

Surf, Sea and Supracricoid Laryngectomy: A Queensland Experience

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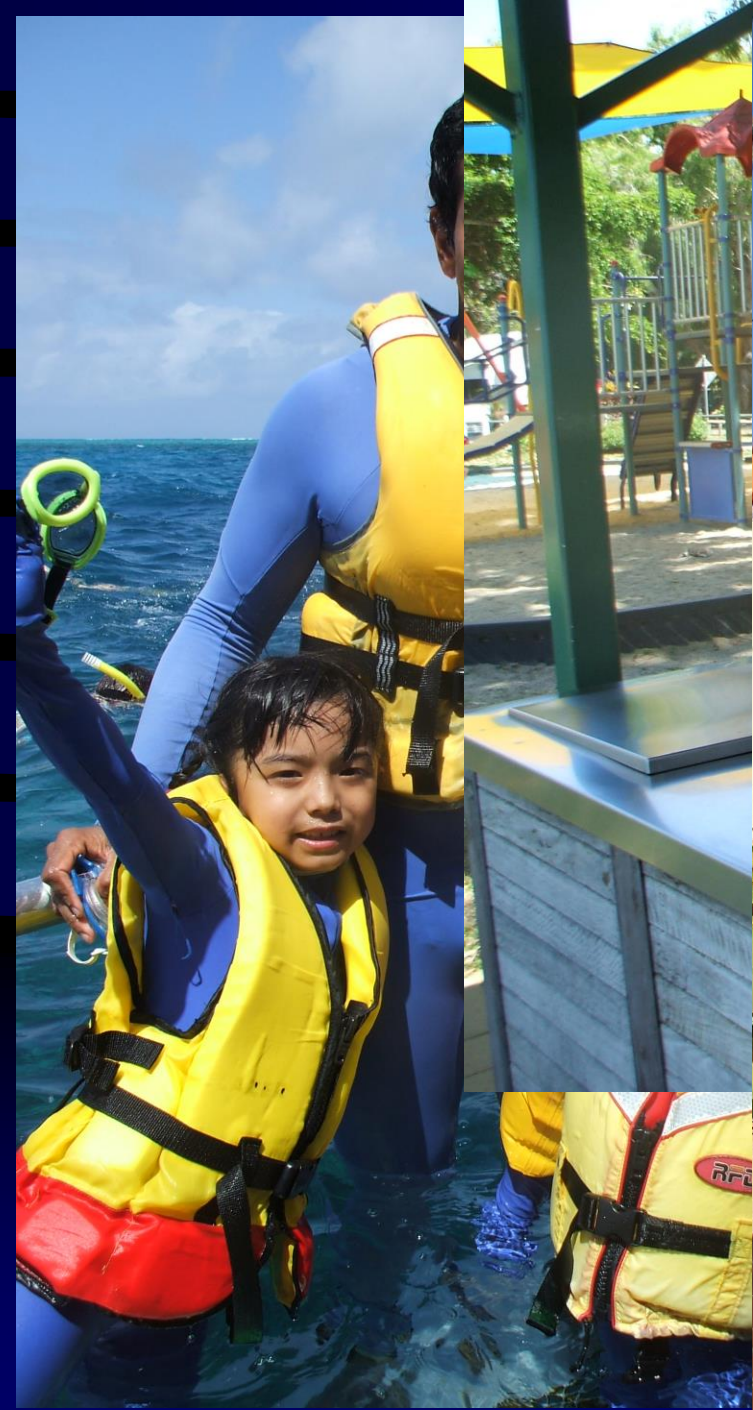


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WHICH CARRY A
MAXIMUM FINE
OF £500**





Queensland...

- 2500 times the size of Singapore
- Same population as Singapore!
- Half the number of ENT Surgeons
- Over two thirds of ENT surgeons in Brisbane and Gold Coast
- Fastest growing state in Australia
- Home of Kevin Rudd!



Head and Neck Service at Princess Alexandra Hospital

- Second largest hospital in Queensland
- 727 beds
- Head and Neck unit sees 840 new cancer cases per year
- 5 visiting medical officers and 1 staff specialist



Head and Neck Cancer in Queensland

- High rate of smoking and alcohol consumption
- Sun related skin cancers extremely common
- Half all parotidectomies done for malignant disease (SCC with lymph node)
- Trigeminal nerve perineural spread of skin SCC common



Supracricoid laryngectomy (SCL + CHP / CHEP)

- First described by Majer & Rieder in 1959
- Rediscovered and modified by the French in 1974
- Not widely reported in English literature until 1990s
- Preservation of the hyoid bone, cricoid cartilage and one cricoarytenoid unit
- Reconstruction – CHP or CHEP

Supracricoid Laryngectomy With Cricohyoidopexy: A Partial Laryngeal Procedure for Selected Supraglottic and Transglottic Carcinomas

Henri Laccourreye, MD; Olivier Laccourreye, MD; Gregory Weinstein, MD;
Madeleine Manard, MD; Daniel Brasnu, MD

The partial horizontal supracricoid laryngectomy with cricohyoidopexy consists of resection of the whole thyroid cartilage and paraglottic space, as well as the epiglottis and the whole preepiglottic space. The cricoid cartilage, the hyoid bone, and at least one arytenoid cartilage are spared. Sixty-eight patients with squamous cell carcinoma of the supraglottis who underwent this procedure during the period from 1974 through 1986 are presented. Conventional horizontal supraglottic laryngectomy was contraindicated in all cases. All but three patients (95.4%) recovered physiologic deglutition, and none required a permanent tracheostomy. The 3-year actuarial survival rate was 71.4%. No local recurrences were encountered. The indications for the procedure are carcinomas of the supraglottis that 1. involve the glottis and anterior commissure, 2. invade the ventricle, 3. present with a marked limitation of true vocal cord mobility (transglottic lesions), and 4. invade the thyroid cartilage. The procedure is presented as a useful alternative to radiation therapy, horizontal supraglottic laryngectomy, and total laryngectomy in select cases of supraglottic carcinoma.

extent of dye injected submucosally in the supraglottis is the false cord.³

Recent clinicopathologic studies have revealed that intralaryngeal lymphatics and compartments provide little impediment to the spread of laryngeal carcinomas.^{4,5} For instance, supraglottic cancers can spread transglottically along the medial surface of the thyroid ala and involve the paraglottic space.⁶ The anterior commissure provides an alternate route of spread to the glottis, subglottis, and thyroid cartilage.⁷

Knowledge of cancer spread within the larynx provided the basis for the following surgical contraindications for horizontal supraglottic laryngectomy: 1. involvement of the glottis via either the anterior commissure or across the ventricle, 2. invasion of the paraglottic space with marked limitation of true vocal cord mobility, and 3. thyroid cartilage invasion.

SCL

Indications

- T2 lesions of the glottis or supraglottis (epiglottis)
- T3 lesions with vocal cord fixation, pre-epiglottic space invasion or minimal thyroid cartilage invasion
- (Patient motivation!)

Contraindications

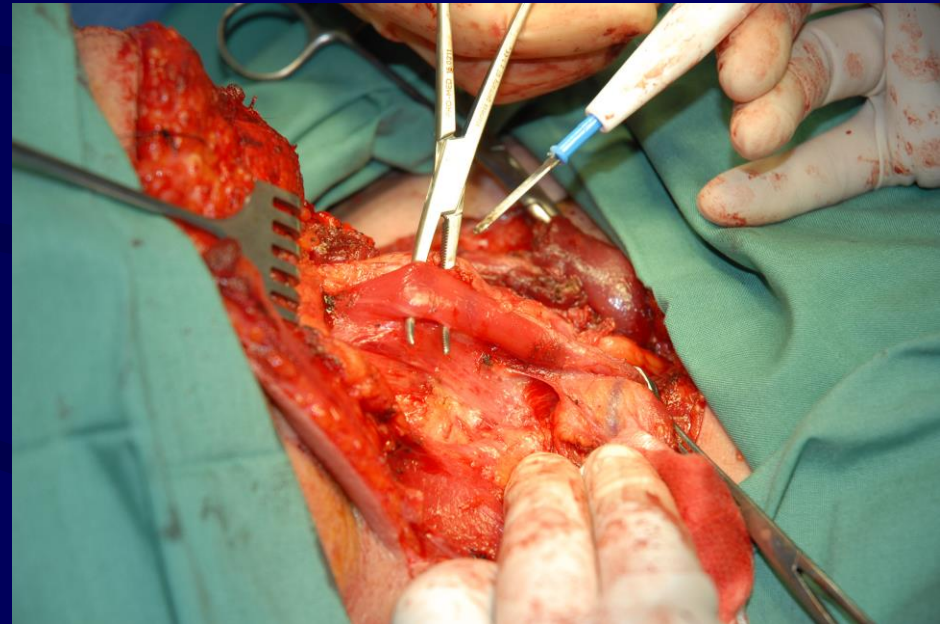
- Arytenoid fixation
- Infraglottic extension (10 mm anteriorly, 5 mm posteriorly)
- Significant pre-epiglottic space involvement
- Cricoid cartilage invasion
- Invasion outer perichondrium of thyroid cartilage
- Extralaryngeal extension
- Poor pulmonary function
- Severe reflux disease

Surgical steps

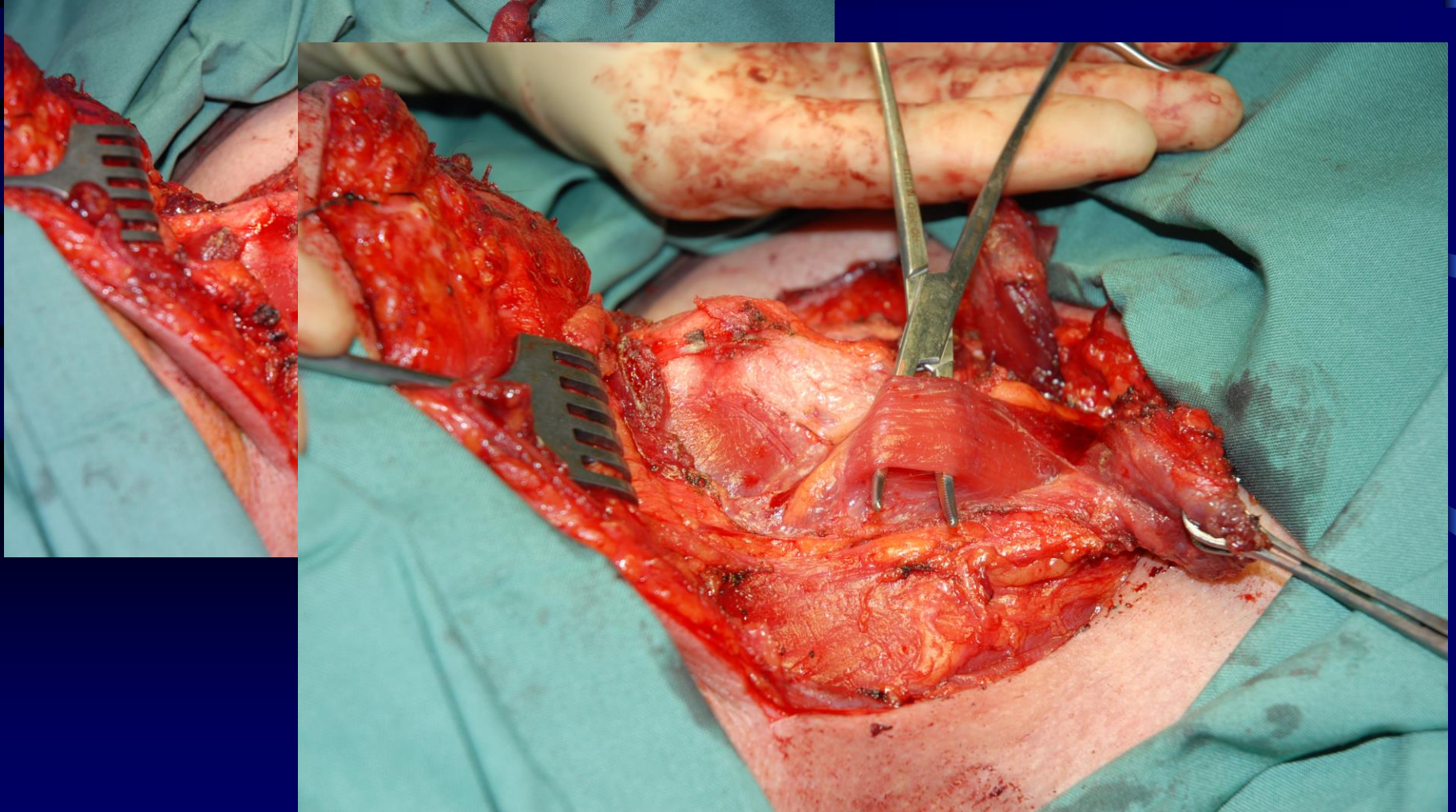


Exposure

- Thyroidectomy incision extended as necessary for neck dissection
- Subplatysmal flaps elevated 1 cm beyond hyoid to sternal notch
- Sternohyoid divided superiorly and preserved
- Deep straps transected along upper and lower borders of the thyroid cartilage



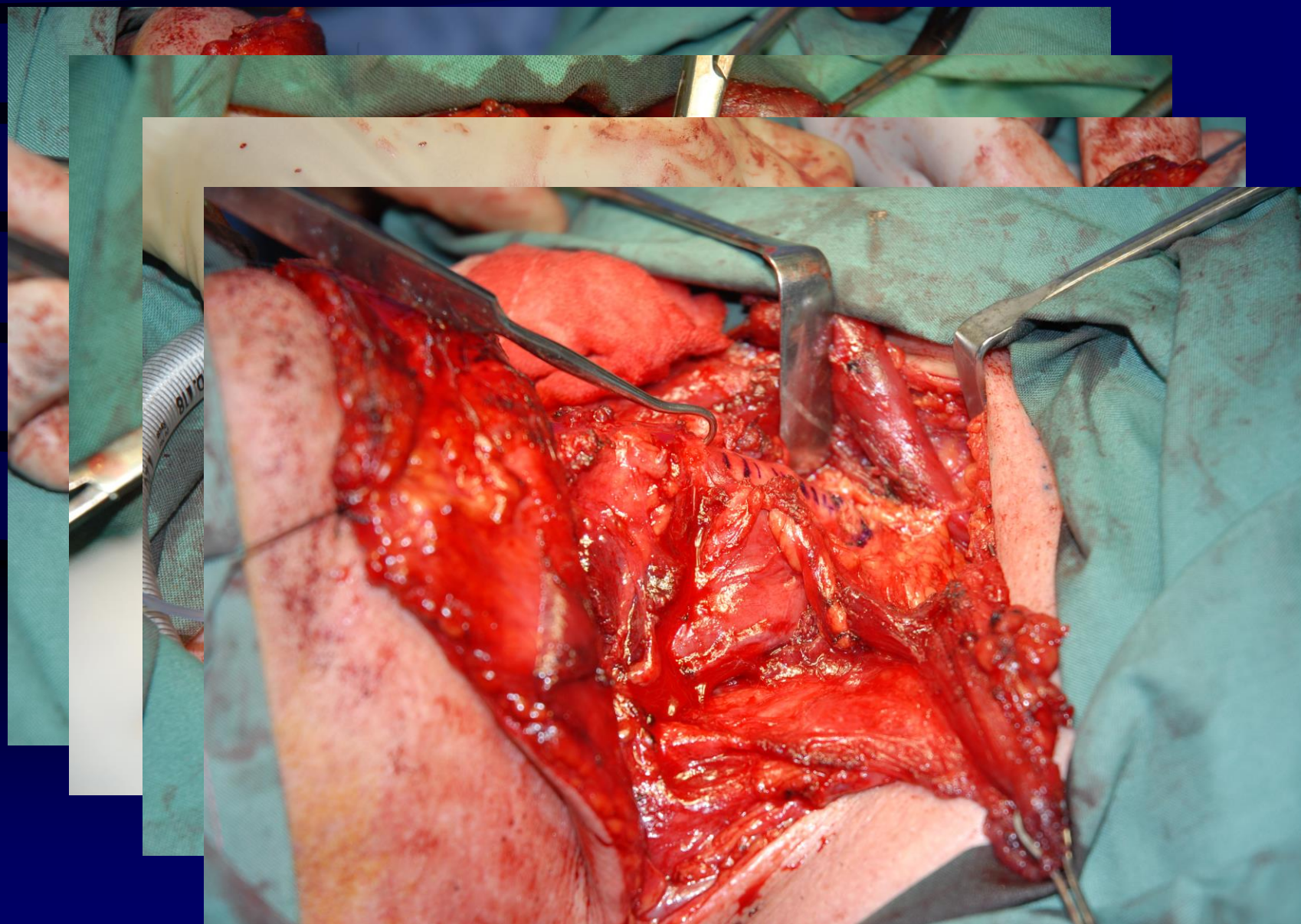
Strap division



Exposure

- Laryngeal vessels are ligated preserving the superior laryngeal nerve
- Inferior pharyngeal constrictors and external thyroid cartilage perichondrium and transected, allowing the pyriform sinuses to be released as per laryngectomy
- Isthmus of the thyroid gland is divided and transfixed
- Trachea is freed to the carina by blunt dissection along the anterior wall
- Both recurrent laryngeal nerves are identified and preserved
- Cricothyroid joints are disarticulated

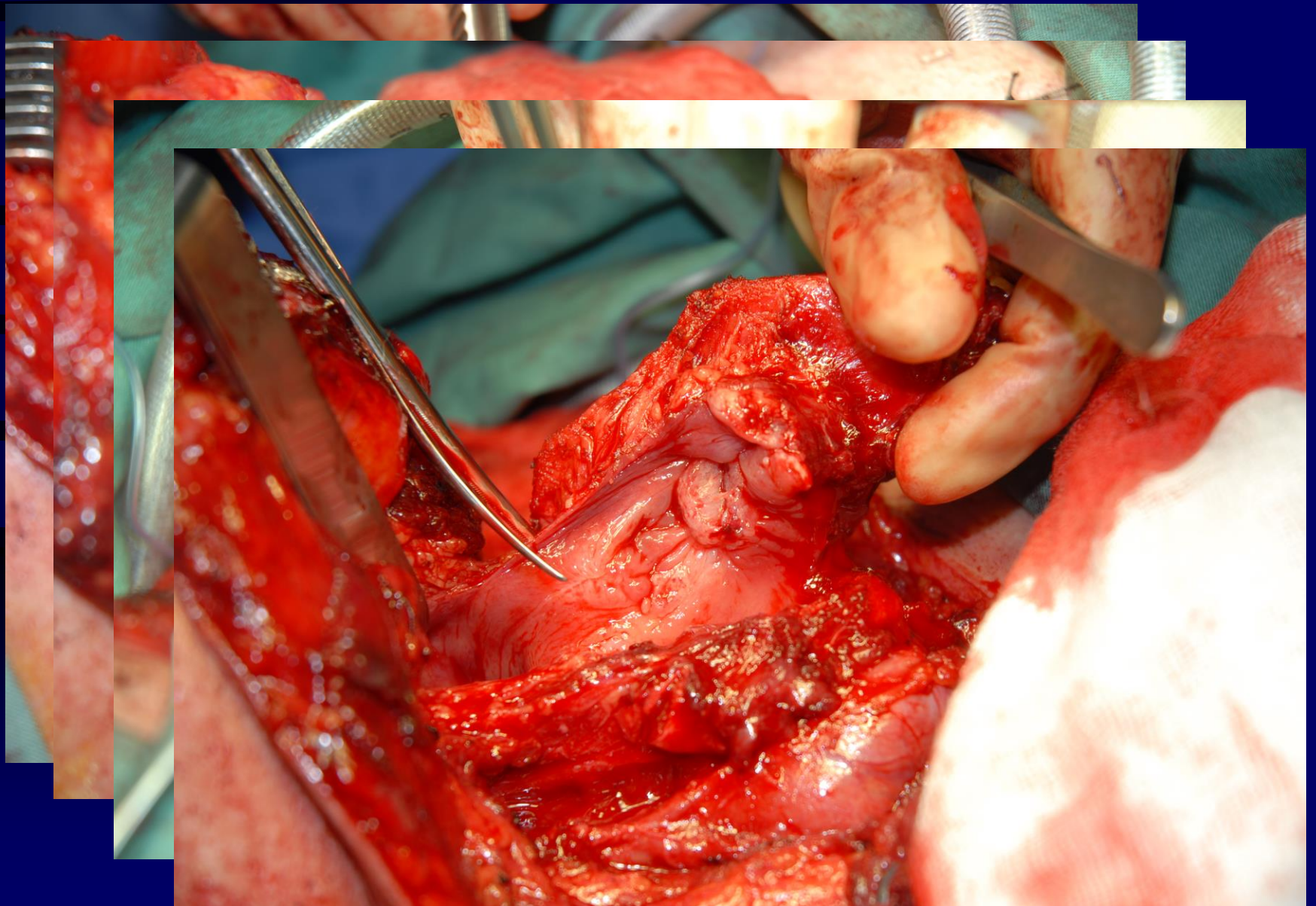
Exposure



Resection

- Hyoid periosteum incised anteriorly and laterally
- Pre-epiglottic space dissected from posterior surface of hyoid
- Larynx entered superiorly through a *transvallecular horizontal pharyngotomy*, and inferiorly through *cricothyroidotomy* just above border of cricoid
- ETT removed then inserted via cricothyroidotomy
- Surgeon moves to head of bed for better visualisation
- Vertical pre-arytenoid incision is made with the scissor down to the cricothyroidotomy on the non-tumour bearing side

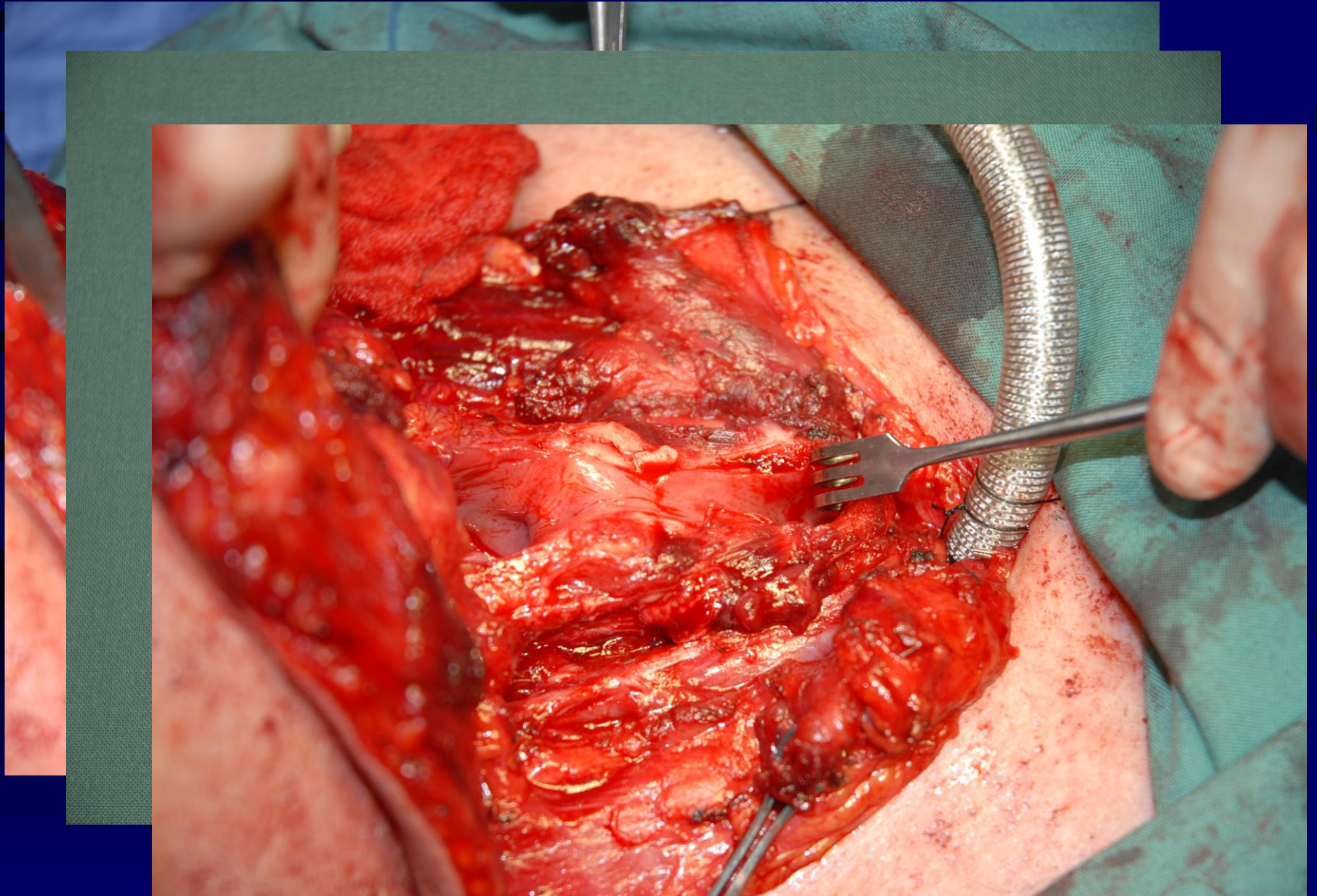
Resection



Resection

- Thyroid cartilage is then grasped and fractured along the midline, as if opening a book
- Excision of the tumour then proceeds under direct visualisation
- Excision of one arytenoid is possible

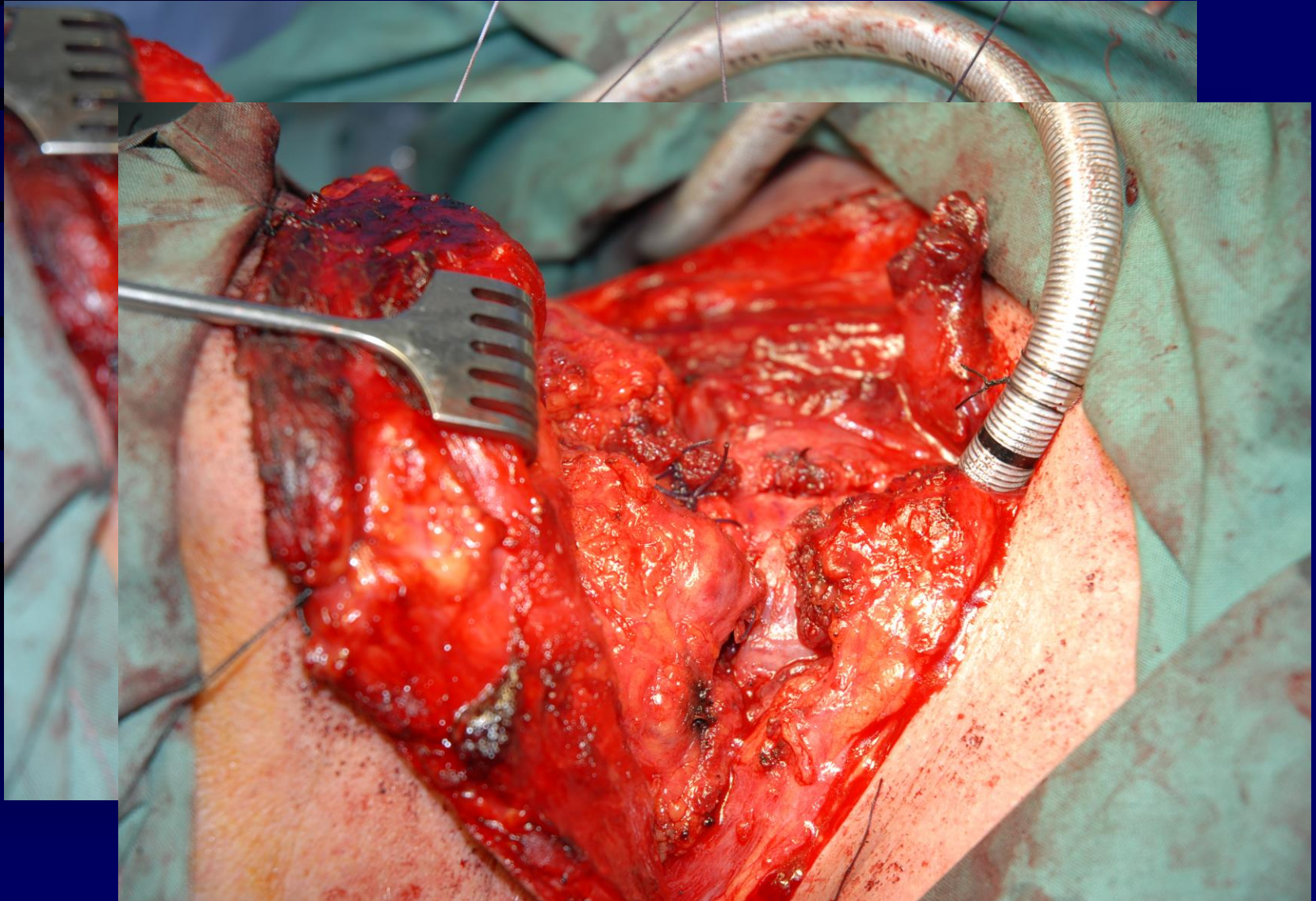
Resection



Reconstruction

- Nasogastric tube is best placed at this juncture
- Mucosa of the upper arytenoid is sutured close primarily with 4/0 vicryl
- Arytenoids are drawn forward and sutured to the posterolateral aspect of the cricoid with 2/0 vicryl sutures
- The cricothyroidopexy or cricothyroepiglottopexy is performed using three submucosal '0' prolene sutures around the hyoid and cricoid. The sutures should catch the root of the suprahyoid epiglottis if this structure has been preserved
- Tracheostomy is performed, allowing removal of the ETT
- 'Pexy' sutures are tied whilst tension is applied by neighbouring sutures

Reconstruction



Post-operative care

- Post-operative antibiotics for 7 days
- Long term anti-reflux medication
- Daily physiotherapy
- Decannulation is attempted when cuff deflation is tolerated and patients can cough
- Patients are taught supraglottic swallow by speech therapists
- PEG tube is considered in patients who are likely to need prolonged rehabilitation

Princess Alexandra Case Series (Retrospective chart review)



Patient details

n = 19

Consecutive cases

between 1997 – 2008

Performed by 4 surgeons

Age at diagnosis = 52.6
years

15 Male : 4 Female

6 treated for recurrent
disease (2 post RT, 2
post laser, 2 post RT
& laser)

13 treated primarily

Tumour characteristics

Primary site:	Stage preoperatively		Nodal status	
14 glottic	rT1b	2	N0	14
5 supraglottic	T2	8	N1	2
	rT2	3	N2a	1
	T3	5	N2c	2
	rT3	1		

Operative details

13/19 had SCL-CHP

6/19 had SCL-CHEP

7/19 had one arytenoid
resected

9/19 had simultaneous
bilateral neck dissections

5/19 had unilateral neck
dissections

Pathology:

15/19

CLEAR

3/19

Positive

1/19

Close

1/19

Perineural
Invasion

2/19

Lymphovascular
invasion

Median depth: 5.5 mm

Outcomes

Median length of stay = 18 days

Median days to decannulation = 8.5 days

Median days to complete enteral feeding = 165 days

4/19 patients received adjuvant RT

Complications:

3/19 wound infections, 2/19 chest infections, 1 significant aspiration, 1 post-op haematoma

2 patients had local recurrence; 1 significant aspiration had salvage surgery:

2 had total laryngectomy

1 required pharyngolaryngectomy

Median FU: 15 months

17/19 Alive free of disease

1/19 Dead from disease

1/19 Dead from other causes

Trends from PA case series

- Salvage SCL and resection of one arytenoid associated with more complications and delayed PEG removal, but not longer decannulation
- No difference in overall survival in group treated primarily and group treated for salvage
- Salvage SCL following RT (4/19)
 - All alive and free of disease at 84 months
 - But 2/4 required completion laryngectomy
- Positive margins predicts local recurrence

Literature Review



Staff



You HERO blo wash eh han ahh!!

Please Nor Feget for Washe Han Blo Upla Prapa Ebry Time

Bepor u touch eh patient

Bepor meke Aseptic tasks

Aptar touch eh patients body fluids

eg. Touch e open sores or blood

Aptar touch eh all sumthing blo patient

No Feget!!

Patients blo upla and all you work mate e counting on you!

Case series of previously untreated cases of early stage disease

Series	n	Decannulation (days)	Enteral feeding (days)	Median FU (months)	Disease-specific survival	Comment
Laccourreye, Laennec Hospital, Paris, 1990	68	7	15 (Only in 74.6%)	36	71.4%	Neo-adj 3 cycles of Cis/5FU chemo, 17/68 Adj RT to neck
La Sapienza University – Rome, 2005	253	25 in 97.2% (CHEP); 30 in 90% (CHP)	15 (CHEP); 28 (CHP)	51	79.1%	Adj RT in 10; Uni & Multivariate analysis

RT for T1 T2 glottis Mendenhall WM (2001)	T1a	T1b	T2a	T2b
5 year disease specific survival	98%	98%	95%	90%
5 year local control with laryngeal preservation	95%	95%	82%	76%

Case series of previously untreated advanced disease (T3 / T4)

Series	n	Length of stay	Decannulation (days)	Enteral feeding (days)	Median FU (months)	Disease-specific survival	Comment
Laccourreya, Laennec Hospital, Paris, 1998	60	N/A	N/A	N/A	60	72.7% (Local control 91.7%)	Neo-adj 3 cycles of Cis/5FU Adj RT
Brazilian National Cancer Inst, 2005	43	5.7	29.6	33.8	60	78% (Local control 94.7%)	14/43 had adjuvant RT; 10 cases excluded due to poor FU

RTOG 91-11. Headline figure of 88% larynx preservation at 2 years and reduction of laryngectomy by 43%

But, 23% poor swallow, 3% can't swallow and 36% 5 year disease-free survival in the concurrent chemoradiotherapy group

Comparable case series

Series	n	Primary: Salvage	Stay (days)	Decannulation (days)	Enteral feeding (days)	Median FU (months)	Disease- specific survival
Johns Hopkins, 2007	24	14:10	6	37	70	36	100%
Lausanne, Switzerland, 2000	69	54:15	35	27	25	53	80.1%
Brisbane	19	13:6	18	8.5	165	15	94%

SCL after radiation failure?

Supracricoid Partial Laryngectomies after radiation failure: A multi-institutional series

Pellini R et. al. Head Neck 2008; **30**: 372-379

Multicentred Italian retrospective study

78 men, mean age 59.6 years

Stage I and II disease initially

64 – 66 Gy RT. No chemo

Median disease-free interval between RT and salvage surgery = 16 months

62 SCL-CHEP

16 SCL-CHP

41/78 had one arytenoid resected

21/78 had simultaneous neck dissections – 15 unilateral, 6 bilateral

Disease-free survival = 95.5% at 3 and 5 years

Overall survival = 85.2% at 3 years; 81.8% at 5 years

All but 2 decannulated, all but 2 returned to enteral feeding

Conclusions

- SCL is an oncologically sound operation
- It has a role in selected untreated cases and in the salvage setting
- It is an option that should always be considered when contemplating total laryngectomy
- It may enhance quality of life without jeopardising survival rates. Further research in this area is necessary
- Unlike laser microsurgery, it requires minimal equipment and is easier to master

