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SURGICAL PATHOLOGY OF THYROID BIOPSIES : A PROSPECTIVE STUDY

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ABSTRACT:

This is a prospective study of 298 post-thyroidectomy specimens, . Analysis of the biopsies obtained showed 59% colloid goiter (nodular and diffuse), 21.5% benign thyroid adenoma, and 7.8% carcinoma of the thyroid, of which papillary carcinoma was the commonest.

From this series, it seems that there is an increase in the incidence of thyroid malignancy in our province. The aim of this study is to discuss the histopathologic view of post thyroidectomy specimens and their age and sex distribution in comparison with previous reports.

INTRODUCTION:

Diseases of the thyroid are of great importance because most are amenable to medical treatment or surgical management[1]. Goiter is a common presenting symptom especially in endemic areas in which it is attributed to iodine deficiency[2,3,4,5]. High prevalence rates ranging from 55-98% were found in various age groups and localities in Northern Iraq[3]. However, goiterogenic factors such as poor quality of drinking water, high mineral content of calcium and magnisium salts and bacterial contamination especially with *E.coli* were regarded as potential causes for goiter in non-endemic areas[5].

MATERIALS & METHODS

This study includes 298 biopsy specimens of thyroid gland, which were processed for histopathology in Basrah province. The biopsies were from Basrah Teaching Hospital, Basrah General Hospital. The specimens were processed by formaline fixation overnight, dehydration in alcohol, clearing in xylene and embedding in paraffin followed by slicing and staining with hematoxylin-eosin stain. The congo red stain was used to demonstrate amyloid.

RESULTS:

A total of 298 patient with thyroid diseases who were treated by surgery are included in this paper. Fig (1) shows that 69% of the cases were in the age 20-40 years, most patients were females. The female to male ratio was 4.8:1.

Table (1) shows the number , sex distribution and female to male ratio of different diseases diagnosed by histopathology. Colloid goiter (nodular and diffuse) was the commonest type (176 cases). Benign follicular adenoma was the common type seen (21.5%) while malignant lesions were diagnosed in 23 cases (7.8%). Tables (2) and (3) show the incidence and mean age of benign and malignant thyroid lesions respectively. The mean age for benign lesions was 34.8 years with multinodular goiter being the commonest type (40.7%). The mean age for malignant lesions was 38 years and papillary carcinoma was the most common type (56.6%).

DISCUSSION:

From our series there are certain points that need discussion:

The peak frequency of cases (69%) was found in the third and fourth decades of life. This finding is close to the results of

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others in this area[6,7] . The female to male ratio was 4.8:1 , which is in agreement with Al-Saleem (1973) in our locality and El-Hamel (1988) in Saudi Arabia, but much less than that of Al-Huraibi *et al.* (1990) of Yemen who reported 39:1 ratio[6,8,9] . Colloid goiter (diffuse and nodular) comprised the largest group of thyroid pathology (59%) which is comparably close to Al-Yassin (1984) in Basrah who reported 55% , however, it is less than the incidence in Nothern Iraq of 79% [10,11] . These results reflect the frequent occurrence of colloid goiter in both endemic (North of Iraq) and non-endemic (South of Iraq) areas. This was attributed to iodine deficiency in Nothern Iraq, which is not a contributing factor here in the south, where the presence of other factors like goiterogens may explain this[5]. Cotran et al. (1999) stated that, nearly all long standing simple colloid goiters become transformed into multinodular type[1] . This explains the high incidence of multinodular goiter in this study which account for 40.7% of all benign lesions. This finding is in consistence with Al-Saleem (1973) but less than Said *et al.* (1989 A) [7,8]. The predominance of multinodular goiter may be due to the gross disfigurement of the neck and tracheal compression accompanying this condition and leading patients to seak surgical management[2] .

Thyroid adenoma was the second most common benign lesion comprising 46 cases (21.5%). The mean age was 34.8 years. these results are comparable to Nasir and Taha (1996) in Basrah, but less than others who reported results ranging from (35%) to (52%) [6,9,12] . the female preponderance with 4:1 ratio is comparable to Said *et al.* (1989) in Egypt but less than others [13,14] . The overall incidence of thyroid malignancy is low, it accounts for (0.5-1%) of all cancers and varies from (3.3%) to (17%) of all thyroid diseases[15,16] . However, in Iraq, thyroid malignancy account for (2.2%) of all registered cancers and ranks within the commonest ten cancers in females during (1990-1991) [17]. From this work the incidence was 7.8% of all thyroid diseases which corresponds to the aforementioned figures. However it is more than those of Ibrahim *et al.* (1988) of (4.3%) and Al-Hadithi (1986) of (5.7%) in other localities in Iraq[11,18] . Female preponderance is comparable to others [14,16]. Papillary carcinoma was the commonest malignant type in this study (56%)(table 3). This is less than Cotran *et al.* (1999) of (75%) but more than Said *et al.* (1989) who reported (46%)[1,14] . The mean age of papillary carcinoma was 28.5 years, which is lower than other studies who mentioned a mean age at initial diagnosis around 40 years [14,19,20,21]. Papillary carcinoma occurs most frequently in parts of the world where iodine supply is adequate[21]. Irradiation is carcinogenic to the thyroid, it leads to 30 fold increase in thyroid cancer particularly when introduced during childhood. Almost 70% of Japanese survivors of the atomic bombs developed thyroid cancer[22]. From the above, there is a rising incidence of thyroid malignancy in our province especially in younger age groups.

CONCLUSION:

From our study we can conclude that there is a high incidence of multinodular goiter and thyroid adenoma, in addition to a rising incidence of malignant tumors of the thyroid during this period. Another study to search for the probable etiology behind these findings is recommended.

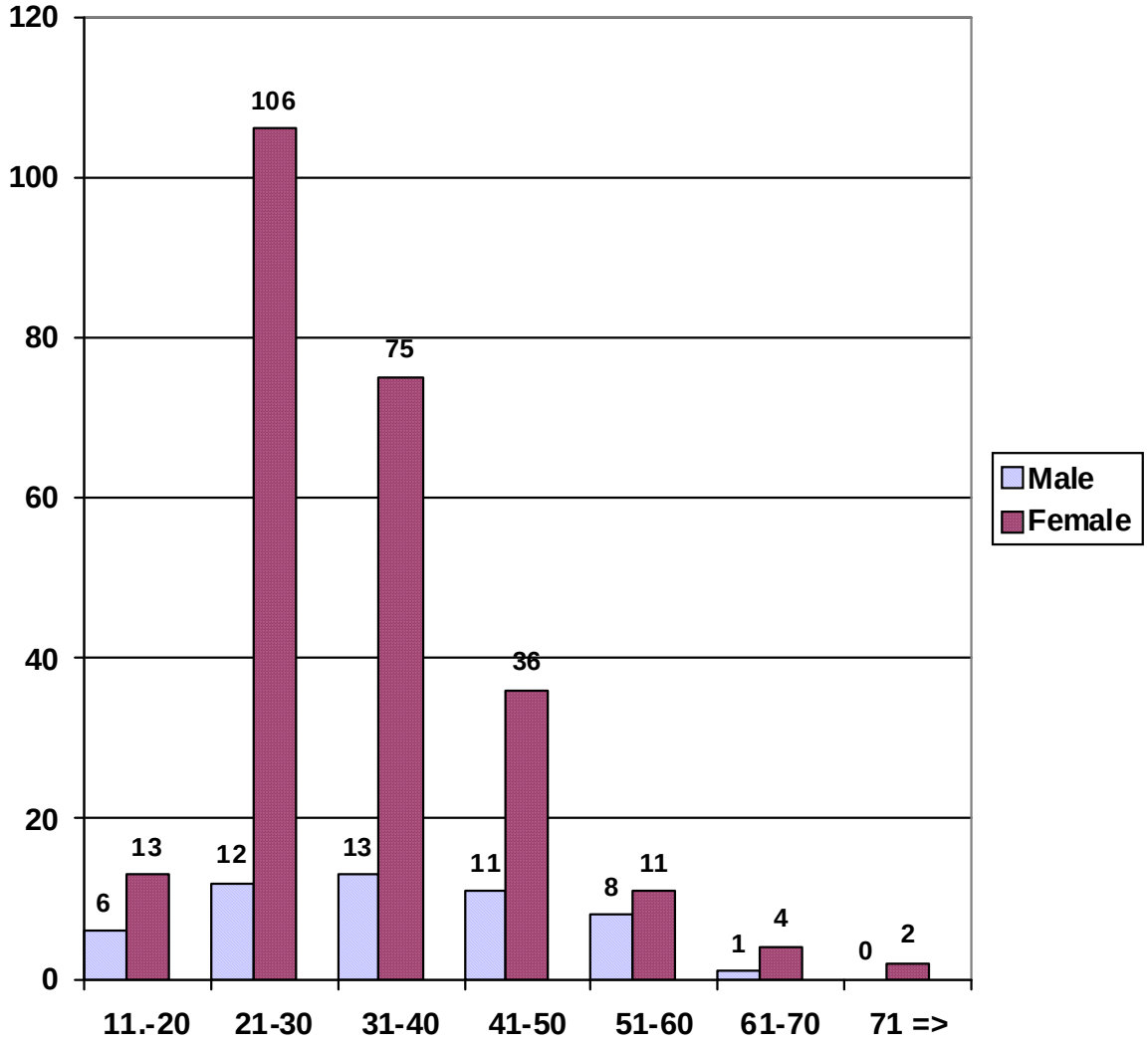

Fig (1) Age and sex distribution of 298 patients with thyroid disease:

Histopathology type	Male	Female	Total	%	F:M ratio
Colloid goiter (diffuse and nodular)	31	145	176	59	4.7:1
Simple colloid cyst	1	9	10	3.3	9:1
Gravies disease	0	5	5	1.7	All female
Lymphocytic thyroiditis	1	12	13	4.4	12:1
Hashimotos thyroiditis	0	5	5	1.7	All female
Subacute (De Quervains) thyroiditis	1	1	2	0.6	1:1
Benign follicular adenoma	13	51	64	21.5	4:1
Malignant neoplasms	4	19	23	7.8	4.75:1
Total	51	247	298	100	4.8:1

Table (2): Mean age and sex of benign lesions:

Histopathology type	Male	Female	Total	%	Mean age
Diffuse parynchymatous hyperplasia	16	27	43	15.7	31.9
Simple colloid goiter	6	15	21	7.7	31.2
Multinodular goiter	9	103	112	40.7	35.6
Simple colloid cyst	1	9	10	3.6	45
Lymphocytic thyroiditis	1	12	13	4.7	29
Hashimotos thyroiditis	0	5	5	1.8	32.6
Grave's disease	0	5	5	1.8	28.2
De Quervains thyroiditis	1	1	2	0.7	30
Benign adenoma	13	51	64	23.3	34.8

Table (3)Mean age and sex of malignant lesions:

Histopathology type	Male	Female	Total	%	Mean age
Papillary carcinoma	2	11	13	56.6	28.5
Follicular carcinoma	1	5	6	26	49.5
Medullary carcinoma	1	1	2	8.7	50
Undifferentiated carcinoma	0	2	2	8.7	58.5
Total	4	19	23	100	38

REFERENCES:

1. Cotran RS, Kumar V, Collins T: The endocrine system. In: Robbins pathologic basis of disease 6th ed WB Saunders Company , p. 1122. (1999).
2. Schwartz SI and Kaplan EL: Thyroid and parathyroid. In: Schwatz SI. Shires TG, Spencer FC, Storer EH: Principles of surgery 3rd . McGraw Hill Co. (1979).
3. Caughey JE, Follis RHJr: Endemic Goiter and Iodine Deficiency in Iraq. Lancet 1:1032 (1965).
4. Prinz RA , Omorchoe PJ, Banto AL *et al.* : FNA biopsy of thyroid nodule. Am.J.Surg. 70: 198-200 (1983).
5. Beckers C and Delange F: Iodine deficiency. In: Stanbury JB and Hetzel BS: Endemic goiter and endemic cretinism. John Wiley. New York p 199-217. (1980).
6. El-Hamel A, Sherif IH, Wassel SA: The pattern of thyroid disease in a closed community of 1.5 million people. Saudi Med.J. 9: 481-484 (1988).
7. Said MI, Ramzy AF, Morah RA et al : A clinicopathologic study of thyroid disease in Egypt. (A) non-neoplastic thyroid diseases. Med.J.Cairo.Univ. 57: 873-882 (1989).
8. Al-Saleem J. Al-Ashbal A: Surgical pathology of thyroid gland in Iraq. Internat. Surg. 58: 623-624 (1973).
9. Al-Hureibi AA, Qibri AA, Bash YW: thyroid swellings in Yemen Arab Republic. Saudi. Med.J. 11: 202-207 (1990).
10. Ibrahim T.: Studies of thyroid biopsy performed in southern Iraq. Majallat Al-Tabeb. 25: 55-58 (1984).
11. Ibrahim KS. Al-Mukhtar MY, Al-Sakkal NS: Surgical pathology of thyroid diseases in Nothern part of Iraq. J.Fac.Med. Baghdad 30: 303-310 (1988).
12. Nasir GA, Taha SA, Goiter in Basrah , A10 year retrospective study. Basrah J. Surg. 2: 24-26 (1996).
13. Al-Tameen. The pattern of surgically treated thyroid diseases in two general hospitals in Riyadh. Saudi. Med. J. 8: 61-66 (1986A).
14. Said MI, Ramzy AF, Morah RA *et al.* : A clinicopathologic study of thyroid diseases in Egypt. (B) Neoplastic thyroid disease. Med.J.Cairo Univ. 57: (suppl) (1989).
15. Goudic RB. The thyroid gland. In: Anderson JR: Muir's textbook of pathology 12th ed. Edward Amold. London. (1985).
16. Lennquist S: Surgical strategy in thyroid carcinoma Acta.Chir.Scand. : 52: 321-338 (1986).
17. Iraqi cancer registry: Results of cancer registry (1989-1991) Ministry of Health Baghdad (1993).
18. Al-Hadithi W.K. : Pathology of thyroid gland in endemic goiter and possible relation to malignancy. MSc thesis. College of Medicine, Baghdad Univ. (1986).
19. Rake RH and Campbell DJ: The thyroid cancer Br.J.Surg. 62:207-214 (1975).
20. Rosai J. : Thyroid gland. In: Ackerman's surgical pathology 8th ed. Mosby. Vol 1 p. 514 (1996).
21. Dillmann WH: The thyroid. In: Bennet JC and Dlum F. : cicil textbook of medicine. 20th ed. Vol. 2 , MB Saunders p. 1244 (1996).
22. Robin J, Merino MJ, Boice JD Jr et al. : Thyroid cancer: A lethal endocrine neoplasm. Ann Intern Med. 115: 133 (1991).

دراسة جراحية أمراضية للخزعات الماخوذة من الغدة الدرقية

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الخلاصة:

تشمل هذه الدراسة على ٢٩٨ خزعة نسيجية للغدة الدرقيـة . و عنـد اجـراء التحليل النسيجي للخزع بلغت نسبة الاصابة بالدراق العجزي ٥٩% بينما شخص القدوم الدرقي في ٥و٢١% والخباثة الدرقية في ٨،٧% لوحظ في هذه الدراسة وجود زيـادة في نسبة الاصابة بالخباثة الدرقية في جنوب العراق.

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