

# Surgical Management of Differentiated Papillary and Follicular Thyroid Cancer

I. Koutelidakis, A. Ananiadis, V. Papaziogas, J. Makris

## Abstract

The incidence of thyroid cancer has increased in Greece and also in other countries of Europe. These developments led the Greek Society of Endocrine Surgeons to establish practice guidelines defining the optimal surgical treatment options that are available for the various disease entities and tumour classifications. These guidelines are the outcome of everyday practice with our patients and have been publicised by several surgical societies around the world from 2006 until the present day. The guidelines were developed on the basis of clinical findings in comparison with international treatment recommendations over the past eight years. Published treatment recommendations for thyroid cancer were reviewed and analyzed, taking into consideration the specificities of each country and continent. The practice guidelines for the surgical management of differentiated papillary and follicular thyroid cancer include recommendations for the preoperative evaluation and classification, surgical strategies, extent of thyroidectomy, clinical and histopathological features, extent of lymph node dissection and postoperative follow-up. These evidence-based recommendations for surgical management of differentiated papillary and follicular thyroid cancer, according to tumour type, stage, progression, and inherent surgical risk, are treatment pillars for the endocrine surgeon and all multidisciplinary teams.

**Key words:** *Differentiated thyroid cancer; surgical treatment; follicular thyroid cancer*

## Introduction

Thyroid cancer accounts for only 0.5-1.5% of all malignancies, but its incidence is increasing in European countries more rapidly than other cancers, [11] and it requires a multidisciplinary approach, including endocrinology, nuclear medicine, oncology and endocrine surgery. Epidemiology may differ among European countries according to different environments, probably implicating different clinical practice or pathogenetic factors which change management accordingly. In recent decades, the clinical presentation of differentiated thyroid cancer has changed from advanced cases requiring intense treatment and surveillance to cancers detected by fortuitous neck ultrasonography (US) requiring less aggressive treatment and follow-up. Diagnostic and treatment tools have also improved allowing less invasive and uncomfortable procedures for the patients. These considerations present the need for more effective, less invasive and expensive procedures capable of guaranteeing the best

management and quality of life for a disease that already has low mortality and requires life-long follow-up. Several European countries have developed their own guidelines or consensus reports based on experience and cultural attitude. Nevertheless, they differ in several, and sometimes important, aspects.

## Surgical treatment – Guidelines summary

Surgical treatment should be performed by skilled surgeons along with multidisciplinary teams trained specifically in thyroid cancer surgery and experienced in operating on a large number of thyroid cancer patients annually, including primary and recurrent cases. Patients with thyroid nodules should undergo fine needle aspiration cytology to avoid reoperation (total thyroidectomy) due to postoperative incidental detection of thyroid carcinoma.

Frozen section is also used for the same reasons, but its value in detecting minimally invasive follicular cancer or a follicular variant of papillary thyroid cancer is very limited. The definition of total or near total thyroidectomy is the excision of the gland leaving a normal thyroid stump of 1 gr [1-4]. There is a consensus of the associations concerning the thyroid stump that is left behind, in terms of the percentages of laryngeal nerve palsy (2-5%) or higher in reoperation [2-4]. Total or near total thyroidectomy is preferred for tumours larger than 10mm. In 2009, in a series of 346 patients, Jennifer B. Ogilvie et al. suggested that

I. Koutelidakis, A. Ananiadis, V. Papaziogas, J. Makris  
2nd Department of Surgery, Medical School, Aristoteleio University  
of Thessaloniki, Greece

Department of Endocrinology, Red Cross Hospital, Athens, Greece

Corresponding author: I. Koutelidakis  
e-mail: iokoutel@gmail.com

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patients with tumours greater than 6mm could undergo total or near total thyroidectomy.

## Conclusion

In thyroid cancer, a solitary well-differentiated tumour measuring less than 1 cm in diameter, with no evidence

of nodal or distant metastases and no history of previous radiation exposure, requires less than total thyroidectomy. The standard surgical treatment is total (or near-total) thyroidectomy. In expert hands, this procedure decreases the risk of local recurrence and is performed with almost no morbidity. It also facilitates radioiodine ablation after surgery and adequate follow-up. Lobectomy should not

**Table 1.**

Papillary thyroid carcinoma	Type of procedure	Evidence type / grade of recommendation
Tumour size <10mm without lymph node participation	Lobectomy	III / B
Tumour size >10mm	Total thyroidectomy	III / B
Multifocality		
Extrathyroidal extension		
Family history		
Previous history of radiation exposure in childhood	Total thyroidectomy	IV / C
Reoperation after lobectomy	Total thyroidectomy in 8 weeks <sup>1</sup>	IV / C
>45 years old	Total thyroidectomy and lymph node dissection to section VI	IV / C
Tumour size >40mm		
Extrathyroidal extension		
Disruption of thyroid capsule		
Palpable lymph node in section VI		
Male		
Follicular thyroid carcinoma	Type of procedure	Evidence type / grading
Minimally invasive tumour <10mm	Lobectomy	IV / C
Vascular invasion	Total thyroidectomy	IV / C
Tumour size >40mm		
Female		III / B
<45 years old	Lobectomy	
Tumour size <20mm		
Reoperation after lobectomy	Total thyroidectomy in 8 weeks <sup>1</sup>	IV / C
Palpable lymph node in section VI	Total thyroidectomy and lymph node dissection to section VI	IV / C
Minimally invasive follicular thyroid carcinoma (MIFTC) & Non-metastatic papillary thyroid microcarcinoma (PTMC)	Type of procedure	Evidence type / grading
Tumour size <10mm		
Strictly endothyroidal extension		
Non-multifocality	Lobectomy	III / B
Non-metastatic		
Strictly contralateral		
Absence of vascular invasion		

be performed; if a patient is referred after less than near-total thyroidectomy, completion thyroidectomy should be proposed in the case of a large tumour, multifocality, extrathyroidal extension and/or vascular invasion evidence of local or distant metastases, previous history of radiation exposure or unfavourable histology. The procedure should be discussed with the patient on the basis of the risks and benefits of reoperative surgery, including the potential risk of surgical morbidity. Depending on the size of the thyroid remnant, an effective alternative to completion thyroidectomy when the risk of persistent disease is low may be radioiodine ablation of the residual thyroid tissue [6].

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