

Overview of Granular Cell Tumor General Hospitals in Iraq over 11-years

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Abstract

Granular cell tumor is rare tumors from Schwann cells with clinicopathological feature results, which may be showed in both benign and malignant tumor. Several tumors commonly appear in the oral cavity, gastrointestinal tract and skin. This must be appropriately treated to avoid repetition or metastatic cancer lesions. The aim study is to search clinicopathological aspects of granular cell tumor diagnosed at different general hospitals in Iraq and to compare these findings with epidemiological findings from different governorates positions. The data was collected from different Iraq governorates in mouth and tongue area from 2010 to 2020 years. Different parameters were displayed like age group, gender, topography, morphology and distribution of annual patients of the tumor. According to the available of the all information about these characteristics was revealed the inclusion criteria. The factors frequencies were calculated from descriptive analysis of the data. The total (101) cases of granular cell tumor in mouth and tongue location were found. (17) cases was the maximum value in 2015 year and it followed by (15) cases in 2019 year as compared to other years. Baghdad governorate (95) cases has a greatly patients than other governorates. (59) Cases with (58.40 %) of female gender and (42) cases with (41.60) of male and the female to male ratio was (1.38:1).

Keywords: Granular cell tumor, oral cavity, metastatic cancer lesions, clinicopathological aspects.

1. Introduction

The first granular cell tumors (GCTs) was early discovered by the Russian pathologist Abrikosoff in 1926 (1). This was primarily stated granular cell myoblastoma, where they were thought to be of muscle cells (2). World Health Organization (WHO) classification of tumors was the first introduced the term GCT in 2005 version (3). Conversely, GCT has a myogenic source, an immunohistochemical investigate (4) and GCT is of neural source, with spread expression of S-100 protein introduce in each case. It can be revealed in many different anatomic locations including in the oral cavity, skin and gastrointestinal tract (5). Currently, it can be believed that immunohistochemical stains and electron microscopy (EM) was the first introduced by Schwannian derivation.

Particularly, a subgroup of S100-negative “non-neural” of GCT have been determined that cannot derive from neural tissue (6).

Granular cell tumors may occur in the whole age however are believed to increase especially from 4th to 6th decades (7). The female to male ratio is often observed (ranging from 2.4:1.8) (8). Moreover, African-American has been reported two-thirds of benign tumors cases, over 70% cases with malignant cutaneous tumors that was analyzed using modern cohort analysis of 113 cases was found in Caucasian (9).

Materials and Methods

This study was a cross retrospective that approved by the Department of oral and Maxillo-Facial Pathology, University of Karbala. The total number was 101 patients that diagnosed for different hospitals of Iraqi governments from 2010 to 2020.

Data must be processed to utilize a raw data without any noise and utilized in a computerized database style. This study was a respective study utilizing departmental reports and an expert statistical advice utilizing statistical package for social science (SPSS) ver. 26 and Microsoft Excel 2019. Frequency distribution and percentages for selected variables describing the reported cases with GCTs were applied.

Results:

101 patients were collected as granular cell tumors that were reported in (5) Iraqi governorates from 2010 to 2020 comprising: Baghdad (95), Basrah (69), Muthanna (3), Babil (1), Basrah (1) and Nasiria (1), as shown in Figure 1. GCTs was focused on Baghdad governorate (95) with percentage (94.1%).

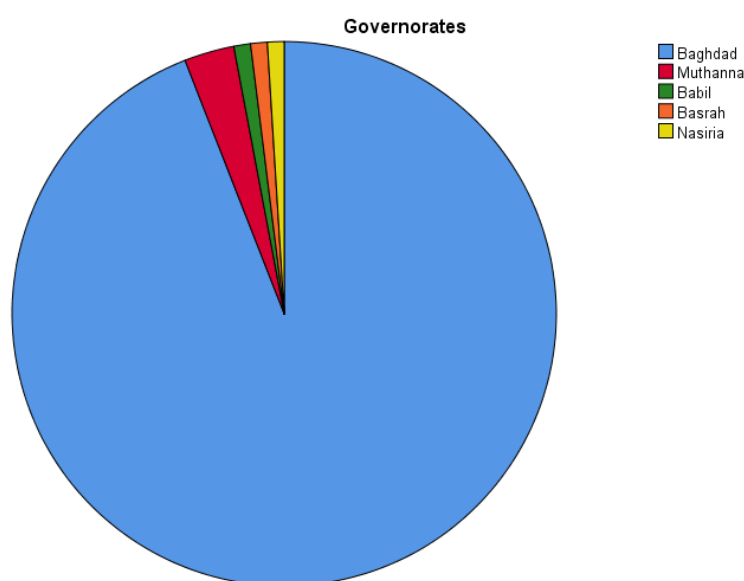


Figure 1. Pie charts of Iraqi governorates patients.

For annual years, (11) years in Iraqi governorates were gathered from 2010-2020: 2010 (12), 2011 (1), 2012 (10), 2013 (5), 2014 (14), 2015 (17), 2016 (7), 2017 (8), 2018 (8), 2019 (15) and 2020 (4), as scheduled in Table 1. The maximum value (17) cases with percentage (16.80%) was reported in 2015 year and the minimum value (1) was reported in 2011 year.

Table 1. The distribution of annual cases.

	Year	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2010	12	11.9	11.9	11.9
	2011	1	1.0	1.0	12.9
	2012	10	9.9	9.9	22.8
	2013	5	5.0	5.0	27.7
	2014	14	13.9	13.9	41.6
	2015	17	16.8	16.8	58.4
	2016	7	6.9	6.9	65.3

2017	8	7.9	7.9	73.3
2018	8	7.9	7.9	81.2
2019	15	14.9	14.9	96.0
2020	4	4.0	4.0	100.0
Total	101	100.0	100.0	

For gender statistical analysis, there was found (59) cases of female and (42) cases of male, which are categorized into benign tumor according to diagnosis. The ratio of female to male is (1.38:1).

The site granular cell tumors is involved lateral border (46) cases, tip (32) cases, dorsal surface (13) cases and ventral surface (10) cases, as displayed in Table 2. It can be observed that the highest value (46) cases with percentage (45.6%) were recorded in lateral border and the lowest value (10) cases with percentage (9.90%) in ventral surface.

Table 2. The Frequency distribution of granular cell tumors by topography.

	Topography	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Lateral border	46	45.5	45.5	45.5
	Tip	32	31.7	31.7	77.2
	Dorsal surface	13	12.9	12.9	90.1
	Ventral surface	10	9.9	9.9	100.0
	Total	101	100.0	100.0	

For the relative frequency of granular cell tumors according to gender, it can be clearly showed that female (26) more effected than male (20) in lateral border site. The maximum frequent (46) cases was appeared in lateral border. The minimum frequent (10) cases was occurred in ventral surface, as displayed in Table 3.

Table 3. The relative frequency of granular cell tumors according to gender.

	Gender	Topography				Total
		Dorsal surface	Lateral border	Tip	Ventral surface	
	Male	4	20	13	5	42
	Female	9	26	19	5	59
	Total	13	46	32	10	101

For age groups, the age group patients were classified into fourth groups. The most affected age group in granular cell tumors was (40-59) (34) cases, as shown in Table 4. It clearly showed that the maximum value (34) cases with percentage (33.66%) was found in age group (40-59) and the minimum value (18) with percentage (17.82%) in age group (25-39).

Table 4. The relative frequency of diagnostic categories by age group.

Diagnosis	Age group (yrs)							
	>25		(25-39)		(40-59)		60+	
	No.	%	No.	%	No.	%	No.	%
granular cell tumors	24	23.76	18	17.82	34	33.66	25	24.75

Discussion:

Epidemiologic studies introduced in different studies of the world report differences in the appearance. This study presented the demographic and clinicopathological analysis of (101) patients of granular cell tumors diagnosed at different Iraqi governorates hospital and the findings are in the overall agreement with data reported in studies (10).

From the results, the most public topography occurrence of granular cell tumors is lateral border that was in acceptance with study (11) and impact females more, with peak appearance occurring between fourth and fifth decade of human life (12). Moreover, the whole granular cell tumors appeared in the tongues, as shown in Figure 2.



Figure 2. Benign behavior of granular cell tumors (40-59) (3).

Granular cell tumors are relatively rare benign tumors, which can appear through the body (13). The tongue is included in $\geq 60\%$ of oral granular cell tumors, though this type may also be observed in the head and neck area, buccal mucosa, hard palate, gingiva and lips (14). Several studies showed that female are more likely to grow granular cell tumors than male (15). It is so hard to detect a clinical diagnosis of granular cell tumors, subsequently these cell tumors do not have clear clinical features (16). Patient age group ranged from forty to fifty, with a mean of 45.8 years (17).

Conclusion

Granular cell tumors are moderately rare benign tumors, which may appear via the mouth and tongue. The most public topography appearance of granular cell tumors is lateral border and impact females more, with peak occurrence appearing between fourth and fifth decade of human life. The whole granular cell tumors occurred in the tongues. Four chief sites of GCT, the most site affected was lateral border. Preponderance of female over male of granular cell tumors. The most affected of granular cell tumors of age group (40-59).

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