

Congresso
Macroregionale

AME
day

• DESENZANO
DEL GARDA
23 MAGGIO



• ROMA
22 - 23 MAGGIO



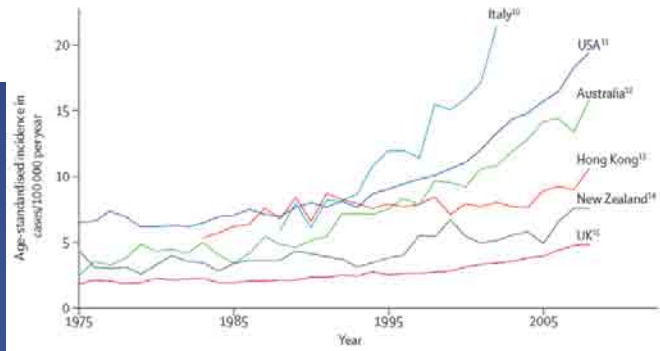
• NAPOLI
23 MAGGIO



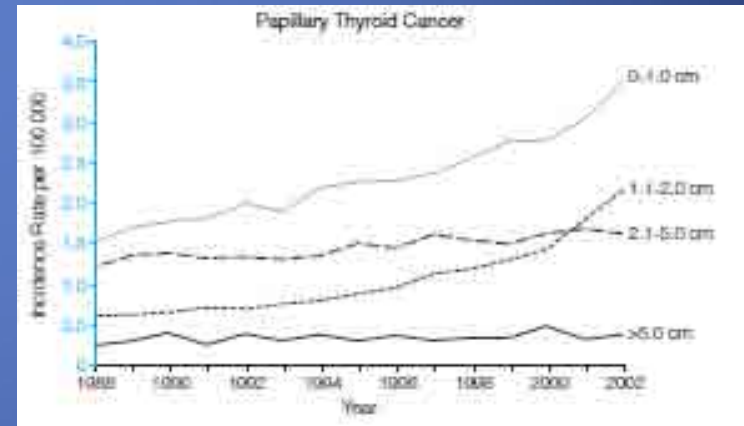
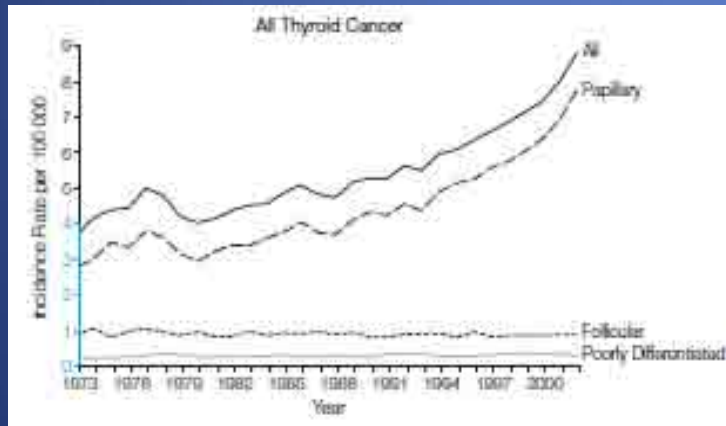
Perché la chirurgia conservativa

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Spedali Civili di Brescia

**There is an increasing incidence (3-fold) of DTC over recent decades.
 The entire increase is attributable to Papillary Thyroid Cancer.
 87% of the increase is attributable to tumors measuring less than 2 cm.**



*Davies L., et al., Arch. Otolaryngol. Head Neck Surg. 2010
 Davies L., et al. JAMA 2006*

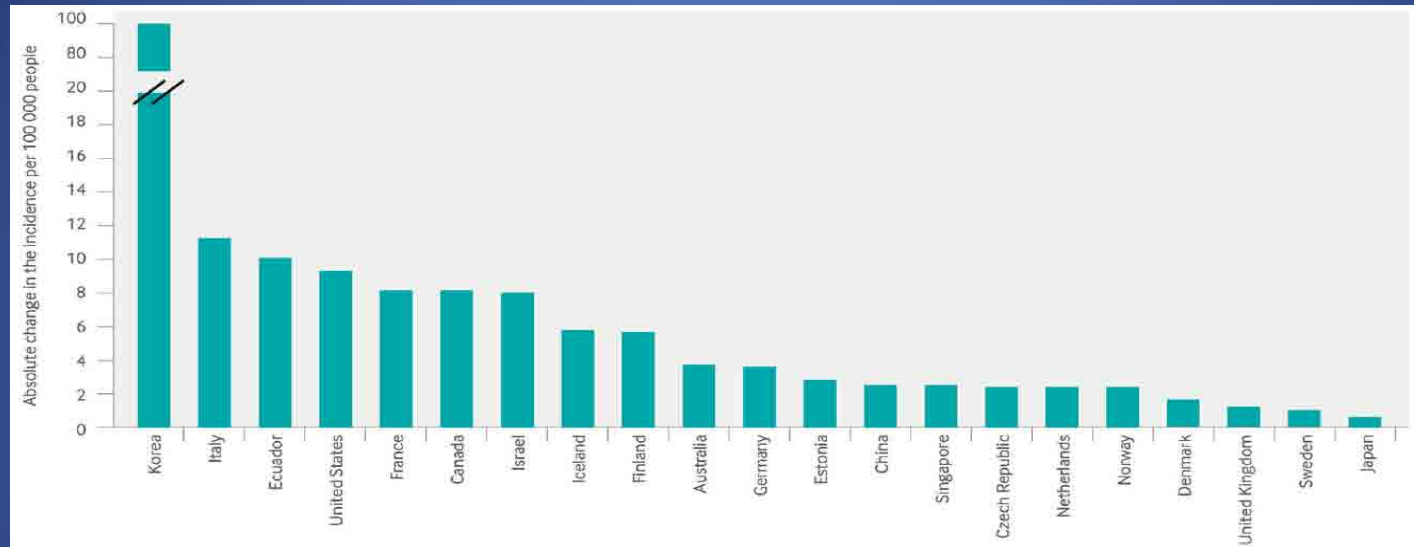


**Epidemic of diagnosis:
 opportunistic screening, diagnostic cascade, serendipitous detection**

Davies L., et al. JAMA Otolaryngol. Head Neck Surg. 2014

... a low share of public health expenditure is associated with a high incidence of thyroid cancer.

Lee T.J., et al. JKMS, 2012



Curado M.P., et al. Intern. Ag. Res. Cancer, 2007

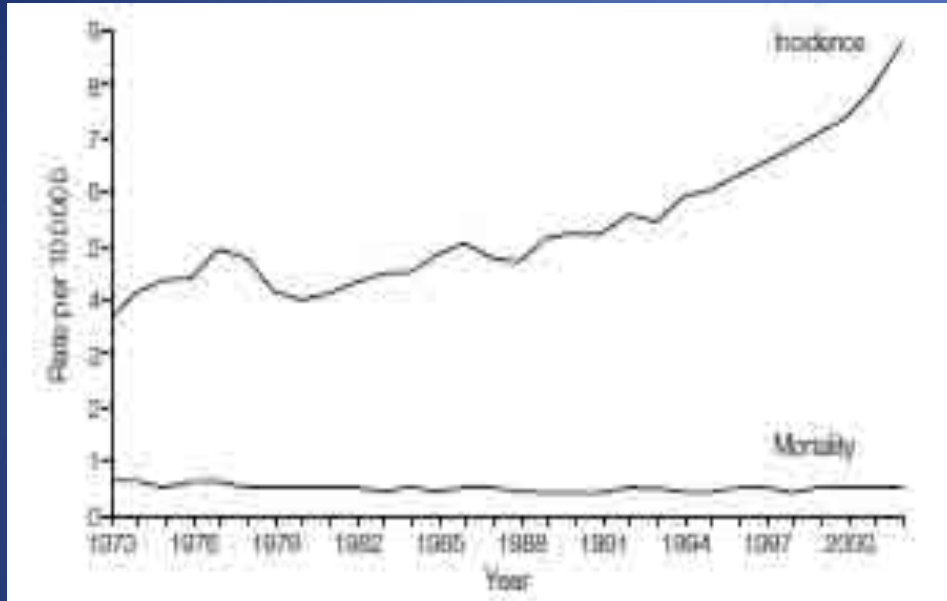
DTC is projected to surpass rectal cancer in 2019 and colon cancer in 2039

Lang B.H.-H., et al. EJSO, 2015

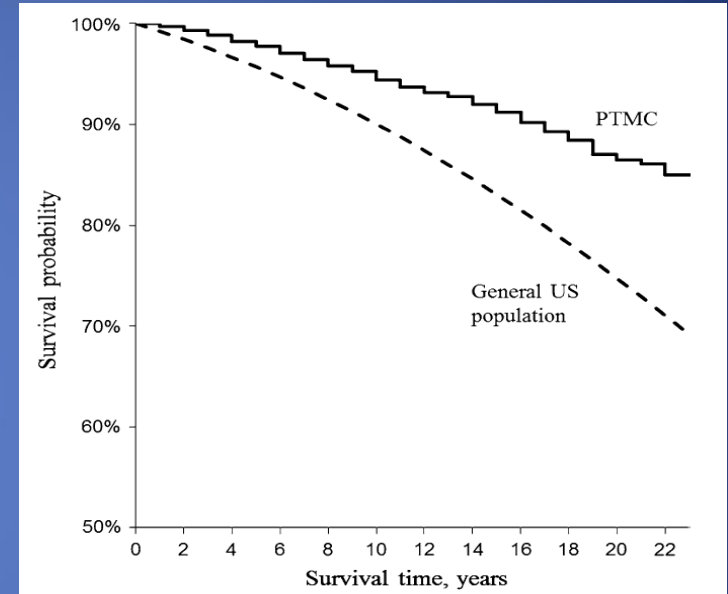
The total costs in 2013: \$1.6 billion dollars, in 2030: \$3.55 billion dollars

Lubitz C.C., et al. Cancer 2014

Despite its high prevalence DTC is an uncommon cause of death. Most patients with these lesions have an excellent prognosis.



Davies L., et al. JAMA Otolaryngol. Head Neck Surg. 2014

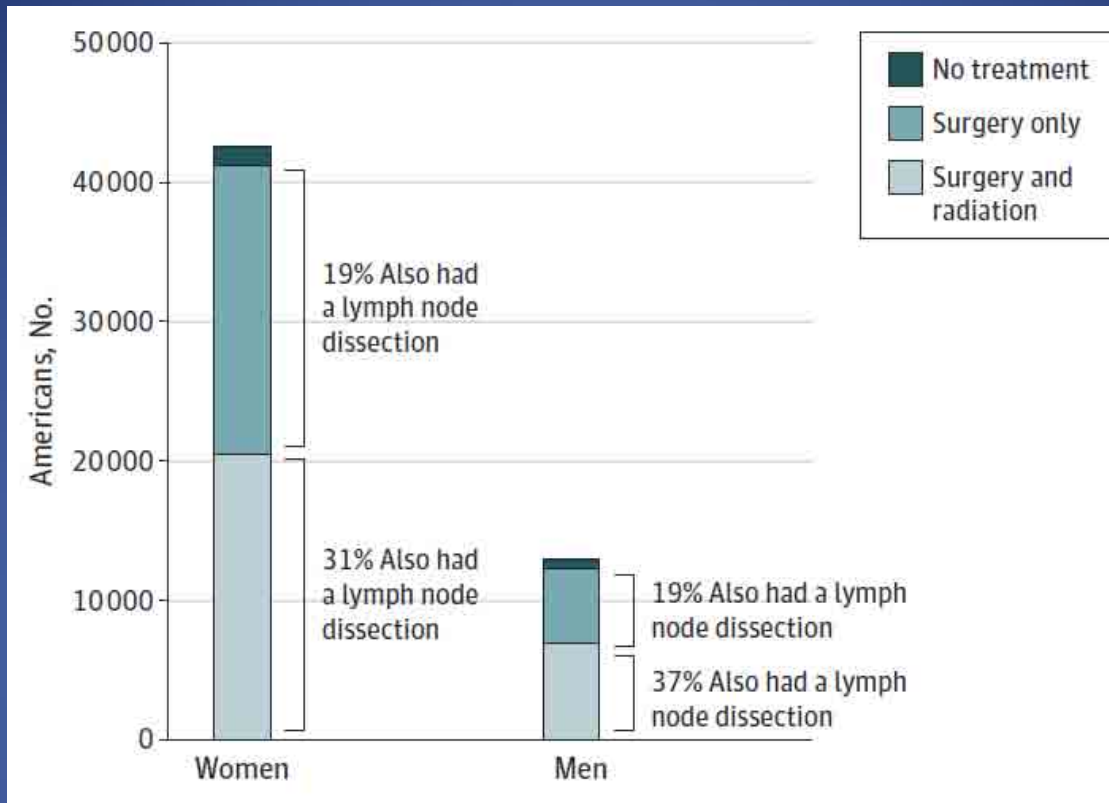


Wang T.S., et al., WJS, 2014

DTC is common among people who die from non-thyroid related cause

Harach H.R., et al. Cancer, 1985

Martinez-Tello F.J., et al. Cancer, 1983



SEER 9, april 2013

Many patients with LOW RISK DTC receive similar care to that for more aggressive disease and worse prognosis: total thyroidectomy is performed for 85% of people diagnosed as having DTC. Many also undergo a lymph node dissection. Half of patients received radiation treatment.

Davies L. et al. JAMA Otolaryngol. Head Neck Surg. 2014

	ATA (2006)	BTA (2007)	AACE/AAES (2001)
Extent of thyroidectomy			
Total or near-total thyroidectomy	Age ≥ 45 T > 1-1.5 cm N (+) M (+)	T > 1 cm Ex (+) N (+) Multiple lesions	High-risk cancer Ex (+) N (+) M (+)
	Bilateral nodularity Radiation history Family history	Radiation history Family history	
Lobectomy (+isthmusectomy)	Other than above	T ≤ 1 cm N0	T ≤ 1 cm Ex0 N0 M0
Lymph node dissection			
Central compartment dissection	N.R	N.R	N.R
Lateral compartment dissection	N.R	N.R	N.R

Because of the indolence and slow growth of DTC, the studies with very large numbers and long follow-up are retrospective, often with some biases or deficiencies in recording analysis.

There are not including randomized studies.

Most patients who undergo total thyroidectomy may also undergo RAI ablation therapy, which means that these studies may not have compared total thyroidectomy with limited thyroidectomy

«...factors that had not influence on survival were lymph node status, CHOICE OF INITIAL SURGICAL TREATMENT, and a hystory of prior irradiation...»

Cunnigham M.P., et al., Am. J. Surg., 1990

...less extensive initial surgery no affect the cause specific survival...

Tsang R.W., et al. Cancer 1998

«...multivariate analysis revealed that the extent of surgical resection does not impact a significant DSS or OS benefit...»

Mendelsohn A.H., et al. JAMA Otoralingol. Head Mneck Surg. 2010

Clinical Study

Thyroid Lobectomy Is Associated with Excellent Clinical Outcomes in Properly Selected Differentiated Thyroid Cancer Patients with Primary Tumors Greater Than 1 cm

Fernanda Vaisman,^{1,2} Denise Momesso,¹ Daniel A. Bulzico,²
Cécilia H. C. N. Pessoa,² Manuel Domingos Gonçalves da Cruz,³ Fernando Dias,⁴
Rossana Corbo,^{1,2} Mario Vaisman,¹ and R. Michael Tuttle⁵

thyroid lobectomy to be an acceptable alternative to total thyroidectomy in properly selected differentiated thyroid cancer patients with primary tumors greater than 1 cm.

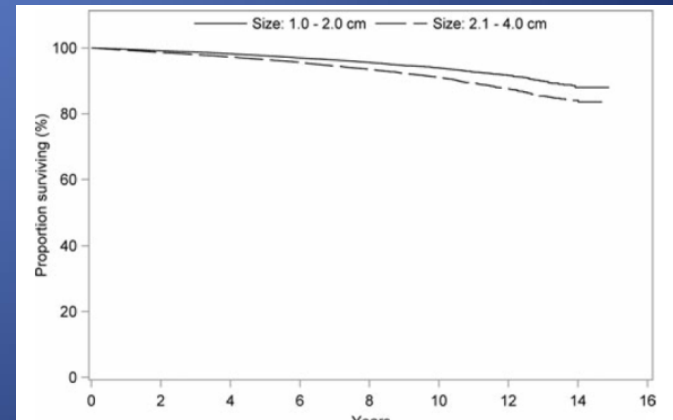
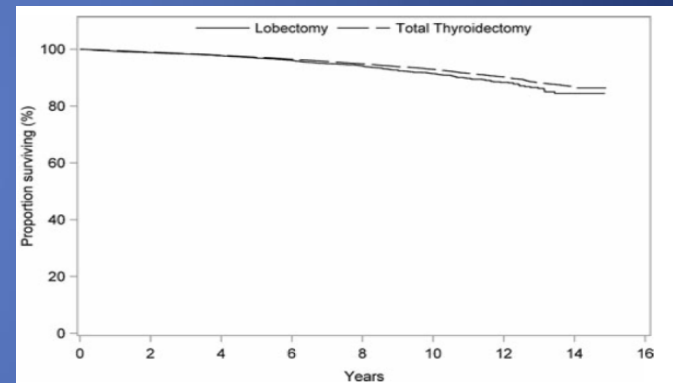
Extent of Surgery for Papillary Thyroid Cancer Is Not Associated With Survival

An Analysis of 61,775 Patients

Mohamed Abdelgadir Adam, MD,* John Pura, MPH,† Lin Gu, MS,‡ Michaela A. Dinan, PhD,‡
Douglas S. Tyler, MD,* Shelby D. Reed, PhD,‡ Randall Scheri, MD,* Sanziana A. Roman, MD,*
and Julie A. Sosa, MD, MA*‡

Ann. Surg. 2014

Conclusions: Current guidelines suggest total thyroidectomy for PTC tumors >1 cm. However, we did not observe a survival advantage associated with total thyroidectomy compared with lobectomy. These findings call into question whether tumor size should be an absolute indication for total thyroidectomy.

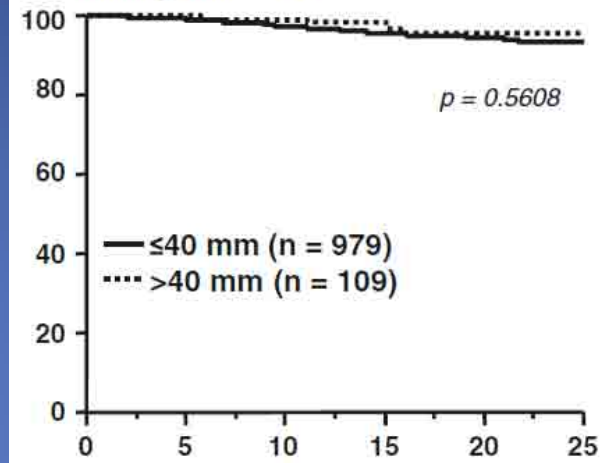


Thyroid Lobectomy for Papillary Thyroid Cancer: Long-term Follow-up Study of 1,088 Cases

Kenichi Matsuzo · Kiminori Sugino · Katsuhiko Masudo · Mitsuji Nagahama · Wataru Kitagawa · Hiroshi Shibuya · Keiko Ohkuwa · Takashi Uruno · Akifumi Suzuki · Syunsuke Magoshi · Junko Akaishi · Chie Masaki · Michikazu Kawano · Nobuyasu Suganuma · Yasushi Rino · Munetaka Masuda · Kaori Kameyama · Hiroshi Takami · Koichi Ito

Conclusions The long-term clinical outcome of the PTC patients who had been treated by lobectomy without RAI ablation was excellent. Based on the above results, we concluded that lobectomy is a valid alternative to total thyroidectomy for the treatment of PTC patients who are younger than aged 45 years, whose tumor diameter is 40 mm or less, and who do not have clinical lymph node metastasis or extrathyroidal invasion.

C Primary tumor size



Risk-adapted management of papillary thyroid carcinoma according to our own risk group classification system: Is thyroid lobectomy the treatment of choice for low-risk patients?

Aya Ebina, MD,^a Iwao Sugitani, MD, PhD,^{a,b} Yoshihide Fujimoto, MD, PhD,^a and Keiko Yamada, MD, PhD,^c Tokyo, Japan

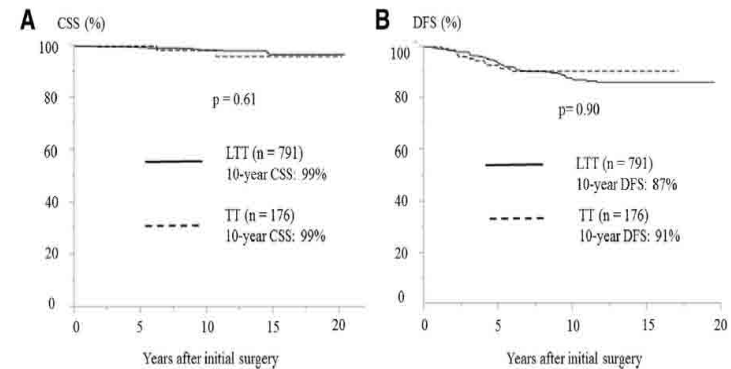


Fig 2. (A) Cause-specific survival (CSS) curves for low-risk group patients who underwent less-than-total thyroidectomy (LTT) or total or near-total thyroidectomy (TT). (B) Disease-free survival (DFS) curves for low-risk group patients who underwent less-than-total thyroidectomy (LTT) or total or near-total thyroidectomy (TT).

Surgery, 2014

Diameter 1 - > 3 cm

References	No. of patients	Mean follow-up in months (range)	10-year OS total thyroidectomy	10-year OS lobectomy	P	DFS total thyroidectomy	DFS lobectomy	P
Momesso 2014 [42]	176 DTC ≤2 cm low-risk	169 (115-223)	98.2%	100%	0.2	80.9%	89.4%	0.2
Ebina 2014 [44*]	967 PTC low-risk	99 (36-240)	99%	99%	0.61	91%	87%	0.9
Adam 2014 [50*]	61775 PTC 1-4 cm	82 (60-179)	Unadjusted OS 92.9% Adjusted OS -	Unadjusted OS 91.4% Adjusted OS HR 0.96 (0.84-1.09)	<0.001 P=0.54	-	-	-
Nixon 2012 [64]	889 DTCT1T2N0	99 (13-291)	92%	93%	0.64	98.5%	100%	0.246
Ito 2010 [39]	2638 T1N0M0	91 (6-240)	-	-	-	98.4%	97.2%	0.017
Bilimaria 2007 [30]	≤1 cm 52173; All size	69.7	-	HR 1.02 (0.74-1.41)	0.83	-	HR 1.01 (0.77-1.32)	0.24
			98.4%	97.1%	<0.05	92.3%	90.2%	<0.05
Hay 2008 [71]	900 PTM	206 (1-648)	-	-	-	95.5%	94.3%	0.54
Haigh 2005 [41]	PTC 4402 low risk	88 (1-144)	89%	91%	<0.07	-	-	-
	PTC 1030 high risk		72%	78%	0.14	-	-	-

It is difficult to show benefit of any intervention when the risk of mortality is close to 1-2% after 20 years of follow-up.

Brito J.P., et al. BMJ 2014

Thyroid lobectomy and isthmusectomy is a definitive treatment for patients with a benign follicular adenoma and patients with minimally invasive follicular cancer

McHenry C.R., et al. The Oncologist, 2011

Hemithyroidectomy was adequate definitive treatment in 87% of patients with follicular neoplasms

Chiu C.G, et al. Can. J. Surg. 2012

Hemithyroidectomy was considered adequate for treatment in 96% of patients (with cytological diagnosis of follicular neoplasms), and no further operation was required

Wiseman S.M., et al. Ann. Surg. Oncol. 2006

Hemithyroidectomy seems to be the preferable initial surgical approach (in 89.48% of patients) for indeterminate follicular lesions

Dobrinja C., et al. Ann. Ital. Chir. 2010

Intrathyroidal metastases in contralateral lobe, because bilateral cancers have been reported in 30-85% of PTC

Russel W.O., et al., Cancer 1996

Samaan N.A., J. Clin. Endocrinol. Metab. 1983

Clark R.L., et al., Ann. Surg. 1959

The recurrence rate in the remanant thyroid gland at 25 years is just 6.5%

Matsuzu K. Et al., WJS, 2014

Hay I.D. et al., Surgery 1993

Grant C.S., et al., Surgery 1988

Discrepancies between the clinical recurrence rate and the potential recurrence rate

The possibility of intrathyroidal metastasis in contralateral lobe is not alone a sufficient reason to justify routine total thyroidectomy in all cases

RAI ablation:

- indication in PTC patients have not yet been clearly defined**
- its therapeutic use has recently been revised (increased risk of secondary cancers)**
- in USA only 56% of the patients who had undergone TT underwent postoperative RAI ablation**

Billimoria K.Y., et al. Ann. Surg. 2007

Sawla A.M., et al. Thyroid, 2009

Schwartz C., et al. J. Clin. Endocrinol. Metab. 2012

Gepalakrishna n., et al. Cancer 2011

Use of radioiodine after thyroid lobectomy in patients with differentiated thyroid cancer: does it change outcome ?

Kiernan C.M., et al. J. Am. Coll. Surg. 2015

I-131: its diagnostic use is increasingly being supplanted by US and MR, which are more reliable than I-131 in patients with advanced disease

Molver B. Oral Oncol. 2013

Tg assay after conservative surgery: looking at the trend of values

Vaisman F., et al. J. Thyroid Res. 2013

Recurrence can occur in 3 forms:

- Distant metastasis**
- «true» local recurrence**
- Disease within lymph nodes (LNM)**

90% of recurrence is LNM (most likely represent disease persistence)

**Recurrence rates of 4-10% in patients with low-risk after conservative treatment
6.9% in the cervical LNM, 1.6% in the remnant thyroid and 1.3% in distant sites
In high-risk patients recurrence rates are as high as 20-40%**

Sugitani I. et al., Surgery 2004

Haigh P.I., et al., Ann. Surg. Oncol., 2005

Cervical recurrence are reported to have little to no effect on survival: 8% of patients die of locoregional recurrence

Saha A.R., et al. Laryngoscope 2004

Mazzaferri E.L., et al. Am. J. Med. 1994

Schlumberger M.J., et al. J. Endocrinol. Invest. 1999

Table 1. Characteristics of studies included in the meta-analysis

Reference	Country	Study of year	Rec/Total patients (%)	Follow-up durations	Mean Rec time	DFS	DSS
Albuja-Cruz [11]	America	2012	9/117 (8%)	25 (1-256) M	35 m	—	—
Baek [12]	Korea	2010	33/189 (17.5%)	81 (48-386) M	—	LNM (+) 77.8% LNM (-) 57.9% (<i>P</i> < 0.05)	—
Grogan [13]	America	2013	75/269 (28%)	11-27 y	8.1 y	10-year 81.0% 20-year 75.1% 30-year 73.2% 40-year 72.1%	10-year 94.8% 20-year 92.6% 30-year 92.2% 40-year 91.1%
Kim 2012 [14]	Korea	2012	36/416 (8.7%)	120.79 M	87 m	10-year 90.4%	10-year 91.6% 100% (one) 83.1% (multiple)
Kim 2013 [15]	Korea	2013	138/2095 (6.6%)	84 (1-188) M	43 (11-130) m	—	—
Kruijff [16]	Australia	2014	94/1183 (7.9%)	—	31 (6-407) m	5-year 95% 10-year 92%	10-year 98.9%
Leboulleux [17]	France	2005	8/148 (7%)	8 (0.1-6 y)	4.7 (1-7) y	5-year 96% 10-year 91%	10-year 99%
Ma [18]	China	2013	18/206 (8.7%)	4.1 (3-5) y	30.4 (3-42) m	—	—
Ryu [19]	Korea	2014	17/295 (5.8%)	78 (63-137) M	—	5-year 94.6% 10-year 92.8% LNR ≤ 0.65 98.6% LNR > 0.65 75.4% (<i>P</i> < 0.001)	10-year 100%
Shah [20]	America	2012	27/444 (6.1%)	27.5 M	21 m	10-year 93.9%	10-year 100%
Tanaka [21]	Japan	2004	39/386 (10.1%)	125 m	—	20-year 87%	10-year 97.8% 20-year 96%
Toniato [22]	Italy	2008	79/950 (7.8%)	7.8 (2-17) y	—	—	10-year 91.38% 15-year 88.69%
Zhao [23]	China	2013	109/459 (23.7%)	> 5 y	40 (1.5-108) m	—	—

Rec, Recurrence; DFS, Disease-Free Survival; DSS, Disease-Specific Survival; LNM, Lymph Node Metastasis; LNR, Lymph Node Ratio.

Risk factors influencing recurrence: male, extrathyroid extension, LNM, tumor size more than 2 cm, distance metastases, subtotal thyroidectomy

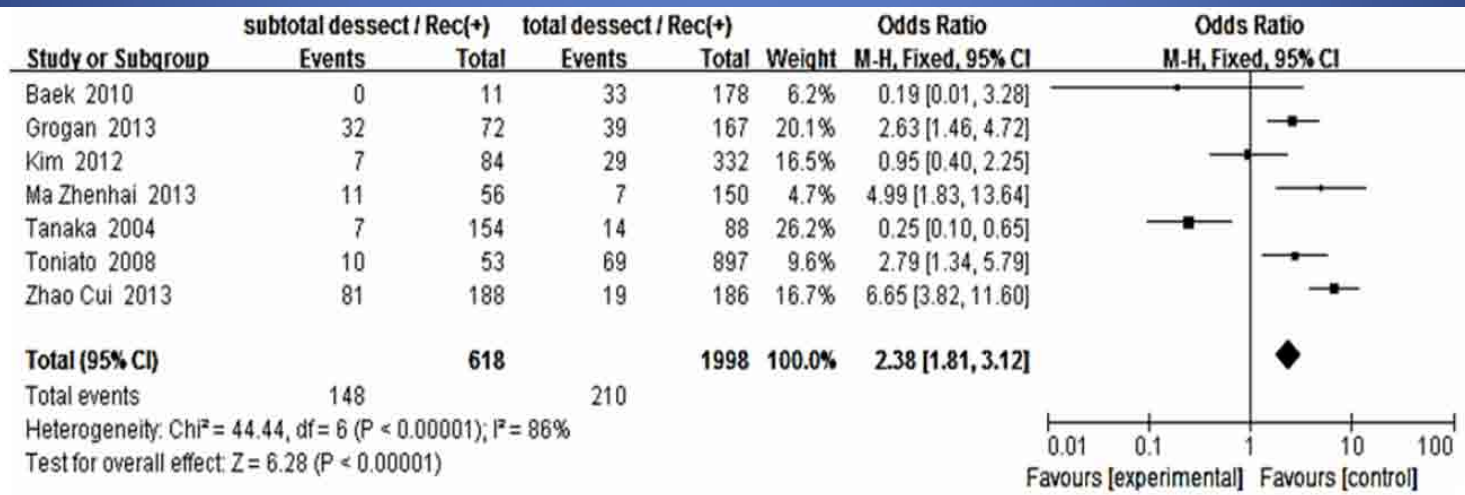


TABLE 4 Summary of recent studies that examined the recurrence rate of papillary thyroid cancer

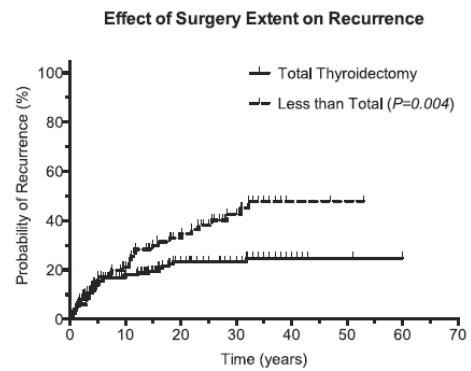
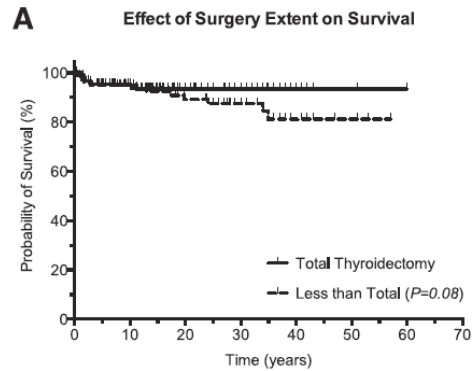
Study (year)	No. of patients	Median F/U (years)	ORR (%)	Disease	Surgical extent			RAI ablation	Primary endpoint	
					Thyroid (%)	Level VI	Level II-V		Recurrence	Cancer-specific mortality
Matsuzaki et al. 2014 ²²	1088	17.6	9.4	cPTC	LTT	+	±	-	Size, ETE, CELNM	Age, size, ETE
Kruijff et al. 2013 ²³	1183	2.6	7.9	PTC	TT	±	±	+	Age, sex, size, LN, vascular invasion, ETE	NA
Barczyński et al. 2014 ²⁴	760	5	6.0	PTC	TT	+	-	+	LN, LN ratio	NA
Rogan et al. 2013 ²⁵	269	27	28.0	PTC	TT (66)/LTT (31)/ unknown (3)	±	±	+	Age, FVPTC, TNM stage	Age, TNM stage
Schneider et al. 2013 ²⁶	217	NA	23.2	PTC	TT	+	±	+	LN ratio	NA
Durante et al. 2013 ¹⁷	1020	10.4	1.4	PTC	TT	±	±	+	ATA risk	NA
Kim et al. 2013 ²⁷	2095	7	2.1	PTC	TT	±	±	+	Size, LN, distant metastasis, multifocality, cLND ^b	NA
Ito et al. 2012 ²⁸	5768	10	7.0	PTC	TT (51)/LTT (49)	±	±	+ ^a	Age, sex, ETE, size, CELNM	NA
Shah et al. 2012 ²⁹	92	2.3	29.0	PTC	NA	±	±	+	CELNM	NA
Tuttle et al. 2010 ³⁰	588	7	1.4	TC	TT	NA	NA	+	ATA risk, response to therapy ^b	NA
Baek et al. 2010 ³¹	189	6.8	17.5	PTC	TT (94.2)/LTT (5.8)	±	±	+	N stage	NA
Lin et al. 2009 ³²	1682	7.7	14.4	PTC	TT (58.9)/LTT (41.1)	±	±	+	Multifocality ^b	Multifocality
Kim et al. 2008 ³³	293	5.4	5.0	PTMC	TT (56.4)/LTT (43.6)	±	±	+	Sex, N stage	NA
Bilimoria et al. 2007 ³⁴	52,173	10	9.4	PTC	TT (82.9)/LTT (17.1)	NA	NA	+	Size, surgical extent	Size, surgical extent

F/U follow-up, ORR overall recurrence rate, cPTC conventional papillary thyroid carcinoma, PTC papillary thyroid carcinoma, TC thyroid carcinoma, PTMC conventional papillary thyroid microcarcinoma, FVPTC follicular variant papillary thyroid carcinoma, LTT less than total, TT total thyroidectomy, ETE extrathyroidal extension, CELNM clinically evident lymph node metastasis, LN lymph node, cLND central lymph node dissection, NA not available, RAI radioactive iodine, ATA American Thyroid Association. + indicates performed in all patients, - indicates performed in no patients, ± indicates performed in some patients.

^a Only 84 patients received RAI ablation in this study.

^b Persistence was considered in addition to recurrence.

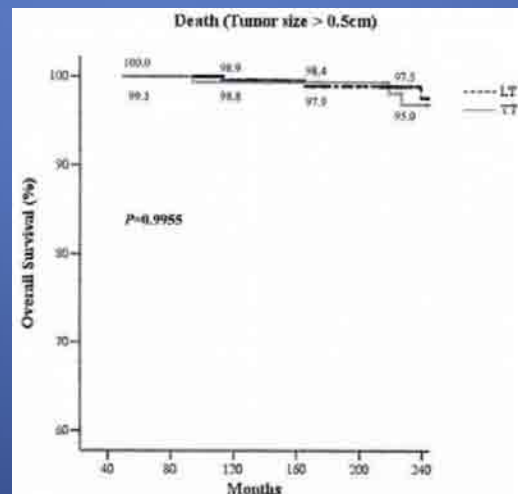
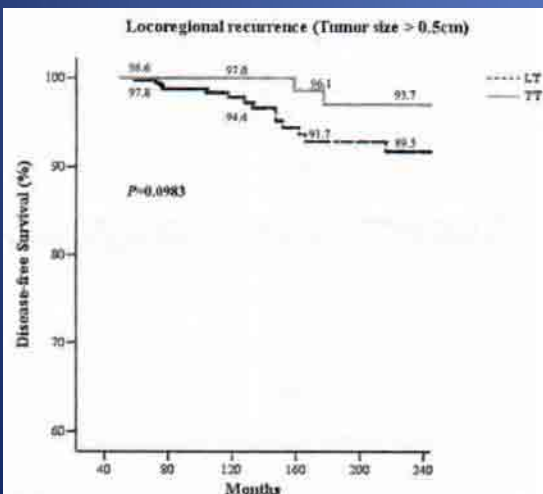
Conclusions. Tumor size, bilaterality, gross ETE, lymph node metastasis, and vascular invasion were associated with locoregional recurrence. Evaluation of these prognostic factors appears to help identify patients who require close monitoring.



11% of recurrences and 17% of deaths occurred after 20 years, furthermore 4% of recurrences and 13% of deaths occurred more than 30 years after the diagnosis of thyroid cancer.

Risk factors for recurrence were older age, FVPTC, T4 tumors, cervical lymph node involvement, metastases, and stage > 4°

Grogan R.H., et al., Surgery 2013



Lee J., et al. Thyroid 2103

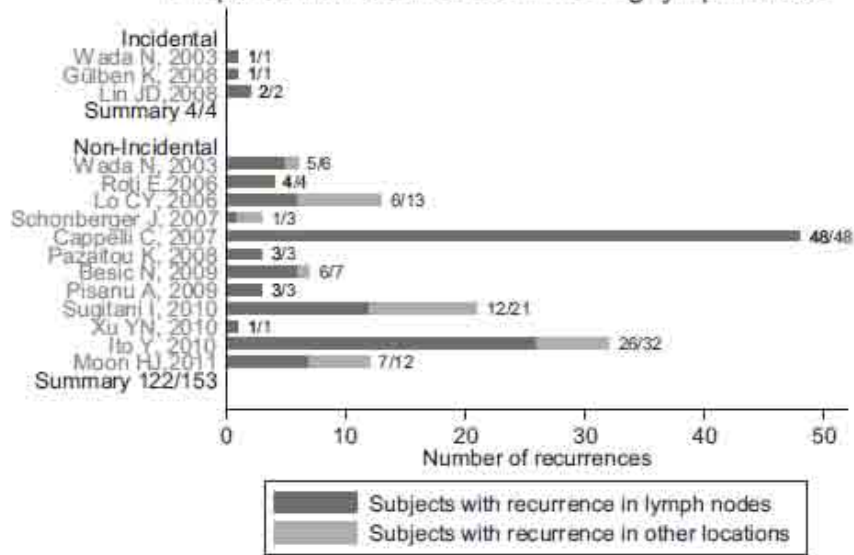
Clinical-pathological features of mPTC incidental or not incidental in different series.

Author (ref)	Diagnosis	Patients	Multicentric	Bilateral	Invasive	Lymph node metastases	Distant metastases
Baudin et al ⁴⁶	Incidental	189	56 (30%)	25 (13%)	21 (11%)	41 (22%)	0 (0%)
	Not incidental	92	56 (61%) ^a	21 (23%) ^a	21 (23%) ^a	89 (91%) ^a	8 (8.6%) ^a
Pellegriti et al ⁶⁶	Incidental	151	37 (24.5%)	22 (14.6%)	16 (10%)	24 (15.9%)	1 (0.7%)
	Not incidental	148	58 (39.2%) ^a	33 (22.3%)	38 (25%) ^a	66 (44.6%) ^a	7 (4.7%)
Roti et al ⁴⁸	Incidental	52	10 (19%)	6 (11%)	8 (15%)	2 (4%)	0 (0%)
	Not incidental	191	68 (36%)	39 (20%)	34 (18%)	30 (16%)	4 (2%)
Chung-Yau et al ⁶⁷	Incidental	75	9 (12%)	n.d	0 (0%)	0 (0%)	0 (0%)
	Not incidental	110	35 (32%) ^a	n.d	21 (19%) ^a	43 (39%) ^a	3 (2.7%)

^a Significantly different.

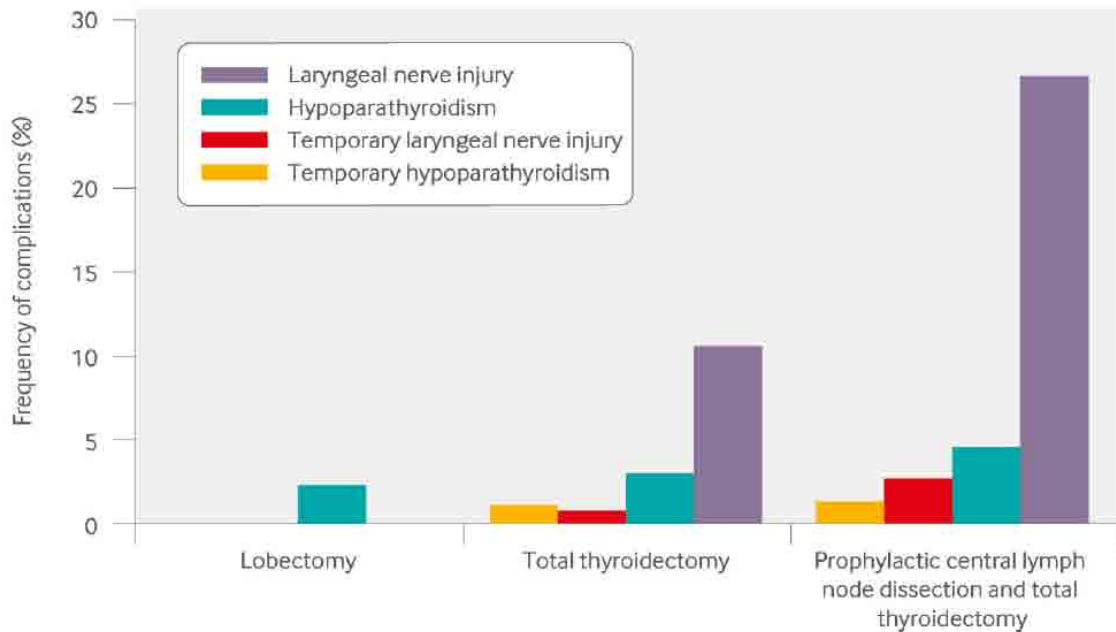
Pacini F. Best & Res. Clin. Endocrinol. & Metabol. 2012

Proportion of recurrences involving lymph nodes



Mortality: no significant differences was found (p=0.2)

Mehanna H., et al. J. Clin. Endocrinol. Metab. 2014



Sywak M., et al., Surgery, 2006
Roh J.L., et al., Ann. Surg., 2007

Table III. Postoperative complications in patients with low-risk papillary thyroid carcinoma according to the extent of thyroidectomy

Complication	Total (n = 967)	LTT, n/N (%)			TT, n/N (%)		P value (LTT vs TT)
		Isthmusectomy (n = 22)	Lobectomy (n = 674)	Subtotal thyroidectomy (n = 95)	Near-total thyroidectomy (n = 62)	Total thyroidectomy (n = 114)	
Overt hypothyroidism (excluding patients assigned to undergo TSH-suppression therapy)	234/775 (30)	2/16 (13)	72/558 (13)	25/66 (38)	39/39 (100)	96/96 (100)	<.0001
Hypoparathyroidism							
Transient	83/967 (9)	0/22 (0)	3/674 (0.4)	7/95 (7)	11/62 (18)	62/114 (54)	<.0001
Permanent	16/967 (2)	0/22 (0)	0/674 (0)	3/95 (3)	3/62 (5)	10/114 (9)	<.0001
Recurrent laryngeal nerve palsy per nerve at risk (excluding patients with Ex2 or Ex3 to the recurrent nerve)							
Transient	98/1,832 (5)	1/44 (2)	66/1,288 (5)	8/172 (5)	7/118 (6)	16/210 (8)	.14
Permanent	33/1,832 (2)	0/44 (0)	20/1,288 (2)	3/172 (2)	3/118 (3)	7/210 (3)	.061

LTT, Less-than-total thyroidectomy; TT, total or near-total thyroidectomy.

Ebina A., et al., Surgery 2014

ORIGINAL ARTICLE – ENDOCRINE TUMORS

Oncologic Outcomes After Completion Thyroidectomy for Patients with Well-Differentiated Thyroid Carcinoma

Brian R. Untch, MD¹, Frank L. Palmer, BA², Ian Ganly, MD², Snehal G. Patel, MD², R. Michael Tuttle, MD³, Jatin P. Shah, MD², and Ashok A. Shaha, MD²

“...completion thyroidectomy is not necessary in all patients with WDTC. ...it should be used in cases of large tumors, bulky nodal disease, and concerning histologic features. Risk group stratification and postoperative risk-adapted evaluation is very important...”

Currently available data on the prognostic influence of PCND during initial surgery are controversial

Ito Y., et al. WJS 2010
Pereira J.A., et al. Surgery 2005
Wada N., et al. Ann. Surg. 2003
Carling T., et al. Thyroid 2012
Shah N.D., et al. Laryngoscope 2003

LNM are common in patients with PTC.

35% of patients with PTC have macroscopically LNM and 80% have microscopic LNM (clinically non-palpable disease)

Kim W.W., et al. Head Neck 2013
Miao S., et al. ORL J. Otorhinolaryngol. Relat. Spec. 2013
Machens A., et al. WJS 2002
Pereira J.A., et al. Surgery 2005
Lee Y.S., et al. WIS 2007

It is important to recognize that all LNM are not the same in terms of their implications for recurrence and mortality.

Schlumberg M. N. Engl. J. Med. 1998
Noguchi S., et al. Surg. Clin. N. Am. 1987
Cranshaw I.M., et al. Surg. Oncol. 2008
Randolph G.W., et al. Thyroid 2012

The overall rate of positive lymph nodes by cytokeratin immunohistochemistry (all negative for metastasis by H.H. staining) was 53%, with > 90% positive node in the central compartment: all patients were alive, implying that **node positivity was not life threatening**

Qubain s.K., et al. Surgery 2002

PCND no changes the incidence of recurrence or disease specific mortality for patients with low risk PTC

Tisell L.E., et al. WJS 1996

Salvesen H., et al. Eur. J. Surg. 1991

Roh J.L., et al. Ann. Surg. 2007

No difference between the rate of disease-specific mortality in patients with and without lymph node metastases in PTC

Hay i.D., et al. Surgery 1992

Spires J.R., et al. Head Neck 1989

Removal of microscopic lymph node metastases has not been shown to improve survival

McHenry C.R., et al. Surg. Clin. N. Am. 2014

Prophylactic Central Compartment Neck Dissection for Papillary Thyroid Cancer

Christopher R. McHenry, MD^{a,*}, Jonah J. Stulberg, MD, PhD, MPH^b

Surg. Clin. N. Am. 2014

If PCND is not performed recurrence may be rare, even less than 1%
Wada N., et al. Ann. Surg. 2003

Two meta- analyses have shown an absence of a clinically significant reduction in disease recurrence from PCND

Shan C.X., et al. Laryngoscope 2012
Zetoune T., et al. Am. Surg. Oncol. 2010

Table 1

Central compartment recurrence of papillary thyroid cancer (PTC) following total thyroidectomy (TT) versus TT with prophylactic central compartment node dissection (pCCND)

Authors, ^{Ref.} Year	N	TT Only	TT + pCCND	Recurrence with TT	Recurrence with TT + pCCND
Barczyński et al, ²⁷ 2013	640	282	358	22 (7.8%)	2 (0.6%)
Besic et al, ⁴³ 2009	89	83	6	0 (0.0%)	0 (0.0%)
Costa et al, ³¹ 2009	244	118	126	4 (3.4%)	4 (3.2%)
Gemsenjäger et al, ³⁹ 2003	159	88	71	2 (2.3%)	4 (5.6%)
Hughes et al, ⁴⁹ 2010	143	65	78	2 (3.1%)	2 (2.6%)
Lang et al, ²⁸ 2012	185	103	82	0 (0.0%)	0 (0.0%)
Moo et al, ³⁰ 2010	81	36	45	2 (5.6%)	1 (2.2%)
Moreno et al, ⁵⁸ 2012	252	133	119	3 (2.3%)	2 (1.7%)
Roh et al, ⁴¹ 2009	197	49	148	0 (0.0%)	0 (0.0%)
Roh et al, ⁴⁰ 2007	113	73	40	3 (4.1%)	1 (2.5%)
Sywak et al, ³³ 2006	447	391	56	7 (1.8%)	0 (0.0%)

There is no significant difference in the rate of recurrence whether a PCND is performed or not

Extent of Surgery for Papillary Thyroid Cancer: Preoperative Imaging and Role of Prophylactic and Therapeutic Neck Dissection

Robin M. Cisco, MD*
Wen T. Shen, MD
Jessica E. Gosnell, MD

Importantly, the rate of locoregional recurrence requiring reoperation was not significantly different between the two groups (3.6% in LN dissection group, 5.6% in TTX alone group).

There remains no compelling evidence that prophylactic CLND favorably affects survival.

Central compartment observation is safe in N0 cases with Papillary Thyroid Carcinoma without extrathyroidal extension

(recurrence 3%, reoperation of Central Compartment 4%)

Liu J., et al. Eur. Arch. Otorhinolarigol. 2014

LN features most predictive of neck recurrence appears to be the presence of ExtraNodal Spread (ENS) in the positive central neck

Wang L.Y., et al. Thyroid 2014

Prophylactic Central Neck Dissection in Differentiated Thyroid Cancer: An Assessment of the Evidence

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TABLE 1 Published series of prophylactic central neck dissection in differentiated thyroid cancer

Study	Year	n pCND	n Control	Ultrasound	Extent of pCND	Node-positive pCND	RAI dose pCND	RAI dose control	Central recurrence pCND (median follow-up)	Central recurrence control (median follow-up)
Moreno ²¹	2012	119	133	All patients negative	Not stated	71.4 %			1.8 % (60 mo)	2.4 % (60 mo)
Hughes ¹⁹	2010	78	65	All patients negative	Bilateral	62 %	150 mCi	30 mCi	2 % (19.1 mo)	2 % (27.5 mo)
Roh ²²	2007	40	73	No	Bilateral with or without lateral				2.5 %	4 %
Sywak ²³	2006	56	391	All patients negative	Ipsilateral	38 %	5.2 GBq	4.8 GBq	0 % (24.5 mo)	1.7 % (70 mo)
Gemsenjager ¹⁸	2003	29	88	Performed in most	Ipsilateral or bilateral sampling	14 %			4 %	2 %
Moo ²⁰	2010	45	36	All patients negative	Bilateral	33 %	102.7 mCi	66.3 mCi	0 %	5.6 %
Mean						47.4 %			1.7 %	2.2 %

pCND prophylactic central neck dissection, RAI radioactive iodine

In summary, there is no convincing evidence that pCND leads to an improvement in recurrence rate, overall survival, or any clinically significant variable when applied indiscriminately to all DTC patients. Furthermore, pCND may result in inappropriate upstaging and subsequent overtreatment of patients with RAI. Exposing patients to the additional potential morbidity of pCND, even if minimal, currently appears unwarranted.

One-third of patients who have PCND may be upstaged, and a consequence RAI therapy is used significantly more frequently in these patients

Barczynski M. et al. BJS 2013

Shindo M., et al. Arch. Otolaryngol. Head Neck surg. 2006

No studies have shown that such upstaging improves long-term outcomes

McLeod D.S.A., et al. Lancet 2013

Permanent hypoparathyroidism ranges from 2.7% to 25% after T.T. + PCND, and permanent vocal cord paralysis is 3.4%

Bonnet S., et al. J. Clin. Endocrinol. Metab. 2009

Pattou F., et al. WJS 1998

Goretzki P.E., et al. BJS 1993

Table 2
Defining the morbidity of central neck dissection

Authors, ^{Ref.} Year	TT + CCND	TT Only	Recurrent Laryngeal Nerve Paralysis		Permanent Hypoparathyroidism	
			TT + CCND	TT Only	TT + CCND	TT Only
Henry et al, ⁵⁹ 1998	50	50	0	0	2 (4%)	0
Gemsenjäger et al, ³⁹ 2003	88	71	4 (5.6%)	0	1 (1.4%)	0
Rosenbaum & McHenry, ⁴² 2009	22	88	0	1 (1.1%)	1 (4.5%)	0
Hughes et al, ⁴⁹ 2010	78	65	0	2 (3.1%)	2 (2.6%)	0
Giordano et al, ⁵³ 2012	308	394	7 (2.3%)	4 (1%)	50 (16.2%)	25 (6.3%)
Pereira et al, ⁶⁰ 2005	43	0	0	—	2 (4.6%)	—

PCND is not recommended for low-volume thyroid surgeons

Barczynski M., et al. BJS 2013

Carling T., et al Thyroid 2012

Hemythyroidectomy + unilateral PCND

Hyun S.M., et al. Am. Surg. Oncol. 2011

ORIGINAL ARTICLE – ENDOCRINE TUMORS

A Cost-Minimization Analysis Comparing Total Thyroidectomy Alone and Total Thyroidectomy with Prophylactic Central Neck Dissection in Clinically Nodal-Negative Papillary Thyroid Carcinoma

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TT + pCND is more expensive in the medium- and long-term and seems less justified compared with TT alone for cN0 PTC

Average direct medical cost (in USD) accrued per patient

Base-case analysis	TT alone	TT + pCND	Incremental cost
	19888.36	22760.86	2872.5

EDITORIAL – ENDOCRINE TUMORS

Prophylactic Central Neck Dissection Increases the Cost of Thyroid Cancer Care

Dawn M. Effenbein, MD, MPH and Rebecca S. Sippel, MD

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...the higher costs of pCND are mostly attributable to (1) longer operative time and greater complexity of the operation, (2) more initial complications, and (3) higher percentage of postoperative RAI in patients with pCND

Patient outcome is much more linked to prognostic factors intrinsic to the tumor or to the patient themselves rather than to treatment options



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Review

Small differentiated thyroid cancer: Time to reconsider clinical management and treatment

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Management of small DTC should be based on tumor size and the presence of clinical, histopathological and molecular risk factors. Based on current clinical data, in patients with small tumors and no additional risk factors a conservative surgical approach without radioiodine therapy might be appropriated.

- **Multidisciplinary Team**
- **Patients wishes**

Differentiated thyroid cancer-personalized therapies to prevent overtreatment

Luster M., et al. Nat. Rev. Endocrinol. 2014

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