medicine Al-Nahrain University.

Address Correspondences to:Prof. Faeza Aftan AlRawi

Email: faizarawi@yahoo.co.uk.

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The most widely used histopathological classification systems were Lattes- Bernatz (L-B) 1962 and Muller-Hermilink (M-H) 1985, at 1999 a system adapted by WHO committee which incorporates between L-B and M-H. The most widely used staging system of thymoma is the Masaoka`s, it depends on encapsulation, degree of invasion and metastasis [5, 6]. Another staging system is adapted the TNM system 1991, in which Masaoka`s system is incorporated with some modifications [7, 8]. A third staging system described by the French study group of thymoma called the GETT system based on level of surgical excision, it tends to down grade the Masaoka`s staging system [9,10] . Prognosis of thymoma depends on several factors as stage of invasion (the single most important factor),

microscopical type (the WHO subtypes are closely correlated to the prognosis and likelihood of invasion as follows: A<AB<B1<B2<B3) [6]. Myasthenia gravis most common paraneoplastic syndrome proved to have no effect on prognosis [9-11].

Materials and Methods

A retrospective study on 51 cases of Thymoma was randomly selected from three cardiothoracic centers in Baghdad (Ibn-Al Nafes Hospital, Special Surgery Hospital, and Al-Kademia Teaching Hospital) from Jan 1991 to Oct.2004. All the specimens considered were completely or subtotally resected mediastinal tumors, tumor other than Thymoma were excluded. Clinical data were taken from patients' case sheets. H& E sections were re-examined and classified according to WHO classification into subtype A (medullary), AB (mixed), B1 (predominantly cortical), B2 (cortical) and B3 (epithelial). Three main staging systems were used Masaoka`s, TNM and GETT staging systems. Staging was accomplished retrospectively using the operative notes and pathological reports. WHO histopathological subtypes and tumor staging systems were correlated with the clinical data.

Results

Forty three cases (84.4%) were malignant Thymoma and 8 (15.6%) were benign. Thirty-two patients (62.7%) were males and 19 (37.3%) were females. Patient's age ranged from 11–67 years (mean of 39 years, SD=13.6) .Major presentation (49%).was at fourth and fifth decades of life. Gender was significantly correlated to Masaoka`s and TNM staging systems (p value <0.05), male patients were presented in advanced stages, while females were in early stages. Forty patients (68.5%) were symptomatic and the most common was myasthenia gravis in 54.9%, followed by chest pain 37.2 %, and dysopnea 25.4%. Myasthenia gravis patients, male to female ratio was (1.5:1), their age ranged from 22–50 years (mean =36 years).

WHO classification shows that most frequent subtype is B2 (35.3%) and least frequent is AB subtype (7.8%). Myasthenia gravis was seen in B2 and B3 subtypes (32%, 29% respectively) A significant correlation was found between WHO subtype and gender (p value <0.05) the most frequent subtype in male was B2 (27.5%) while in female subtypes A & B1 (11.8%) each, (Table 1).

WHO subtypes correlated significantly with Masaoka`s staging system (p value<0.004), (Table 2). WHO individual subtypes correlated significantly with TNM staging systems. (P value <0.004), (Table 3). WHO risk groups did not correlate with GETT staging system neither as an individual subtypes nor as risk groups.

Table 1: Correlation between Gender and WHO (Histopathological) Subtypes of Thymoma.

Sex- Histological type (WHO) correlation.

		Histological type (WHO)					
		A	AB	B1	B2	B3	Total
Male	Number of cases	2	3	4	14	9	32
	Percent of T	3.9%	5.9%	7.8%	27.5%	17.6%	62.7%
Femal	Number of cases	6	1	6	4	2	19
	Percent of T	11.8%	2%	11.8%	7.8%	3.9%	37.3%
Total	Number of cases	8	4	10	18	11	51
	Percent of T	15.7%	7.8%	19.6%	35.3%	21.6%	100%

Table 2:Correlation Between WHO Subtypes of Thymoma and Masaoka`s staging system.

Correlation between Histological type (WHO) and Masaoka's staging system.

			Masaoka's staging system					Total
			I	IIa	IIb	III	IVb	
Histological type (WHO)	Aa	Number of cases	3	3	1	1		8
		Percent of Total	5.9%	5.9%	2%	2%		15.7%
	AB	Number of cases	1	1		1	1	4
		Percent of Total	2%	2%		2%	2%	7.8%
	B1	Number of cases	1	4	1	3	1	10
		Percent of Total	2.0%	7.8%	2%	5.9%	2%	19.6%
	B2	Number of cases	3	2	2	6	5	18
		Percent of Total	5.9%	3.9%	3.9%	11.8%	9.8%	35.3%
	B3	Number of cases		2		4	5	11
		Percent of Total		3.9%		7.8%	9.8%	21.6%
Total		Number of cases	8	12	4	15	12	51
		Percent of Total	15.7%	23.5%	7.8%	29.4%	23.5%	100%

a. A: medullary-spindle cell type; BA: mixed cellularity; B1: predominently cortical; B2: predominently epithelial; B3: well-differentiated, organoid.

Discussion

According to Iraqi cancer registry thymoma is the most frequent mediastinal tumor, it represents (23.5%) of all mediastinal tumors followed by lymphoma (17.6%) and mesothelioma (15.6%), it represents (0.09%) of all tumors [3].

The mean age at time of presentation was (39) years approaching that of Iraqi cancer registry [3]. A significant correlation was seen between the gender and various histopathological subtypes of thymoma were male patients seen frequently with B2,B3 subtypes (27.5%,17.6% respectively) while female patients seen in B1,A subtypes (11.8% each) similar results were reported [11] Significant correlation was found between gender and Masaoka's staging system and TNM staging system were male patients found in advanced stages while female patients were found in early stages of both staging systems, this again was supported in other studies [11].The only paraneoplastic syndrome in this study was Myasthenia gravis seen in (54.9%) of thymoma patients, this value was within the range of other studies [12].The mean age of Myasthenic thymomatous patients at time of presentation was 36 years (younger than the non- myasthenic thymomatous patients) this was agreed by Kazuo.etal 2003 [13]. Male: female ratio 1.5:1 are in agreement with other results[14].The most frequent histopathological subtypes associated with Myasthenia gravis was the B2, B3 subtypes this was agreed by Pan. et al 2001[15] , Okumora. etal 2001 [6] of the fifty-one patients only [11] patients (21.5%) were asymptomatic this was near the results of Riosa. etal 2001. [16]. the rest of the patients (68.5%) were symptomatic and had different constitutional, locally (tumor related) signs and symptoms or paraneoplastic syndrome this was inconsistent with Moran et al 2001[17] WHO histopathological subtypes correlated with Masaoka's staging system significantly this was agreed by Okumora. etal 2001 [6].

Conclusion

MG was the only paraneoplastic syndrome diagnosed in this study. A significant correlation was found between WHO classification system & Masaoka`s & TNM staging system, and with the sex of the patients.

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