Open Peer Review on Qeios

[Short Communication] Individual opinions on the excessive and under diagnosis and treatment of thyroid cancer

Shan Jin[1]

1 Affiliated Hospital of Inner Mongolia Medical University

Funding: No specific funding was received for this work.

Potential competing interests: No potential competing interests to declare.

Abstract

The revision of various guidelines and standards in various countries has diversified the diagnosis and treatment mode of thyroid cancer, giving rise to many doubts and discussions about the related issues. Among them, the excessive and under diagnosis and treatment is the subject of endless debate. Based on the current changes in the diagnosis and treatment of thyroid cancer, this short communication expounds my personal views on the excessive and under diagnosis and treatment of thyroid cancer.

Prof. **Shan Jin**, Ph.D.

Department of General Surgery, Affiliated Hospital of Inner Mongolia Medical University, Hohhot 010050, Inner Mongolia Autonomous Region, China

Email: jinshangood@163.com

Keywords: Thyroid cancer, diagnosis, treatment.

Short Communication

The incidence of thyroid cancer is increasing rapidly, and the disease spectrum has changed, especially the number of patients with differentiated thyroid carcinoma (DTC), which is microcarcinoma. To promote the transformation of pathological classification from microscopic observation to genetics, and the treatment mode from one-size-fits-all to risk stratification, by understanding the natural development, biological characteristics, the progress, and prognostic risk factors of thyroid cancer [1]. The revision of various guidelines and standards in various countries has diversified the diagnosis and treatment mode of thyroid cancer, giving rise to many doubts and discussions about the related issues. Among them, the excessive and under diagnosis and treatment is the subject of endless debate.

1. Excessive diagnosis and treatment of thyroid cancer

Some investigators speculated that thyroid ultrasound and FNA detect a large number of asymptomatic papillary carcinomas. With the increase in the incidence rate, the number of operations is also on the rise. However, the death rate caused by thyroid cancer has not changed and is related to excessive diagnosis and treatment [2]. Conversely, the increase in incidence rate is not related to the measures of examination, and irrespective of the examination method, the real incidence rate of the disease is increased, and there is no excessive diagnosis. In the true sense, excessive diagnosis refers to pathological excessive diagnosis. Due to the personal diagnostic level of the hospital and the pathologist, in order to prevent misdiagnosis of the tumor lesions that are difficult to assess, the diagnosis is inferred as malignant, which is crucial for the excessive pathological diagnosis. In order to reduce the occurrence of such disease, it is important to introduce the concept of the borderline tumor for the diagnosis of difficult lesions. Pathologically, papillary carcinoma has a typical papillary structure with nuclear sulcus and intranuclear pseudo inclusion bodies, while papillary carcinoma with only follicular structure is known as the follicular variant of papillary thyroid carcinoma (FVPTC). In 2016, multinational pathologists jointly renamed the noninvasive follicular thyroid neoplasm with a type of encapsulated follicular variant of papillary thyroid carcinoma (EFVPTC) as “noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP),” instead of calling it “cancer,” and 210 NIFTP patients observed for an average of 10 years after the surgery did not show any recurrence or metastasis [3]. In Asian countries, NIFTP accounts for 5.3% of malignant nodules, and in European and American countries, this type of pathology accounts for 18.6% of PTC, which might be the real excessive-diagnosis problem [4]. In the fourth edition of WHO classification of endocrine tumors in 2017, a group of borderline thyroid follicular tumors between benign follicular adenoma and highly differentiated malignant tumors (PTC and FTC) was added, including hyalinizing trabecular tumor (HTT), follicular tumor of uncertain malignant potential (FT-UMP), well-differentiated tumor of uncertain malignant potential (WT-UMP), and NIFTP [5]. Obviously, total thyroidectomy and/or 131I therapy were an excessive treatment for these tumors. Typically, surgical treatment for asymptomatic papillary microcarcinoma, RFA for primary thyroid cancer and total thyroidectomy for low-risk papillary carcinoma may also be true excessive treatment.

2. Under diagnosis and treatment of thyroid cancer

Underdiagnosis and undertreatment of thyroid cancer often coexists with non-standard diagnosis and treatment. This article does not discuss the problems of undertreatment caused by non-standard medical treatment. For example: Pediatric PTC eligible for total thyroidectomy, but isthmus + lobectomy was performed. If clinicians focus on different risk stratification to select appropriate operation and postoperative adjuvant therapies, the problems of undertreatment chould be reduced significantly. This article does not specifically refer to the misdiagnosis of reporting "malignant" lesions as "benign", but refers to problems caused by insufficient pathological understanding of "malignant" lesions. In particular, it refers to the undertreatment caused by pathologists' lack of understanding of specific types of tumors with low incidence. For example: The histology of Intrathyroidal epithelial thymoma (ITTC) is sometimes indistinguishable from squamous cell carcinoma (SCC), undifferentiated carcinoma with squamoid component (UC-SCC), and thymic lymphoepithelioma-like

carcinoma (LELC) [6][7]. In cytopathologically, it needs to be differentiated from undifferentiated carcinoma with squamoid component (UC-SCC) and mucoepidermoid carcinoma [8]. ITTC was considered to be low malignancy tumor, but some cases required extended resection, postoperative adjuvant chemotherapy or radiation therapy. Although positive CD5 staining provides evidence of thymic origin, the recognition that the tumor is located at the lower pole of thyroid is important [8][9]. Due to the misdiagnosis, the patient was only undergone local operation, which led to undertreatment[10]. The underdiagnosis often leads to undertreatment or mistreatment.

References

1. ^*Jin s. Advances in Thyroid Diseases, 1th edn. Liaoning Science and Technology Publishing House, Shenyang, 2021*
2. ^*Sugitani I. Active surveillance of low-risk papillary thyroid microcarcinoma. Best Pract Res Clin Endocrinol Metab. 2023;37(1):101630. [PMID: 35256266 DOI: 10.1016/j.beem.2022.101630]*
3. ^*Nikiforov YE, Seethala RR, Tallini G, et al. Nomenclature Revision for Encapsulated Follicular Variant of Papillary Thyroid Carcinoma: A Paradigm Shift to Reduce Overtreatment of Indolent Tumors. JAMA Oncol 2016;2:1023-1029. [PMID: 27078145 DOI: 10.1001/jamaoncol.2016.0386]*
4. ^*Bychkov A, Keelawat S, Agarwal S, et al. Impact of non-invasive follicular thyroid neoplasm with papillary-like nuclear features on the Bethesda system for reporting thyroid cytopathology: a multi-institutional study in five Asian countries. Pathology. 2018;50:411-417. [PMID: 29631726 DOI: 10.1016/j.pathol.2017.11.088]*
5. ^*Jin s. General Rules for the Description of Thyroid Cancer, 8th edn. Liaoning Science and Technology Publishing House, Shenyang, 2021*
6. ^*Ito Y, Miyauchi A, Arai K, et al. Usefulness of S100A9 for diagnosis of intrathyroid epithelial thymoma (ITET)/carcinoma showing thymus-like differentiation (CASTLE). Pathology. 2006;38:541-4. [PMID: 17393982 DOI: 10.1080/00313020601024086]*
7. ^*Hirokawa M, Miyauchi A, Minato H, et al. Intrathyroidal epithelial thymoma/carcinoma showing thymus-like differentiation; comparison with thymic lymphoepithelioma-like carcinoma and a possibility of development from a multipotential stem cell. APMIS. 2013;121:523-30. [PMID: 23176314 DOI: 10.1111/apm.12017]*
8. [a, b]*Hirokawa M, Kuma S, Miyauchi A. Cytological findings of intrathyroidal epithelial thymoma/carcinoma showing thymus-like differentiation: a study of eight cases. Diagn Cytopathol. 2012;40:E16-20. [PMID: 22619154 DOI: 10.1002/dc.21511]*
9. ^*Dorfman DM, Shahsafaei A, Miyauchi A. Intrathyroidal epithelial thymoma (ITET)/carcinoma showing thymus-like differentiation (CASTLE) exhibits CD5 immunoreactivity: new evidence for thymic differentiation. Histopathology. 1998;32:104-9. [PMID: 9543665 DOI: 10.1046/j.1365-2559.1998.00318.x.]*
10. ^*Gonzales-Laguado E, Guerra-Miller H, García-Ruiz L, et al. Intrathyroidal thymic carcinoma misdiagnosed as a medullary thyroid carcinoma. Cir Cir. 2020;88:35-38. [PMID: 32963401 DOI: 10.24875/CIRU.20001336]*