Updates in Management of Cancer Thyroid

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Summary and Conclusion

Thyroid Carcinoma is the most common malignant disease of the endocrine system. Differentiated thyroid carcinoma (DTC) is the most common form of thyroid cancer, accounting for about 80% of all cases, and includes both papillary thyroid carcinoma (PTC) and follicular thyroid carcinoma (FTC). Undifferentiated (Anaplastic) carcinoma accounts for 10% of cases. While other types (medullary& malignant lymphoma) account for the remaining percentage.

Exposure to radiation is the most important risk factor for thyroid cancer mostly of the papillary type. Family history and genetic alterations namely RET, Ras & P53 genes are reported in DTC.

History is usually not helpful in detecting underlying thyroid malignancy but there are well-established predictors of malignancy in thyroid nodules that include hard and fixed lesions, rapid growth of nodules, large size, associated hoarseness, dysphagia, or lymphadenopathy and a prior history of irradiation to the head or neck region.

Thyroid US is the most accurate imaging technique for the detection of thyroid nodules and this procedure is mandatory when a nodule is discovered at palpation. It can suggest malignancy by denoting certain ultrasonographic features and can guide for FNAB.

FNAB has become a gold standard in diagnosis of thyroid carcinoma especially the papillary type because of the distinctive nuclear features. The results of FNAB can be categorized as benign, malignant, indeterminate (suspicious), and nondiagnostic (unsatisfactory). An alternative to FNAB is the mini trucut biopsy.

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List of Abbreviations

ACT   : Alpha 1 antichymotrypsin

AJCC   : American joint committee of cancer

AMES   : Age metastases extent size

ARSAC   : Administration of radioactive substances advisory committee

ATTS   : Anaplastic thyroid tumours

Bq   : Defined as the activity of quantity of radio active material in which one nucleus decay per second

C.C.H   : C-cell hyperplasia

CEA   : Carciroembryonic antigen

CGRP   : Calcitonin gene related peptide

D.T.C   : Differentiated thyroid carcinoma

EGF   : Epidermal growth factor

EGFr   : Epidermal growth factor receptor

FDG-PET   : Flouro-deoxy glucose - positroin emission tomography

FGF   : Fibrobast growth factor

FNAB   : Fine needle aspiration biopsy

FPC   : Follicular thyroid carcinoma

IGF   : Insulin growth factor

IJV   : Internal Jugular vein

IMRT   : Intinesty modulated radiotherapy

MBq   : Megabecqueral 10^6Bq

MEN   : Multiple endocrine neoplasm

MRND   : Modified radical neck dissection

List of Abbreviations

NSE	:	Neuron specific cnolase
P.T.C	:	Papillary thyroid carcinoma
RSTL	:	Relaxed skin tension lines
SAN	:	Spinal accessory nerve
SCM	:	Sterno cleidomastoid
T.S.H	:	Thyroid stimulating hormone
TNM	:	Tumor - node - metastasis
WBS	:	Whole body scan

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Last but not least, I dedicate this work to *my father, mother and my wife* whom without their sincere emotional support, pushing me forward this work would not have ever been completed.
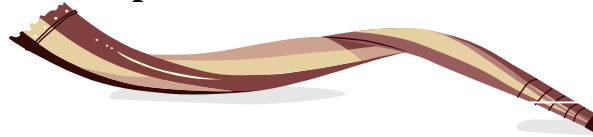
Hany Nassef Shawky

Introduction

Thyroid cancer is the most common endocrine malignancy and accounts for approximately 1% of all human malignancies, with an estimated incidence in the United States of 18,400 cases in the year 2000. The majority of cases- approximately 70%occur in women. Carcinoma of thyroid gland is considered an indolent disease; many affected individuals die of other causes *(Marina et al., 2006).*

In Egypt the recorded numbers for incidence and prevalence of thyroid carcinoma were very near to the western record. According to El bolkainy, it represented 1.2% of total cancers with a low fatality reaching about 8% *(El-Bolkainy, 1998).*

The exact cause of thyroid cancer is not known but they do know that People who have been exposed to a lot of radiation either from environmental or from medical treatment have a great chance of developing thyroid cancer *(Lairmore et al., 2005).*

Thyroid carcinomas are classified as papillary, follicular,Hürthle cell, medullary, and anaplastic. The thyroid gland is also a site for metastatic carcinoma on rare occasions. Conventionally, only papillary and follicular carcinomas are considered differentiated. Although some classifications have included Hürthle cell carcinomas as a subtype of follicular neoplasms, they are considered separate because these tumors are incapable of concentrating iodine and do not respond to TSH *(Zygmunt et al., 2008).*

Intrathyroid metastasis of extrathyroid cancers are rare and have a poor prognosis, but the diagnosis should be borne in mind when patients have a history of cancer (mainly renal cancer *(Mirallie et al.,2005).*

Fine needle aspiration is a sensitive and specific test for the diagnosis of thyroid cancer initial surgery and avoiding unnecessary procedures. Therefore it is recommend recommended as a routine use of preoperative thyroid fine needle aspiration even in those patients whom a resection is already planned *(Greenblatt et al., 2006).*

Treatment of thyroid carcinoma remains controversial, even among the thyroid experts. Surgical treatment is the preferred initial management in almost all patients with thyroid cancer. Many patients with follicular cell-derived cancers (FCDC) are treated with radioiodine remnant ablation (RRA). Few patients require postoperative external irradiation or chemotherapy. Although long-term survival is common, patients are at risk of tumor recurrence for decades after diagnosis *(David et al.,2006).*

Survival has improved due to acombination of early cytological diagnosis ,low morbidity total thyroidectomy , and postoperative iodine Therapy *(Cheah, 2007).*

Therefore, long-term surveillance is necessary. The extent and intensity of this surveillance necessitate sound judgment and a thorough knowledge of each patient's tumor and prognosis. Appropriate surveillance may include radiologic and radionuclide imaging and measurement of thyroid-specific tumor markers. Optimal care of patients with thyroid cancer may require a multidisciplinary team, including physicians with special expertise in endocrinology, surgery, pathology, nuclear medicine, radiation oncology, medical oncology, clinical chemistry, and diagnostic radiology *(Shimae et al.,2008).*

Various innovations in the field of thyroid cancer treatment have been developed in recent years. The utility of genetic markers such as RET/PTC, BRAF, and RAS may lead to their use as a form of screening test or as prognostic

indicators. The development of positron emission tomography scans has also been investigated in the monitoring of postoperative patients. Changes in surgical approaches and development of new instrumentation have altered the standard operative *approach to* thyroidectomy. As surgical techniques have evolved toward minimally invasive or minimally intrusive procedures, equipment such as ultrasonic shears, the video-endoscope. or the surgical robot have driven the evolution of surgery through smaller skin apertures ***(Shimae et al.,2008).***

Aim of the Work

The aim of this work is to outline the new trends in management of cancer thyroid and its impact on prognosis.