Malattia Endocrina e Sovrappeso

Dr. Maria Grazia Esposito, md, PhD

U.O.S.D.

Chirurgia Endocrina ed Ecoguidata

Dir. Dr. S.Spiezia

Ospedale del Mare

ASL Napoli 1 centro

Molecular and Cellular Endocrinology
Volume 316, Issue 2, 2
5 March 2010, Pages 165-171

Obesity and thyroid function

ThomasReinehr

Abstract

A moderate elevation of thyrotropin (TSH) concentrations, which is associated with triiodothyronine (T3) values in or slightly above the upper normal range, is frequently found in obese humans. These alterations seem rather a consequence than a cause of obesity since weight loss leads to a normalization of elevated thyroid hormone levels. **Elevated thyroid hormone concentrations increase the resting energy expenditure (REE**). The underlying pathways are not fully understood. As a consequence of the increased REE, the availability of accumulated energy for conversion into fat is diminished. In conclusion, the alterations of thyroid hormones in obesity suggest an adaptation process. Since rapid weight loss is associated with a decrease of TSH and T3, the resulting decrease in REE may contribute towards the difficulties maintaining weight loss. **Leptin seems to be a promising link between obesity and alterations of thyroid hormones since leptin concentrations influence TSH release.**

Indian Journal of Endocrinology and Metabolism

Indian J Endocrinol Metab. 2016 Jul-Aug; 20(4): 554–557.
doi: 10.4103/2230-8210.183454
PMCID: PMC4911848

Hypothyroidism and obesity: An intriguing link

Debmalya Sanyal and Moutusi Raychaudhuri[1]

Abstract

According to common perception, hypothyroidism is held responsible for obesity. However, linking them causally is controversial. Overt hypothyroidism is associated with modest weight gain, but there is a lack of clarity regarding subclinical hypothyroidism. Novel view indicates that changes in thyroid-stimulating hormone (TSH) could well be secondary to obesity. The increasing prevalence of obesity further confounds definition of normal TSH range in population studies. Thyroid autoantibody status may help in establishing the diagnosis of subclinical hypothyroidism in obesity. **High leptin levels may play a role in the hyperthyrotropinemia of obesity and also increase susceptibility to thyroid autoimmunity and subsequent hypothyroidism.** There is at most a modest effect of L-T4 treatment in overt hypothyroidism in inducing weight loss; benefit in subclinical hypothyroidism is not established with no data supporting thyroid hormone use in euthyroid obese patients.

Keywords: Hyperthyrotropinemia, hypothyroidism, leptin, obesity, thyroid autoimmunity

Thyroid and Obesity: An Intriguing Relationship

Bernadette Biondi

The Journal of Clinical Endocrinology & Metabolism, Volume 95, Issue 8, 1 August 2010, Pages 3614–3617,

There is some debate about the link between obesity and the risk of autoimmune thyroid dysfunction (AITD), which is the main cause of hypothyroidism in adults.

The prevalence of AITD in obesity has been reported to be 12.4% in children and between 10 and 60% in adults

This discrepancy may be due to such factors as sex, age, menopausal status, smoking habit, environmental factors, iodine intake, and degree of obesity.

Conclusions

It is important to note that **the increased prevalence of obesity worldwide may further confound the definition of the normal TSH range in population studies**. More research is necessary to determine whether mild thyroid hormone deficiency and the consequent mild TSH increase, *i.e.* to the upper limit of the reference range, are involved in the development of obesity. **Moreover, studies are required to establish the potential role of high leptin levels in increasing susceptibility to thyroid autoimmunity, which in turn entails a high risk of developing subclinical or overt hypothyroidism.**

Obesity and thyroid dysfunction are common diseases, and consequently clinicians should be particularly alert to the possibility of thyroid dysfunction in obese patients.

On the other hand**, although thyroid hormones have been inappropriately and frequently used in attempts to induce weight loss in obese euthyroid subjects, there is no indication for their administration to control body weight except in obese hypothyroid subjects. In fact, long-term treatment with thyroid hormones does not significantly improve weight loss in obese subjects without thyroid dysfunction and, on the contrary, will entail a risk of adverse effects.**

It is conceivable that selected thyroid analogs might be a means by which to improve weight loss by increasing energy expenditure (as well as improving lipid profiles) in obese patients with low T_3 during continued caloric deprivation.

Hormones and Cancer

Mechanisms Linking Obesity and Thyroid Cancer Development and Progression in Mouse Models

Authors

Won Gu Kim

Review

First Online: 19 January 2018

Abstract

Recent compelling epidemiological studies indicate a strong association of obesity with thyroid cancer. Obesity has been shown to promote thyroid cancer progression and exacerbate poor outcome in thyroid cancer patients. However, the molecular mechanisms by which obesity increases thyroid cancer risk and facilitates cancer progression are not completely understood. **Obesity induces complex pathological changes including hyperglycemia, hyperinsulinemia, hyperlipidemia, oxidative stress, adipokines, and inflammatory responses. These changes can affect the development and progression of cancer through highly complex interactions in vivo.** The deleterious effect of obesity may differ according to the different cancer types. In view of the increased incidence of thyroid cancer in parallel with the widespread occurrence of obesity in the past decades, it is imperative to clarify how obesity affects thyroid carcinogenesis. This review focuses on molecular mechanisms by which obesity aggravates thyroid carcinogenesis as elucidated by mouse models of thyroid cancer.

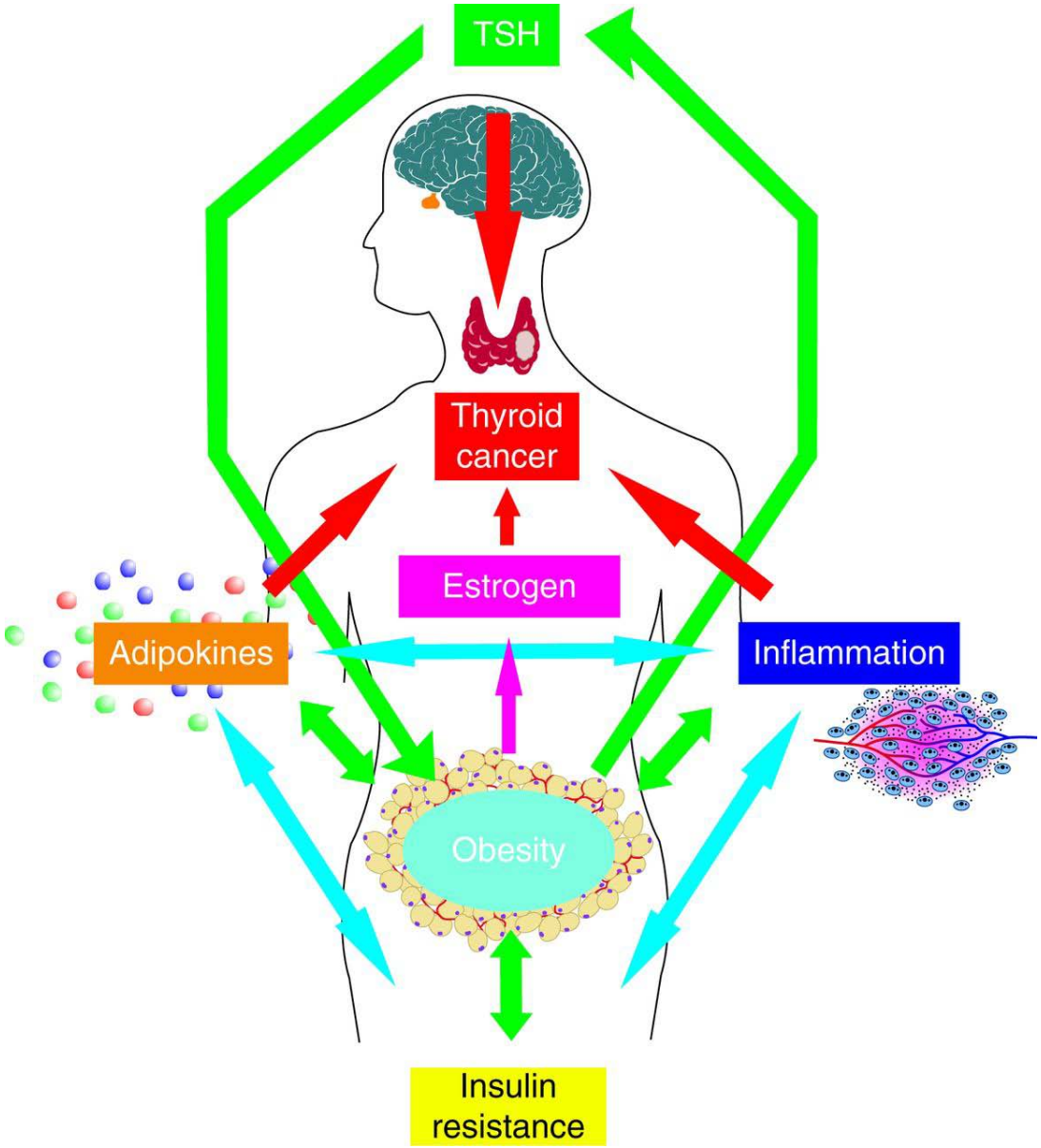
Obesity and thyroid cancer

Marjory Alana Marcello⇑,

Abstract

Many studies have provided observational data on the association of obesity and thyroid cancers, but only few of them propose mechanisms that would permit a better understanding of the causal molecular mechanisms of this association. Considering that there is an increasing incidence of both obesity and thyroid cancers, we need to summarize and link recent studies in order to characterize and understand the contribution of obesity-related factors that might affect thyroid cancer development and progression. Adipose tissue is involved in many vital processes, including insulin sensitivity, angiogenesis, regulation of energy balance, activation of the complement system, and responses such as inflammation. Although these processes have their own molecular pathways, they involve the same molecules through which obesity and adipose tissue might exert their roles in carcinogenesis, not only affecting MAPK and PI3K or even insulin pathways, but also recruiting local inflammatory responses that could result in disease formation and progression. This review describes five important issues that might explain the link between excessive weight and thyroid cancer: thyroid hormones, insulin resistance, adipokines, inflammation, and sexual hormones.

Endocr Relat Cancer October 1, 2014


TSH
Thyroid cancer
Estrogen
Adipokines
Inflammation
Obesity
Insulin resistance

Thyroidectomy in patients with a high BMI: a safe surgery?

J B Finel, S Mucci, et Al

Despite the longer operative time, thyroidectomy (total or partial) can be performed safely in patients with a BMI ≥25.

Eur J Endocrinol July 1, 2014 171 99-105

Women with obesity, total thyroidectomy require higher doses of levothyroxine

May 15, 2015- Tennensee

"Among obese women, there was a significant heterogeneity in final [levothyroxine] dosage," the researchers wrote. "To prevent iatrogenic hyperthyroidism, we recommend using the [ideal body weight] as opposed to the [total body weight] as a more accurate initial approach for therapy of hypothyroidism in a majority of obese females."

– *by Amber Cox*

Ann Surg Oncology 2014

Thyroidectomy as Primary Treatment Optimizes BMI in Patients with Hyperthyroidism

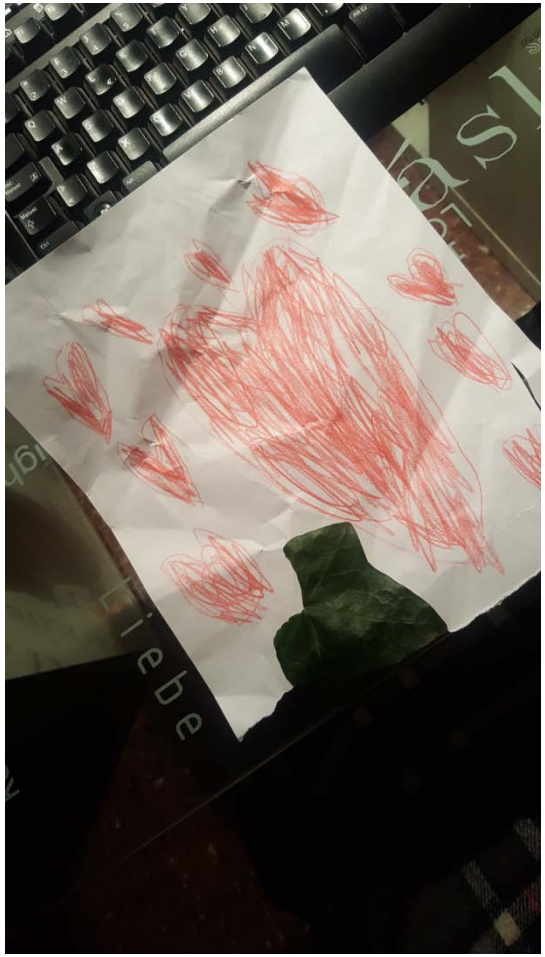
In this study, we found that, compared to patients initially treated with surgery, those first treated with a trial of anti-thyroid medications or RAI had more unhealthy weight change after thyroidectomy. While both groups initially gained weight until normalization of their TSH, patients treated promptly with surgery began to stabilize or lose weight after their TSH normalized while patients undergoing delayed surgery continued to gain weight

David F. Schneider et AL

Diagnostic, Therapeutic and Healthcare Management Protocol in Thyroid Surgery: 4th Consensus Conference of the Italian Association of Endocrine Surgery Units (U.E.C. CLUB)

Dr. Maria Grazia Esposito , md, PhD

PATTO



Dr. Maria Grazia Esposito , md, PhD

Background

Il Protocollo Gestionale Diagnostico-Terapeutico-Assistenziale (PDTA)

dell'Associazione delle Unità di Endocrinochirurgia Italiane (CLUB delle UEC)

ha l'obiettivo

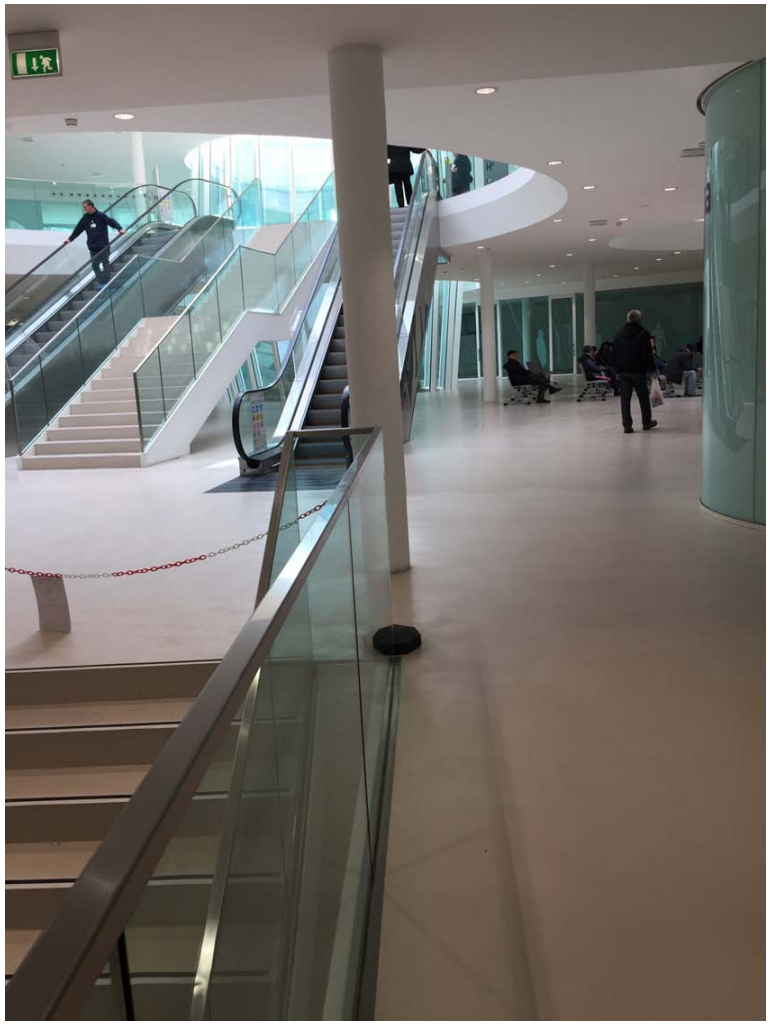
di aiutare a curare il paziente in modo adeguato, razionale e clinicamente condivisibile.

Dr. Maria Grazia Esposito , md, PhD

Condivisione

PERCORSO NODULO TIROIDEO

- **Endocrinologia**
- **Chirugia Endocrina**
- **Anatomia patologica**
- **Radiologia**
- **Laboratorio**



Dr. Maria Grazia Esposito , md, PhD

Sono stati esaminati:

- **percorso diagnostico e inquadramento clinico;**
- **modalità e tempi di ricovero;**
- **percorso terapeutico (preparazione del paziente all'intervento, trattamento chirurgico, gestione post-operatoria, gestione delle complicanze maggiori);**
- **dimissione e documentazione informativa;**
- **ambulatorio e follow-up.**

Dr. Maria Grazia Esposito , md, PhD

Percorso chirurgico e PDTA nodulo tiroideo

Nodo hub
Risultato di lavoro di gruppo

Espressione di messa a punto dei percorsi standard attraverso riunioni di gruppo di miglioramento

Opzione chirurgica

Protocollo standard validato

- Laringoscopia a fibre ottiche pre e postoperatoria
- Rimozione drenaggio entro 24-48h
- Profilassi della ipocalcemia p.o.
- Degenza media quattro giorni
- Controllo esami ormonali, consegna esame istologico, eventuale laringoscopia inclusi nell'iter clinico di ricovero
- Follow up oncologico

Opzione chirurgica

Risultato finale della valutazione multidisciplinare

Percorso di preospedalizzazione
Percorso di ricovero ordinario

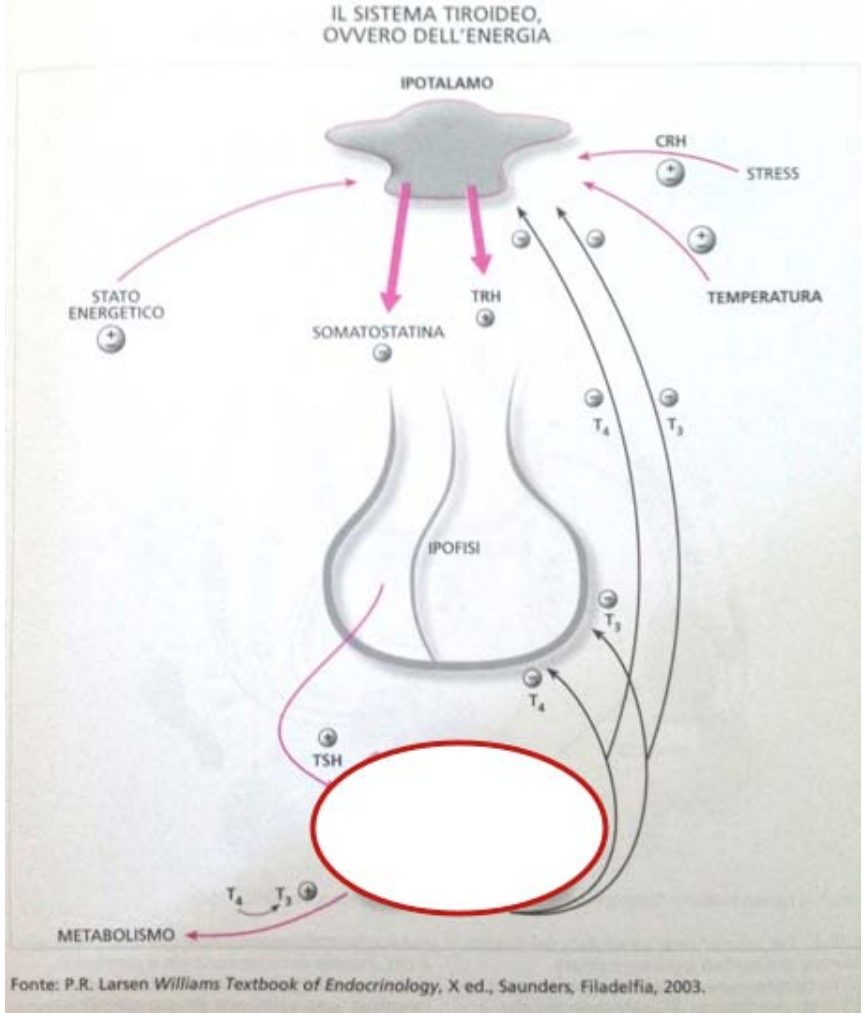
TAILORED TREATMENT
for
Best Assessment in Healthcare

Analisi accurata delle indicazioni

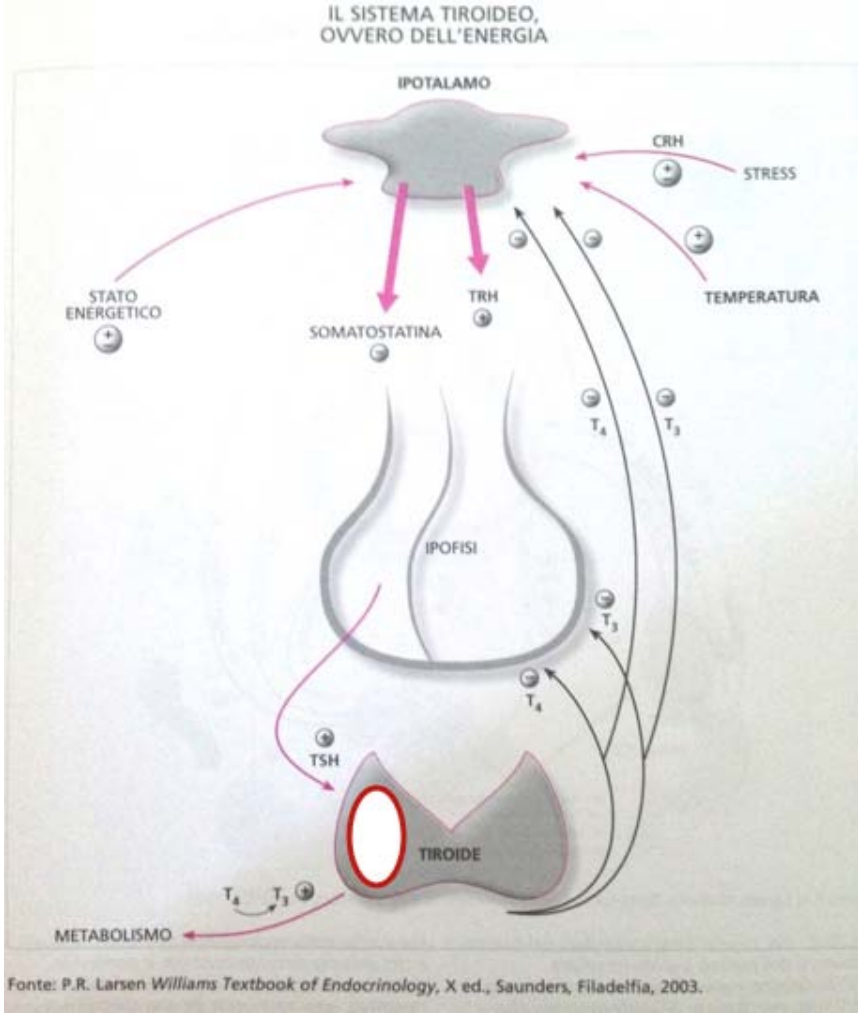
Esito di valutazione multidisciplinare

Opzione termoablativa:
questione di opportunità o di necessità

Chirurgia vs Termoablazione



Fonte: P.R. Larsen *Williams Textbook of Endocrinology*, X ed., Saunders, Filadelfia, 2003.



Fonte: P.R. Larsen *Williams Textbook of Endocrinology*, X ed., Saunders, Filadelfia, 2003.

Opzione ablativa percutanea ecoguidata

Termoablazione RF indotta

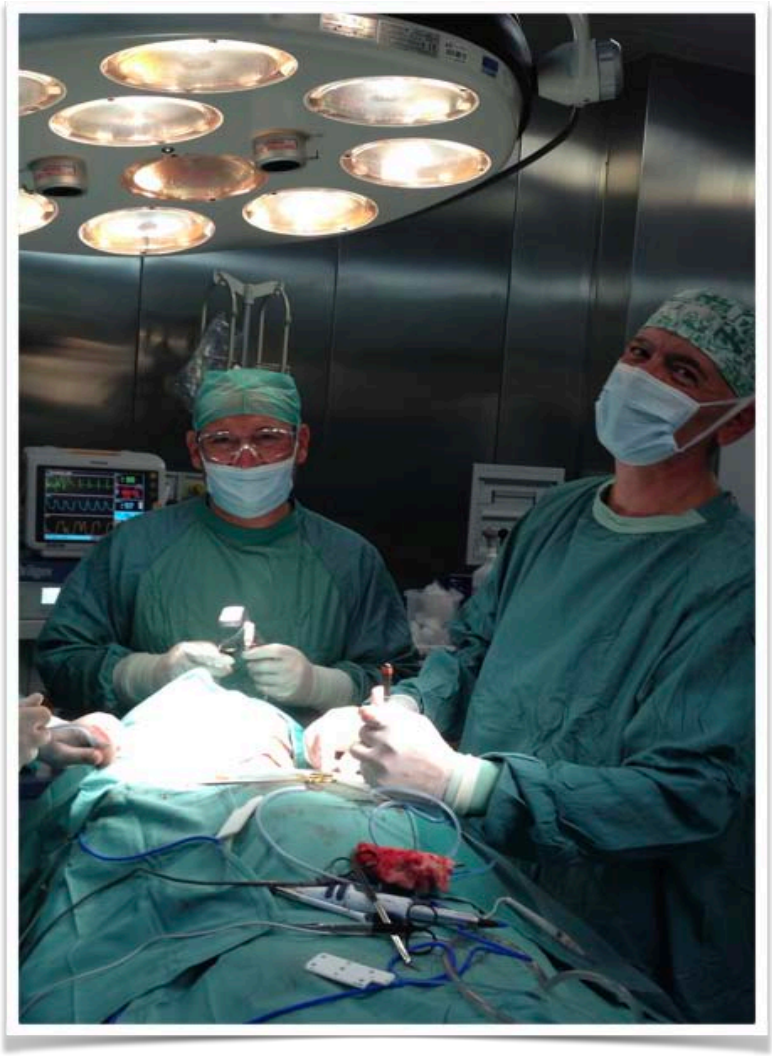
Noduli solidi e misti compressivi freddi benigni
Noduli cistici compressivi
Noduli autonomi
Noduli iperfunzionanti in gozzo
Termoablazione delle recidive

Modalità di ricovero e dimissione

Day Surgery (TA)
Ricovero Ordinario (Chir)
Preospedalizzazione (Chir + TA)

Dopo la dimissione:
Attività ambulatoriale di gruppo
- Follow up endocrinologico post chirurgico
- Follow up oncologico post chirurgico
- Follow up protocollo termoablazione

Attivazione procedura PAPD:
- precoce
- tardivo



Il trattamento percutaneo di noduli primitivi e metastatici della tiroide: nuove tecnologie: termoablazione RF indotta delle metastasi linfonodali da PTC

THYROID
Volume 26, Number 1, 2016

DOI: 10.1089/thy.2015.0020

SPECIAL ARTICLE

2015 American Thyroid Association Management Guidelines for Adult Patients with Thyroid Nodules and Differentiated Thyroid Cancer

The American Thyroid Association Guidelines Task Force on Thyroid Nodules and Differentiated Thyroid Cancer

Bryan R. Haugen,[1,*] Erik K. Alexander,[2] Keith C. Bible,[3] Gerard M. Doherty,[4] Susan J. Mandel,[5] Yuri E. Nikiforov,[6] Furio Pacini,[7] Gregory W. Randolph,[8] Anna M. Sawka,[9] Martin Schlumberger,[10] Kathryn G. Schuff,[11] Steven I. Sherman,[12] Julie Ann Sosa,[13] David L. Steward,[14] R. Michael Tuttle,[15] and Leonard Wartofsky[16]

[C16] What is the most appropriate management of DTC patients with metastatic disease?

The preferred hierarchy of treatment for metastatic disease (in order) is surgical excision of loco-regional disease in potentially curable patients, ^{131}I therapy for RAI-responsive disease, external beam radiation or other directed treatment modalities such as thermal ablation, TSH-suppressive thyroid hormone therapy for patients with stable or slowly progressive asymptomatic disease, and systemic therapy with kinase inhibitors (preferably by use of FDA-approved drugs or participation in clinical trials), especially for patients with significantly progressive macroscopic refractory disease.

However, localized treatments with thermal (radiofrequency or cryo-) ablation (845), ethanol ablation (846), or chemo-embolization (847), may be beneficial in patients with a single or a few metastases, in those with metastases at high risk of local complications, and should be performed in such patients before the initiation of any systemic treatment. These modalities may control treated metastases, may avoid local complications and may delay initiation of systemic treatment.

Journal List › Ann Surg › v.244(2); 2006 Aug › PMC1602167

ANNALS OF SURGERY
A Monthly Review of Surgical Science Since 1885

Ann Surg. 2006 Aug; 244(2): 296–304.
doi: 10.1097/01.sla.0000217685.85467.2d
PMCID: PMC1602167

Radiofrequency Ablation and Percutaneous Ethanol Injection Treatment for Recurrent Local and Distant Well-Differentiated Thyroid Carcinoma

Jack M. Monchik, MD,* Gianluca Donatini, MD,* Jason Iannuccilli, BS,† and Damian E. Dupuy, MD†

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TABLE 1. Local Neck Recurrence Treated by Radiofrequency Ablation

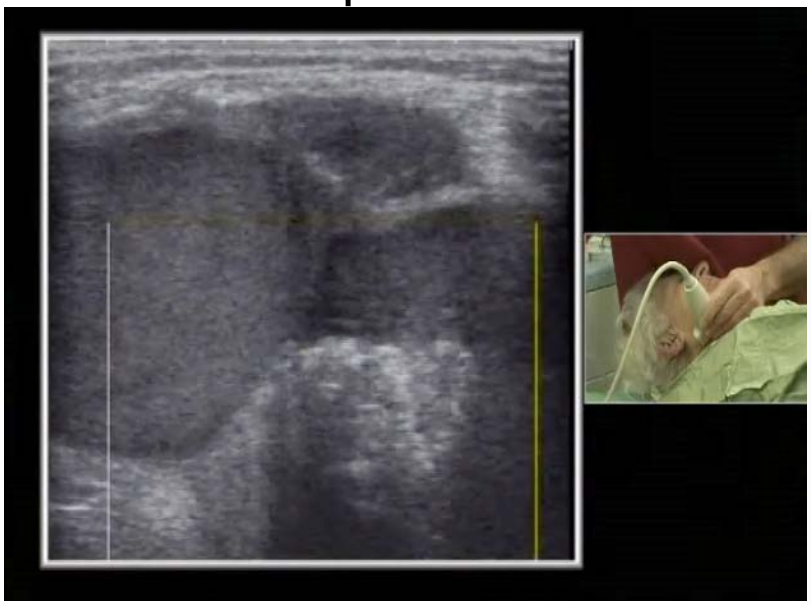
Patient No.	Sex	Age (yr)	Pathology	Lesion Type	Location	Size (mm)	TG Levels Pre/Post RFA (ng/mL)	Follow-up (mo)
1	F	42	Papillary Ca	Lymph node	Left supraclavicular	10 × 6	8.1/0.5	57 Free
2	F	35	Papillary Ca	Lymph node	Left supraclavicular		<0.5/<0.5	38 Free
3	F	84	Papillary Ca	Mass	Left thyroid bed	20 × 19 × 9	21.9/1.1	28 Free
4	F	64	Papillary Ca	Lymph node	Left supraclavicular	8 × 8 × 6	88.2/7.8	47 Free
5	F	64	Medullary Ca	Lymph node	Right submandibular	12 (maximal diameter)	20.7/6.1 (Ct)	14 Free (MEN 2)
6	M	75	Papillary Ca	Lymph node	Right lateral neck	15 × 12 × 8	9.0/1.2	45 Free
				Lymph node	Previous RF site	24 × 16 × 15		
7	F	28	Papillary Ca	Lymph node	Paratracheal node	8 × 6 × 4	<0.5/<0.5	39 Free
8	F	33	Papillary Ca	Lymph node	Right CCA Subclavian artery	15 (maximal diameter)		33 Free
9	M	43	Papillary Ca	Lymph node	Right lateral	20 × 14 × 11	18.7/0.7	
					Right lateral	10 × 6 × 5		32 Free
10	F	51	Papillary Ca	Mass	Right thyroid bed	40 × 25 × 17		26 Free
				Lymph node	Right supraclavicular	30 × 25 × 19		10 Deceased
				Lymph node	Left supraclavicular	30 × 29 × 22		
11	M	44	Papillary Ca	Lymph node	Right Jugular chain	10 × 9 × 8	49.9/3.4	41 Free
12	M	52	Papillary Ca	Lymph node	Left supraclavicular	8 × 8 × 5	19.1/4.1	48 Free
13	F	46	Papillary Ca	Lymph node	Left lateral	20 (maximal diameter)	15.5	
						10 (maximal diameter)		28 Free
14	F	42	Papillary Ca	Lymph node	Right lateral	15 (maximal diameter)	145/<0.5	
15	F	61	Papillary Ca	Lymph node	Right Jugular chain	11 × 8 × 6	46/<0.9	57 Free
16	F	84	Papillary Ca	Mass	Right supraclavicular		4500	68 Recurrent
				Lymph node	Right lateral neck	16 × 11 × 6	4.1	
				Lymph node	Right carotid	12 × 12	4.1	
				Lymph node	Right retroauricular	29 × 26 × 15	55.6	

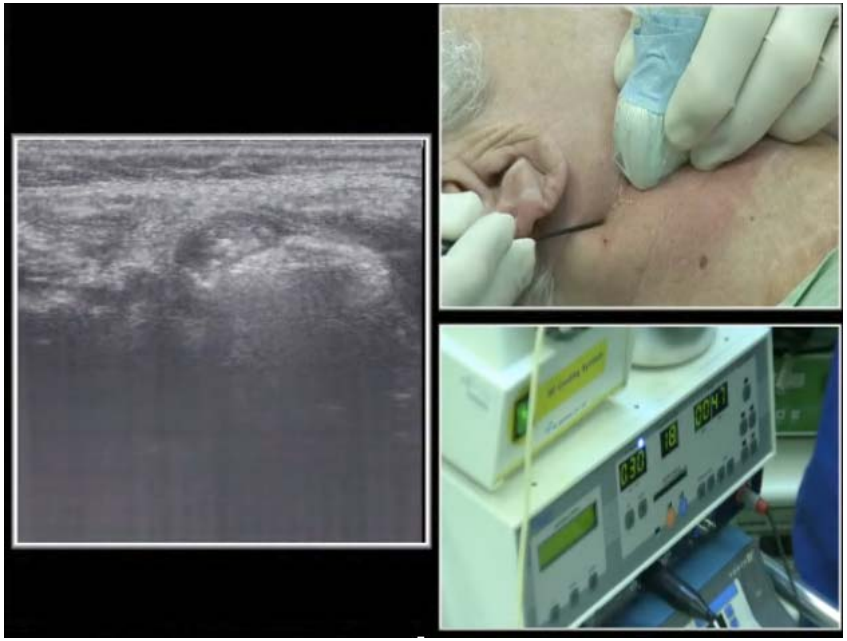
CONCLUSION

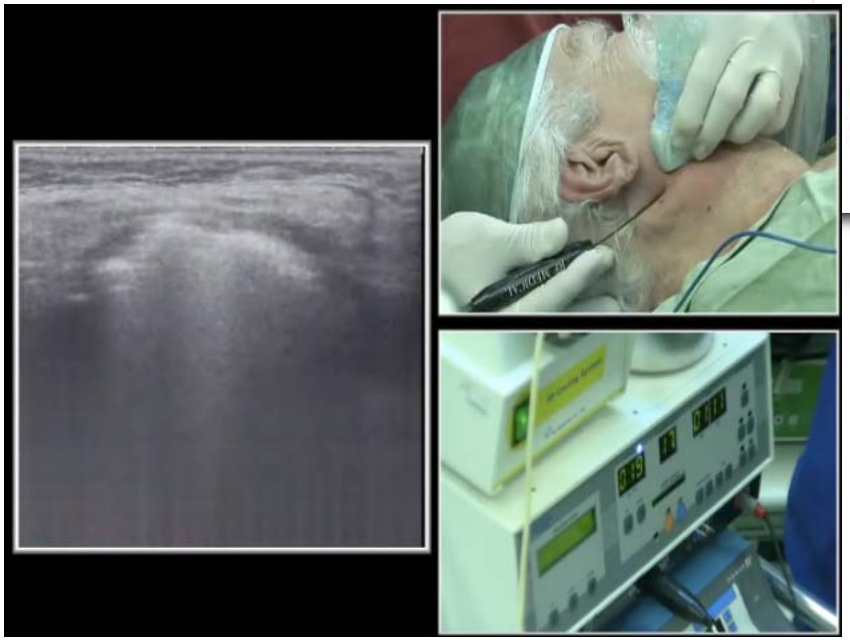
Go to:

Surgery is the gold standard for treatment of recurrent WTC in the central or lateral compartments of the neck. Our results with RFA and EtOH ablation are very exciting and show promise as minimally invasive alternatives to surgical treatment in some patients. RFA also shows promise as an effective treatment modality for focal distant metastases of WTC. Further long-term follow-up studies are necessary to determine the precise role these therapies should play in the treatment of recurrent WTC and whether certain more invasive surgical procedures can be replaced.

RF in surgical local recurrence/metastatic limph-nodes

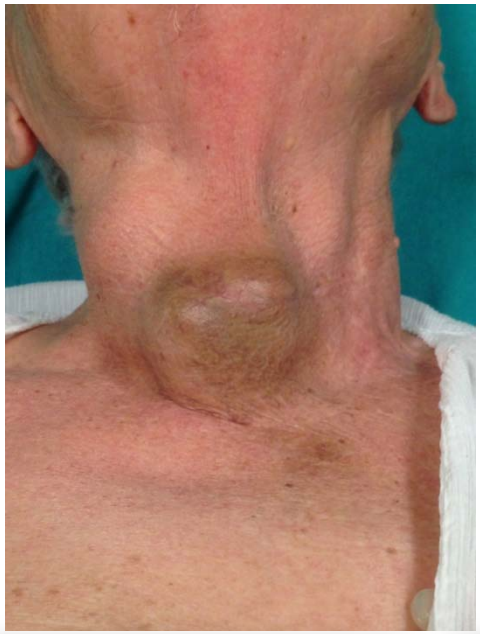






tiroide.org


Four years later….



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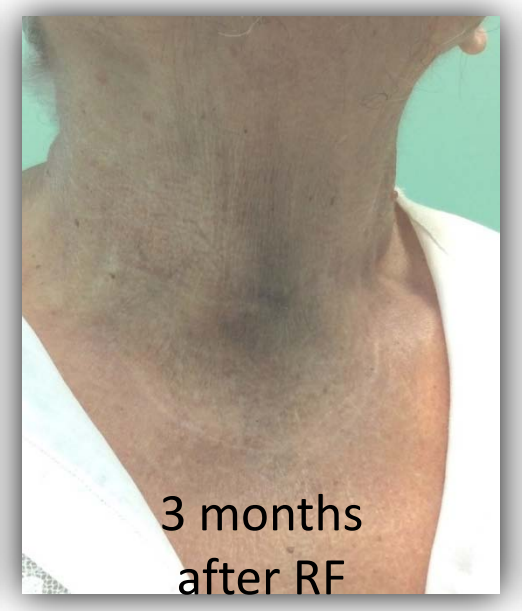


tiroide.org

S. Spiezia

J Ultrasound (2015) 18:423–430
DOI 10.1007/s40477-015-0169-y

LETTER TO THE EDITOR

Radiofrequency ablation for thyroid nodules: which indications? The first Italian opinion statement

Indications for RF ablation in solid or dominantly solid thyroid nodules:

- Large (volume>20 ml), nonfunctioning, benign thyroid nodules in patients presenting with local symptoms or cosmetic complaints when surgery is contraindicated or declined (***)
- Autonomously functioning thyroid nodules (AFTN), hot/warm at scintiscan, either toxic or pretoxic, when surgery and radioiodine are contraindicated or declined (***)
- Palliative therapy for recurrent thyroid cancers in the neck when surgery is contraindicated and radioiodine is ineffective (***)

- Nonfunctioning, benign thyroid nodules (even with volume<20 ml) coupled with early local discomfort that significantly grow over time (**)

- Large (volume>20 ml) AFTN, for whom combined treatment RF + radioiodine could induce faster and greater improvement in local symptoms, allows a reduction in radioiodine administered activity, if compared with radioiodine alone (*)

- Thyroid cysts and dominantly cystic thyroid nodules (-) : PEI is first-line treatment.
- Primary thyroid cancers or follicular neoplasms (-) : surgery is standard therapy.

Table 2 Strength of experts' agreement
(***) Accepted indication, strong: complete agreement supporting indication
(**) Accepted indication, intermediate: partial agreement (weak disagreement)
(*) Accepted indication, weak: partial agreement (strong disagreement)
(-) Rejected indication: complete agreement against indication

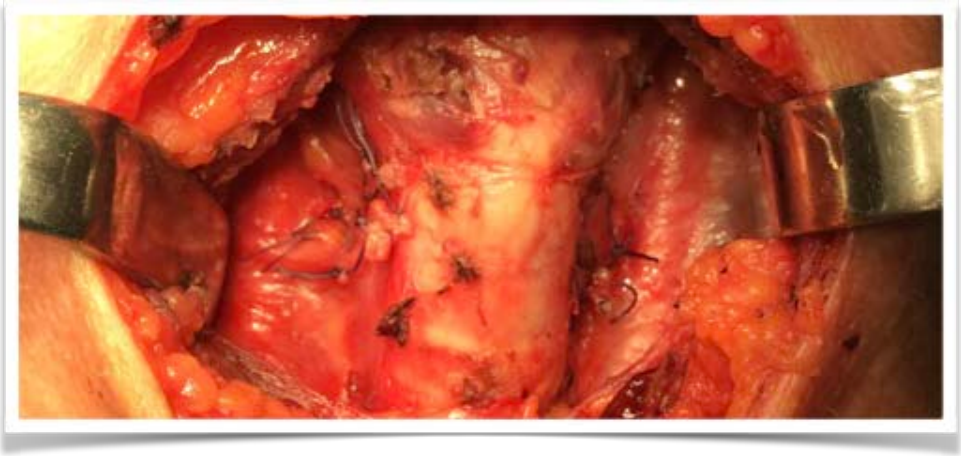
PDTA NODULO TIROIDEO

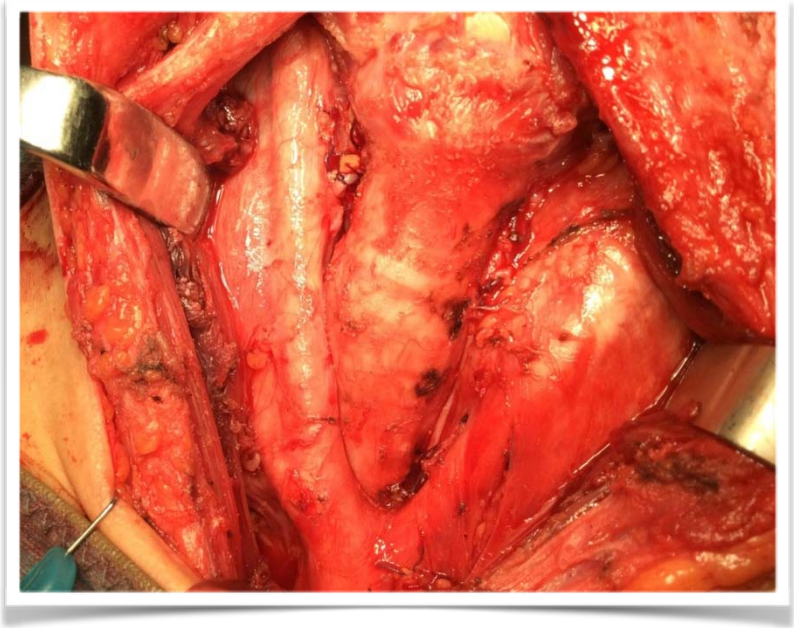
Chirurgia open

laparoscopica

robotica

Risultato finale della valutazione multidisciplinare





Chirurgia tradizionale

Lobectomia
Tiroidectomia totale
Linfectomia comparto centrale
Linfectomia laterocervicale
Chirurgia delle recidive
Chirurgia degli inestestismi

Opzione chirurgica

Chirurgia mininvasiva

Lobectomia
Tiroidectomia totale
Linfectomia comparto centrale

New Era

Opzione chirurgica

Nuovi approcci standardizzati

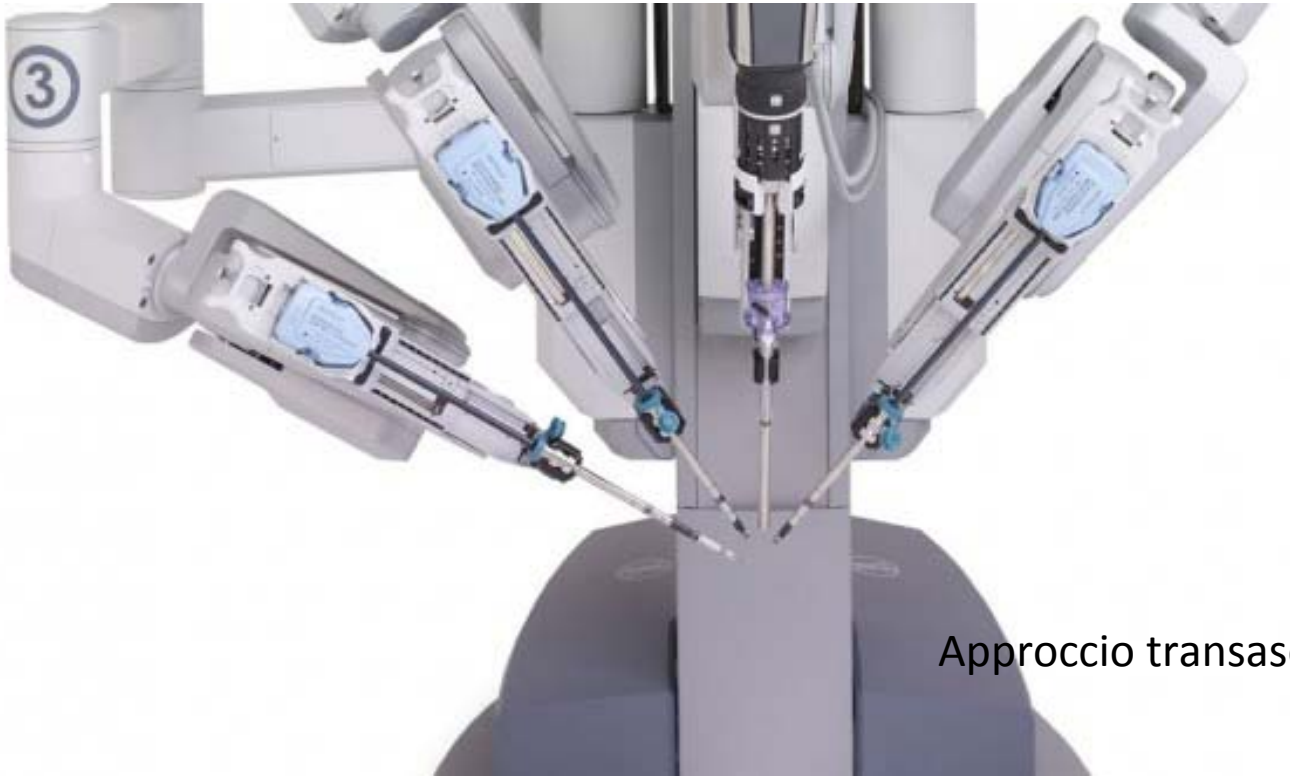
MIVAT

MIT ….. A 6 mesi…

Dr. Maria Grazia Esposito , md, PhD

Future PDTA

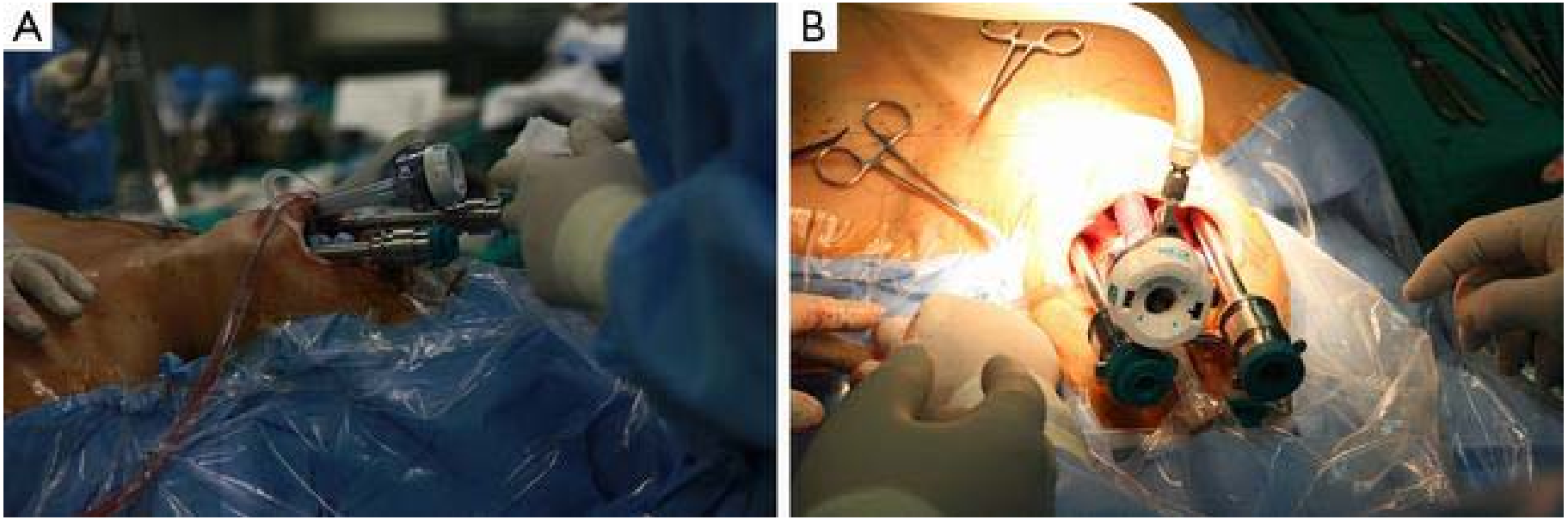
Chirurgia Robotica



Approccio transascellare


Robot Da Vinci
Tiroidectomia transascellare

NOTES Approach



Endoscopic Transoral approach

NOTES Approach

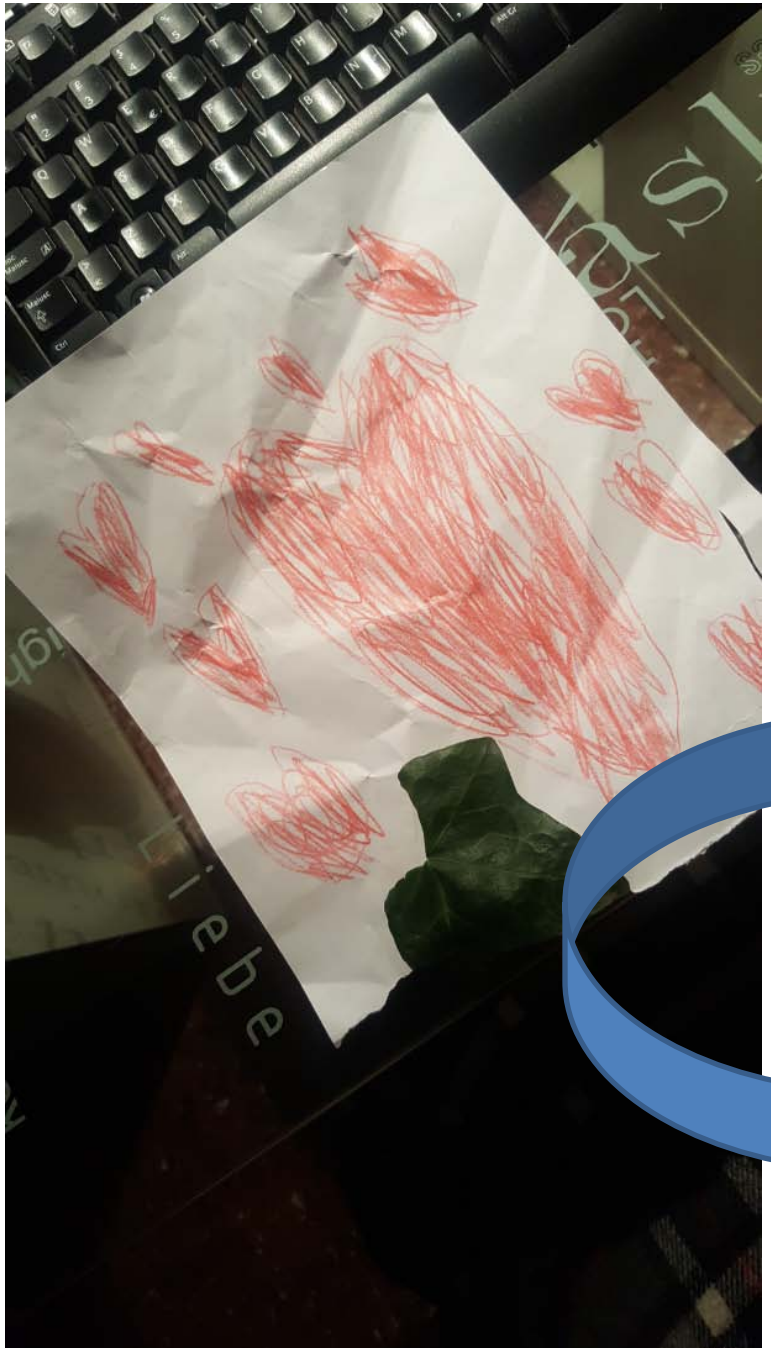
GS GLAND SURGERY
AN OPEN ACCESS JOURNAL DESCRIBING NEW FINDINGS IN GLAND SURGERY

Vol 4, No 5 (October 2015) /

Review Article

Transoral robotic thyroid surgery

James H. Clark[1], Hoon Yub Kim[2], Jeremy D. Richmon[1]
[1]Department of Otolaryngology—Head and Neck Surgery, Johns Hopkins School of Medicine, Baltimore, MD, USA; [2]Department of Surgery, Korea University College of Medicine, Seoul, Korea

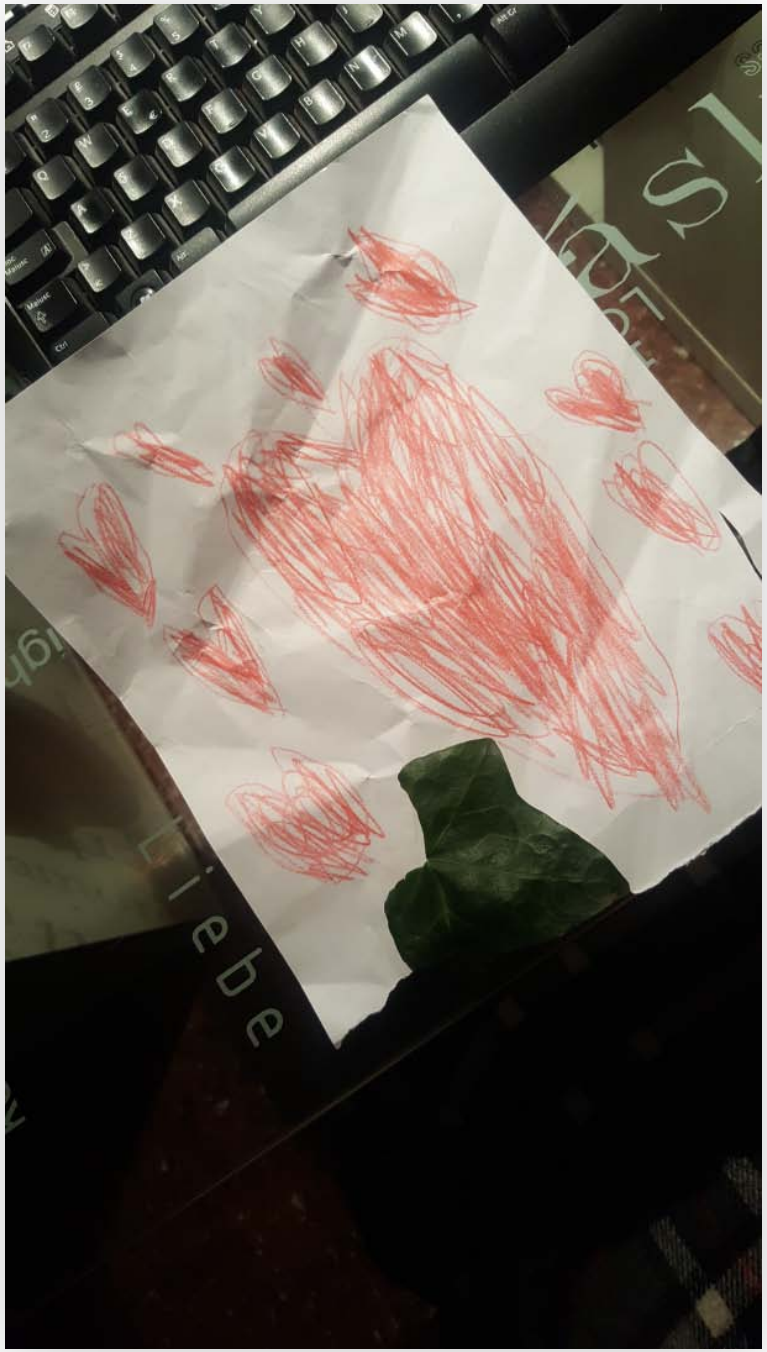


PREVENZIONE

Progresso
Scientifico

DEDIZIONE

Natura



GRAZIE

Dr. Maria Grazia Esposito , md, PhD