Cosa può fare il chirurgo

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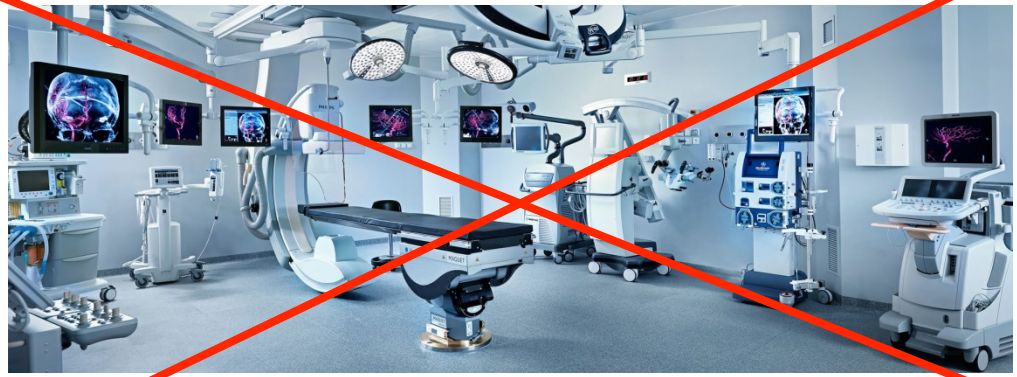
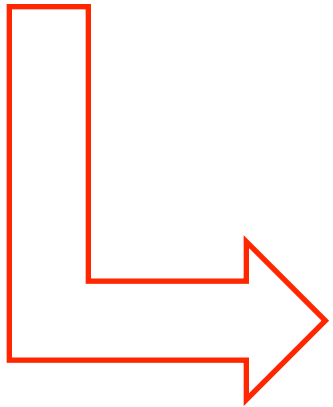
Cosa può fare il chirurgo



NON OPERARE !

Imparare ad operare



BENE

Danno ricorrenziale 0.2% - 20%

Thomusch O, 2000; Dralle H, 2004; Rosato L, 2004

Rappresenta un indicatore di qualità che risente di diverse variabili:

• **tipo di chirurgia** *(primo intervento o reintervento)*	0.6% *vs* 3.6%	6 VOLTE
• **estensione della resezione** *(subtotale / totale)*	0.7% *vs* 1.3%	RADDOPPIA
• **esperienza del chirurgo**	0.6% *vs* 1.4%	PIU' DI 2 VOLTE

Thomusch O, 2000; Dralle H, 2004

Complicanza temibile

- Peggioramento della **qualità di vita**
- Impatto negativo sulla **performance lavorativa**

Responsabile, da sola, di circa il **79%** del contenzioso medico-legale in chirurgia endocrina

Kern KA, 1993

LESIONI RICORRENZIALI

Duplice problema

- ***L'integrità anatomica del nervo non ne implica l'integrità funzionale***
- ***Incertezza dell'outcome post-operatorio***

INTRAOPERATIVE NERVE MONITORING

Per la valutazione funzionale del **nervo ricorrente e della sue branche**

prima, durante e **dopo** la tiroidectomia

Nerve Monitoring in Chirurgia Tiroidea

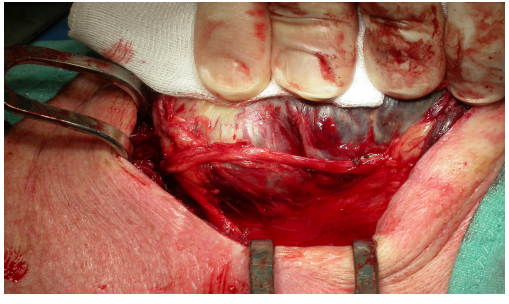
Randomized clinical trial: NIM vs Identificazione del nervo

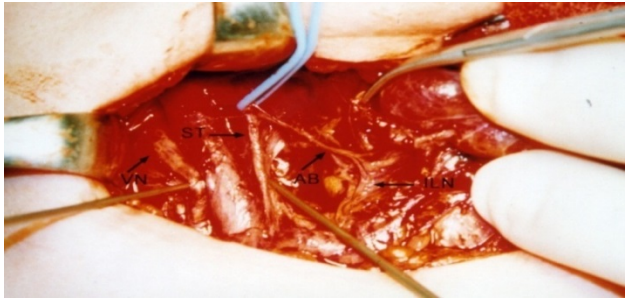
Barczynski M. et al

1000 *nerves-at-risk in each groups*

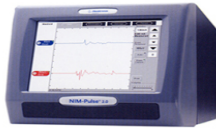
	RLN visualization alone			RLN visualization + monitoring			
	Low risk ($n = 508$)	High risk ($n = 492$)	*P* value*	Low risk ($n = 494$)	High risk ($n = 506$)	*P**	*P* value†
Paresis							
Transient	14 (2·8)	24 (4·9)	0·080	9 (1·8)	10 (2·0)‡	0·858	0·011
Permanent	3 (0·6)	9 (1·8)	0·072	3 (0·6)	5 (1·0)	0·499	0·368
Overall	17 (3·3)	33 (6·7)	0·014	12 (2·4)	15 (3·0)§	0·601	0·007
Total	50 (5·0)			27 (2·7)			0·007

L'uso del **NIM riduce** le **lesioni ricorrenziali temporanee**





Nerve Monitoring in Chirurgia Tiroidea



Il NIM è uno strumento che può essere **utile**, per il **controllo dell'integrità funzionale del nervo**: ?

Valore Preditivo Negativo	***Valore Predittivo Positivo***
Elevato 92-100%	***Variabile 10-90%***
la presenza del segnale all'EMG esclude la presenza di lesioni ricorrenziali	*l'assenza del segnale all'EMG non necessariamente implica lesioni ricorrenziali (**non univoca interpretazione dei dati**)*

… può diventare uno **strumento pericoloso** in mani INESPERTE !!!

*L'**identificazione convenzionale** del RLN rimane il "**gold standard**" di trattamento …*

Dralle H et all., The German IONM Study Group, World J Surg. 2008
Intraoperative Monitoring of the Recurrent Laryngeal Nerve in Thyroid Surgery

Nerve Monitoring in Chirurgia Tiroidea

Indicazioni all'uso del NIM

Nervi ad alto rischio

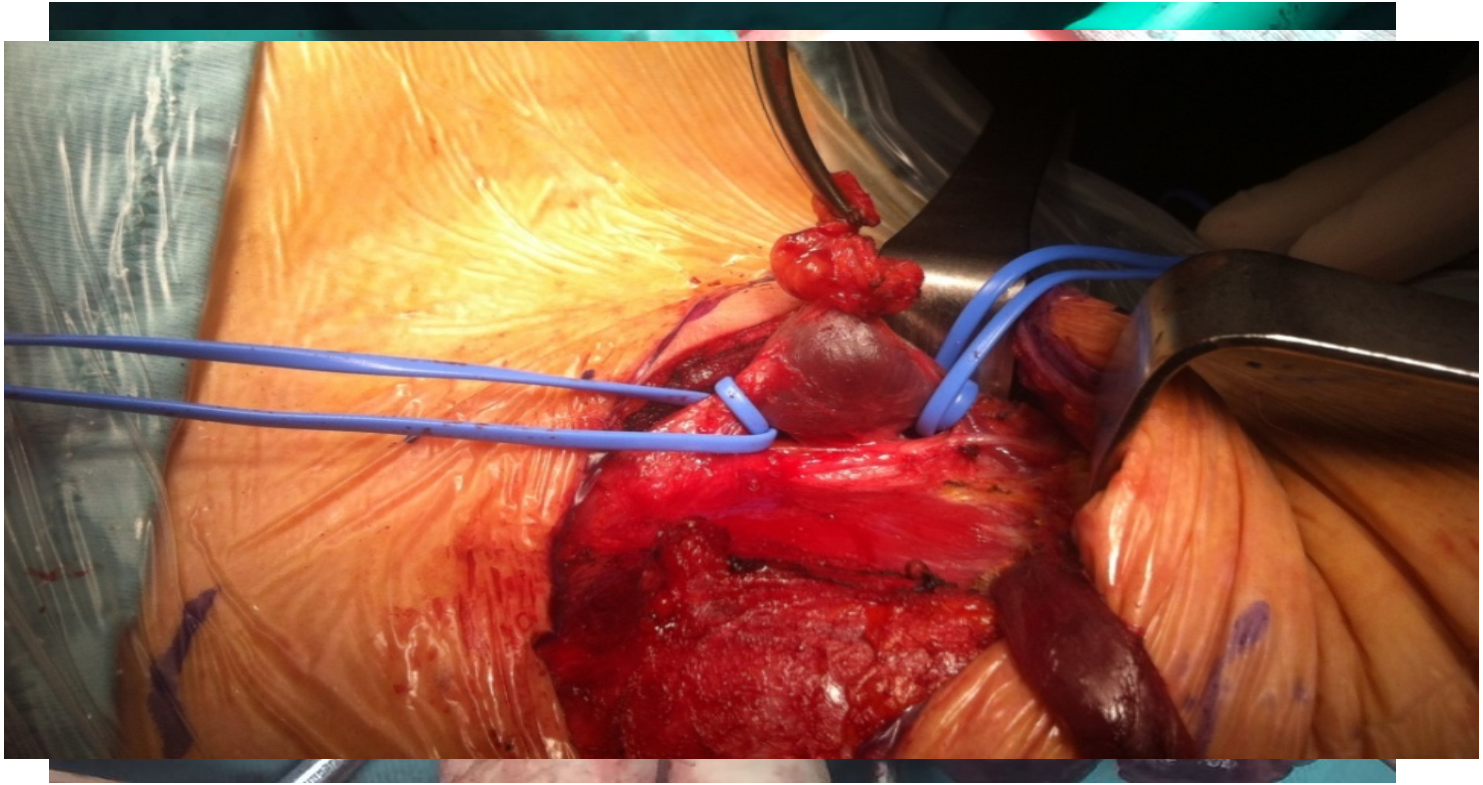
- Carcinoma + eventuale linfadenectomia
- Patologia recidiva
- Gozzo immerso

Nervi a basso rischio

- Uso professionale della voce

Nerve Monitoring in Chirurgia Tiroidea

… utile in casi particolari …



Hermann et al

328 pazienti

Sensibilità nerve monitoring: **86%** per **patologia benigna**
25% per **reinterventi per patologia maligna**

11 pazienti (0.3%): paralisi post-operatoria con normale risposta NIM

14/21 pazienti con paralisi pre-operatoria: risposta NIM normale (falso negativo)

*"Il **fattore più importante** che influenza i risultati finali è **l'esperienza del chirurgo**"*

Surg Endosc (2012) 26:2601–2608
DOI 10.1007/s00464-012-2239-y

Recurrent laryngeal nerve injury in video-assisted thyroidectomy: lessons learned from neuromonitoring

G. Dionigi · P. F. Alesina · M. Barczynski · L. Boni · F. Y. Chiang · H. Y. Kim · G. Materazzi · G. W. Randolph · D. J. Terris · C. W. Wu

Conclusions RLN palsy still occurs with routine endoscopic identification of the nerve, even combined with LNM. LNM has the advantage of elucidating the mechanism of RLN injury. Traction and thermal RLN injuries are the most frequent lesions in VAT.

Systematic review with meta-analysis of studies comparing intraoperative neuromonitoring of recurrent laryngeal nerves *versus* visualization alone during thyroidectomy

Adolfo Pisanu, MD, PhD, Giulia Porceddu, MD, Mauro Podda, MD, Alessandro Cois, MD, and Alessandro Uccheddu, MD*

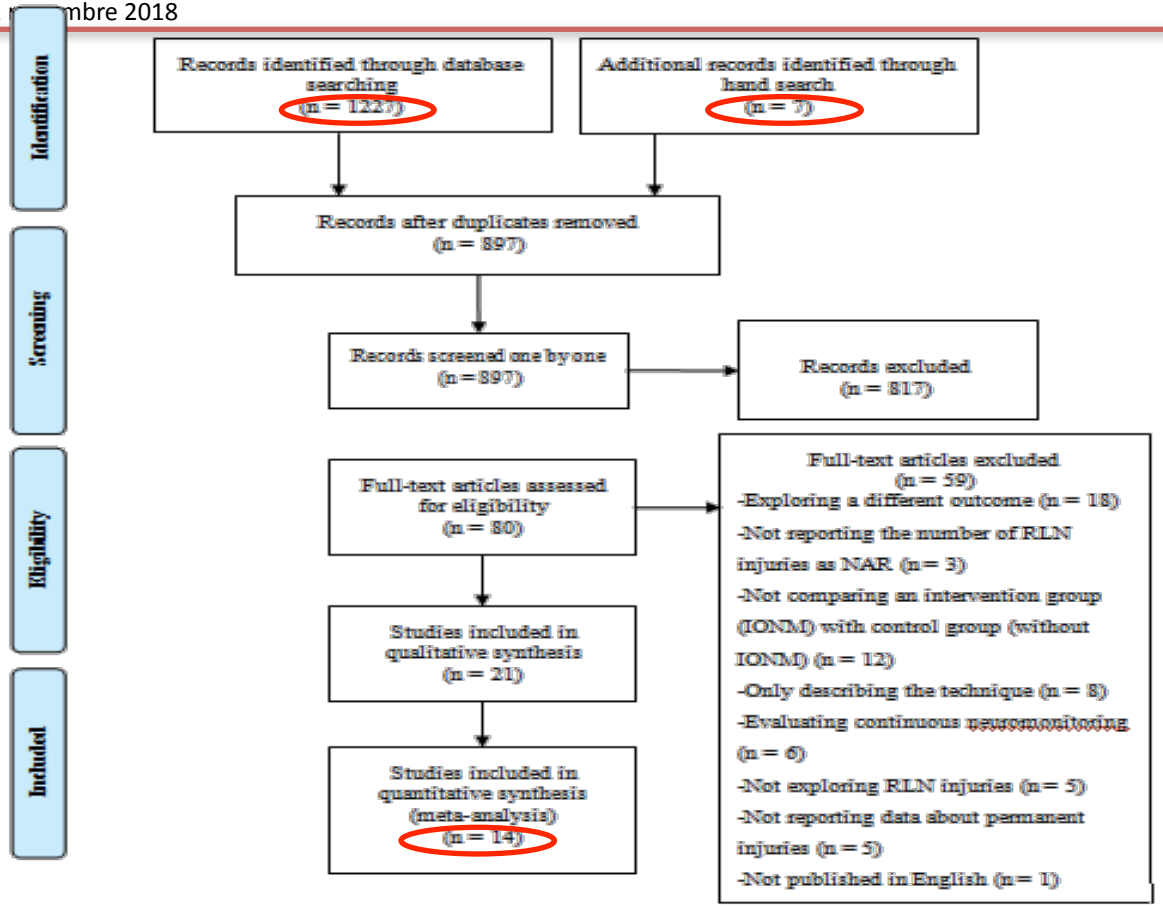
Conclusions: The current review with meta-analysis showed no statistically significant difference in the incidence of RLN palsy when using IONM *versus* VA during thyroidectomy. However, these results must be approached with caution, as they were mainly based on data coming from non–randomized observational studies. Further studies including high-quality multicenter, prospective, randomized trials based on strict criteria of standardization and subsequent clustered meta-analysis are required to verify the outcomes of interest.

Clinical Review

2016

"The final countdown": Is intraoperative, intermittent neuromonitoring really useful in preventing permanent nerve palsy? Evidence from a meta-analysis

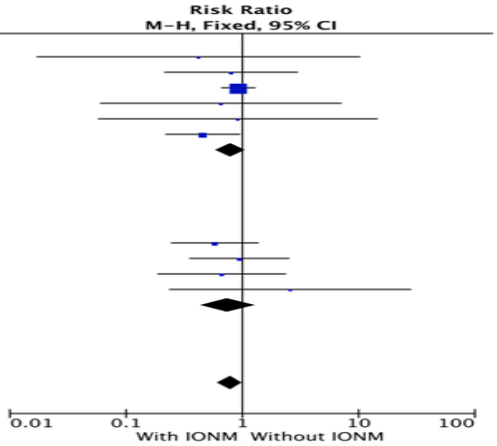
Celestino Pio Lombardi, PhD,[a] Giulia Carnassale, MD,[a] Gianfranco Damiani, MD,[b] Anna Acampora, MD,[b] Marco Raffaelli, PhD,[a] Carmela De Crea, MD,[a] *and* Rocco Bellantone, PhD,[a]
Rome, Italy



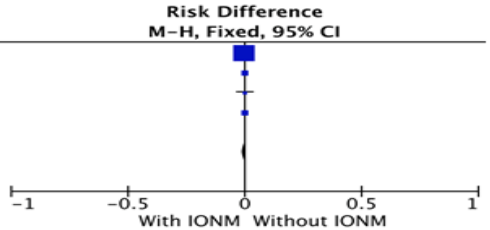
1234 selected articles

14 included

Study or Subgroup	With Neuromonitoring Events	Total	Without Neuromonitoring Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Permanent RLN injuries after 6 month						
Alesina 2012	0	128	1	161	1.0%	0.42 [0.02, 10.19]
De Falco 2014	4	600	5	600	3.6%	0.80 [0.22, 2.96]
Dralle 2004	143	17832	48	5517	53.0%	0.92 [0.67, 1.28]
Stevens 2012	1	62	2	81	1.3%	0.65 [0.06, 7.04]
Terris 2007	1	92	1	84	0.8%	0.91 [0.06, 14.37]
Thomusch 2001	9	2483	37	4650	18.6%	0.46 [0.22, 0.94]
Subtotal (95% CI)		**21197**		**11093**	**78.2%**	**0.79 [0.60, 1.05]**
Total events	158		94			
Heterogeneity: Chi² = 3.24, df = 5 (P = 0.66); I² = 0%						
Test for overall effect: Z = 1.59 (P = 0.11)						
Permanent RLN injuries after 12 months						
Barczynski 2014	7	500	20	826	10.9%	0.58 [0.25, 1.36]
Calò a 2014	8	2068	8	1946	6.0%	0.94 [0.35, 2.50]
Chan 2006	4	501	6	499	4.3%	0.66 [0.19, 2.34]
Witt 2004	2	83	1	107	0.6%	2.58 [0.24, 27.95]
Subtotal (95% CI)		**3152**		**3378**	**21.8%**	**0.75 [0.43, 1.30]**
Total events	21		35			
Heterogeneity: Chi² = 1.63, df = 3 (P = 0.65); I² = 0%						
Test for overall effect: Z = 1.02 (P = 0.31)						
Total (95% CI)		**24349**		**14471**	**100.0%**	**0.79 [0.61, 1.01]**
Total events	179		129			
Heterogeneity: Chi² = 4.92, df = 9 (P = 0.84); I² = 0%						
Test for overall effect: Z = 1.88 (P = 0.06)						
Test for subgroup differences: Chi² = 0.03, df = 1 (P = 0.86), I² = 0%						



Study	With Neuromonitoring Events	Total	Without Neuromonitoring Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Barczynski 2009	8	1000	12	1000	68.4%	-0.00 [-0.01, 0.00]
Barczynski 2012	0	200	0	202	13.8%	0.00 [-0.01, 0.01]
Dionigi 2009	0	55	0	57	3.8%	0.00 [-0.03, 0.03]
Sari 2010	0	210	0	199	14.0%	0.00 [-0.01, 0.01]
Total (95% CI)		**1465**		**1458**	**100.0%**	**-0.00 [-0.01, 0.00]**
Total events	8		12			
Heterogeneity: Chi² = 0.73, df = 3 (P = 0.87); I² = 0%						
Test for overall effect: Z = 0.84 (P = 0.40)						



Inferior laryngeal nerve palsy is one of

the most feared complications in thyroid surgery

The most important reason for malpractice litigation in thyroid surgery ~ 46%

Shabrirhusain et all-Mapractice ligation after thyroid surgery: the role of recurrent laryngeal nerve injuries, 1989-2009 - Surgery 2010

Still in the 1970s, the earliest devices for neuromonitoring began to be employed

FlisbergK et all. 1970 – Acta Otolaryngol - Electrical stimulation of the human recurrent laryngeal nerve durgin thyroid operation

Intermittent intraoperative neuromonitoring (IONM) is a common method in use:

a technique employing endotracheal tube surface electrodes placed in contact with the mucosa of the vocal cords.

Once the ILN is identified, stimulation is delivered by applying a bipolar probe (electric current range: 0.5-1.5 mA; with a frequency of 30 Hz).

The identification of the healthy nerve is confirmed by the electromiography waveform.

In our opinion …

✓ *Intraoperative **visual identification** of the nerve together with preoperative and postoperative laryngoscopic assessment of vocal cord function **remain the gold standard** of ILN management in thyroid surgery*

✓*Cases associated with increased **difficult dissection** (revision surgery, substernal goiters, thyroid cancer, significant lymph node resection, Graves' disease/thyroiditis) may **benefit from IONM***

Moreover …

In literature the role of IONM during thyroid surgery is still under debate

No consensus exists concerning the prevention of ILN injury

Over the years, many authors concluded that there are no real differences in complication rates between the operations performed with or without the use of IONM

Conclusion

For these reasons IONM should not be considered the standard care

The Laryngoscope

2014

Continuous Vagal IONM Prevents Recurrent Laryngeal Nerve Paralysis by Revealing Initial EMG Changes of Impending Neuropraxic Injury: A Prospective, Multicenter Study

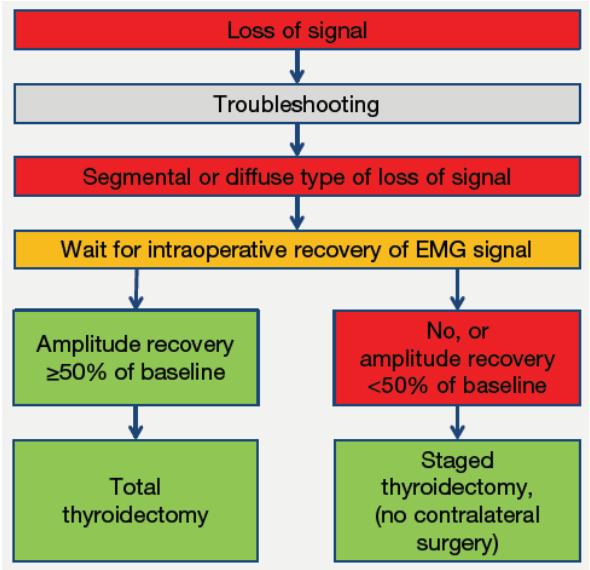
Eimear Phelan, MD; Rick Schneider, MD; Kerstin Lorenz, MD; Henning Dralle, MD; Dipti Kamani, MD; Andre Potenza, MD; Niranjan Sritharan, MD; Jenifer Shin, MD; Gregory W. Randolph, MD, FACS

Conclusions: Continuous vagal monitoring is safe and provides real-time RLN evaluation during surgical maneuvers. Combined events and LOS, both easily identifiable intraoperatively, are related to the development of VCP. A combined event represents a largely reversible electrophysiologic change when the associated surgical maneuver is aborted. If allowed to continue, it can advance to LOS (which typically is significantly less reversible) and to postoperative VCP. Continuous vagal monitoring has utility in identifying real-time adverse concordant amplitude and latency changes (combined events), which can prompt modification of the associated surgical maneuver and may prevent RLN paralysis during thyroidectomy.

Continuous intraoperative neural monitoring of the recurrent nerves in thyroid surgery: a quantum leap in technology

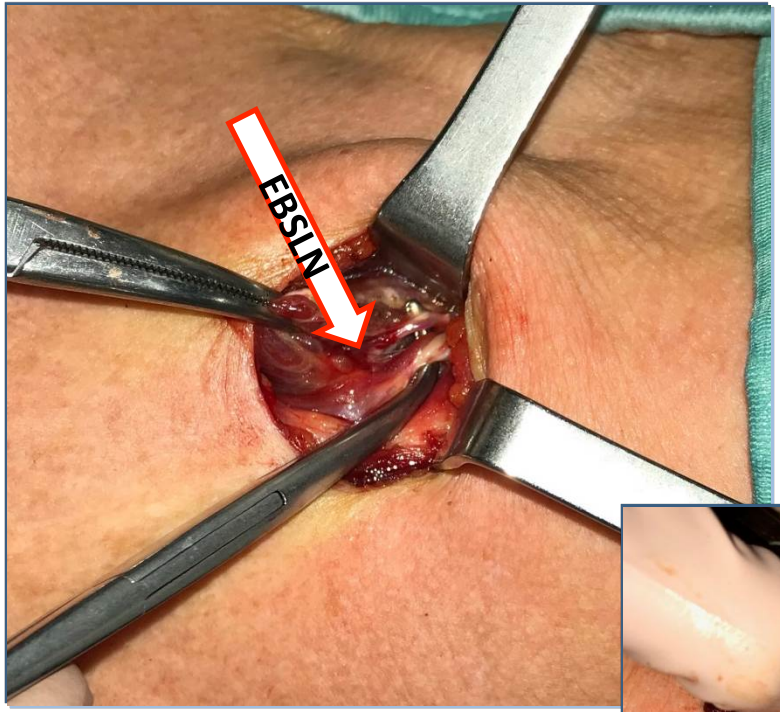
2016

Rick Schneider[1], Gregory W. Randolph[2], Marcin Barczynski[3], Gianlorenzo Dionigi[4], Che-Wei Wu[5], Feng-Yu Chiang[5], Andreas Machens[1], Dipti Kamani[2], Henning Dralle[1,6]



With the 5 years of experience with CIONM, permanent VCP rate is lower with CIONM and accuracy in predicting intact or non-intact early postoperative vocal cord function is superior to IIONM. Also, procedure-related false positive (unnecessary staged thyroidectomy) and false negative (risk of bilateral VCP) results can be reduced by CIONM.

Cosa può fare il chirurgo


EBSLN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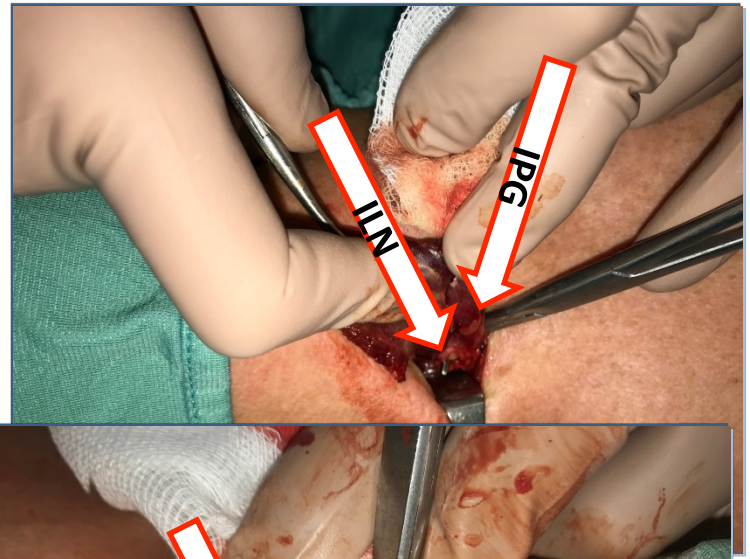
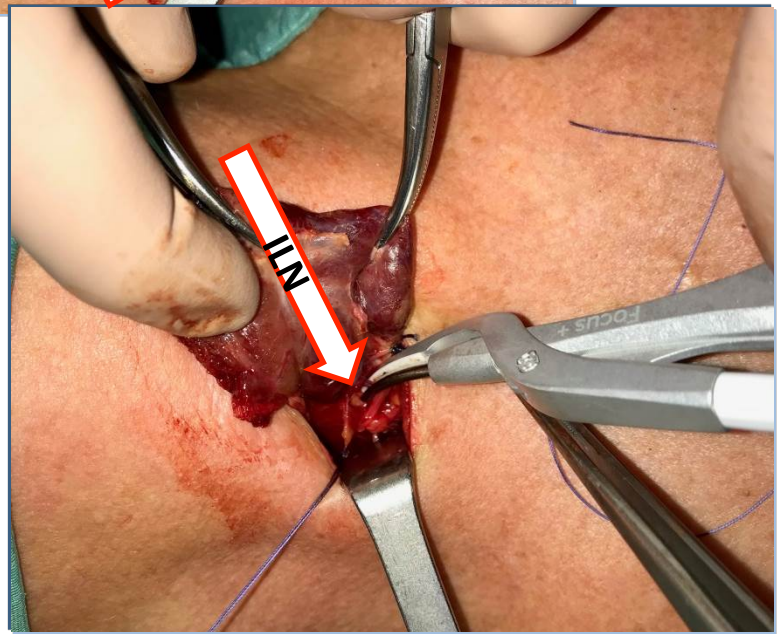

NLI
IPG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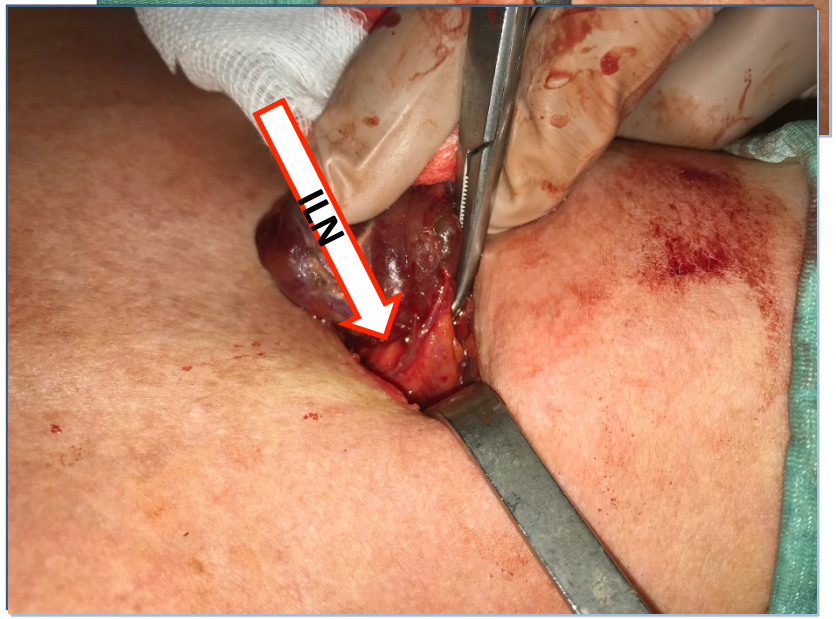
NLI

Credere alla medicina sarebbe la follia suprema, se non crederle non fosse una follia ancor più grande, perché da quel mucchio di errori poco a poco è venuta fuori qualche verità.

Gemelli

Fondazione Policlinico Universitario Agostino Gemelli IRCCS
Università Cattolica del Sacro Cuore

ENDOCRINE SURGERY
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Thanks!