



**OSPEDALE
SAN RAFFAELE**



Università Vita-Salute
San Raffaele

TECNICHE CHIRURGICHE ASPETTI INNOVATIVI E LIMITI INVALICABILI

Bussi M, Bondi S, Sarandria D, Pilolli F, Biafora M, Di Santo D
Milano, 22 Giugno 2013





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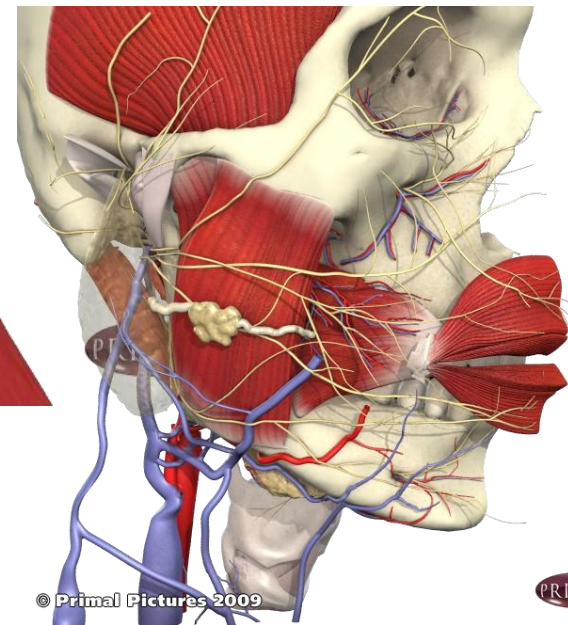
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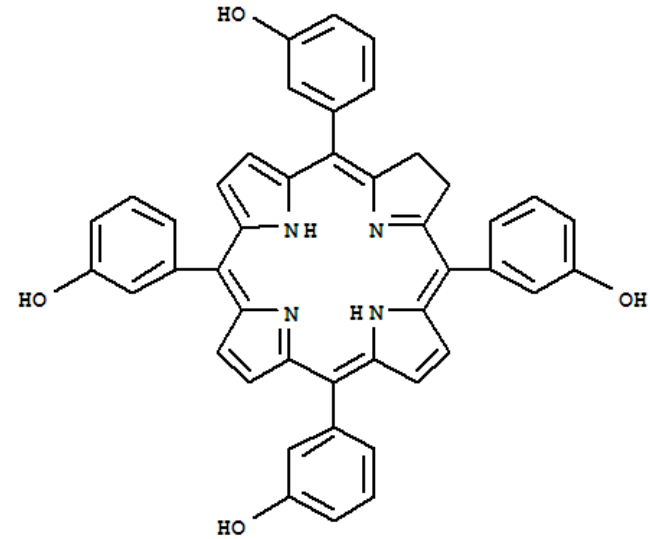
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Tecniche innovative



Obiettivo del trattamento dei tumori del cavo orale

*... "the ultimate goal of treatment of cancer of the oral cavity is
to eradicate the cancer,
preserve or restore form and function,
minimize the sequelae of treatment
and finally prevent any subsequent new primary cancers"...*

*Shah JP, Gil Z. Current concept in management of oral cancer-
Surgery. Oral Oncol 2009*

Scelta del trattamento

FATTORI LEGATI AL PAZIENTE

FATTORI LEGATI AL TUMORE

FATTORI LEGATI AL TEAM MEDICO

Fattori legati al tumore

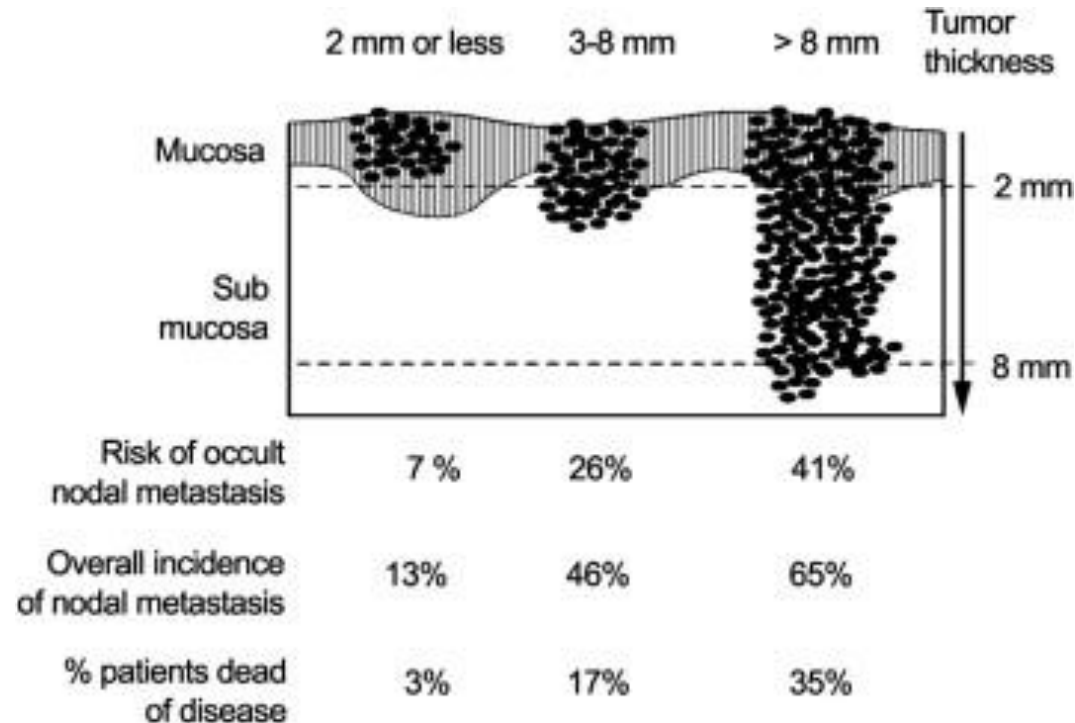
- Dimensione tumore (stadio)
- Localizzazione (sottosedi, anteriore vs posteriore)
- Prossimità all'osso (mandibola, mascellare)
- Invasione linfonodale
- Pregressi trattamenti
- Istologia (tipo, grado e profondità di invasione)

Fattori legati al tumore

PROFONDITA' DI INVASIONE

Rischio di metastasi linfonodali e morte in relazione allo spessore del carcinoma della lingua e del pavimento orale

Spiro RH et al. Predictive value of tumor thickness in squamous carcinoma confined to the tongue and floor of the mouth. Am J Surg 1986



NUOVE FRONTIERE NELLA DIAGNOSI

NBI: Narrow Band Imaging

N.C.-W. Tan et al. / British Journal of Oral and Maxillofacial Surgery 50 (2012) 132–136

133

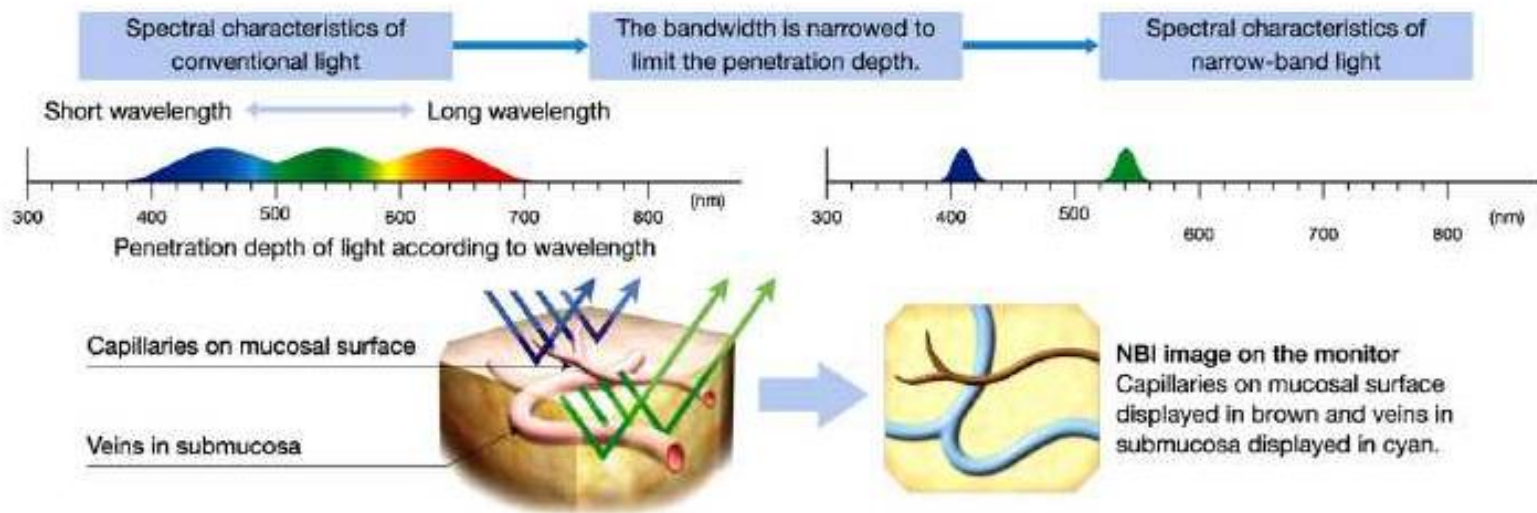
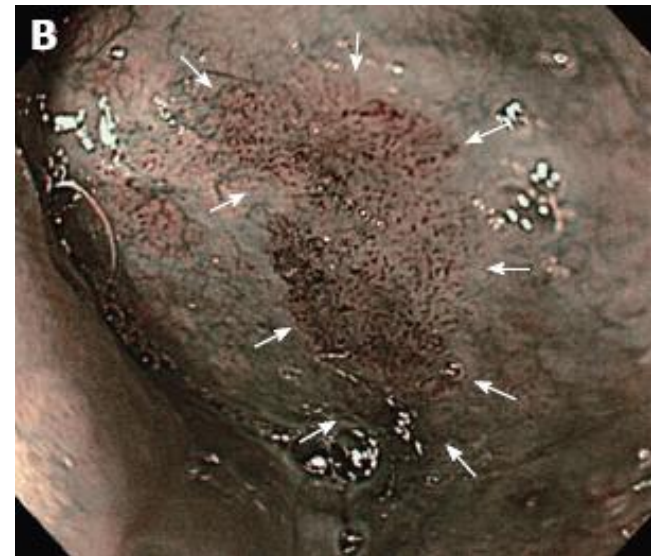
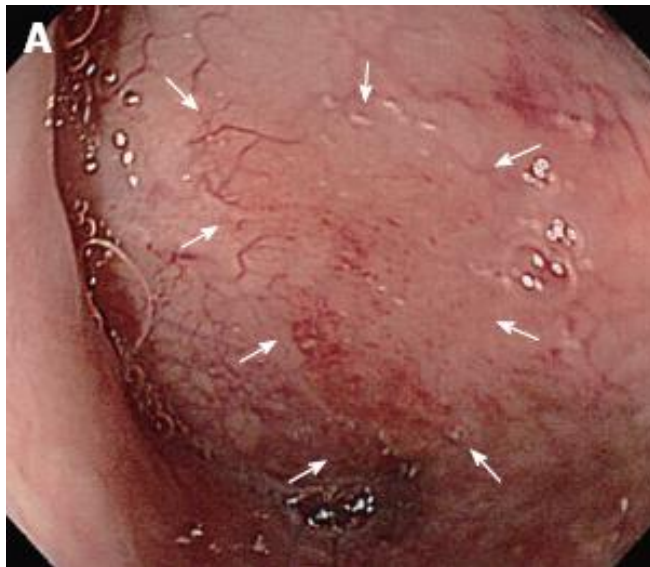
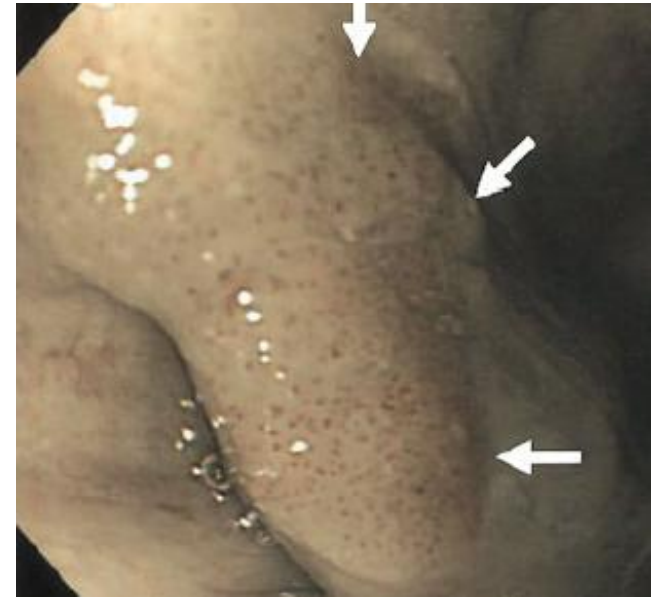


Fig. 1. Diagram of narrow band filtration of light highlighting improved contrast of superficial and submucosal vessels (Image courtesy of Olympus Keymed Group Companies).

NBI



NBI



Tumori del cavo orale - stadi iniziali -

Chirurgia o RT

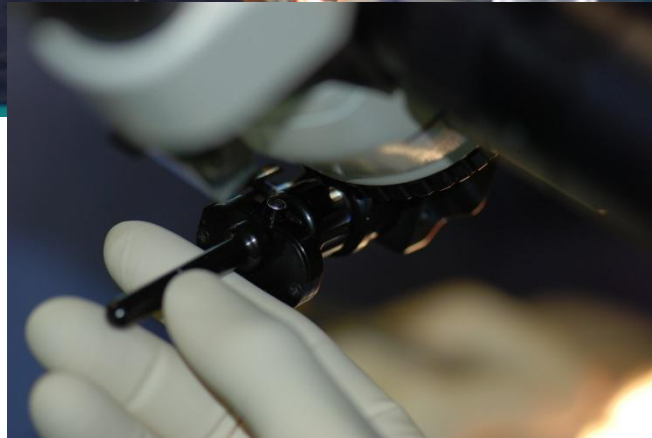
Sebbene la RT sia ugualmente efficace può dare sequele a lungo termine :

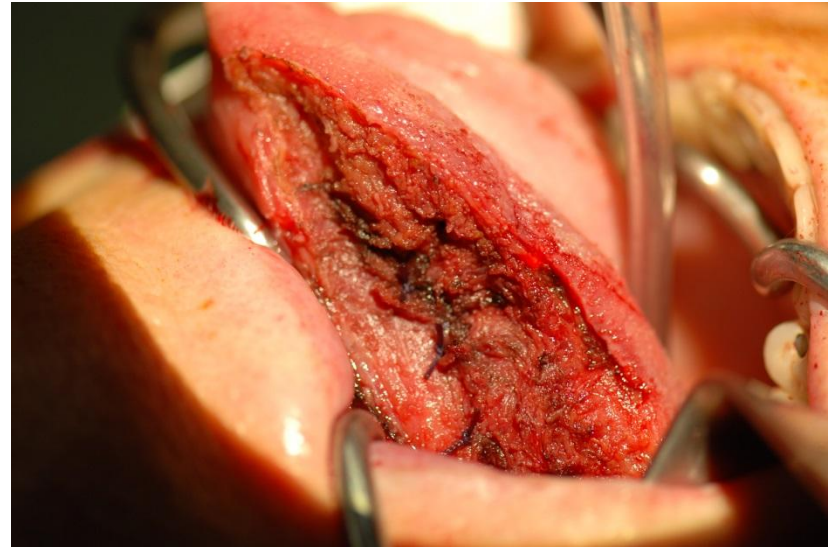
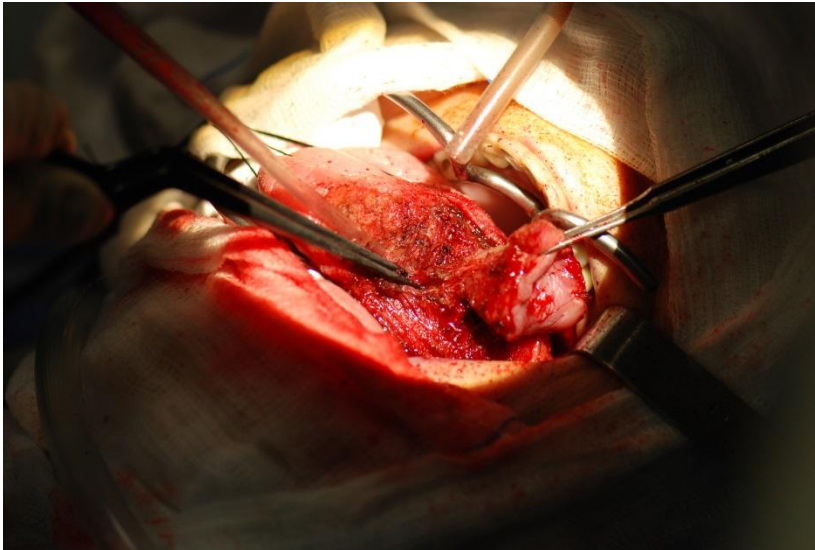
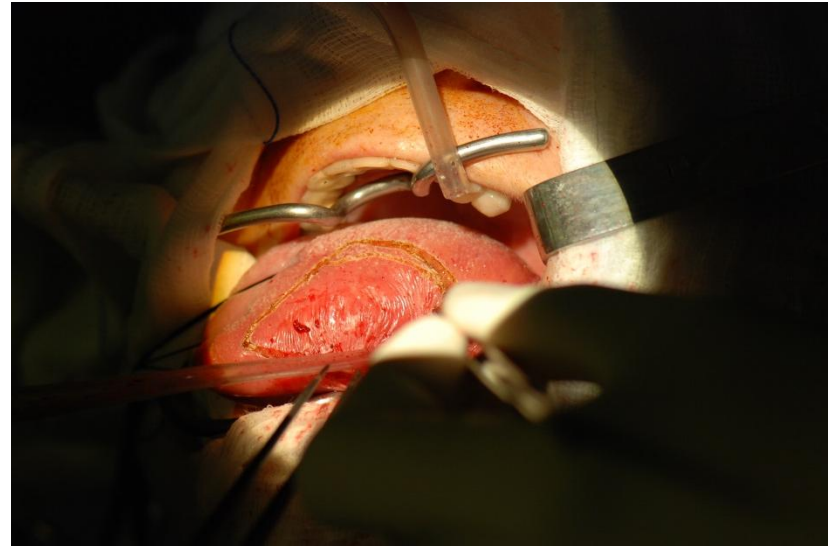
xerostomia

disfagia

osteoradionecrosi

la chirurgia prevede una singola seduta e costi di ospedalizzazione ridotti





Chirurgia laser transorale

- 232 pazienti con tumore del cavo orale (48,7% T3 e T4a)
- Risultati oncologici comparabili con la letteratura
- Nel 41.4% utilizzo del sondino naso-gastrico
- 0.9% gastrostomia temporanea
- 5.2% necessità di controllo del sanguinamento in sala operatoria
- 1% necessità di tracheostomia

Canis M. Enoral laser microsurgery for squamous cell carcinoma of the oral cavity. Head and Neck 2013.

Tumori del cavo orale - stadi avanzati-

Chirurgia + RT postoperatoria

Invasione mandibolare :

Valutazione clinica intraoperatoria: periostal stripping

Resezione marginale (scalino): tumore che si estende al periostio e alla corticale senza interessamento della midollare.

Resezione segmentaria: tumore che erode la corticale ed invade la midollare (fino al canale mandibolare).

Tumori del cavo orale - stadi avanzati-

Periostio = barriera all'invasione tumorale

ECETTO GLI ALVEOLI DENTARI
(AEREA DI MINIMA RESISTENZA)

Due pattern istologici di infiltrazione che riflettono l'aggressività della malattia:

Erosivo: sopravvivenza libera da malattia a 3 anni **73%**

Infiltrativo: finger like projection
sopravvivenza libera da malattia a 3 aa **30%**

Consigliata RT post operatoria nel pattern infiltrativo

Wong RJ et al. Histological pattern of mandibular invasion by oral squamous cell carcinoma. Laryngoscope 2000

Chirurgia ricostruttiva nel cavo orale

Necessaria quando sussistono deficit funzionali e/o estetici

Ampia demolizione del pavimento orale
mucosa geniena
Più di metà della lingua





RFFF, ALT

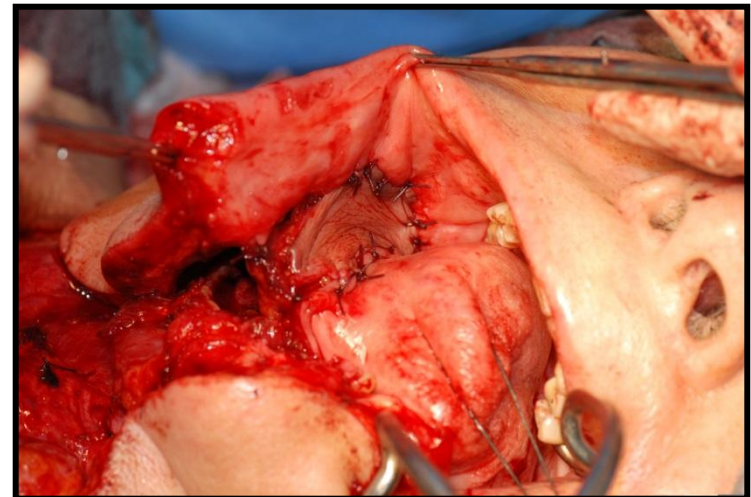
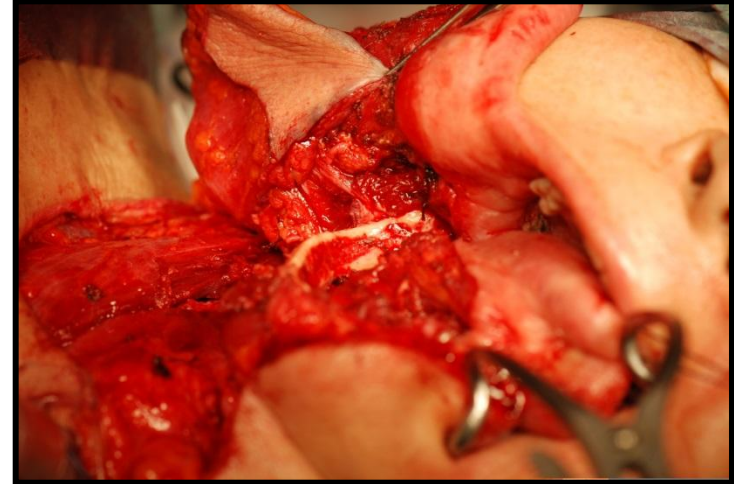
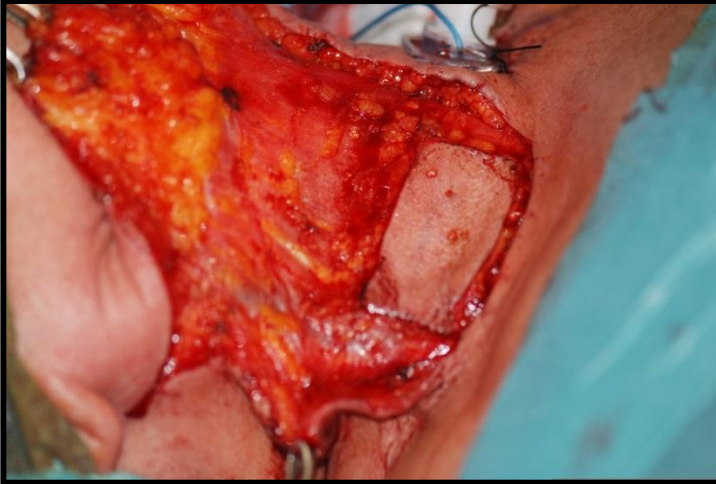
Resezione mandibolare

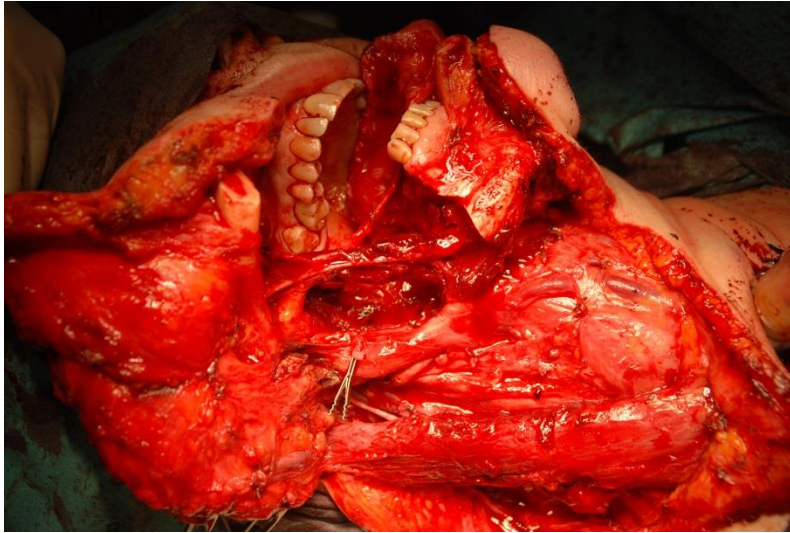


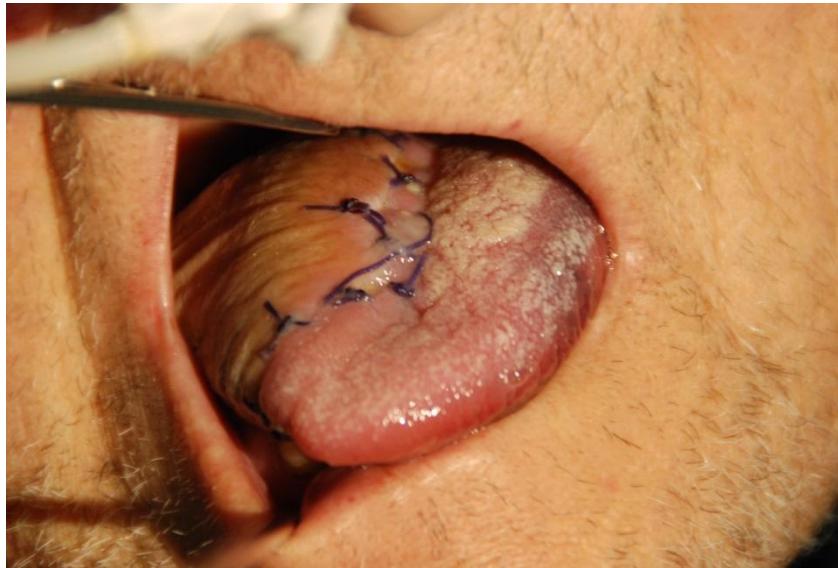
FIBULA

Difetto del palato duro:

- maggiore  lembo osteocutaneo (fibula, cresta iliaca, scapola)
- minore  otturatore dentale









Qualità di vita dopo chirurgia ricostruttiva del cavo orale

47 lembi antebrachiali

- Difficoltà nell'articolazione del linguaggio
- Trisma
- Difficoltà nell'alimentazione (soprattutto in pubblico)

Bozec A et al. Quality of life after oral and oropharyngeal reconstruction with a radial forearm free flap: prospective study. J Otolaryngol Head Neck Surg 2009.

Temoporfin (Foscan)

Indicazioni terapeutiche (Italia):

trattamento palliativo del carcinoma squamocellulare della testa e del collo in fase avanzata dopo fallimento delle terapie convenzionali

Proprietà farmacologiche:

L'attività farmacologica è determinata dalla fotoattivazione di temoporfin con luce laser non termica a 652 nm dopo 5 gg dalla somministrazione endovenosa

Effetto terapeutico: generazione di molecole di ossigeno altamente reattive (radicali liberi) che distruggono le cellule tumorali

Risposta ottimale solo in lesioni illuminate per intero e con **profondità non superiore a 10 mm.**

TERAPIA FOTODINAMICA (PDT)

Vantaggi

- Trattamento locale che distrugge selettivamente le cellule tumorali risparmiando l'architettura dei tessuti circostanti
- Riepitelizzazione con buoni risultati cicatriziali
- Non esclude trattamenti successivi (chirurgia, RT, CT)
- Preservazione della funzione d'organo e assenza di tossicità a lungo termine
- Ridotta morbidità
- Migliori risultati in lesioni <10 mm in profondità e completamente illuminate
- Effetti collaterali locali

Svantaggi

- Edema localizzato con rischio di tracheotomia
- Ustioni
- Algia

Temoporfirin (Foscan)


INDICAZIONI TP FOTODINAMICA SUL CAVO ORALE NON BEN DEFINITE

Studio c/o The Netherland Cancer Institute, Amsterdam.

Neoplasia cavo orale-orofaringe Tis-T2

170 pz con npl primitiva (40%)/ recidiva (60%)

Risposta completa nel 70.8%

Risultati migliori:  lingua, pelvi buccale

 lesioni primitive

Temoporfirin (Foscan)

OLTRE 1500 PZ CON TUMORE TESTA E COLLO TRATTATI CON TERAPIA FOTODINAMICA

Lesioni primitive, recidive, metastasi

Istologia prevalente: carcinoma squamocellulare, tuttavia è stato applicato a melanoma, sarcome di Kaposi, Adenocarcinoma, carcinoma adenoidocistico.

Efficace nel trattamento di

- tumori primitivi in stadio iniziale
- recidive
- terapia palliativa

518 pz Cis-T1-T2

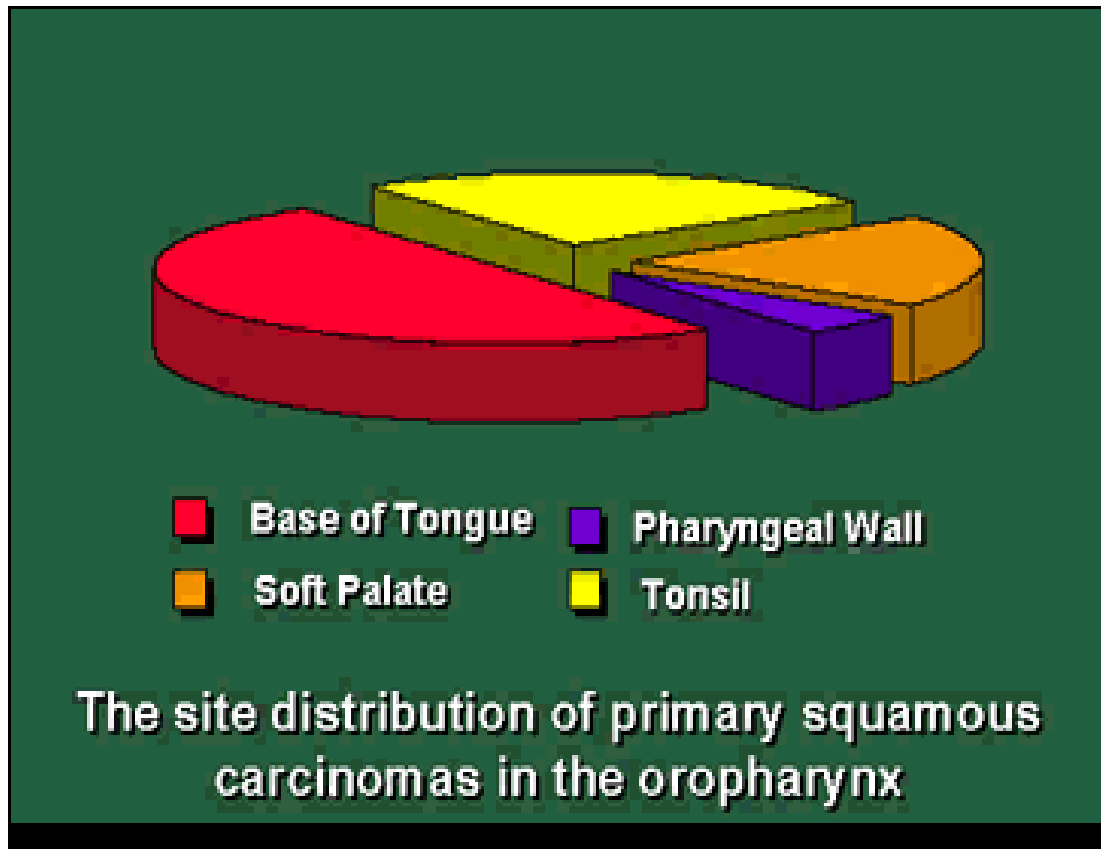
482 (89,1%) completa risposta clinica dopo un solo trattamento

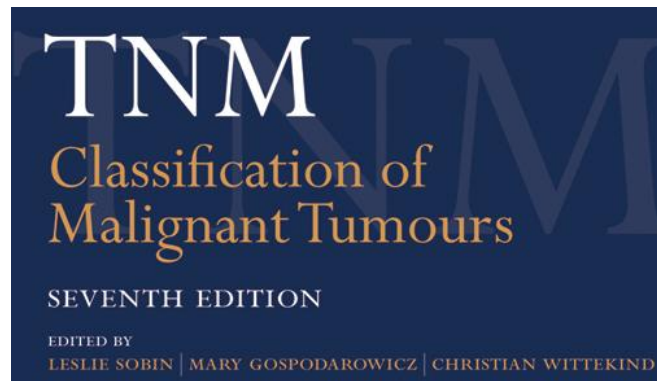
*Biel MA. Photodynamic therapy of head and neck cancers.
Methods Mol Biol 2010*

Cavo orale- limiti invalicabili dalla chirurgia

- T4b** → Infiltrazione degli spazi masticatori, delle lamine pterigoidee, della base del cranio, della carotide interna
- N** → Adenopatie infiltranti la carotide comune o la carotide interna.
- M** → Metastasi a distanza.
- Paziente** → Paziente che rifiuta l'intervento chirurgico.
Paziente non operabile per scarse condizioni di salute.

OROFARINGE - EPIDEMIOLOGIA





Tis: Carcinoma *in situ*.

T1: Tumore di dimensione massima non superiore a 2 cm.

T2: Tumore di dimensione massima non superiore a 2 cm ma non superiore a 4 cm.

T3: Tumore di dimensione massima superiore a 4 cm o con estensione alla faccia linguale dell'epiglottide.

T4a: Tumore che invade la laringe (genioglosso, ioglosso, palatoglosso e stiloglosso), il muscolo pterigoideo mediale, il palato duro o la mandibola.

Tb4: Tumore che invade il muscolo pterigoideo laterale, le lamine pterigoidee, la parte laterale del rinofaringe, la base cranica o che ingloba l'arteria carotide.

N0 Assenza di metastasi linfonodali regionali.

N1 Metastasi in un solo linfonodo omolaterale di dimensione massima inferiore o uguale a 3 cm.

N2a Metastasi in un solo linfonodo omolaterale di dimensione massima fra 3 e 6 cm.

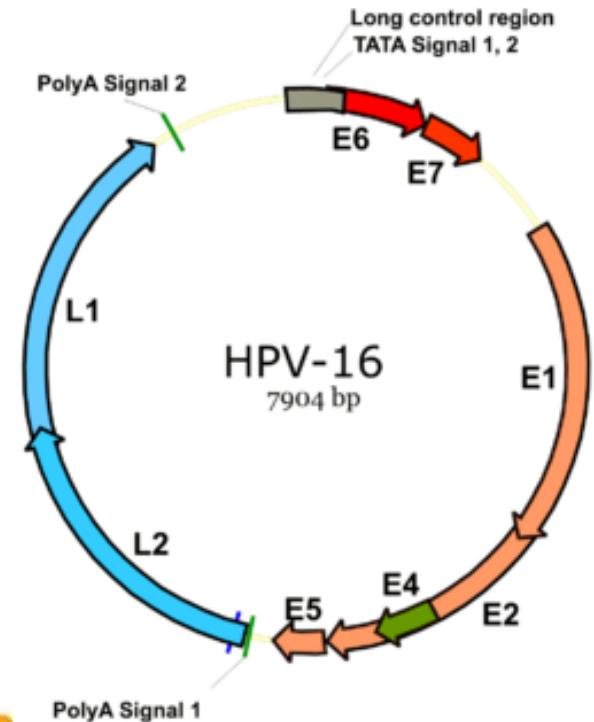
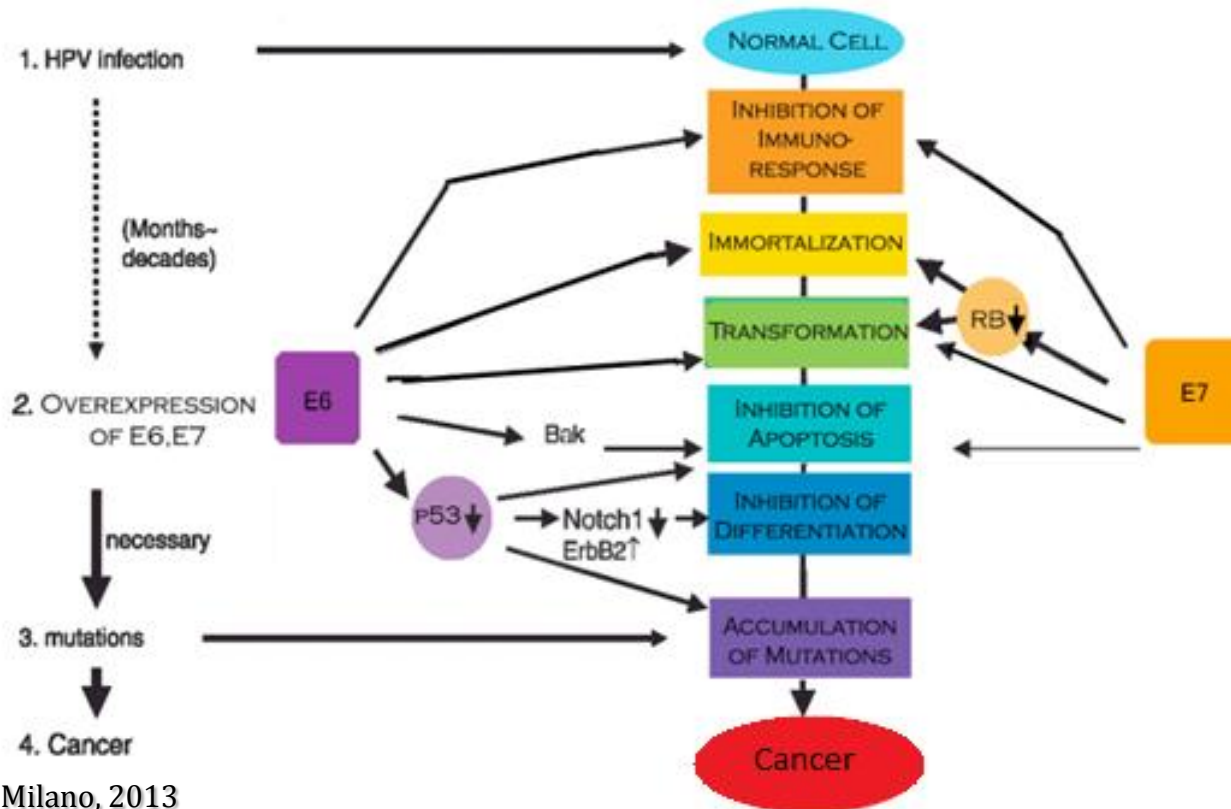
N2b Metastasi in più linfonodi omolaterali, nessuno dei quali di dimensione massima > 6 cm.

N2c Metastasi in linfonodi bilaterali o controlaterali, nessuno dei quali di dimensione massima > 6 cm;

N3 Metastasi in qualsiasi linfonodo di dimensione massima > 6 cm.

RUOLO DI HPV

- Integrazione del dsDNA nel genoma ospite
- E6 inattiva p53, E7 lega pRB

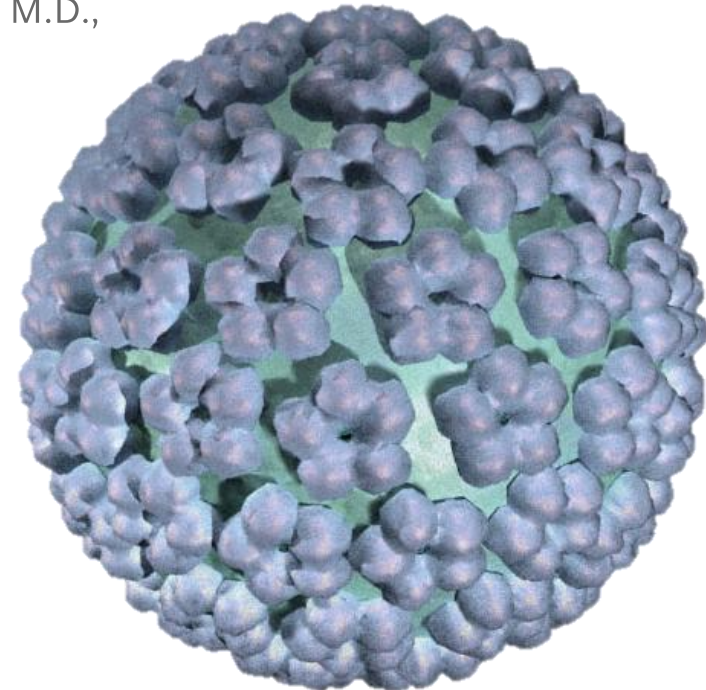


RUOLO DI HPV

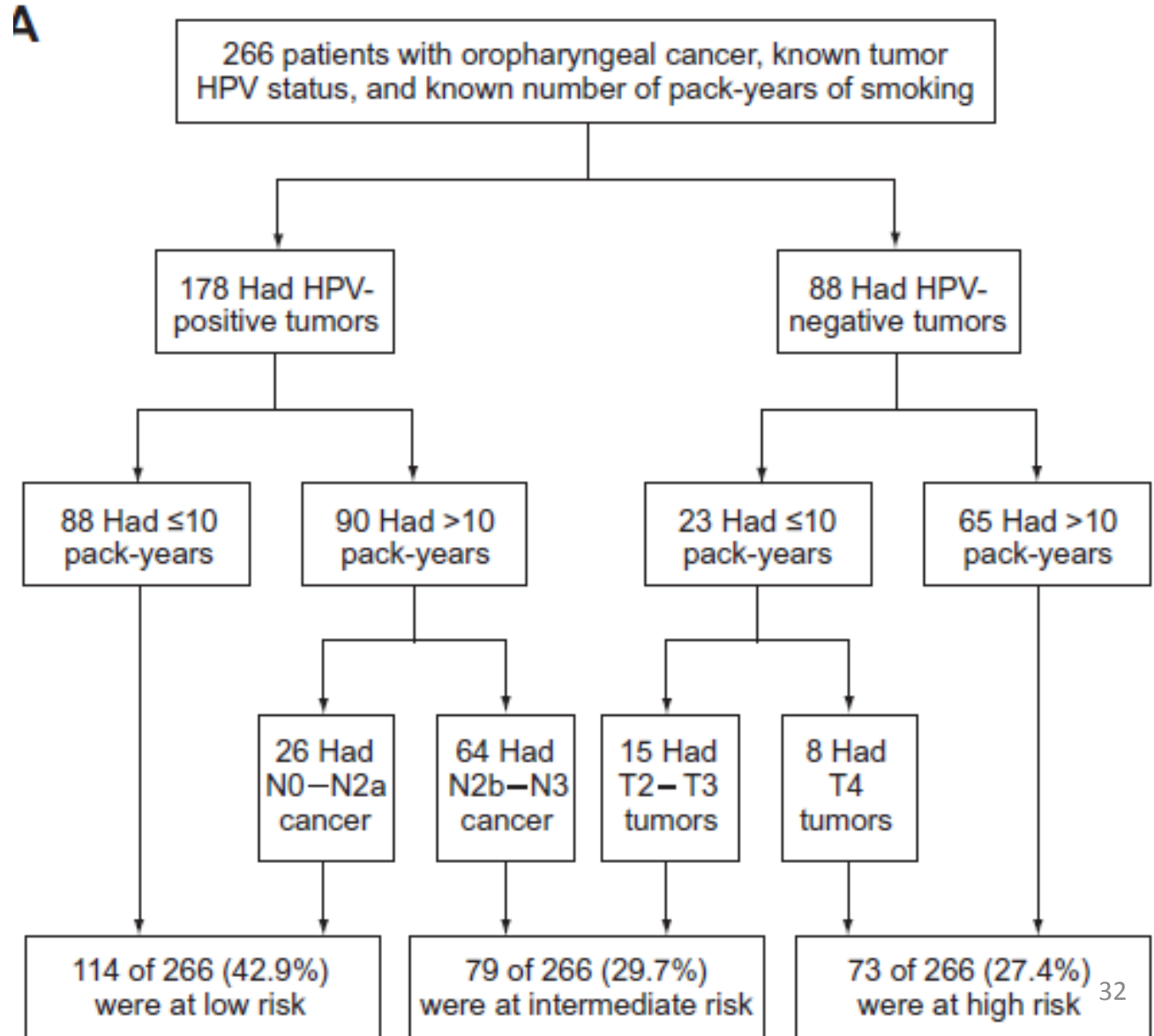
Human Papillomavirus and Survival of Patients with Oropharyngeal Cancer

K. Kian Ang, M.D., Ph.D., Jonathan Harris, M.S., Richard Wheeler, M.D., Randal Weber, M.D., David I. Rosenthal, M.D., Phuc Felix Nguyen-Tân, M.D., William H. Westra, M.D., Christine H. Chung, M.D., Richard C. Jordan, D.D.S., Ph.D., Charles Lu, M.D., Harold Kim, M.D., Rita Axelrod, M.D., C. Craig Silverman, M.D., Kevin P. Redmond, M.D., and Maura L. Gillison, M.D., Ph.D.

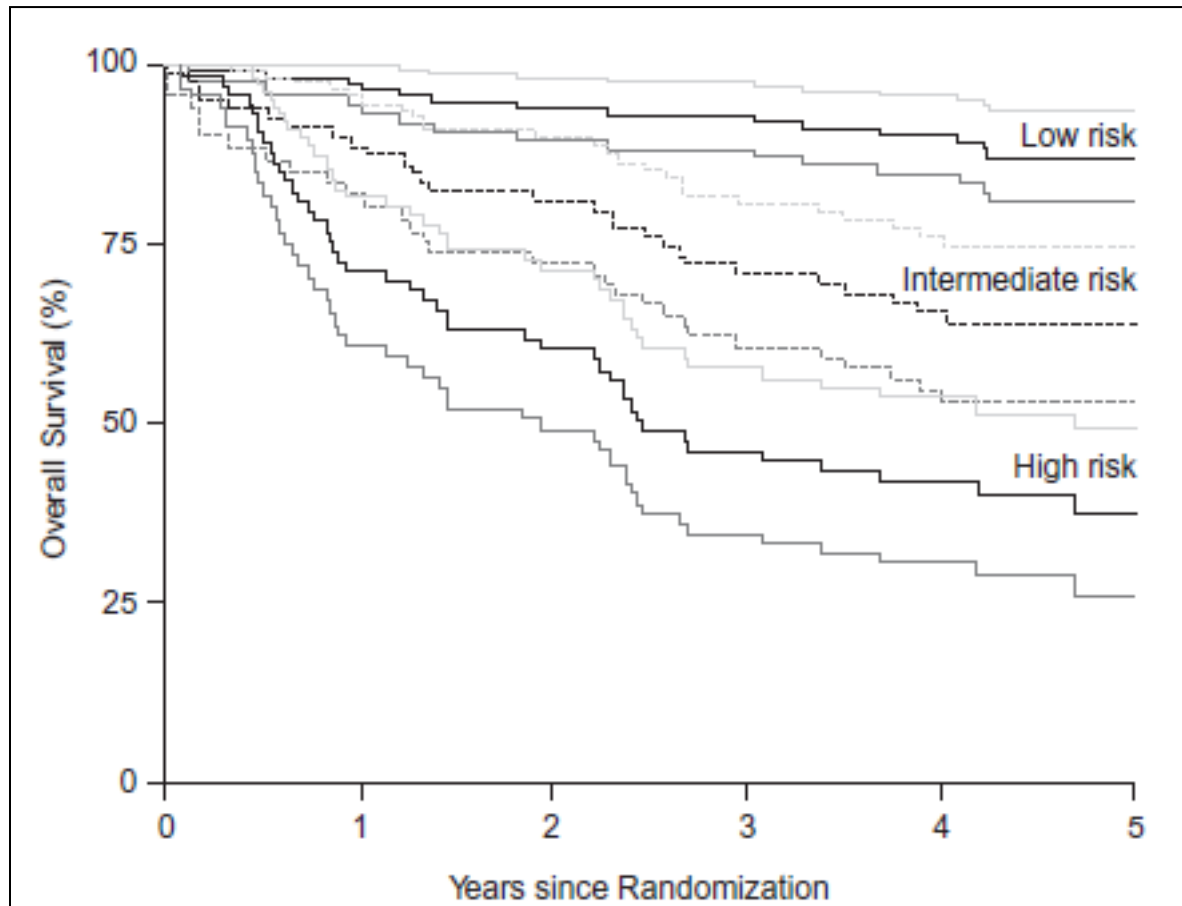
- 323 patients with oropharyngeal cancer
- HPV DNA was detected in 63.8% of patients (201 of the 323)
- 96.1% were positive for HPV-16



RUOLO DI HPV



RUOLO DI HPV



“HPV status of the tumor was the major determinant of overall survival, followed by the number of pack-years of tobacco smoking (<10 vs >10) and then the nodal stage (N0 to N2a vs N2b to N3) for HPV-positive tumors, or tumor stage (T2 or T3 vs T4), for HPV-negative tumors.”

	STANDARD	INDIVIDUALIZZATO	SPERIMENTALE
Stadio I T1N0	<ul style="list-style-type: none"> • ERT: IMRT da preferire 	<ul style="list-style-type: none"> • Chirurgia + cCT/RT se HR 	<ul style="list-style-type: none"> • Chirurgia robotica su T vs IMRT
Stadio II T2N0	<ul style="list-style-type: none"> • ERT: IMRT da preferire 	<ul style="list-style-type: none"> • Chirurgia + cCT/RT se HR 	<ul style="list-style-type: none"> • Chirurgia robotica su T vs IMRT
Stadio III, IVA IVB RISCHIO BASSO	<ul style="list-style-type: none"> • cCT/IMRT 	<ul style="list-style-type: none"> • Chirurgia + RT • Chirurgia + cCT/RT se HR • IMRT + Cet 	<ul style="list-style-type: none"> • Paccagnella • Boost Protoni CNAO 06-2011
Stadio III, IVA IVB RISCHIO INTERMEDIO	<ul style="list-style-type: none"> • cCT/IMRT 	<ul style="list-style-type: none"> • TPF → cCT/IMRT • IMRT + Cet • Chirurgia + RT • Chirurgia + cCT/RT se HR 	<ul style="list-style-type: none"> • Paccagnella • LUX-2 • Boost Protoni CNAO 06-2011
Stadio III, IVA IVB RISCHIO ELEVATO	<ul style="list-style-type: none"> • cCT/IMRT 	<ul style="list-style-type: none"> • TPF → cCT/IMRT • IMRT + Cet • Chirurgia + RT • Chirurgia + cCT/RT se HR 	<ul style="list-style-type: none"> • Paccagnella • LUX-2 • Boost Protoni CNAO 06-2011
Recidiva locale operabile già trattata con RT		<ul style="list-style-type: none"> • Chirurgia T ± N • Re-irradiazione: IMRT 	<ul style="list-style-type: none"> • Chirurgia robotica
Persistenza locale operabile già trattata con RT *		<ul style="list-style-type: none"> • Chirurgia T ± N 	

CHIRURGIA: NUOVE OPZIONI TERAPEUTICHE

- **TRANSORAL LASER SURGERY**
- **TRANSORAL ROBOT SURGERY**
- **TERAPIA FOTODINAMICA**



TRANSORAL LASER SURGERY

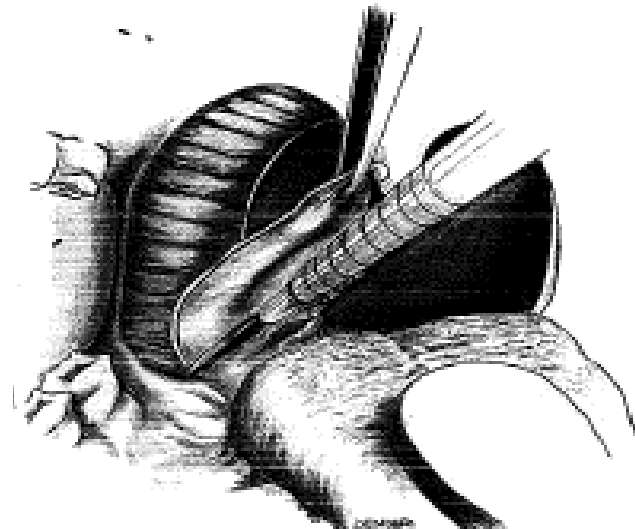
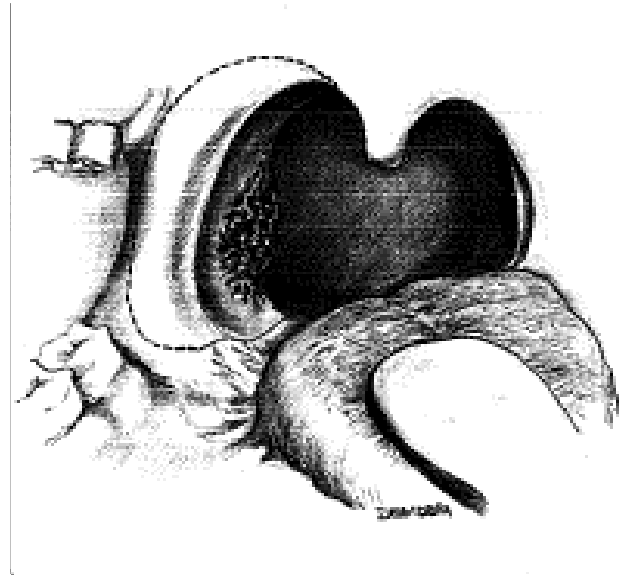
STADI INIZIALI

TONSILLECTOMIA ALLARGATA

- Pilastri palatini
- Parte dell'emipalato
- Solco amigdalo-glosso

INDICAZIONI

Piccoli tumori della loggia tonsillare



TRANSORAL LASER SURGERY



TRANSORAL LASER SURGERY



TRANSORAL LASER SURGERY

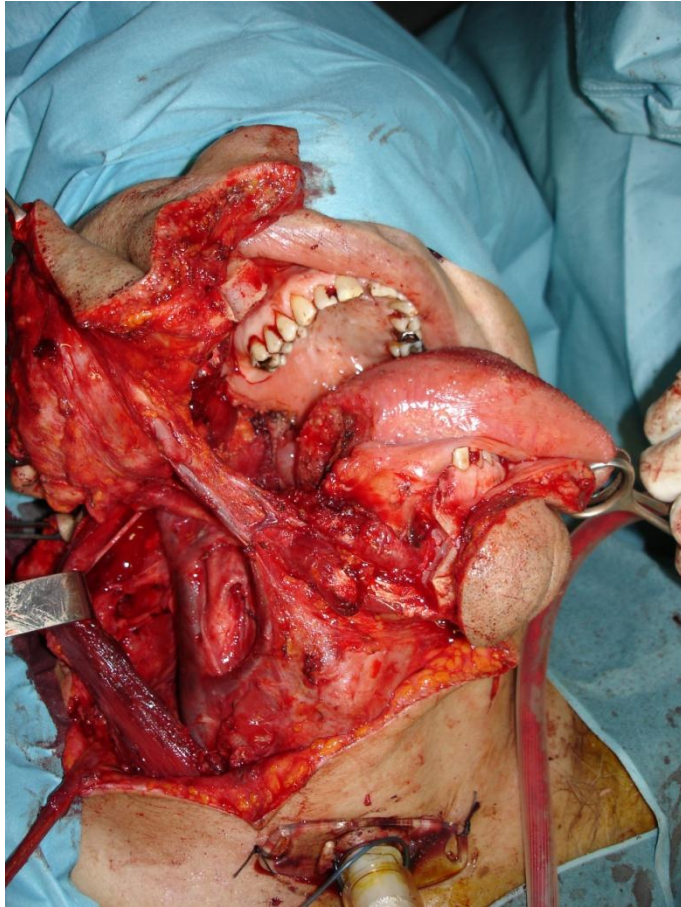
STADI AVANZATI

TRANSORAL LASER MICROSURGERY AS PRIMARY TREATMENT FOR ADVANCED-STAGE OROPHARYNGEAL CANCER: A UNITED STATES MULTICENTER STUDY

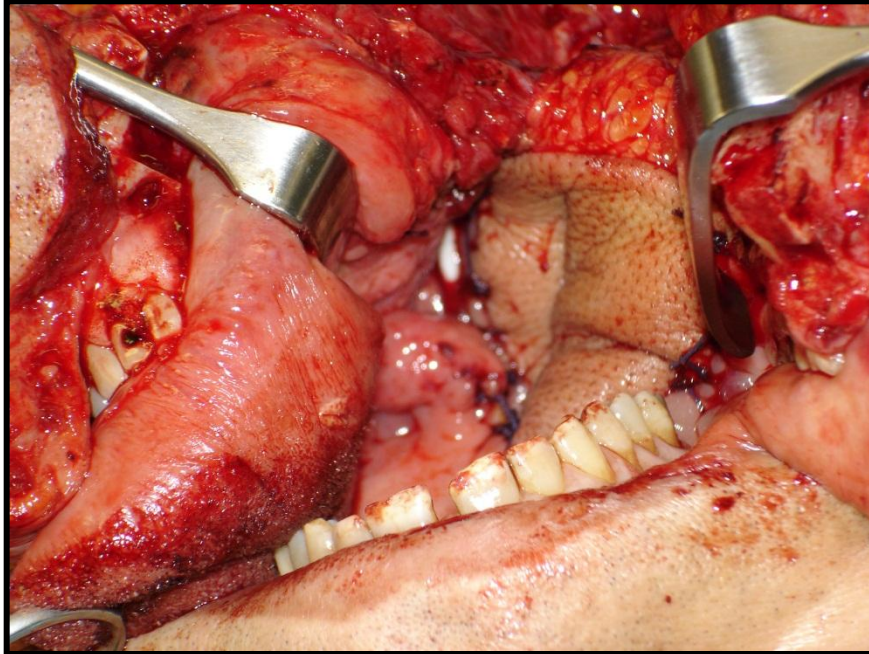
Bruce H. Haughey, MBChB,¹ Michael L. Hinni, MD,² John R. Salassa, MD,³
Richard E. Hayden, MD,² David G. Grant, MBChB,³ Jason T. Rich, MD,¹
Simon Milov, MD,¹ James S. Lewis, Jr, MD,⁴ Murli Krishna, MD⁵

- 204 patients stage III and IV tonsil or tongue base cancer, treated primarily with transoral laser microsurgery
- Three-years overall survival: 86%
- 87% of patients had normal swallowing or episodic dysphagia

STADI AVANZATI



STADI AVANZATI



STADI AVANZATI



STADI AVANZATI



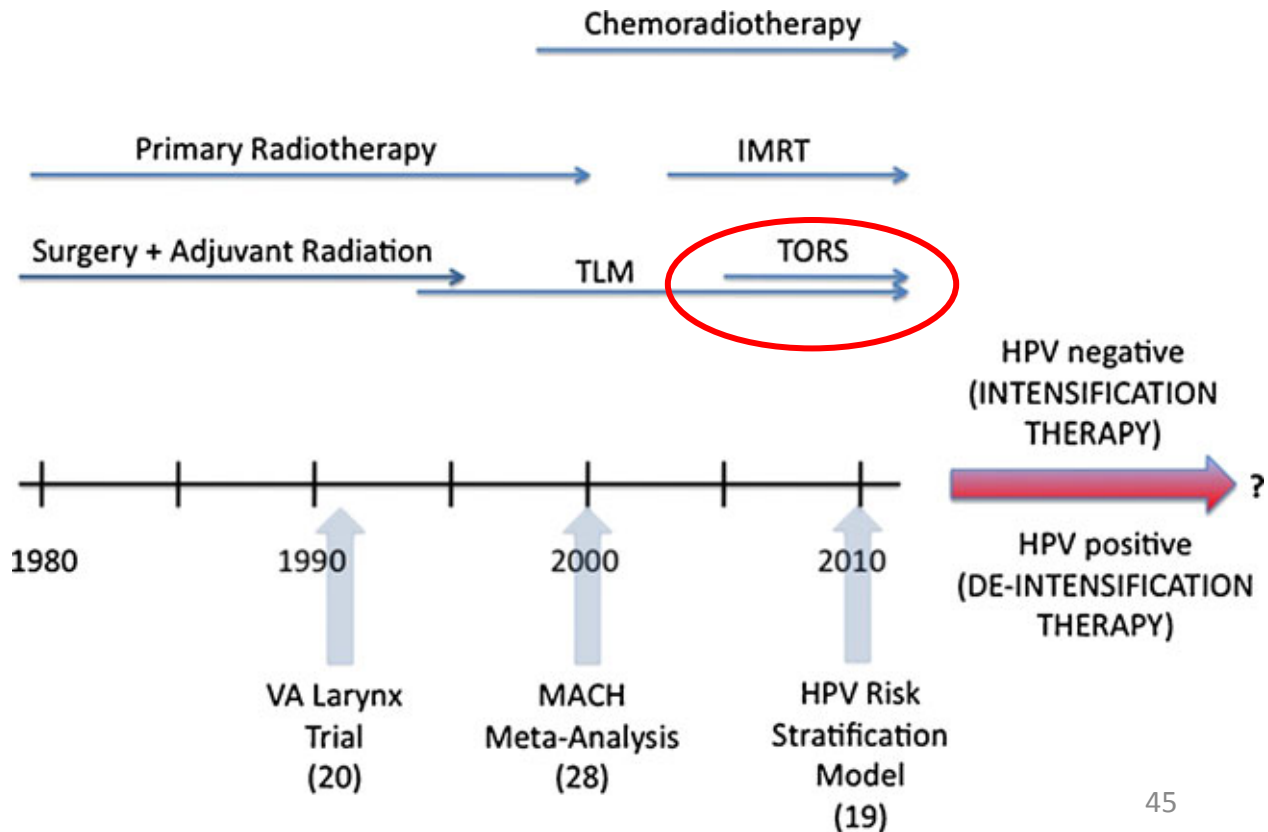
STADI AVANZATI



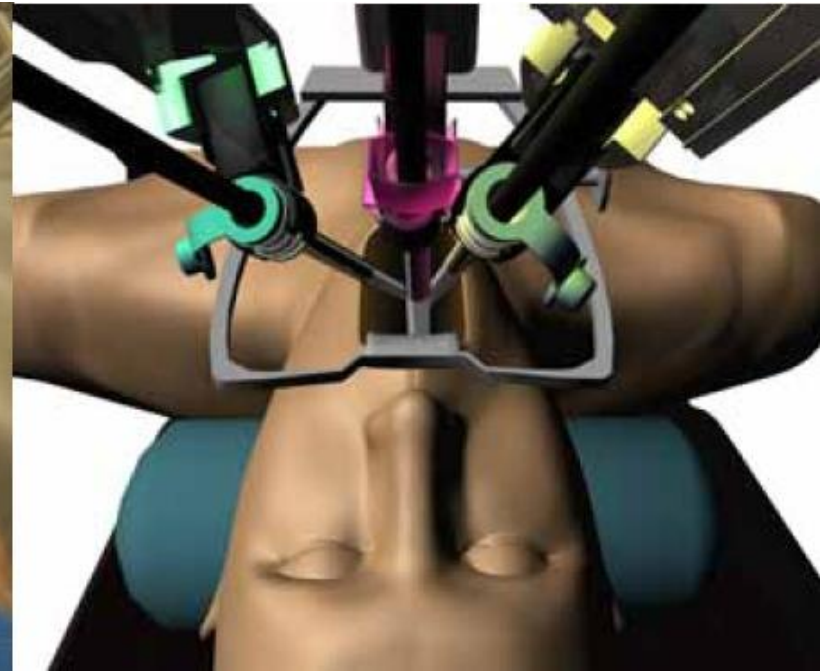
TRANSORAL ROBOT SURGERY

Robotic Surgery for Oropharynx Cancer: Promise, Challenges, and Future Directions

John R. de Almeida • Eric M. Genden



ESPOSIZIONE



DINGMAN
948-0120 set - satz - juego

948-0130 f-rame
948-0131 fig 1 bi
948-0132 fig 2 bi
948-0133 fig 3 bi



VANTAGGI

- Minor morbidity, miglior outcome funzionale e estetico:
 - No tracheotomia/decannulazione precoce
 - Ripresa alimentazione per via naturale più rapida
- Possibilità utilizzo fibra laser
- Possibilità ricostruttive TORS assistite
- Maggiori possibilità di adattamento della procedura chirurgica rispetto ai riscontri intraoperatori
- Riduzione tempi d'ospedalizzazione (1,7-7 gg in media) con inizio precoce di terapia adiuvante

CONTROINDICAZIONI

- Pazienti con ridotta apertura del cavo orale (apertura interdentale inferiore a 2.5 cm)
- Esposizione non adeguata
- Neoplasie non resecabile per sede/dimensione
 - Invasione mandibolare
 - Neoplasia avanzata della base lingua che richiedono una resezione > 50% lingua
 - Neoplasia avanzata del faringe che richiedono una rimozione > 50% parete posteriore orofaringe o con coinvolgimento vertebrale

Hans S et al. Eur Ann Otorhinolaryngol Head Neck Dis 2012

TRANSORAL ROBOT SURGERY

Risultati funzionali

54 patients undergoing TORS:

- 83% tolerating an oral diet within 14 days
- 9% needed tracheostomy, all decannulated by 14 days

Iseli TA et al. Otolaryngol-Head Neck Surg, 2009

Risultati oncologici

89 patients undergoing TORS:

- 3% local failures, 8% regional failures
- Recurrence-free survival: 89% at 1 year, 86% at 2 years

White HN et al. Arch Otolaryngol-Head Neck Surg, 2010

Qualità di vita

TORS vs. primary CRT: TORS patients had significantly better scores immediately post-treatment

Gender EM et al. Laryngoscope, 2011 49

TERAPIA FOTODINAMICA (PDT)

Photodynamic Therapy of Head and Neck Cancers

Merrill A. Biel

- Photodynamic therapy is an effective primary or alternative treatment modality for carcinomas in specific areas of head
- 114 patients treated with Foscan PDT for Tis-T2 oropharyngeal cancer:
 - 85% complete response at completion of therapy and 77% at 2 years
 - 75% disease free survival at 2 years
- **Complete durable response rate equivalent to those obtained with conventional therapy**

TERAPIA FOTODINAMICA (PDT)



QUALITA' DI VITA

Treatment Outcomes and Quality of Life in Oropharyngeal Cancer after Surgery-based versus Radiation-based Treatment

Tae Wook Kim, MD · Hye-Youn Youm, MD · Hayoung Byun, MD · Young-Ik Son, MD · Chung-Hwan Baek, MD

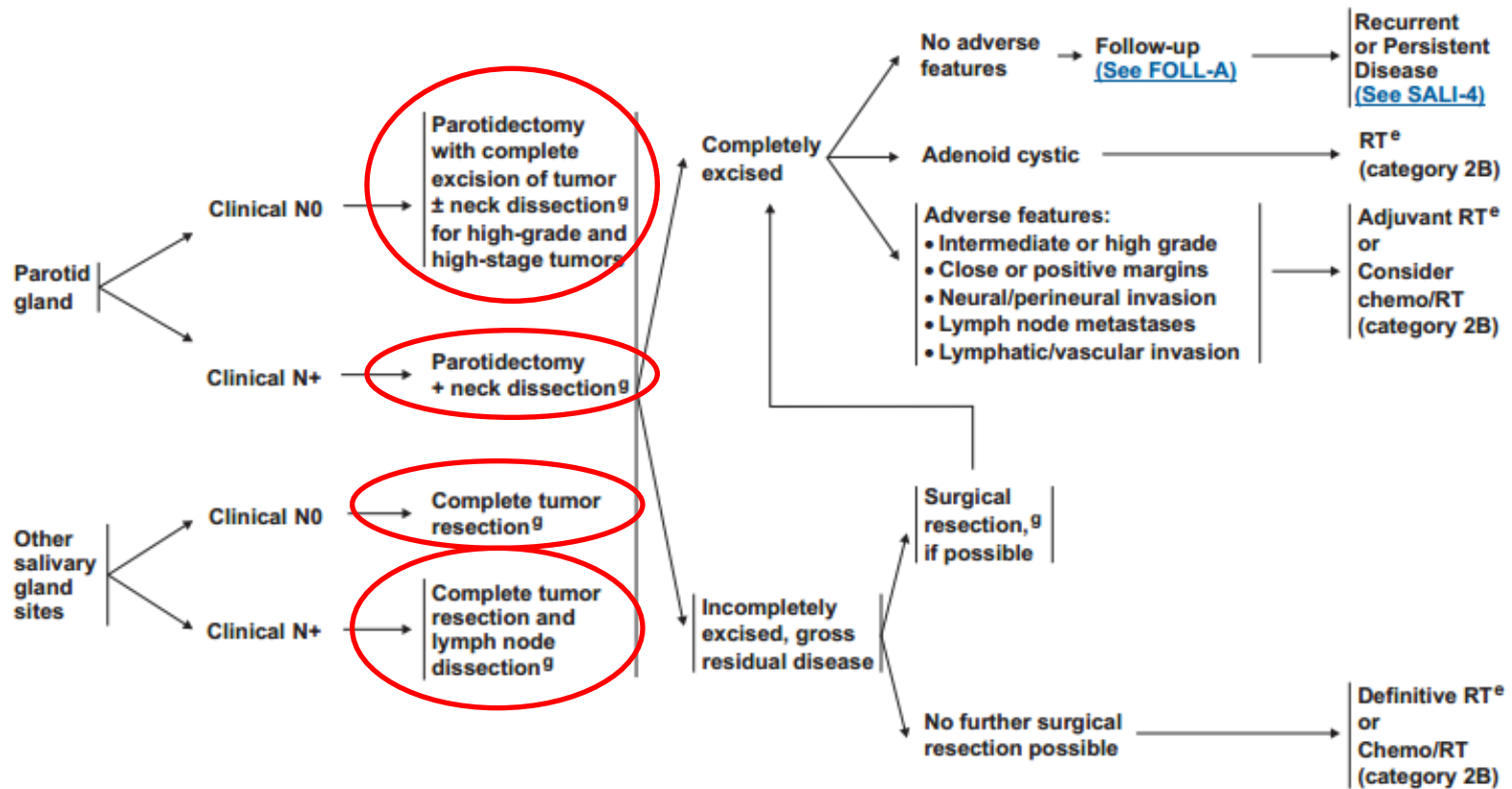
- 133 patients divided in two groups: surgery-based treatment vs. RT-based treatment
- Treatment outcomes were found to be equal in the surgery-based and RT-based groups
- Patients in the **surgery-based group achieved better quality of life scores** for global health status, cognitive functioning, social functioning, nausea and vomiting.

TUMORI DELLE GHIANDOLE SALIVARI

I tumori delle ghiandole salivari

Il trattamento d'elezione per i carcinomi parotidici è quello chirurgico

Linee Guida NCCN



Linee Guida ROL

	STANDARD	INDIVIDUALIZZATO	SPERIMENTALE
Stadio I, II (T1N0; T2 N0)	<ul style="list-style-type: none"> • <u>Chirurgia</u> + IMRT* 		
Stadio I, II (T1N0; T2 N0) Gh. Salivari maggiori R2	<ul style="list-style-type: none"> • <u>Chirurgia</u> + IMRT* 		
Stadio I, II (T1 N0; T2 N0) Gh. salivari maggiori R1	<ul style="list-style-type: none"> • IMRT 		
Stadio I, II (T1 N0; T2 N0) Gh. salivari minori R1, R2	<ul style="list-style-type: none"> • <u>Chirurgia</u> ± IMRT* 		
Stadio III, IVA (T3 N0; T1-3 N1; T4a N0-2; T1-3 N2)	<ul style="list-style-type: none"> • <u>Chirurgia</u> + IMRT 	<ul style="list-style-type: none"> • IMRT • Heavy ion RT 	
Stadio IVB (T4b Ogni N ; Ogni T N3)	<ul style="list-style-type: none"> • IMRT • Heavy ion RT 	<ul style="list-style-type: none"> • CT + IMRT 	

Istologia e prognosi

Istologia e prognosi

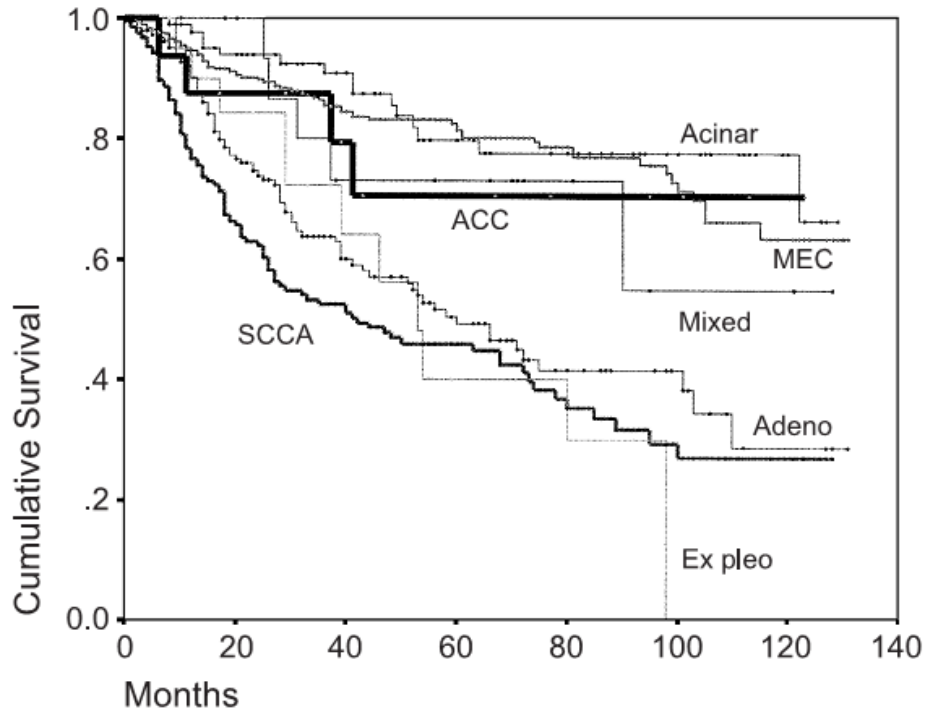


Table 2

Results of the Cox regression analysis for overall survival in parotid gland carcinoma

Variable	Multivariate significance	Hazard ratio	90% confidence interval
Age	<.001	1.04	1.03 - 1.04
Size	.001	1.01	1.01 - 1.02
Positive nodes	<.001	1.64	1.32 - 2.04
Extraglandular extension	<.001	1.62	1.30 - 2.02
Tumor grade	<.001	1.48	1.30 - 1.70
Radiation therapy	.090	0.78	0.61 - 0.99

Fig. 1. Kaplan-Meier survival according to histopathology; MEC, mucoepidermoid carcinoma; ACC, adenoid cystic carcinoma; Mixed, malignant mixed tumor; Ex pleo, carcinoma ex pleomorphic; SCCA, squamous cell carcinoma (data are presented for overall survival as the SEER database does not include information regarding disease-free survival).

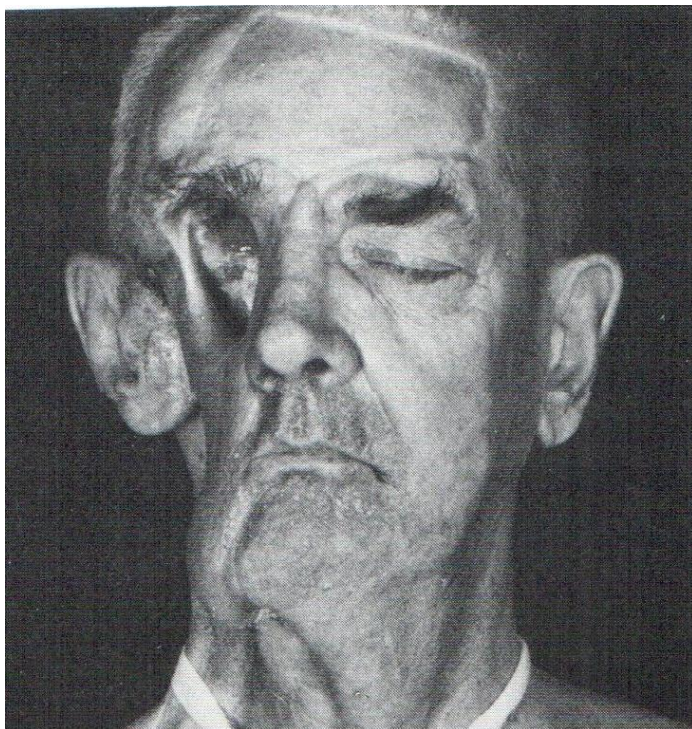
Opzioni chirurgiche

- **Parotidectomia esofaciale** (T1-2 e tumori a basso grado)
- **Parotidectomia totale con conservazione del nervo faciale** (tumori ad alto grado o profondi)
- **Parotidectomia totale con sacrificio del nervo faciale** (infiltrazione del nervo)
- **Parotidectomia totale allargata** alla cute, alla mastoide, allo spazio parafaringeo, alla mandibola, all'osso temporale

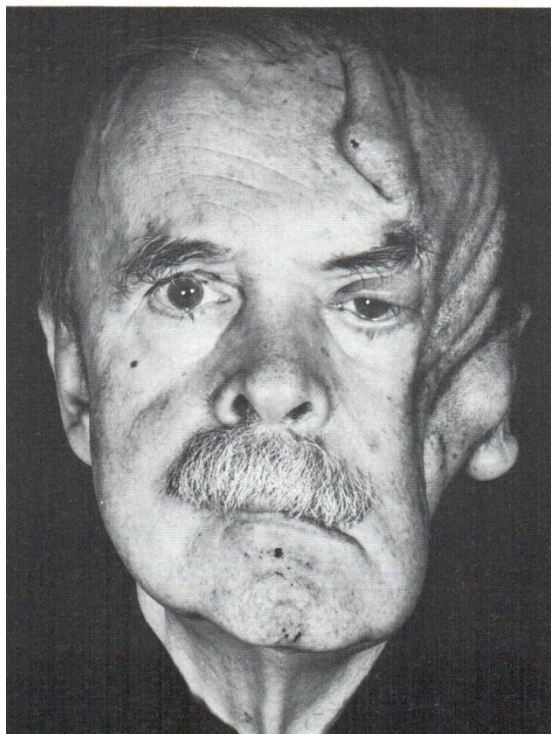
Indicazioni alla radioterapia postoperatoria

- Tumori del lobo profondo
- Lesioni avanzate (T3-T4)
- Residuo microscopico (R1) o macroscopico (R2) dopo chirurgia
- Alto grading (G3-G4)
- Infiltrazione ossea o del tessuto connettivo
- Diffusione perineurale
- Metastasi linfonodali
- Rottura capsulare
- Exeresi di recidiva dopo pregressa chirurgia

Evoluzione della chirurgia

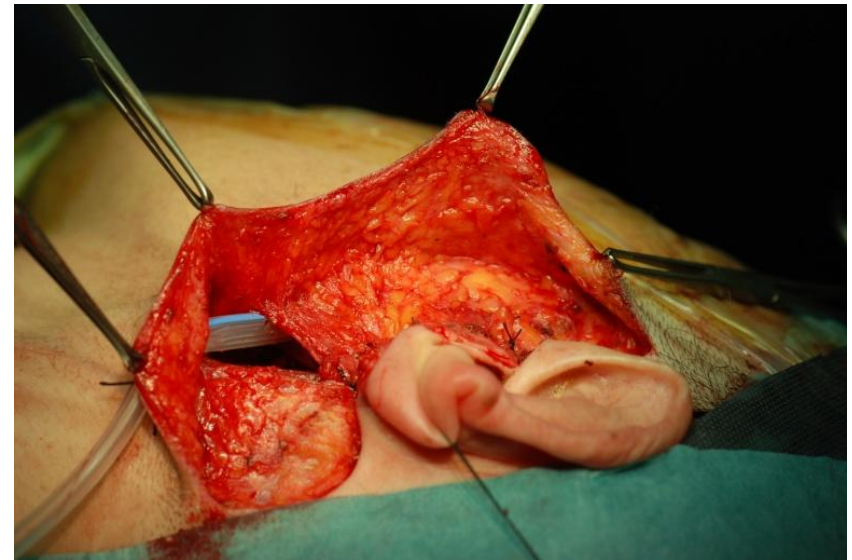
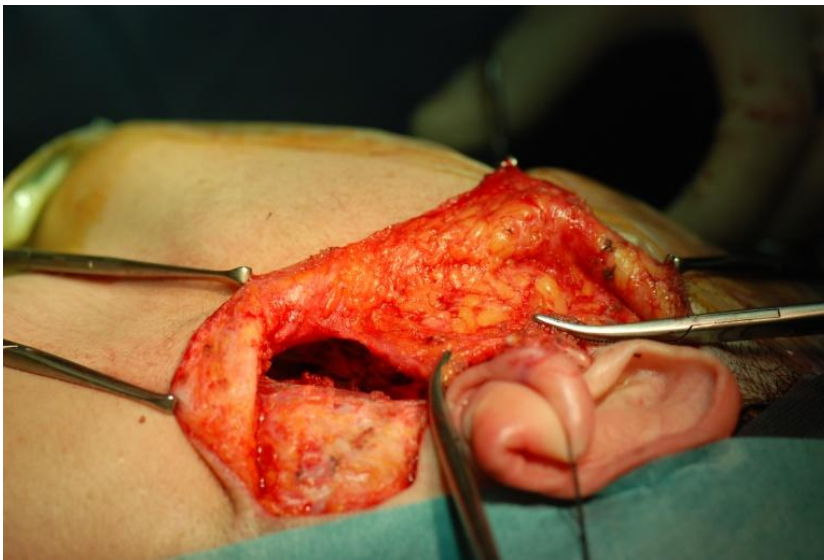


Evoluzione della chirurgia

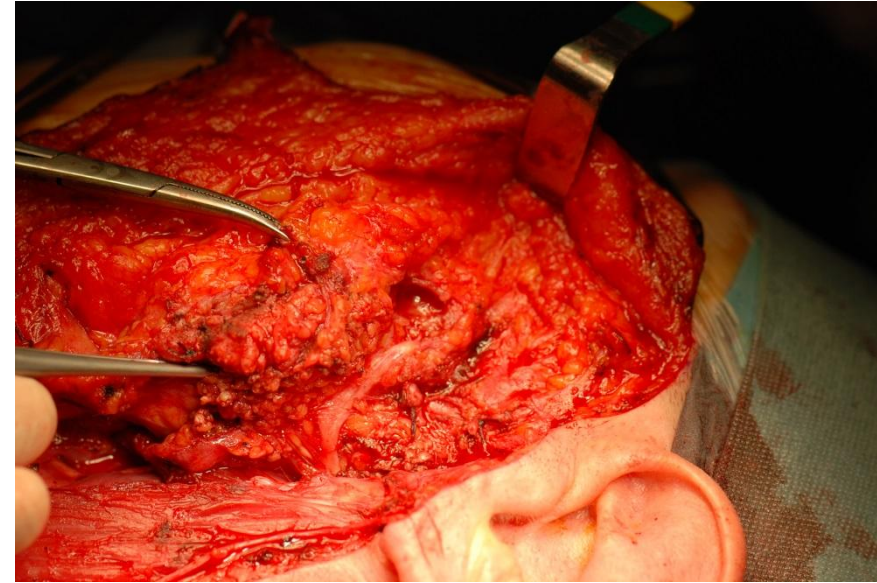
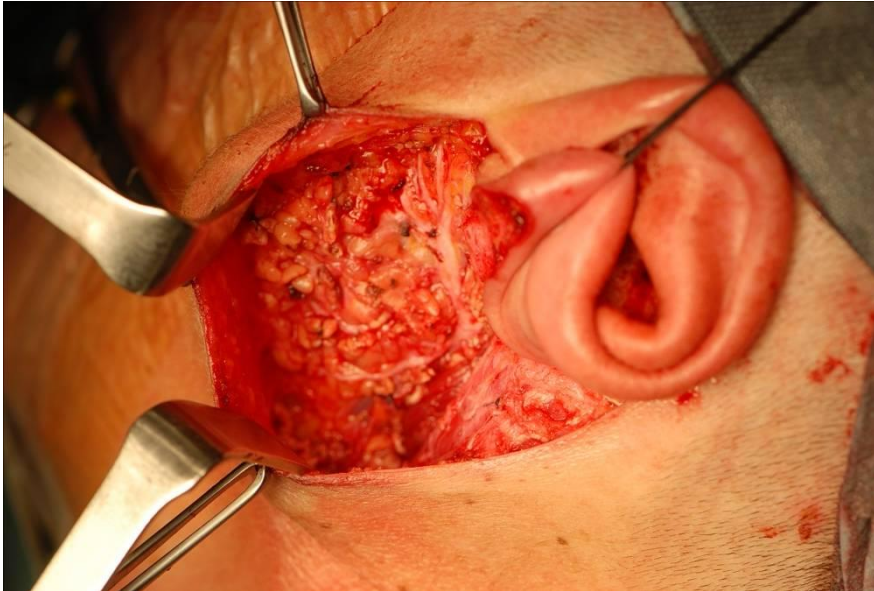


SMAS

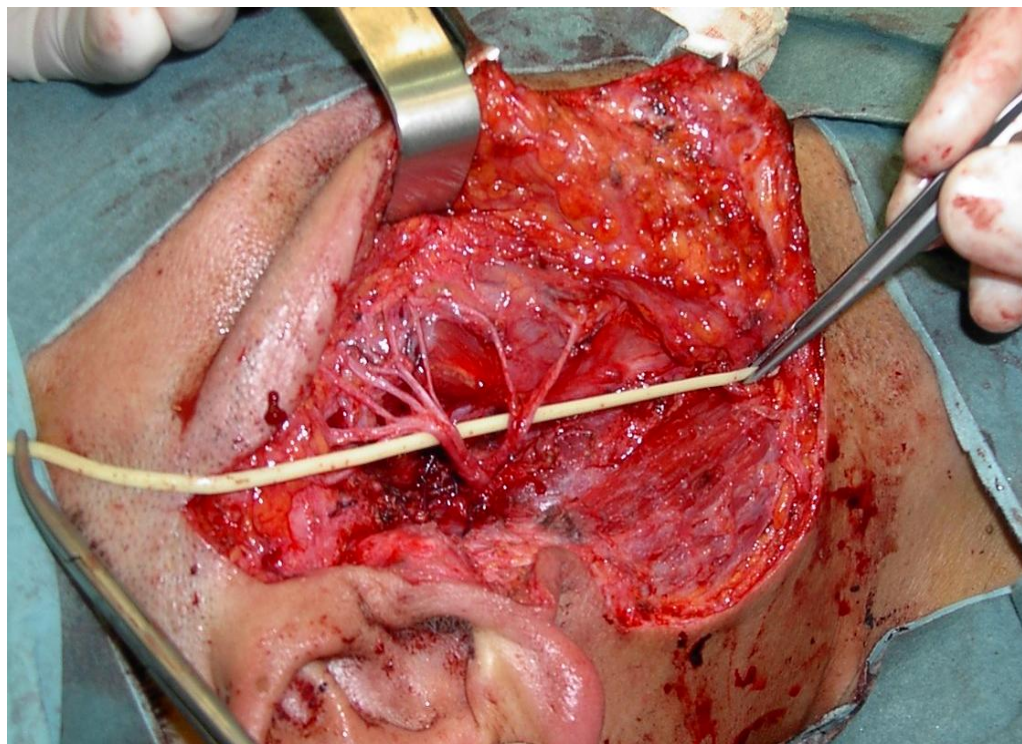
Utilizzato per ridurre la depressione facciale e per la prevenzione della sindrome di Frey (reinnervazione anomala delle ghiandole sudoripare da parte del nervo auricolotemporale)



Parotidectomia esofaciale

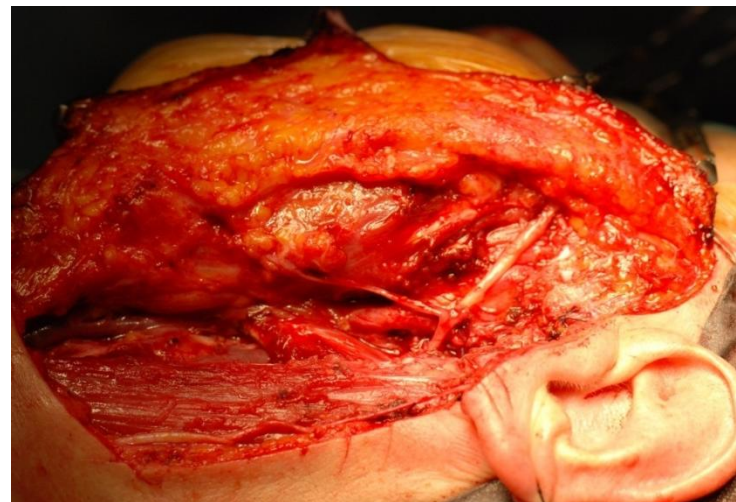
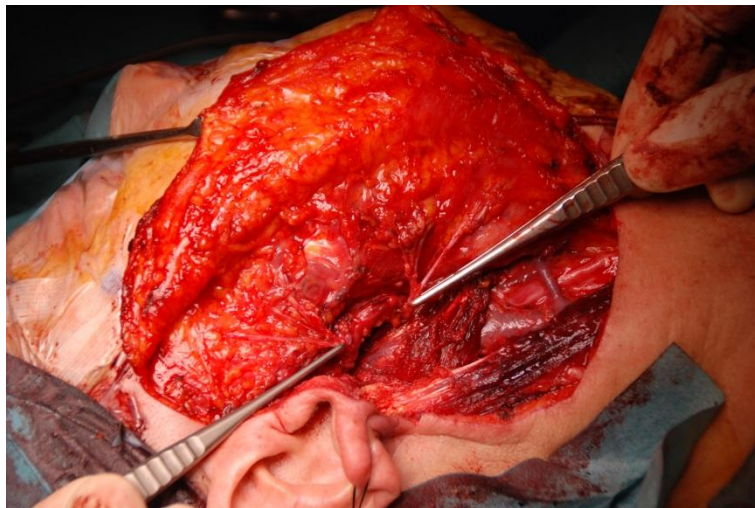
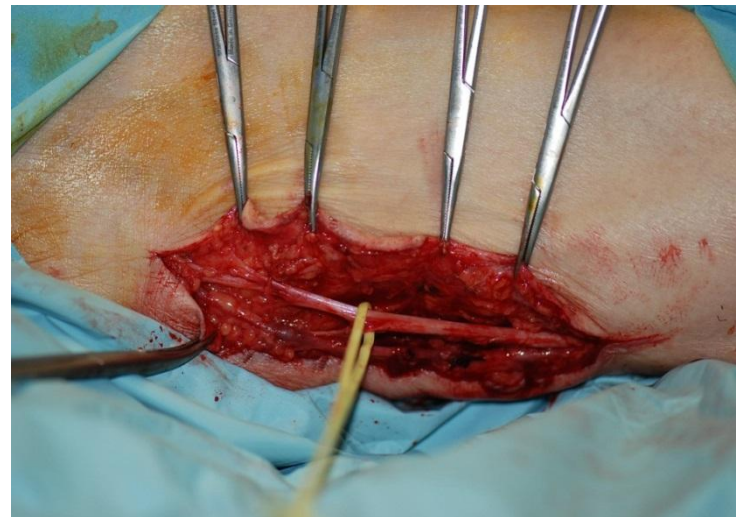


Parotidectomia totale con conservazione del nervo faciale

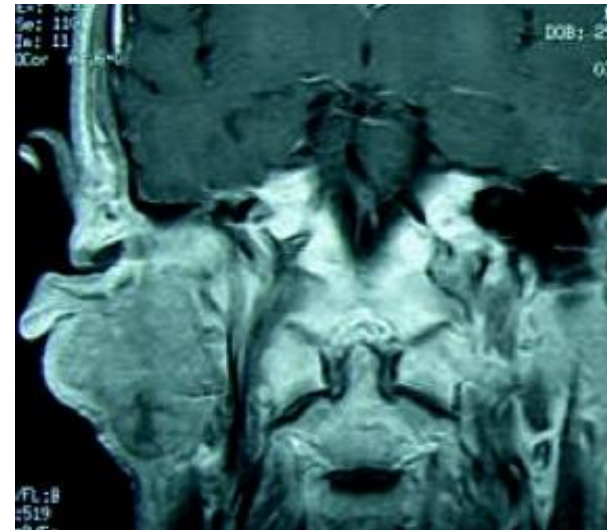
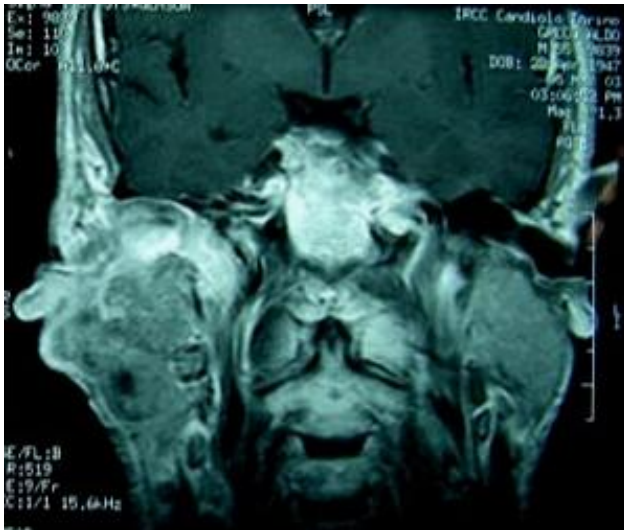


I tumori delle ghiandole salivari

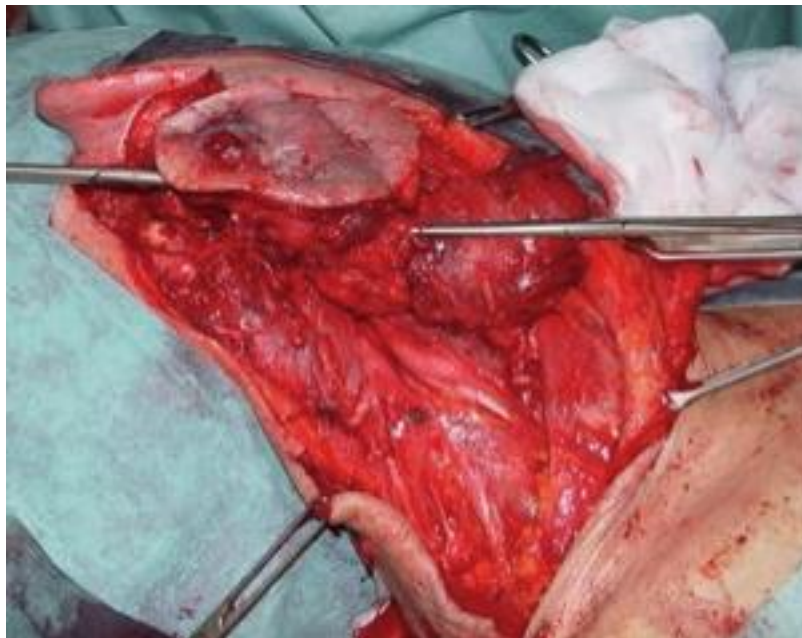
Ricostruzione del nervo facciale dopo sacrificio per infiltrazione



I tumori delle ghiandole salivari



I tumori delle ghiandole salivari



Parotidectomia totale allargata alla cute e alla mastoide

I tumori delle ghiandole salivari



Fattori di rischio per metastasi linfonodali

- **Tipo istologico e alto grado**
- **Stadio di T**
- Dimensioni di T
- Dolore
- Paralisi faciale
- Estensione extraparenchimale
- Età

Limiti della chirurgia

TNM (7th ed)

- T1: Tumor 2 cm or less in greatest dimension without extraparenchymal extension
- T2: Tumor more than 2 cm but not more than 4 cm in greatest dimension without extraparenchymal extension
- T3: Tumor more than 4 cm and/or tumor having extraparenchymal extension
- T4a: Tumor invades skin, ear canal, or facial nerve
- T4b: Tumor invades base of the skull, pterygoid plates, or encases carotid artery

Extraparenchymal extension is clinical or macroscopic evidence of invasion of soft tissues or nerve, except these listed under T4a and T4b. Microscopic evidence alone does not constitute extraparenchymal extension for classification purposes.

Stadi

Stage I: T1, N0, M0

Stage II: T2, N0, M0

Stage III: T3, N0, M0 or T1-T3, N1, M0

Stage IVA: T4a, N0-N1, M0 or T1-T4a, N2, M0

Stage IVB: T4b, Any N, M0 or Any T, N3, M0

Stage IVC: Any T, Any N, M1

Limiti della chirurgia

Fattori dipendenti dal tumore:

- Infiltrazione della carotide interna
- Infiltrazione della base cranica
- Infiltrazione delle lamine pterigoidee

Fattori dipendenti dal paziente:

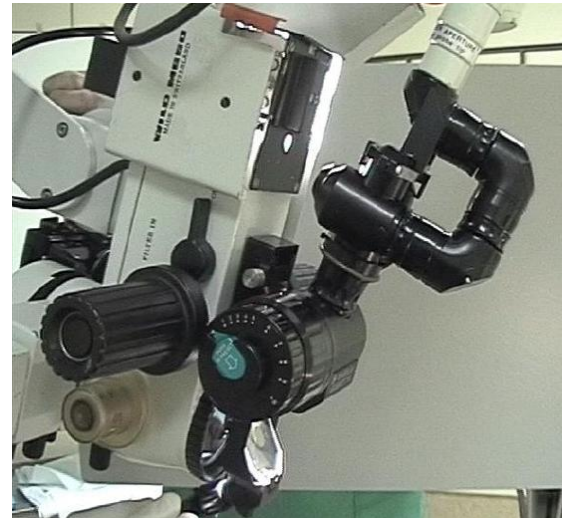
- Alto rischio anestesiológico
- Rifiuto di sottoporsi a chirurgia

TUMORI DELLA LARINGE

Laringe

Carcinomi laringei →

**microlaringoscopia diretta
(MLSD) con LASER CO₂**



Carcinomi laringei - LASER

VANTAGGI DELL'APPROCCIO TRANSORALE:

- Rapidità di trattamento
- Buona compliance da parte del pz
- Scarsa morbilità
- Conservazione della muscolatura estrinseca e dello scheletro laringeo
- Qualità della voce
- Sporadica necessità di tracheostomia
- Ospedalizzazione breve
- Costi limitati
- Possibilità di ritrattamento



VANTAGGI DEL LASER CO₂:

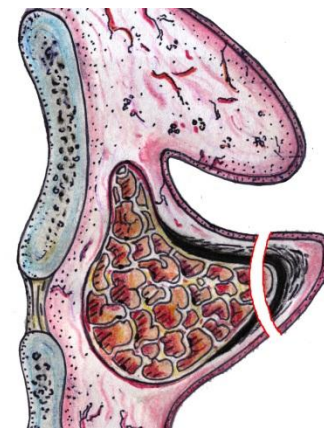
- Precisione di taglio
- Discreta emostasi (vasi con diametro <0.6 mm)
- Minimo l'edema

Carcinomi glottici - LASER

Corpectomia subepiteliale (Tipo I)



Corpectomia sublegamentosa (Tipo II)

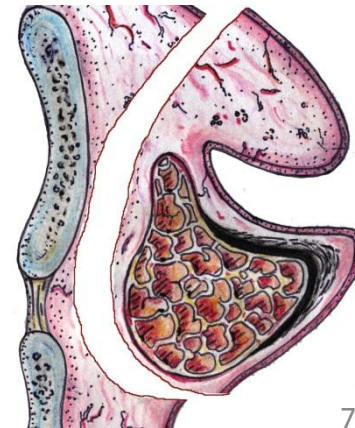


T1a
glottici → 4 opzioni
LASER

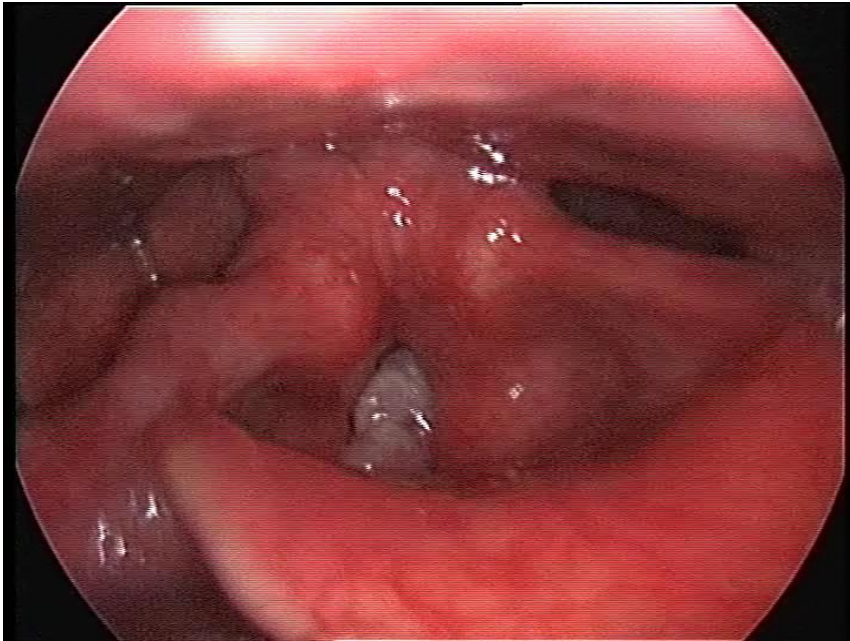
Corpectomia transmuscolare (Tipo III)



Corpectomia completa (Tipo IV)



Carcinomi glottici - LASER




Corpectomia tipo II



Carcinoma squamocellulare pT1a G1



Controllo a 8 mesi 

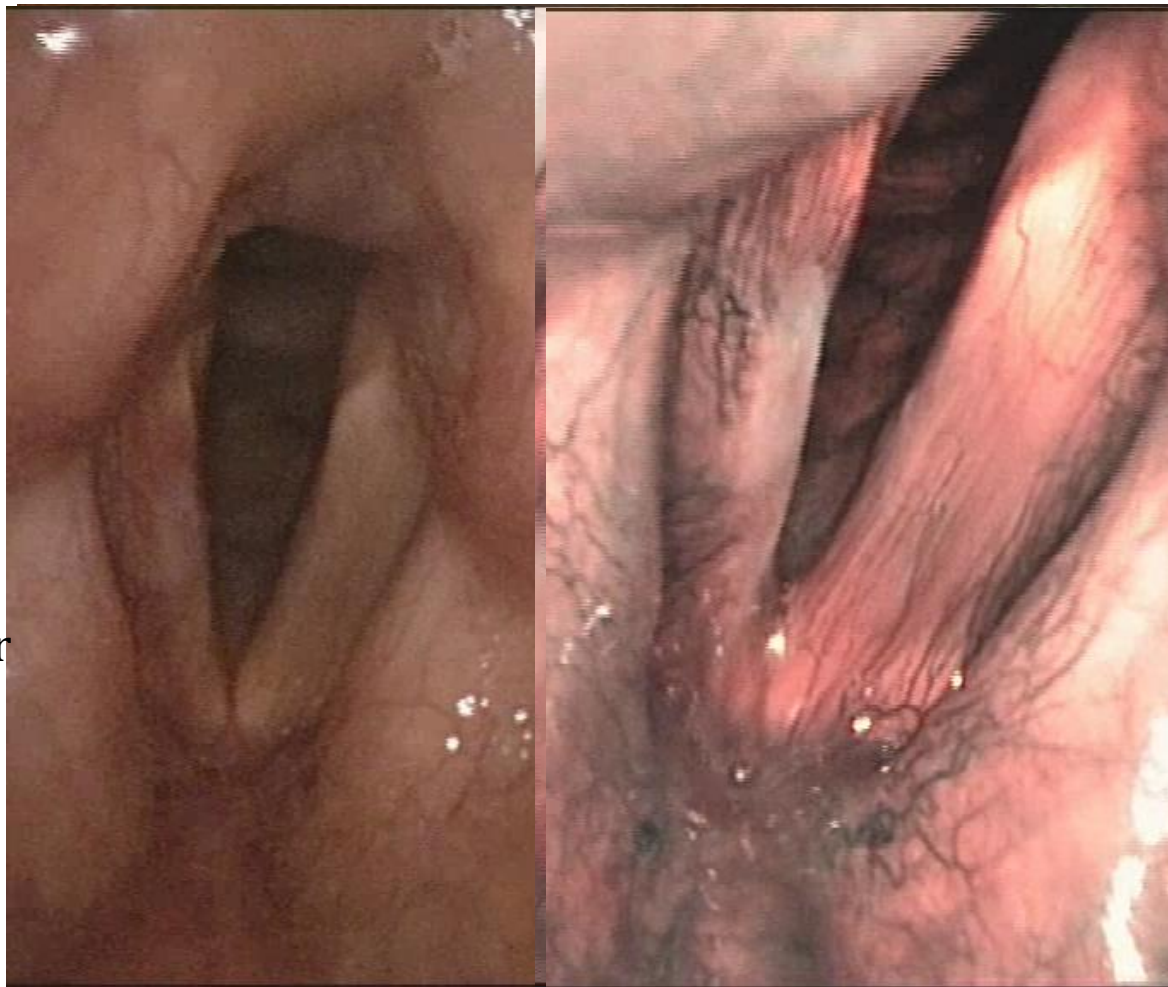


Carcinomi glottici - LASER

B. E.

48 anni;
5 sigarette die,
non bevitrice abituale

Riscontro occasionale di
leucoplachia della CV sx, nel
corso di valutazione ORL per
vertigine



Carcinomi glottici - LASER

B. E.

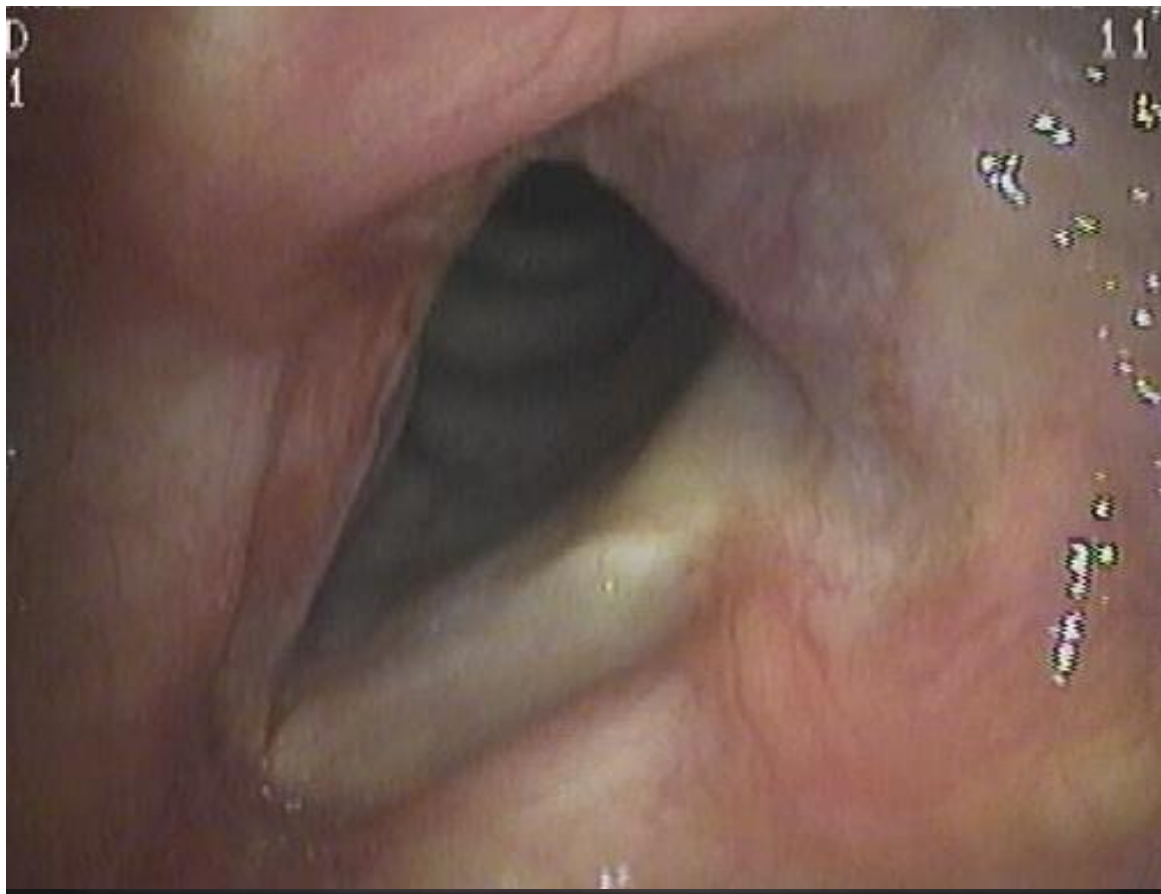
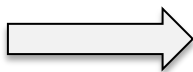
Corpectomia tipo III



Carcinoma squamocellulare
pT1a G2

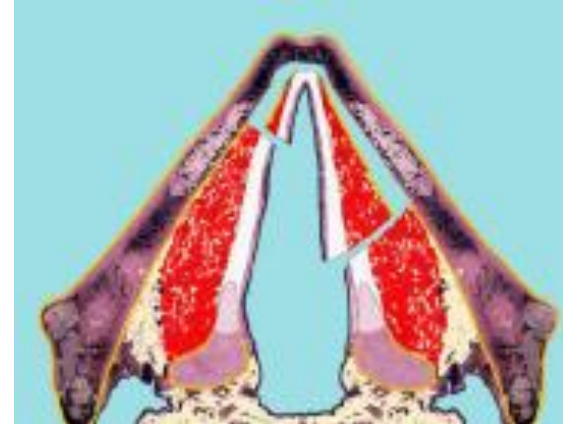


Controllo a 3 mesi



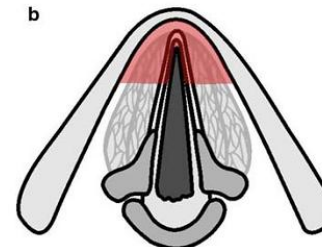
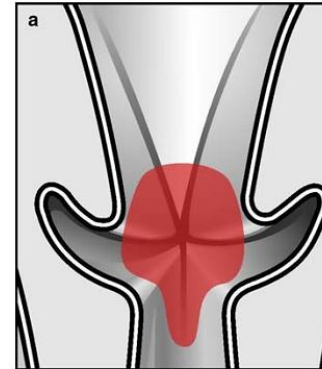
Carcinomi glottici - LASER

Corpectomia allargata alla
commissura anteriore
(Tipo Va)



T1b
glottici → 2 opzioni
LASER

Corpectomia commissurale
(Tipo VI)



Carcinomi glottici - LASER



Cordectomia tipo Va



Carcinoma squamocellulare pT1b G2

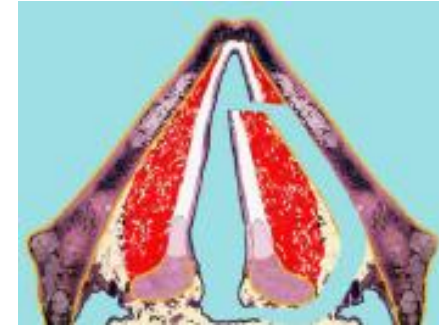


Controllo a 6 mesi



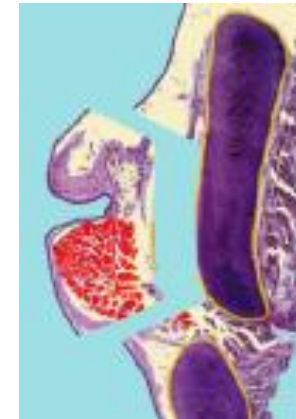
Carcinomi glottici - LASER

**Corpectomia allargata
all'aritennoide (Tipo Vb)**

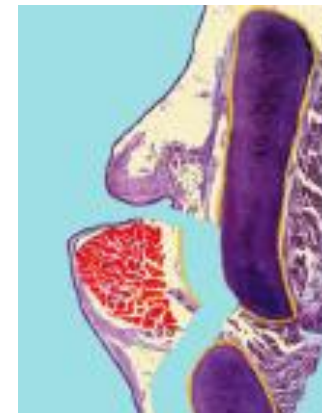


**T2
glottici → 3 opzioni
LASER**

**Corpectomia allargata alla
falsa corda (Tipo Vc)**



**Corpectomia allargata allo
spazio ipoglottico (Tipo Vd)**

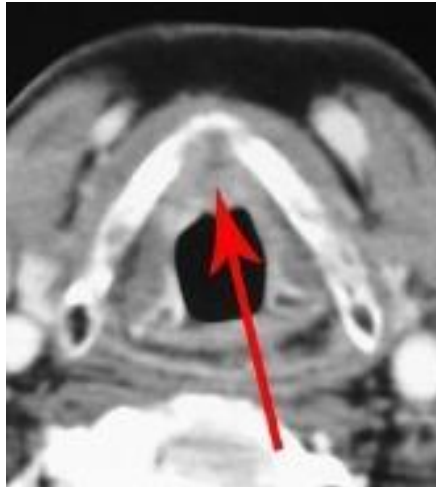


Carcinomi glottici - LASER

CHIRURGIA TRANSORALE LASER PER I TUMORI GLOTTICI

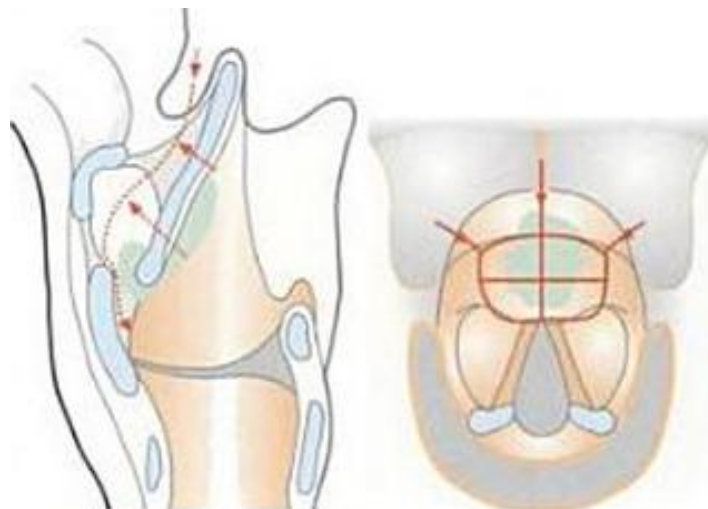
LIMITI:

- Esposizione inadeguata
- Coinvolgimento dell'articolazione cricoaritenoidea e/o dello spazio paraglottico posteriore
- Coinvolgimento della commissura posteriore
- Infiltrazione delle strutture cartilaginee



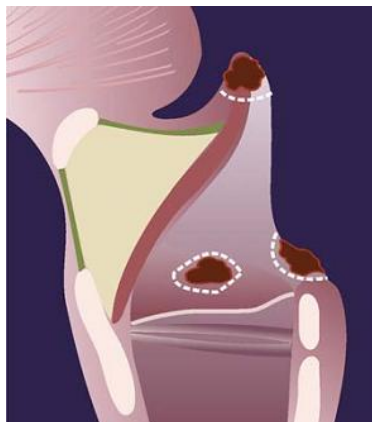
Carcinomi sovraglottici - LASER

PIECEMEAL TECHNIQUE

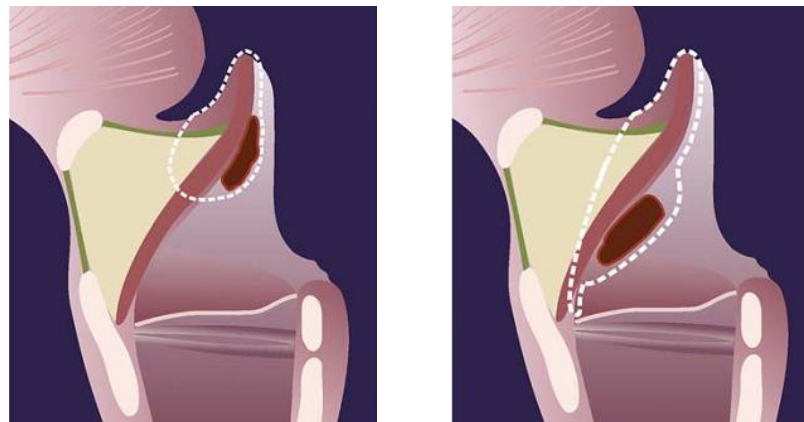


Carcinomi sovraglottici - LASER

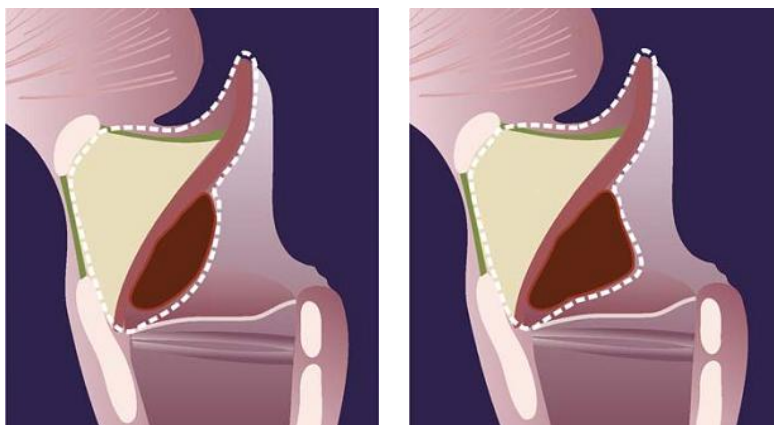
Limited excision
(Type I)



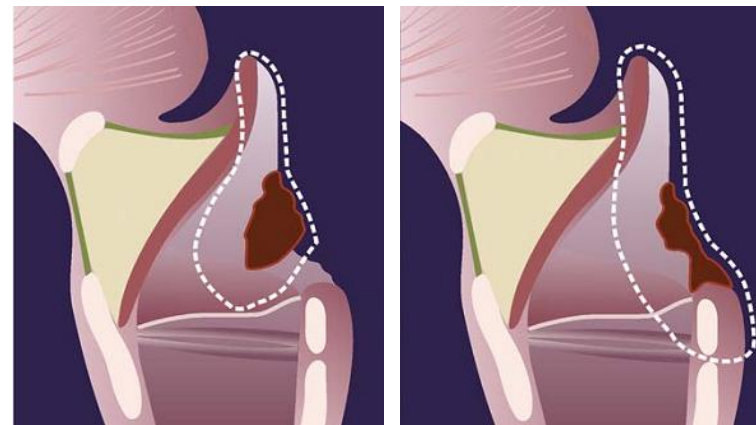
Medial supraglottic laryngectomy with partial resection of the pre-epiglottic space (Type II)



Medial supraglottic laryngectomy with resection of the pre-epiglottic space (Type III)



Lateral supraglottic laryngectomy (Type IV)



Carcinomi laringei - LASER

CHIRURGIA TRANSORALE LASER PER I TUMORI LARINGEI: IL FUTURO!

T4a glotto-sovraglottici

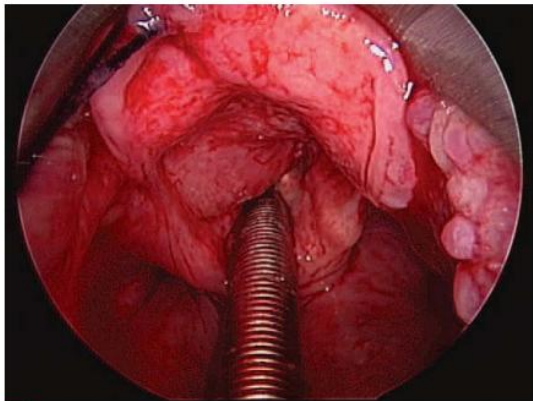


Figure 109-1. Preoperative T₄ transglottic squamous cell carcinoma (cartilage penetration).

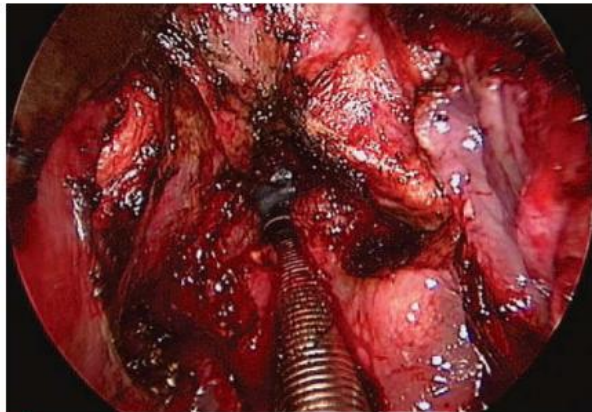
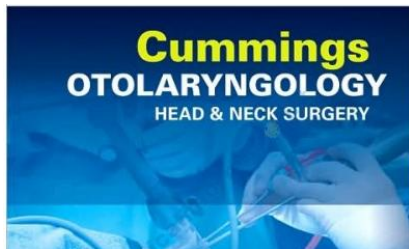


Figure 109-2. Extensive TLM resection removing left and anterior thyroid cartilage, both true vocal cords, supraglottic structures and preepiglottic space, and some strap muscle, but preserving cricoid ring and both posterior arytenoids.



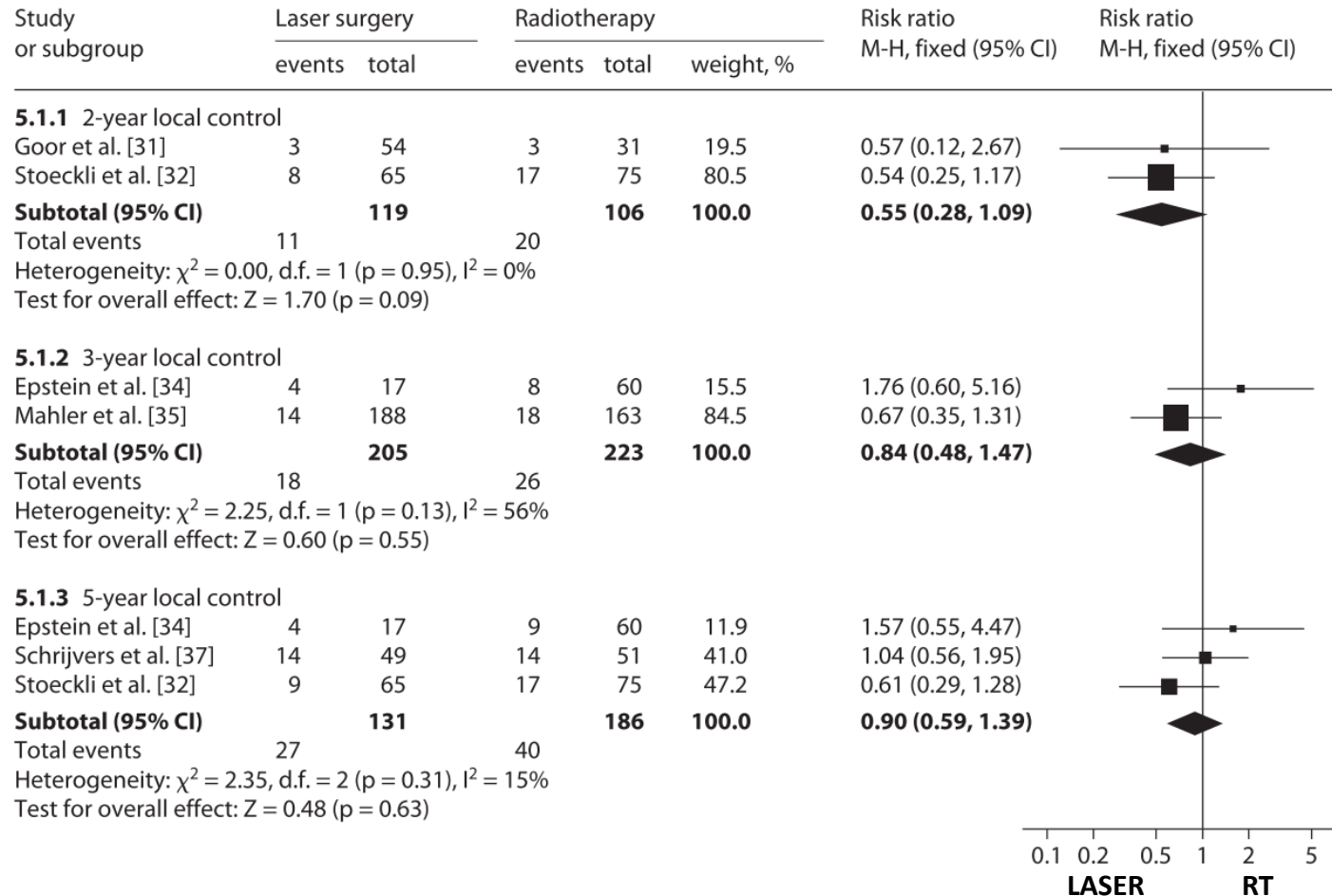
Figure 109-3. One year post-transoral laser microresection (and radiotherapy). Feeding tube has been removed and there was no tracheostomy.



Hinni ML, Salassa JR, Pearson BW, Transoral Laser Microresection of Advanced Laryngeal Tumors. In: Cummings CW (ed) Cummings Otolaryngology: head and neck surgery, 5th ed, 2010, Elsevier Mosby, Philadelphia.

Carcinomi laringei - LASER

ANALISI DEGLI OUTCOMES: CHIRURGIA LARINGEA LASER VS RADIOTERAPIA



Local control rate
"A meta-analysis of the 5 studies failed to show a significant difference in local control rate at any time"

Carcinomi laringei - LASER

ANALISI DEGLI OUTCOMES: CHIRURGIA LARINGEA LASER VS RADIOTERAPIA

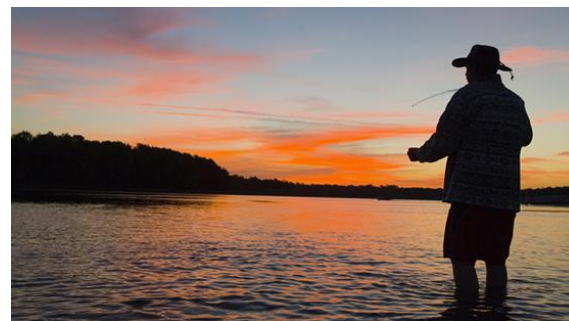
Voice Handicap Index

*“Significant heterogeneity prevented a meta-analysis. **No significant difference** in total VHI score was found in 3 studies. Two studies reported significantly lower VHI scores ($p < 0.05$) in patients receiving radiotherapy. The remaining study claimed significantly higher VHI scores ($p < 0.05$) in patients receiving radiotherapy.”*



Quality of life

*“The quality of life was assessed in 2 studies. Goor et al. used the COOP/Wonca chart and found **no significant difference** between patients receiving laser surgery versus radiotherapy. Patients receiving radiotherapy seemed to do be better in physical fitness and social activities but poorer in mental well-being and daily activities. The differences, however, were not statistically significant. Oridate et al. used Voice-Related Quality of Life and also failed to find significant difference between the two treatment modalities.”*



Carcinomi laringei - LASER

ANALISI DEI COSTI: CHIRURGIA LARINGEA LASER VS RADIOTERAPIA

Autore	Anno	Categorie di T	Costo laser-MLSD	Costo RT	LASER / RT
Diaz-de-Cerio	2012	T1 - T2	2290 €	4805 €	47,7 %
Higgins	2010	Tis - T1	2407 \$	4826 \$	49,9 %
Goor	2007	T1a	4434 €	8322 €	53,3 %
Brandenburg	2001	T1	1893 \$	29353 \$	6,4 %
Grégoire	1999	T1	5847 €	5172 €	113 %

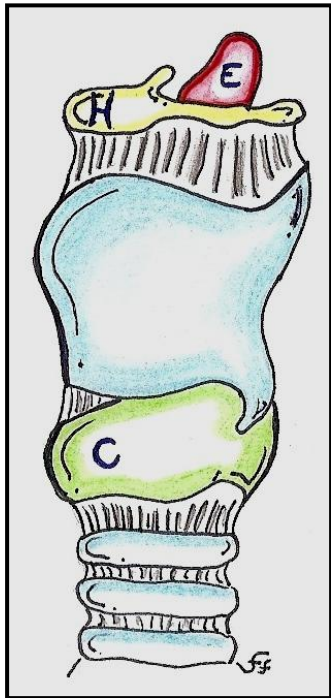


Laringe

**Carcinomi laringei → preservazione chirurgica della
funzione d'organo**

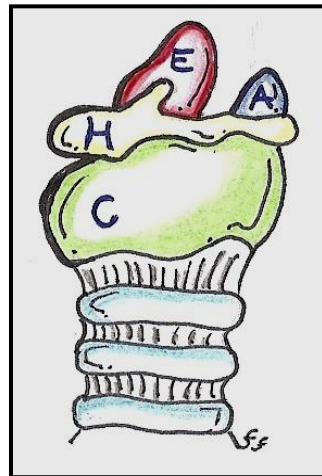
Laringe - laringectomie subtotali

Laringe

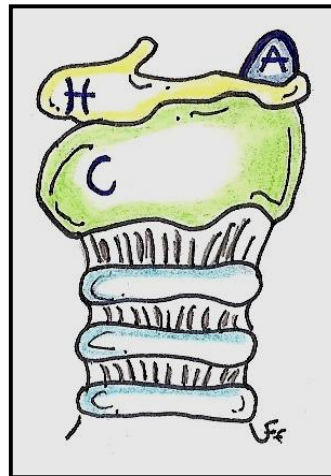


Laringectomie sopracricoidee

CHEP

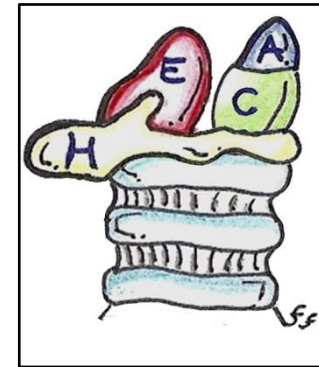


CHP

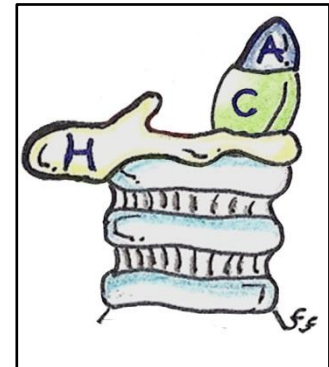


Laringectomie sopratracheali

THEP

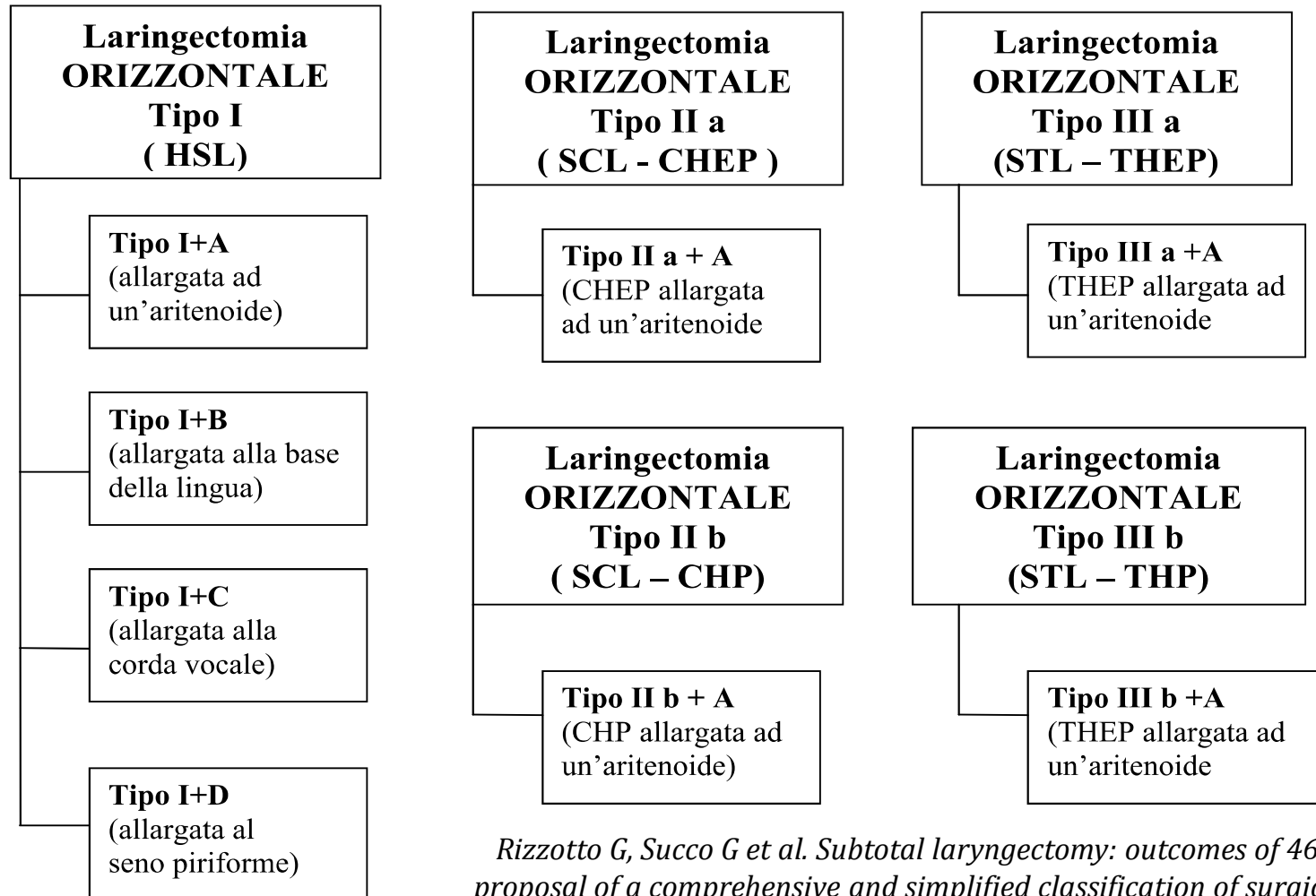


THP



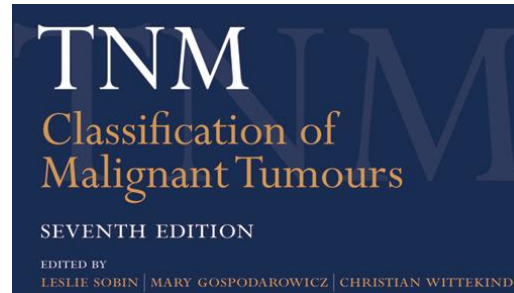
Laringe - laringectomie subtotali

CLASSIFICAZIONE HOLS



Rizzotto G, Succo G et al. Subtotal laryngectomy: outcomes of 469 patients and proposal of a comprehensive and simplified classification of surgical procedures. Eur Arch Otorhinolaryngol. 2012

Laringe – laringectomie subtotali



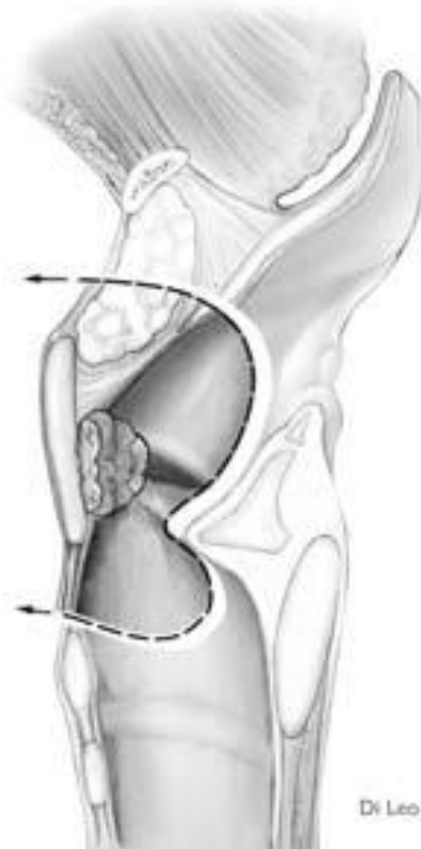
Supraglottis

- T1** Tumor limited to one subsite of supraglottis with normal vocal cord mobility
- T2** Tumor invades mucosa of more than one adjacent subsite of supraglottis or glottis or region outside the supraglottis (e.g., mucosa of base of tongue, vallecula, medial wall of piriform sinus) without fixation of the larynx
- T3** Tumor limited to larynx with vocal cord fixation and/or invades any of the following: postcricoid area, pre-epiglottic space, paraglottic space, and/or inner cortex of thyroid cartilage
- T4a** Tumor invades through the thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, soft tissues of neck including deep extrinsic muscle of the tongue, strap muscles, thyroid, or esophagus)
- T4b** Tumor invades prevertebral space, encases carotid artery, or invades mediastinal structures

Glottis

- T1** Tumor limited to vocal cord(s) (may involve anterior or posterior commissure) with normal mobility
- T1a** Tumor limited to one vocal cord
- T1b** Tumor involves both vocal cords
- T2** Tumor extends to supraglottis and/or subglottis, and/or with impaired vocal cord mobility
- T3** Tumor limited to larynx with vocal cord fixation and/or invades paraglottic space, and or inner cortex of the thyroid cartilage
- T4a** Tumor invades through the outer cortex of the thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, soft tissues of neck including deep extrinsic muscle of the tongue, strap muscles, thyroid, or esophagus)
- T4b** Tumor invades prevertebral space, encases carotid artery, or invades mediastinal structures

Laringe - laringectomie subtotali



Crico-ioido-epiglottopessia



Crico-ioidopessia

Adattato da Rizzotto et al. Attualità in oncologia laringea, XCVII Congresso Nazionale, torgraf, pp. 360 e 379

Laringe - laringectomie subtotali

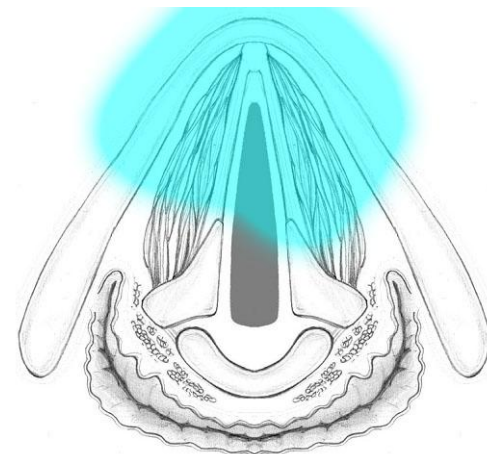
CHEP indicazioni

- Carcinomi glottici che interessano i 2/3 anteriori di una o entrambe le corde vocali
- Carcinomi con invasione del ventricolo e/o della falsa corda e/o del petiolo dell'epiglottide e/o tumori con ridotta mobilità o fissità cordale (ma con mobilità aritenoidea preservata)
- T3 per il paraglottico, senza coinvolgimento del paraglottico posteriore
- T3-T4a per erosione della cartilagine tiroidea anteriormente, anche con infiltrazione dei tessuti prelaringei
- Tutte le indicazioni sono valide in caso di recidive/persistenze dopo chirurgia o radioterapia



Controindicazioni

- Invasione della membrana crico-tiroidea
- Infiltrazione dell'articolazione cricotiroidea
- Infiltrazione della mucosa interaritenoidea
- Coinvolgimento di entrambe le aritenoidi
- Coinvolgimento sottoglottico > 10 mm anteriormente o > 5 mm postero-lateralmente dal margine libero della corda vocale
- Estensione extralaringea (ad eccezione dei tessuti prelaringei)
- Estensione allo spazio pre-epiglottico



Laringe - laringectomie subtotali

M. O.
CHEP
controllo a 3 mesi



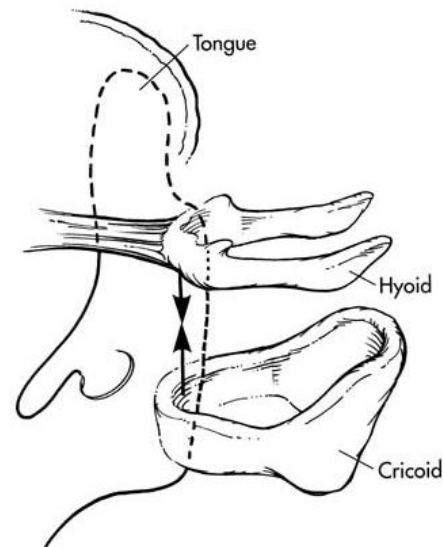
Laringe - laringectomie subtotali

CHP Indicazioni

Carcinomi con le stesse indicazioni della CHEP ed estesi alle restanti porzioni dell'epiglottide e/o alla loggia pre-epiglottica

Controindicazioni

Come CHEP (nelle CHP l'estensione allo spazio pre-epiglottico è una controindicazione solo in caso di coinvolgimento massivo)

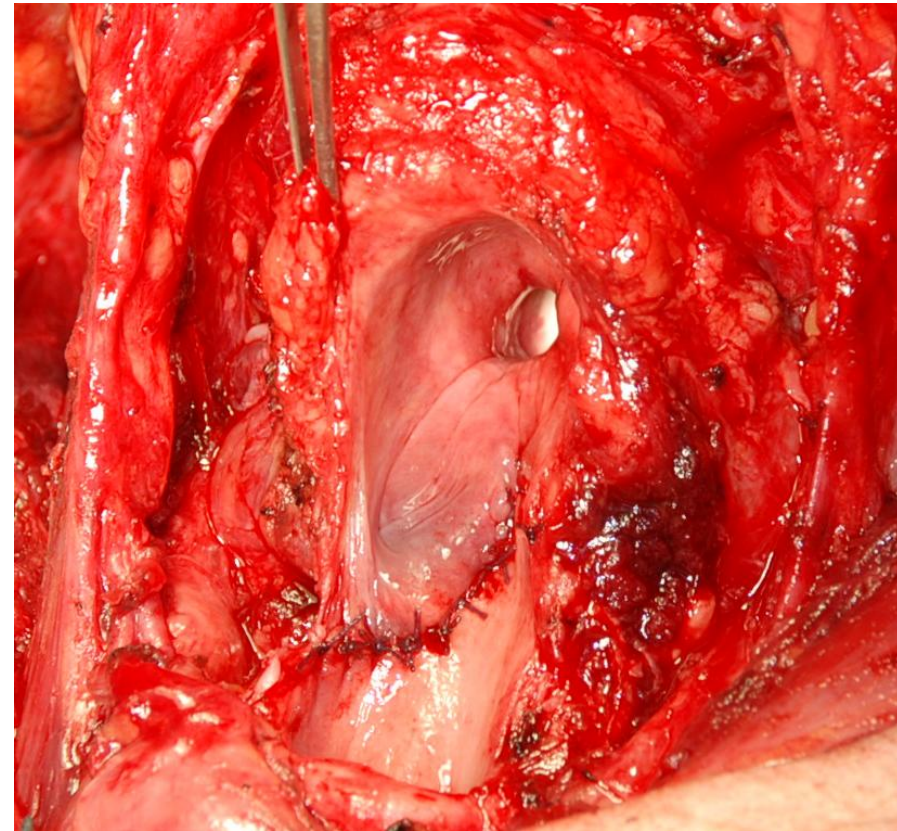
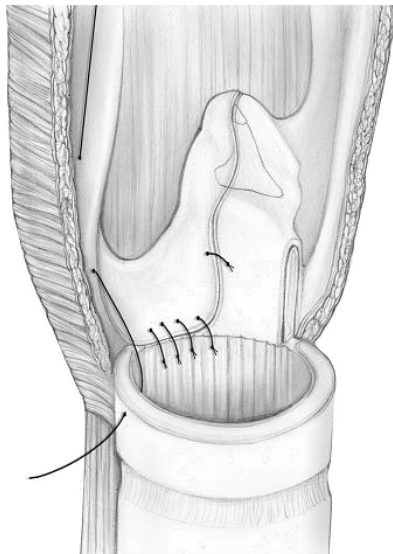


Laringe - laringectomie subtotali

THEP-THP: indicazioni

Come CHEP/CHP ed inoltre:

- 1- T2 - T3 glottico-sottoglottici (anche con coinvolgimento della membrana cricotiroidea)
- 2- T3 per coinvolgimento del paraglottico posteriore e dell'articolazione crico-aritenoidea



Rizzotto G, Succo G, Lucioni M, Pazziaia T. Subtotal laryngectomy with tracheo-hyoidopexy: a possible alternative to total laryngectomy. *The Laryngoscope* 2006;116(10):1907-17.

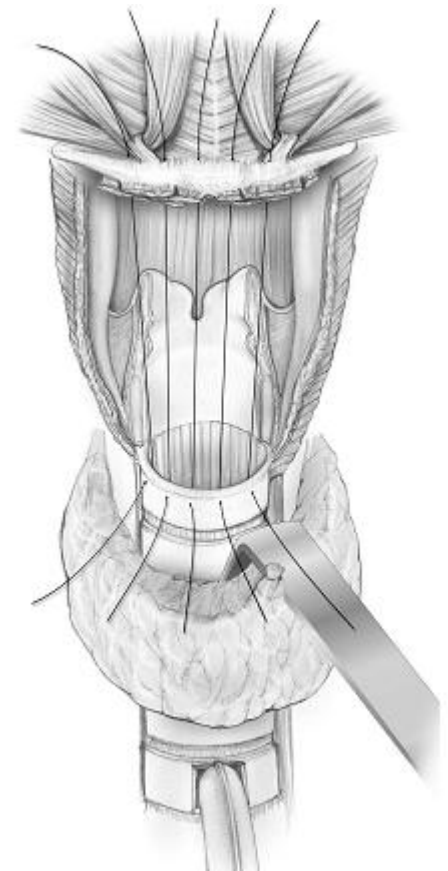
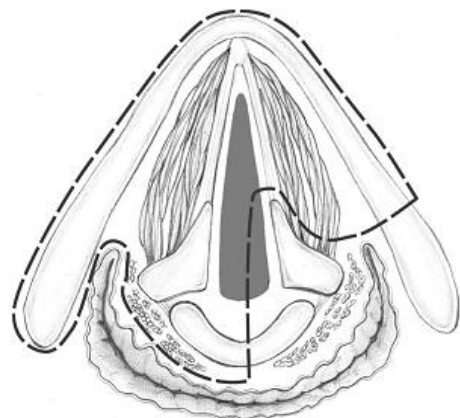
Laringe – laringectomie subtotali

THEP-THP: contro-indicazioni

“Local contraindications are:

- 1. T3 tumors reaching both the arytenoid and posterior commissure; and*
- 2. T4 tumors reaching the base of the tongue and/or hypopharynx and/or trachea.*

Contraindications related to performance status do not differ from those of SSL.”



Rizzotto G, Succo G, Lucioni M, Pazzia T. Subtotal laryngectomy with tracheohyoidopexy: a possible alternative to total laryngectomy. *The Laryngoscope* 2006;116(10):1907–17.

Laringe – laringectomie subtotali

Laringectomie subtotali: indicazioni sulla base dell’N

- 1974** *“Contre-indications: [...] 3. Ganglions latéro-cervicaux bilatéraux.”*
Alajmo E. [Reconstructive laryngectomy with crico-hyoidopexis]. Revue de laryngologie - otologie - rhinologie 1974;95(1-2):53-7.
- 1996** *“CHP has the following contraindications: [...] e. Voluminous ipsilateral adenopathy (>3 cm).”*
De Vincentiis M, Minni A, Gallo A. Supracricoid laryngectomy with cricohyoidopexy (CHP) in the treatment of laryngeal cancer: a functional and oncologic experience. The Laryngoscope 1996;106(9 Pt 1):1108-14.
- 2006** *“Contraindications for CHEP or CHP. [...] large nodal metastases (> 3 cm)”*
Laudadio P, Presutti L, Dall’olio D, et al. Supracricoid laryngectomies: long-term oncological and functional results. Acta oto-laryngologica 2006;126(6):640-9.
- 2006** *“Cervical lymph node metastases (all N) do not represent a contraindication (the operation can be performed en bloc with neck dissection).”*
Rizzotto G, Succo G, Lucioni M, Pazziia T. Subtotal laryngectomy with tracheohyoidopexy: a possible alternative to total laryngectomy. The Laryngoscope 2006;116(10):1907-17.

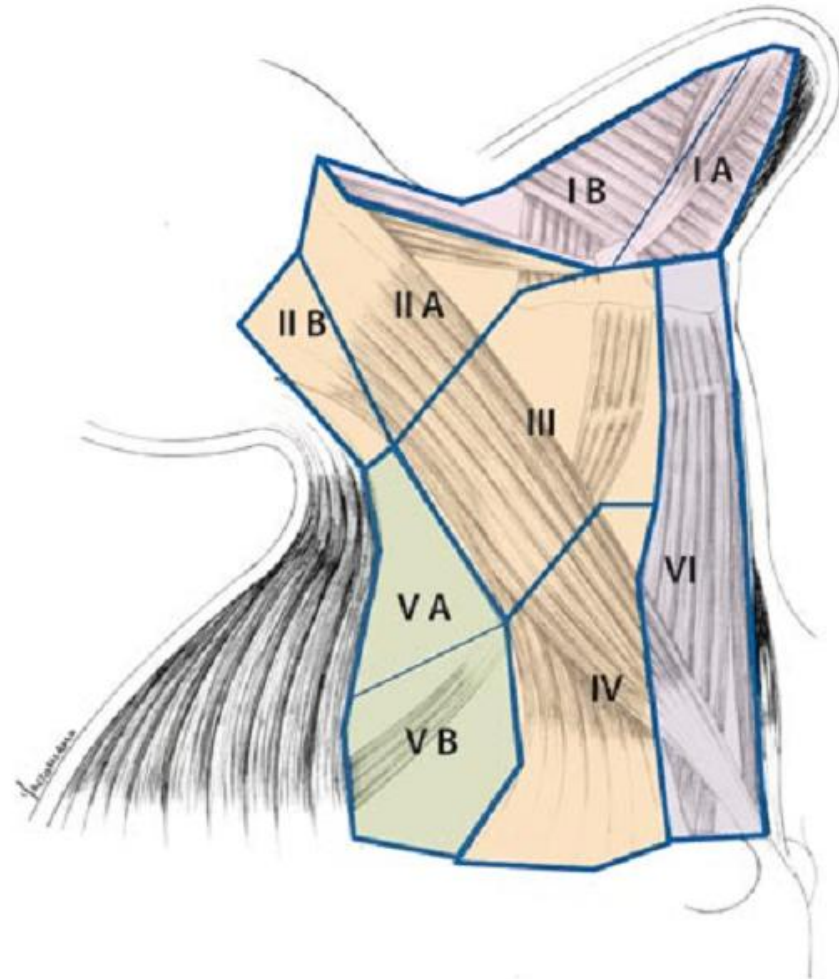
Laringe - laringectomie subtotali

Laringectomie subtotali: indicazioni sulla base dell'N

Le laringectomie subtotali si possono eseguire in associazione a svuotamento laterocervicale selettivo.

Nei carcinomi glottici e sovraglottici anche cN0 viene generalmente eseguito lo svuotamento dei livelli II, III, IV.

In caso di coinvolgimento sottoglottico va trattato anche il VI livello.



Laringe – laringectomie subtotali

SELEZIONE DEL PAZIENTE

- Condizioni cardiocircolatorie compromesse
- Condizioni respiratorie compromesse (BPCO severa)
- Diabete mellito scompensato
- Condizioni generali scadute (Karnofsky index < 80%)
- Psicopatie
- Patologie neurologiche o neuromuscolari
- Età avanzata??

Schindler A et al. Supracricoid laryngectomy: age influence on long-term functional results. Laryngoscope 2009

Rizzotto G, Succo G et al. Subtotal laryngectomy: outcomes of 469 patients and proposal of a comprehensive and simplified classification of surgical procedures. Eur Arch Otorhinolaryngol. 2012

Laringe – laringectomie subtotali

RUOLO DELL'ETA'

“Advanced age, even if historically an age of 70 years has been an important cut-off age for relative surgical indication of some partial laryngectomies, in our experience it is no longer, in itself, an exclusion criterion.”

Rizzotto G, Succo G et al. Subtotal laryngectomy: outcomes of 469 patients and proposal of a comprehensive and simplified classification of surgical procedures. Eur Arch Otorhinolaryngol. 2012



Laringe - laringectomie subtotali

Eur Arch Otorhinolaryngol (2012) 269:1635-1646

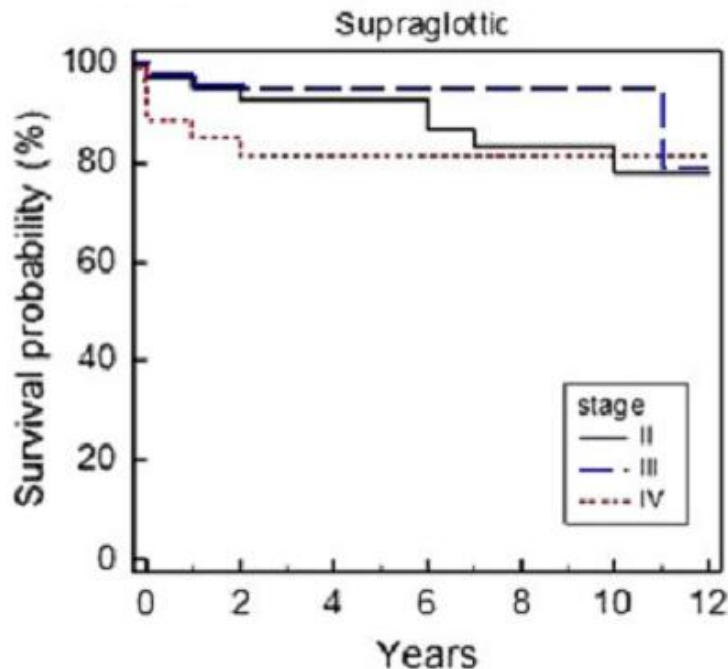
DOI 10.1007/s00405-012-1928-4

LARYNGOLOGY

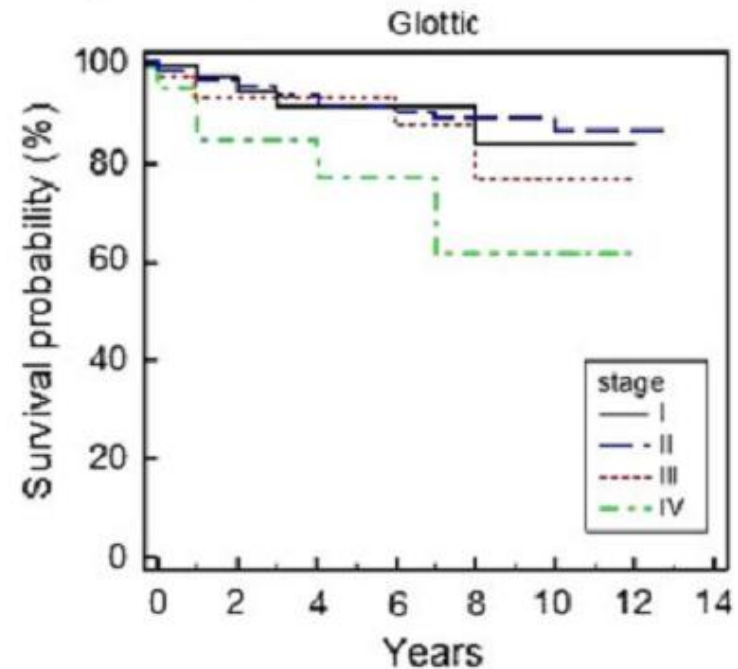
Subtotal laryngectomy: outcomes of 469 patients and proposal of a comprehensive and simplified classification of surgical procedures

G. Rizzotto · E. Crosetti · M. Lucioni · G. Succo

A supraglottic cancers



B glottic cancers



Laringe – laringectomie subtotali

Eur Arch Otorhinolaryngol (2012) 269:1635–1646
DOI 10.1007/s00405-012-1928-4

LARYNGOLOGY

Subtotal laryngectomy: outcomes of 469 patients and proposal of a comprehensive and simplified classification of surgical procedures

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Table 5 Preservation of laryngeal function

Type of surgery	<i>n/N</i>	%
SCL		
CHEP	98/103	95.1
CHEP + A	165/169	97.6
CHP	33/36	91.7
CHP + A	86/91	94.5
STL		
THEP	10/11	90.9
THEP + A	41/51	80.4
THP	–	–
THP + A	5/8	62.5

Table 4 Acute post-operative complications and late sequelae

Acute complications	<i>N</i>
Acute cervical bleeding	4
Acute renal failure	1
Blood infection	1
AMI	1
Pulmonary failure + pneumonia	2
Pneumonia ab ingestis	11
Pulmonary failure	3
Stroke	1
Wound infection + cardiac failure	1
Wound infection	8
Late sequelae	
Frequent aspiration	4
Laryngeal fibrosis with stenosis	5
Laryngeal soft tissue stenosis + occasional aspiration	2
Laryngeal soft tissue stenosis	21
Persistent dyspnea	5
Recurrent cervical infection	2
Aspiration pneumonia	4

Laringe – laringectomie subtotali

Antitumour treatment

Open conservation partial laryngectomy for laryngeal cancer:
A systematic review of English language literature

Ligy Thomas^a, Mike Drinnan^b, Basavaiah Natesh^c, Hisham Mehanna^d, Terry Jones^{e,*}, Vinidh Paleri^{b,*}

873 pz sottoposti a SCPL

Controllo locale 93,5%

Sopravvivenza libera da malattia 80,5 %

Table 3
Pooled outcomes for open partial laryngectomy for primary laryngeal cancer.

Outcome	No. of studies	Patients in analysed cohort	Pooled rate (%)	95% CI	Range (%)
Local control	55	5061	89.8	88.3–91.2	69.3–100
Overall survival	41	3967	79.7	76.5–82.8	46.2–100
Disease free survival	28	2344	84.8	80.6–88.7	49–100
Decannulation rate	42	3955	96.3	94.9–97.6	66–100
Laryngectomy for function	29	2496	1.7	1.2–2.2	0–8.9.0
Laryngectomy for salvage	36	2705	6.0	4.6–7.6	0–25.75
Larynx preservation rate	39	3171	90.9	88.8–92.7	80–100
Permanent gastrostomy rate	20	2000	2.0	0.9–3.6	0–14
Laryngeal stenosis	16	1453	2.7	1.8–3.8	0.9–3.0
Operative mortality	23	1453	0.7	0.7–0.7	0–3.4.0

Laringe - laringectomie subtotali

	CHEP	CHP	THEP	Laringectomia totale
Degenza	16 gg	23 gg	26 gg	17 gg
Costo totale	14371 €	15838 €	17772 €	14422 €
Costo degenza	10369 €	13277 €	14663 €	10568 €
% del costo totale	71 %	91 %	>100 %	72 %
Rimborso DRG	14594 €	14594 €	14594 €	14594 €
Bilancio	+223 €	-1245 €	-3178 €	+172 €



Laringe

**Recidiva di carcinoma
laringeo dopo CT+RT**

**→ Chirurgia di salvataggio:
Laringectomia
totale/faringolaringectomia
+ lembi ricostruttivi
(peduncolati/liberi)**

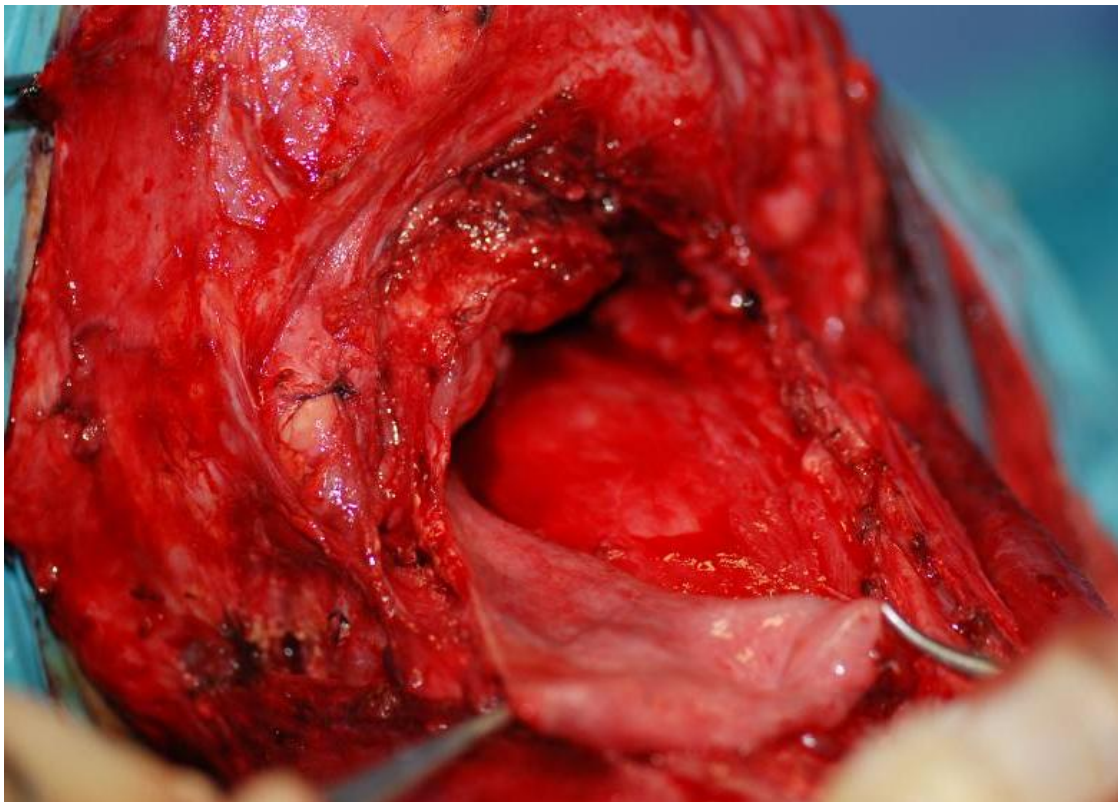
Laringe

Fattori di rischio delle fistole faringo-cutanee:

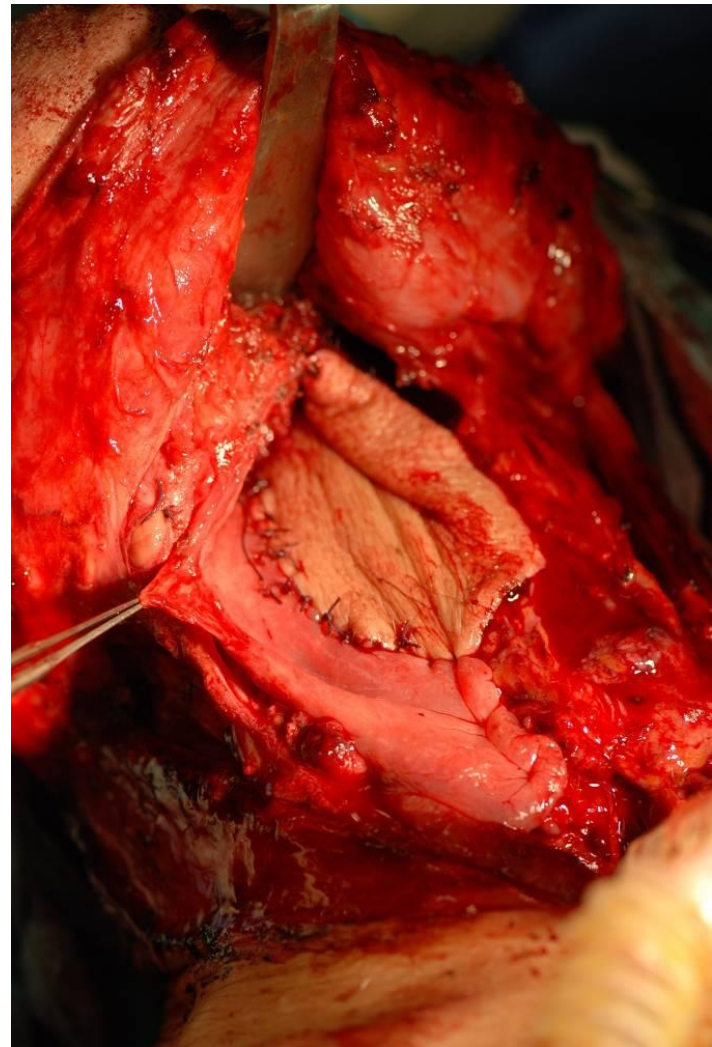
- Radioterapia preoperatoria
- Hb < 12,5 g/dl
- RND

*Paydarfar J. A Meta-analysis of Postlaryngectomy Pharyngocutaneous
Fistula, Arch Otolaryngol Head and Neck Surg 2006, 132:67-72*

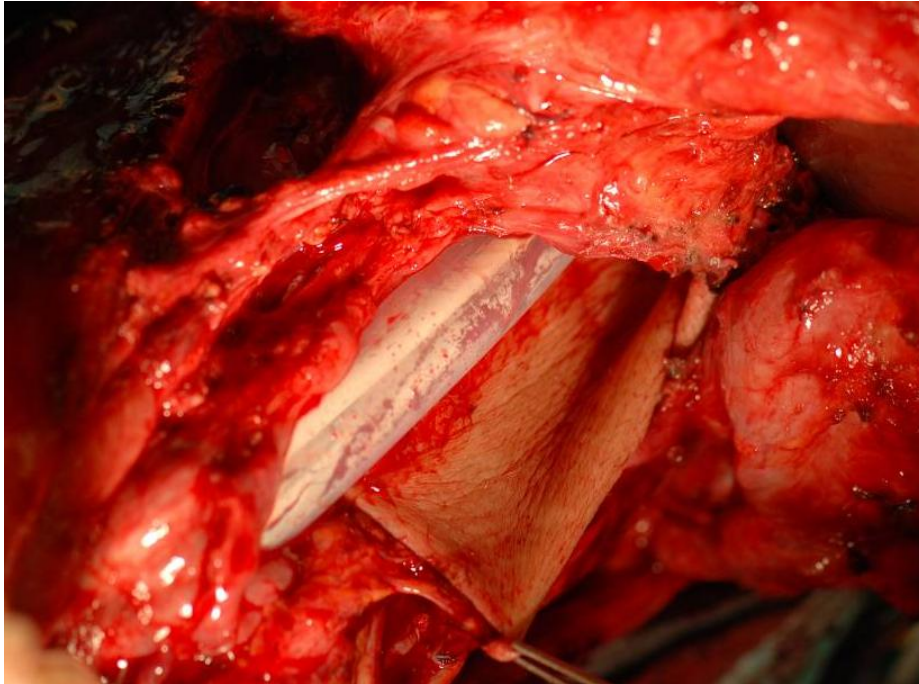
Laringe



Faringolaringectomia ricostruttiva
con lembo libero radiale



Laringe



Posizionamento di stent
salivare



Laringe

Carcinomi laringei



**Limiti invalicabili dalla
chirurgia**

Laringe - limiti invalicabili dalla chirurgia

- T4b** → Infiltrazione dello spazio prevertebrale, della carotide o delle strutture mediastiniche
- N** → Adenopatie infiltranti la carotide comune o la carotide interna.
- M** → Metastasi a distanza.
- Paziente** → Paziente che rifiuta l'intervento chirurgico.
Paziente non operabile per scarse condizioni di salute.

TEMPO DI PROTROMBINA

Secondi	59.70		Secondi
Rapporto	4.66	*	0.90 - 1.18
INR -International Normalized Ratio-	7.18		

TEMPO DI TROMBOPLASTINA PARZIALE

Secondi	57.20		Secondi
Rapporto	5.35	*	0.75 - 1.29

GRAZIE PER L'ATTENZIONE