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College of Medicine

STATISTICAL STUDY OF THYROID CANCER IN DIYALA IN IRAQ

Submitted to the council of the College of Medicine, Diyala University, In Partial Fulfillment of Requirements for the Bachelor Degree in Medicine

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Abstract

Background: **The annual incidence of thyroid carcinoma is about 0.6 per million of the population and the sex ratio is three females to one male. The vast majority of primary malignancies are carcinomas derived from the follicular cells . Such tumors were thought of as differentiated (papillary, follicular and Hürthle cell) and undifferentiated (anaplastic).**

Aims: **to estimate the percentage of each thyroid cancer type and which age and gender has more prevalence .**

Patient and methods : **The study include 14 patients that have been diagnosed with thyroid cancer . The parameter that have been taken in this study are age , gender and histologic tyoe of the thyroid cancer .**

Results: **These are 14 patient that are diagnosed with thyroid cancer . there are 12 patients that have papillary carcinoma , one case with anaplastic and one case with follicular carcinoma . There are no cases with medullary thyroid carcinoma and thyroid lymphoma . The percentage of papillary carcinoma among these type are 85.7% so it the common type . the percentage of others types are , 7.1% follicular carcinoma and 7.1% anaplastic carcinoma. The papillary carcinoma occur at middle age with an average age approximately 36 yrars old . Anaplastic carcinoma occur in eldrly pateints and case was 68 years old . the percentage of female pateints that have been diagnosed with thyroid cancer is 85.7%, so it has more female predominance .**

Conclusion: **From these data , the papillary show the most prevalent type of thyroid cancer. Female gender show the highest prevalence. . The papillary carcinoma occur at middle age with an average age approximately 36 yrars old.**

Keywords: **Thyroid cancer ,prevalence ,Types , Diagnosis, Clinical features, Risk factors, Treatment .**

Introduction

The annual incidence of thyroid carcinoma is about 0.6 per million of the population and the sex ratio is three females to one male. The vast majority of primary malignancies are carcinomas derived from the follicular cells . Such tumors were thought of as differentiated (papillary, follicular and Hürthle cell) and undifferentiated (anaplastic). However, now an intermediate class of 'poorly differentiated carcinoma' is recognised, which is likely to represent a state of dedifferentiated, between classic differentiated and undifferentiated diseases. The parafollicular C cells can undergo malignant transformation into medullary carcinoma, and thyroid lymphoma is another primary thyroid malignancy. In addition, the thyroid can be involved by direct spread from surrounding structures (larynx and oesophagus) or metastases (most commonly from renal cell carcinoma). Lymph node and blood-borne metastases of thyroid cancer occur primarily to bone and lung and may be the mode of presentation . The prognosis in differentiated thyroid cancers is generally excellent. In terms of survival, older patients, those with large tumors or extrathyroid extension or distant metastases have worse outcomes. A system of risk stratification can be used to predict the risk on an individual basis. In a young patient with a low-risk tumour, the risk of death following appropriate treatment is almost zero. In an older patient with a high-risk tumour (extrathyroid extension or distant metastases), the risk is as high as 50% at 5 years. Older patients with low risk tumours and younger patients with high-risk tumours are an intermediate risk group. Nodal metastases deserve special mention. In younger patients they predict for recurrence but not for death. This is because recurrent neck disease in young patients can almost always be successfully salvaged. In contrast, for older patients neck metastases (particularly in the lateral neck) are a marker of distant metastases in some, and therefore carry a negative prognostic implication for both recurrence and death. there are a number of risk factor like irradiation, chromosomal genetic alteration , thyroid stimulating hormone , autoimmunity , thyroid nodule and body weight .there are many clinical features of thyroid cancer and the most common clinical feature is thyroid swelling .For diagnosis of thyroid cancer , it depends on clinical examination , FNA ,ultreasound , MRI and CT with iodine concentrating contrast media .Tumor marker in thyroid cancer like thyroglobulin , calcitonin and carcinoembryonic antigen are important in the follow up and detection of recurrence in thyroid carcinoma. The treatmrnt of thyroid carcinoma requires total thyroidectomy and additional measures as thyroxine and radioiodine .(1)

Risk factor of thyroid cancer

The vast majority of thyroid cancers have no known cause. major identifiable risk factor in differentiated thyroid cancer, especially papillary carcinoma, is irradiation of the thyroid gland under the age of 5 years. The incidence of thyroid cancer among children in Gomel, Ukraine increased from less than 1 in 1 million to 96 in 1 million aftar Chernobyl nuclear disaster. Short latency aggressive papillary cancer is related to ret/PTC3 oncogene, developed later, probably less aggresive cancer with ret/PTC1. The high incidence of carcinoma in goiter-endemic areas may be due to TSH stimulation. Malignant lymphoma can sometimes develop In autoimmune thyroiditis and the lymphocytic infiltration in the autoimmune process may be a risk factor.(1)

Several types of chromosomal rearrangements occur in TC, which are common in other radiation-associated tumors as well. It has been shown that experimentally exposing human thyroid cells to ionizing radiation can induce RET/PTC rearrangement .Medical and dental diagnostics have increased thyroid exposure to radiation. Approximately 30% of all CT scans include the head and neck region, exposing the thyroid. It is known that children exposed to radiation in this part of the body frequently develop PTC, which was also demonstrated by the Chernobyl experience. Radiotherapy for head and neck malignancies is also a source of thyroid irradiation. It has also been demonstrated that dental X-rays could represent risk factor for TC in adult age .mutated RAS oncogene and PAX8/PPARγ fusion protein expression caused by translocation both enhance unregulated cell growth in 40% and 30% of subjects, respectively . The role of estrogen in development of thyroid cancer is still a matter of debate in numerous epidemiological studies. Some studies showed that exogenous estrogen increases the risk, while early loss of ovarian estrogen lowers the risk for thyroid cancer. Many experimental studies performed so far have demonstrated that estradiol behaves as stimulator for either benign or malignant tumors. On the other hand, hormone therapy was associated with very low or no risk for thyroid cancer. A fourfold increase of TC incidence as well as higher risk for advanced disease stage was found in patients whose TSH levels were in the upper quartile compared with those in the lower quartile of normal values. Patients who have had systemic lupus erythematosus for many years have found to have a higher risk of developing TC, while hydroxychloroquine therapy could be a protective factor. There have been studies showing that TC is less frequent in multinodular goiter than in single thyroid nodule, although it appears to be true in the iodine-deficient population only. Studies investigating cancer risk factors associated with environmental pollutants have provided interesting results. Some industrialized food additives, such as nitrates from cured meat and some vegetables, can compete with iodine uptake, potentially alter thyroid function and induce thyroid cancer. A study by Ward et al. has shown that above-average nitrate levels in drinking water resources are also associated with an increased risk of thyroid cancer. In recent decades, environmental pollutants which may act as either genotoxic or nongenotoxic carcinogens, such as asbestos, benzene, formaldehyde, pesticides, and many others, have been present . The prevalence of PTC was only associated with high BMI (body mass index) in men, while there was no statistical difference in women. When multiple risk factors were included in the analysis (younger age, higher serum TSH and lower fasting blood glucose level, smaller nodule diameter, and multifocality), obese individuals had a significantly higher risk for malignancy compared with patients with normal weight. Advanced TNM stage in patients with higher BMI was observed in older men. Most of the obesity was associated with disruptions in insulin metabolism. Insulin-like growth factor1 (IGF-1), which has structural homology to insulin, binds to the IGF-1 receptor and behaves like a potent growth factor that stimulates malignant transformation, tumor progression, and metastasis .(2)

Clinical features of thyroid cancer

The annual incidence is approximately 0.6 cases per million of the population, with a sex ratio of three females to one male. However, the incidence of papillary thyroid cancer is increasing across the world quickly. This is mainly due to increased rates of imaging detecting previously occult disease. Because of this although the incidence is increasing, the mortality rates remain static at over 80% 5-year survival for all groups. In particular, anaplastic carcinoma predicts poor outcome but differentiated carcinomas generally having good outcome. The most common symptom is thyroid Swelling. Enlarged cervical lymph nodes may be the manifestation of papillary carcinoma (PTC). RLN paralysis is a strong indicator of locally advanced disease. Anaplastic growths are usually firm, irregular, and infiltrative. Differentiated carcinoma may be suspiciously firm and irregular, but usually indistinguishable from benign swelling. Small papillary tumours may be not palpable, even when lymphatic metastases are present. Pain, often referred to the ear, indicating nerve involvement through infiltration tumor.(1)

Diagnosis of thyroid cancer

History and examination remain the cornerstone of thyroid neoplasm diagnosis. radiation exposure and family history should be discussed. Examination of the central neck and regional lymphatics should be combined with assessment of vocal cord function. biochemical assessment of thyroid function should be performed. After the initial evaluation, the next step is ultrasound. This non-invasive investigation is the most accurate assessment of Thyroid swelling. This can make a judgment about the size and number of thyroid nodules also May estimate risk of malignancy depending on these findings. After ultrasound, lesions can be classified as benign, indeterminate or malignant. Benign lesions do not require further assessment unless surgery is considered for compressive symptoms. Indeterminate or malignant lesions should be assessed using FNAC. Occasionally, the surgeon will encounter a thyrotoxic patient. This condition is one of the few indications for radioactive iodine uptake scans. This allows evaluating the function of a nodule. Hot nodules are rarely malignant. Like any other thyroid tumor, cold nodules require evaluation.

After clinical, ultrasound, and cytological evaluation, the vast majority of lesions are characterized as benign, malignant or indeterminate. Further treatment will be planned accordingly. Certain situations require special consideration. For patients with widespread nodal disease or suspicion of locally invasive disease affecting the airway, contrast enhanced imaging should be considered. This should cover the neck and chest Not only does this allow accurate assessment of any visceral invasion, but is superior to ultrasound at defining disease in the mediastinum and thorax. the risk of anaplastic carcinoma should be considered when the Patient has rapidly growing thyroid mass, particularly if it is solid and fixed. However, this diagnosis can be difficult to differentiate from thyroid lymphoma or occasionally thyroiditis. Despite the difficulty, an accurate diagnosis is critical as anaplastic carcinoma is rapidly fatal and palliative measure are general recommended, whereas confounding disease processes may respond to therapy. In this setting, core or even open biopsy may be required to make a confident diagnosis. (1)

Types of thyroid cancer

Papillary carcinoma 80%
Follicular carcinoma 10%
Poorly differentiated/anaplastic carcinoma 5%
Medullary carcinoma 2.5%
Lymphoma 2.5%(1)

Papillary carcinoma

papillary carcinoma is the most common type of thyroid cancer. Interestingly, up to 30% of patients who die of non-thyroid disease have deposits of PTC in autopsy studies, suggesting that many patients live with this disease undetected. Nonetheless, if papillary carcinoma is diagnosed, most patients will be Provided treatment. The disease is known for its propensity to metastasize to the lymph nodes. These are more common in Younger patients, in whom they do not affect the otherwise excellent survival. This finding contrasts with most malignancies in which metastatic disease is found to lead to poor outcomes result. A controversial finding in patients with PTC is that High rate of occult micrometastases (as high as 40% of N0 patients in the central neck). Despite the presence of metastases, few patients progress to have clinically meaningful disease and the role of elective nodal surgery is questionable. Distant metastases in PTC are uncommon. Recently, increasing interest has focused on 'papillary microcarcinoma'.This term is used to describe PTC that is <10 mm in size. These lesions are common (detected in about 10% of benign thyroid resections) and not associated with adverse outcomes, including recurrence or non-survival. As such, management and follow up of patients with these lesions of doubtful clinical significance is controversial. In Korea, for example, national screening has led to a significant increase in these cases. In Japan groups are opting for an observational approach without surgery. These studies have shown that at least two-thirds never progress. In the USA some groups are attempting non-surgical management with ablation techniques using ethanol or radiofrequency. In most of the world however, groups try to avoid diagnosing these small, insignificant lesions by limiting biopsies to >10 mm lesions and being conservative in the management of lesions following their diagnosis. (1) PTC often appears as two or more anatomically separate foci, which may display heterogeneity morphologically. Kuhe et al. suggested that some cases of multifocal PTC widely separate from each other are the result of real multicentricity, while others are the outcome of intrathyroid spread of an initially sole tumor mass inside vascular spaces, frequently accompanied by multiple lymph node metastases . PTC exhibits a high level of heterogeneity in its stromal cellular composition, including desmoplasia, nodular fasciitis-like changes, inflammatory myofibroblastic feature, and myxoid and amyloid formation. The desmoplastic stromal reaction seems to be an indicator of invasive behavior of PTC significantly associated with lymph node metastases. The appearance of psammoma bodies, which are located in the stroma as calcified foci with concentric laminations, is generally in association with poor disease-free survival. The heterogeneity of immune cells in the tumor stroma plays an important role as well in the clinical outcome as both protumorigenic and antitumorigenic roles were observed in association with different subpopulations of immune cells.(3)

Follicular carcinoma

Follicular carcinoma can normally only be differentiated from follicular adenoma by the architecture on histology. For this reason, follicular lesions on FNA are unable to be diagnosed as malignant in the absence of clinical features such as metastases . Multiple foci of follicular carcinoma are seldom seen and lymph node involvement is much less common than in papillary carcinoma. Blood-borne metastases are more common and the eventual mortality rate, although still low, is twice that of papillary cancer . Hürthle cell tumours are a rare variant of follicular neoplasm in which oxyphil (Hürthle, Askanazy) cells predominate histologically. Hürthle cell cancers are associated with a poorer prognosis. (1) FTC shows less phenotypic heterogeneity than PTC, involving microfollicular or solid growth of colloid containing follicles. The presence of an insular component in FTC is an independent factor for distant metastasis. The extensive capsular and vascular invasion is associated with higher metastatic potential and mortality rate.(3)

Undifferentiated (anaplastic) carcinoma

This is one of the most aggressive malignancies in humans. Thankfully it is rare. It may develop de novo, or present as dedifferentiation of a papillary or poorly differentiated carcinoma. The disease is characterised by rapid growth, visceral invasion and distant metastases. The surgeon's role in this disease is crucial. Thyroid lymphoma can be incorrectly diagnosed as anaplastic cancer and so biopsy is critical. This can be done using a core or open technique. Management is controversial. Almost all patients will be dead within 6 months. Radiotherapy and chemotherapy have not been shown to improve survival. Occasional patients may present with disease limited to the neck, which appears resectable on imaging. Such patients seem to have a slightly better outcome if treated with aggressive surgery and postoperative adjuvant therapy (radiotherapy +/- chemotherapy). However, solid evidence is lacking and the majority of patients will not be considered for curative treatment. Those patients who have a known diagnosis and develop airway symptoms are generally better managed without tracheostomy, despite the potentially distressing mode of death. In patients who present with airway signs and without a diagnosis, a tracheostomy may be required to buy time to confirm the diagnosis and in order to allow a few more days for patients to 'get their affairs in order'. (1) ATCs are the most heterogeneous tumor of all the thyroid cancer subtypes. Microscopically, ATCs present a broad spectrum of differentiation, consisting of mixtures of pleomorphic giant cells and epithelioid cells as well as spindle cells. The stroma of ATC shows variable hyaline, sclerosis, or desmoplasia.(3)

Medullary carcinoma

These are tumours of the parafollicular (C cells) derived from the neural crest. rather than the cells of the thyroid follicle as are other primary thyroid carcinomas. The cells are not unlike those of a carcinoid tumour and on histological analysis a characteristic amyloid stroma is seen . High levels of serum calcitonin and carcinoembryonic antigen are produced by many medullary tumours, which should be tested for in suspected cases. Calcitonin levels fall after resection and rise again with recurrence, making it a valuable tumour marker in the follow-up of patients with this disease. Diarrhoea is a feature in 30% of cases and this may be due to 5-hydroxytryptamine or prostaglandins produced by the tumour cells. Some tumours are familial and account for 10–20% of all cases. Medullary carcinoma may occur in combination with adrenal phaeochromocytoma and hyperparathyroidism (HPT) (usually due to hyperplasia) in the syndrome known as multiple endocrine neoplasia type 2A (MEN-2A). The familial form of the disease frequently affects children and young adults, whereas the sporadic cases occur at any age with no sex predominance. When the familial form is associated with prominent mucosal neuromas involving the lips, tongue and inner aspect of the eyelids, with a Marfanoid habitus, the syndrome is referred to as MEN type 2B. Involvement of lymph nodes occurs in 50–60% of cases of medullary carcinoma and blood-borne metastases are common. As would be expected, tumours are not TSH dependent and do not take up radioactive iodine. The prognosis is variable and depends on the stage at diagnosis. Any nodal involvement virtually eliminates the prospect of cure and, unfortunately, even small tumours confined to the thyroid gland may have spread by the time of diagnosis, particularly in familial cancers. In common with many endocrine tumours the progression of disease may be very slow, with a characteristically indolent course and long survival, even in the absence of cure. In familial cases of medullary thyroid cancer, genetic screening of relatives should be recommended. This is a complex subject but individuals identified can be risk stratified dependent on the genetic abnormality. This information can be used to make recommendations concerning prophylactic thyroidectomy. Some relatives may be monitored into adulthood with serial calcitonin monitoring. In contrast, the highest-risk mutations are associated with early-onset disease and total thyroidectomy is recommended during infancy. (1) MTCs are comprised of neoplastic cells that are heterogeneous both in shape and size. The tumors contain collagen, amyloid, and dense irregular calcification, which are heterogeneous, separating the neoplastic cells. The heterogeneity of MTC may present as merger of MTC and PTC with both components being intermixed and may exhibit morphological features of both subtypes within the same lesion. Moreover, the cervical lymph node metastasis generally displays both subtype components as a mixture within the same lymph node(3)

Malignant lymphoma

In the past, many malignant lymphomas were diagnosed as small round-cell anaplastic carcinomas. Response to irradiation is dramatic and radical surgery is unnecessary once the diagnosis is established by biopsy. In patients with tracheal compression, isthmusectomy is the most appropriate form of biopsy although the response to therapy is so rapid that this should rarely be necessary unless there has been difficulty in making a histological diagnosis. The prognosis is good, particularly if there is no involvement of cervical lymph nodes. Rarely, the tumour is part of widespread malignant lymphoma disease and the prognosis in these cases is worse. Most lymphomas occur against a background of lymphocytic thyroiditis.(1)

Tumor marker in thyroid cancer

Thyroglobulin

Thyroglobulin is a tumour marker produced by normal thyroid cells and most differentiated thyroid cancer. As such, this offers an extremely accurate method of following patients postoperatively. If a lobectomy has been performed the level will not be undetectable, but trends can be used to monitor for recurrence. Following total thyroidectomy, the aim is to have an undetectable thyroglobulin. Patients who achieve this point are at extremely low risk of recurrence. Serial thyroglobulin measurement (6–12 monthly) combined with ultrasound assessment of the neck can then be used to monitor patients during follow-up. If an undetectable level is not achieved, the thyroglobulin can be followed. If it increases, imaging should be performed to look for gross recurrent disease. Resectable disease should be addressed surgically and normally further radioactive iodine (RAI) would be indicated. The role of RAI in a rising thyroglobulin without structural disease is controversial.(1)

calcitonin and carcinoembryonic antigen

High levels of serum calcitonin and carcinoembryonic antigen are produced by many medullary tumours, which should be tested for in suspected cases. Calcitonin levels fall after resection and rise again with recurrence, making it a valuable tumour marker in the follow-up of patients with this disease.(1)

Treatment of thyroid cancer

Surgical treatment for differentiated thyroid cancer

This subject has many contentious aspects. For the vast majority of patients, outcome is excellent irrespective of the extent of surgery. The low number of recurrences and death has made prospective trials difficult and, as such, very few exist. The aim of surgery is to rid the patient of macroscopic disease and minimise the chance of recurrence and death. An additional aim is to minimise surgical morbidity. Achieving a balance between these aims is critical. In addition, the surgeon must consider whether radioactive iodine is to be recommended. In low-risk cases this is rarely indicated, whereas in high-risk patients it is used almost universally. Risk stratification is therefore critical. In high-risk patients with nodal or distant metastases, total thyroidectomy will be performed to eradicate disease in the thyroid and prepare the patient for radioactive iodine. For low-risk patients with a single focus of disease limited to the thyroid, a thyroid lobectomy can be offered. This has the significant advantage of protecting the contralateral RLN and parathyroid glands. This approach is now considered appropriate unless there are high-risk features of disease. In terms of the neck, when metastatic disease is present, a therapeutic compartment-orientated neck dissection should be performed to remove disease from the central or lateral neck, depending on the site of involvement. The role of elective neck surgery, when no disease in the nodes is detected preoperatively, is far more controversial. Lateral neck dissection carries significant morbidity and despite high rates of occult metastases in papillary carcinoma, has been abandoned. The reason is that even in patients who are thought to have occult metastases, very few progress to clinically meaningful disease. In contrast, the morbidity of central neck dissection is lower, and the compartment has to be opened during a thyroidectomy. In addition, salvage surgery in the central neck

carries a high risk to the RLN and parathyroid glands. For these reasons elective central neck dissection has been popular in the last few decades. However, increased recognition that performing such surgery in all patients with PTC leads to high rates of morbidity and the lack of evidence that outcomes improve due to more aggressive surgery, has led to a move away from this practice. At this point, patients who are considered at highest risk of having occult metastases in the central neck (those with extrathyroid extension for example) are considered most likely to see benefit from elective surgery and it is not recommended routinely in low-risk patients. Many patients will only be diagnosed with their thyroid cancer following a diagnostic lobectomy. In this setting, risk assessment is again critical. If the patient is considered low risk, further surgery is unlikely to be beneficial. If, however, patient or tumour features are considered high risk, radioactive iodine may be recommended, in which case completion thyroidectomy may be required. Given the complexity of decision making in thyroid cancer and the different groups involved (surgeons, endocrinologists, radiologists, cytologists, pathologists and nuclear medicine physicians), all cases should be discussed in a multidisciplinary setting(1). As after any other surgical procedure, bleeding and hematoma formation are also possible after thyroidectomy. Blood supply to the thyroid gland is very abundant, thus increasing the possibility of bleeding. It is not a very common complication, but consequences can be very severe and life-threatening. The bleeding usually happens after clamp and tie technique failure, poor coagulation of smaller vessels, increased blood pressure after operation, or damage to remnant thyroid tissue that was not removed. The incidence of bleeding is the highest in male patients, in case of a toxic goiter and after total thyroidectomy, but it is possible after any surgical intervention on the thyroid gland. The most common presentation of this complication is neck swelling, neck pain, skin ecchymosis, and stridor and hypoxia in more severe cases symptoms of airway obstruction such as dyspnea.(4)

Thyroxine

Following surgery, thyroid cells (both normal and malignant) can be suppressed using high doses of thyroxine. This was once considered routine for all differentiated thyroid cancers during follow-up. Again, risk stratification has modified our approach to these patients. Following surgery, patients can be considered high or low risk. For those patients at high risk from disease, thyroxine will be prescribed at levels which suppress TSH without making the patient biochemically hyperthyroid. In contrast, low-risk patients may be considered for thyroxine replacement at physiological levels. In this patient group, a balance of benefit (remember these patients have extremely low rates of recurrence or death) versus risk must be made. In particular, long-term TSH suppression can result in cardiac arrhythmia and osteoporosis. As such the treating team should consider all risks during follow-up to strike this balance. Low-risk patients who have had lobectomy alone may require no thyroxine at all. Patients who had a total thyroidectomy will clearly require replacement and those considered high risk should be managed with suppression, in order to minimise the chance of disease recurrence. (1)

Radioiodine

Thyroid tissue concentrates iodine. For this reason, 131I can be given in order to deliver tumoricidal doses of radioactivity directly to thyroid tissue, both benign and malignant. In the setting of thyroid cancer, all normal tissue should be removed (total thyroidectomy) along with any gross neck disease (neck dissection) in order for any residual microscopic disease or distant metastases to receive an optimal dose. Radioiodine treatment is not an alternative to surgical resection for gross resectable disease. As with many aspects of differentiated thyroid cancer management, indications for radioiodine treatment are controversial. Again, low-risk patients have little to gain and may be safely managed without adjuvant therapy. High- risk patients, however, remain candidates. In order to effectively drive the radioiodine into cells, high levels of TSH are required. This can be achieved by rendering the patient hypothyroid (off thyroxine) or by using recombinant TSH, which is injected prior to radioiodine administration. Following radioiodine administration, an uptake scan is performed. This demonstrates areas of iodine uptake in the whole body and can be used to identify any metastatic disease not recognised on initial imaging. This information is useful in the ongoing process of risk stratification of patients following initial therapy. Outside the setting of primary treatment, radioiodine treatment may be considered in cases of recurrence, particularly if not used initially. Multiple doses can be used in order to treat unresectable disease, distant metastases or even a rising thyroglobulin in the absence of structural disease. Most differentiated thyroid cancers will concentrate iodine. However, with advancing patient age and particularly if disease is multiply recurrent ,the tumour will lose its iodine avidity. This is called radioiodine refractory disease. Such cases may be considered for external beam radiotherapy, although this is uncommon.(1)

Results

These are 14 patient that are diagnosed with thyroid cancer . there are 12 patients that have papillary carcinoma , one case with anaplastic and one case with follicular carcinoma . There are no cases with medullary thyroid carcinoma and thyroid lymphoma . The percentage of papillary carcinoma among these type are 85.7% so it the common type . the percentage of others types are , 7.1% follicular carcinoma and 7.1% anaplastic carcinoma. The papillary carcinoma occur at middle age with an average age approximately 36 yrars old . Anaplastic carcinoma occur in eldrly pateints and case was 68 years old . the percentage of female pateints that have been diagnosed with thyroid cancer is 85.7%, so it has more female predominance .

The sample of cases that have been collected in Diyala from 2016-2019 are shown in this table .

Type of thyroid carcinoma	Age	Gender	Number
Papillary carcinoma	32	Female	1
Papillary carcinoma	60	male	2
Papillary carcinoma	53	Female	3
Papillary carcinoma	33	Female	4
Follicular carcioma	35	Female	5
Papillary carcinoma	39	Female	6
Anaplastic carcima	68	Female	7
Papillary carcinoma	35	Female	8
Papillary carcinoma	50	Male	9
Papillary carcinoma		Female	10
Papillary carcinoma	41	Female	11
Papillary carcinoma	24	Female	12
Papillary carcinoma	22	Female	13
Papillary carcinoma	40	Female	14

85.7%	Papillary carcioma
7.1%	Follicular carcinoma
7.1%	Anaplastic carcioma
85.7%	Female : Male
14.2%	Male : Female

Discussion

The percentage of papillary carcinoma among these type are 85.7% so it is the commonest type . the percentage of others types are , 7.1% follicular carcinoma and 7.1% anaplastic carcinoma. Other study from the text book of surgery SHORT PRACTICE of SURGERY ,Bailey & Love's show that percentages :
Papillary carcinoma 80%
Follicular carcinoma 10%
Poorly differentiated/anaplastic carcinoma 5%
Medullary carcinoma 2.5%
Lymphoma 2.5%(1)

This study show the percentages of medullary carcinoma and lymphoma , but my result does not show these percentages of these types of thyroid cancer . The explanation of that is that my sample of cases is small so it can not show all types that have been shown in the text book. Another explanation is that may be these types of cancer has very low prevalance in Diyala.

The incidence of WDTC in the United States has tripled since 1973 ($p<0.0001$). To date, discussion of the dramatically rising incidence of thyroid carcinoma has centered around two possible explanations: either a true increase in the incidence of disease, or an artifact of improved screening and diagnostic activity.

Emerging evidence points toward diagnostic artifact as the main contributor. Rising incidence has been documented in several large studies in the United States and Western Europe, without a concomitant increase in mortality, which would be expected if there were truly increasing cancer incidence. Because much of the increase has stemmed from small papillary thyroid cancers, the notion of "overdiagnosis" of non-lethal disease has been advanced. A large subclinical reservoir of small thyroid cancers is believed to exist, based on inferences from classical autopsy studies demonstrating occult thyroid cancers in 5–36% of cadavers. At the same time, there is evidence for significantly increasing utilization of ultrasound and fine needle aspiration biopsies, paralleling the rise in thyroid cancer incidence. (5)

Conclusions : **From these data , the papillary show the most prevalent type of thyroid cancer. Female gender show the highest prevalence. . The papillary carcinoma occur at middle age with an average age approximately 36 yrars old.**

Refrences

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