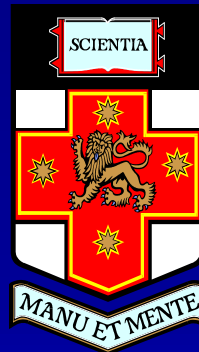


VIDEOMANOMETRIC EVALUATION OF DYSPHAGIA FOLLOWING TOTAL LARYNGECTOMY

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BACKGROUND

- Following total laryngectomy surgery:
 - prevalence of dysphagia is high (72%)
 - 42% of patients require a modified diet 3 years post surgery
- Various reconstructive techniques are used
- Effect of specific pharyngeal reconstruction techniques on swallowing outcomes is unknown

AIMS

- Assess pharyngeal pressures and swallowing efficiency following total laryngectomy surgery.
- Examine the association between swallowing efficiency and pharyngeal pressures and the type of surgical closure of the pharynx

METHODS

- Patients

Total laryngectomy for squamous cell carcinoma.

- Exclusion criteria

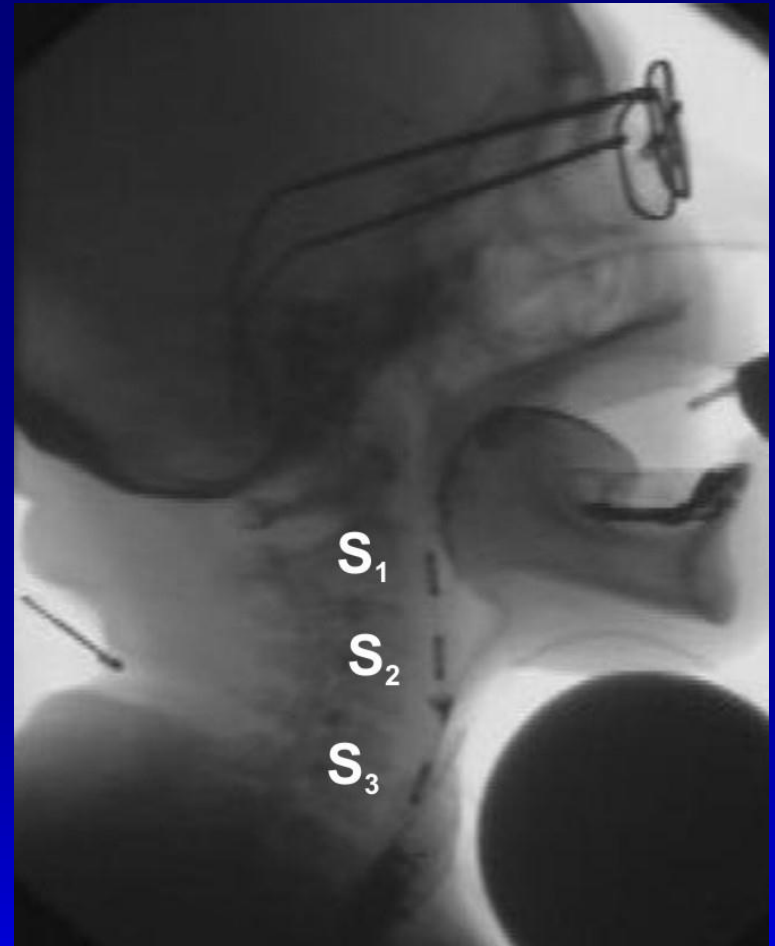
- neurological disorder,
- previous dysphagia,
- previous surgical treatment for H&N cancer.

METHODS

Pharyngeal videomanometry

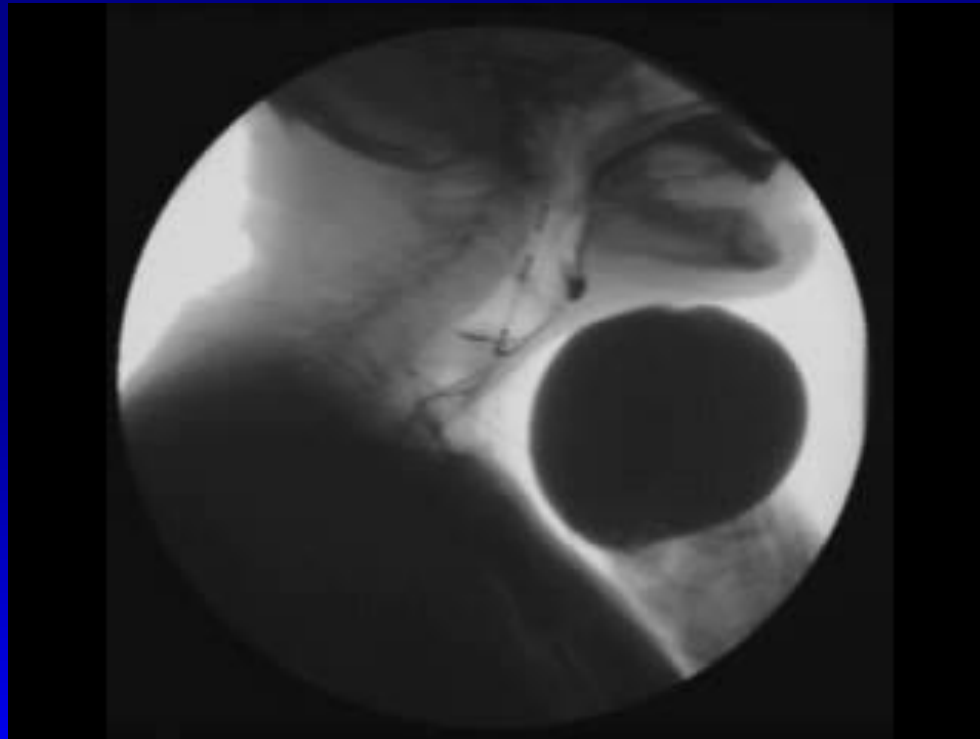
Triplicate swallows

- 3, 5, 10 and 20ml of liquid barium
- 5ml fruit puree mixed with barium
- 2 x 2 cm bread slices soaked in barium



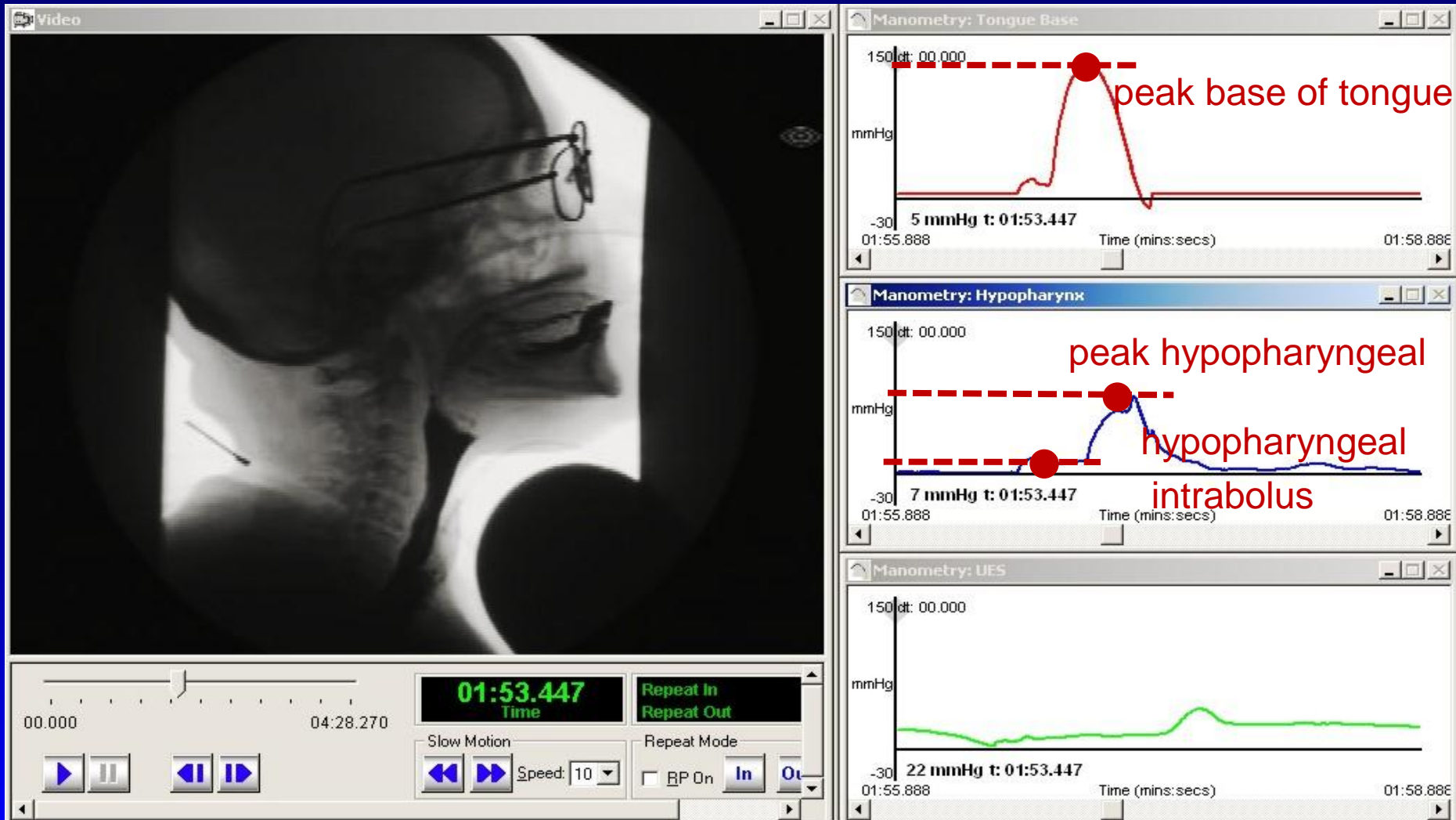
METHODS

- Measurements
 - Presence/absence of diverticula
 - Pharyngeal residue post swallow
(nil, <25%, 25-50%, 50-75%, >75%)



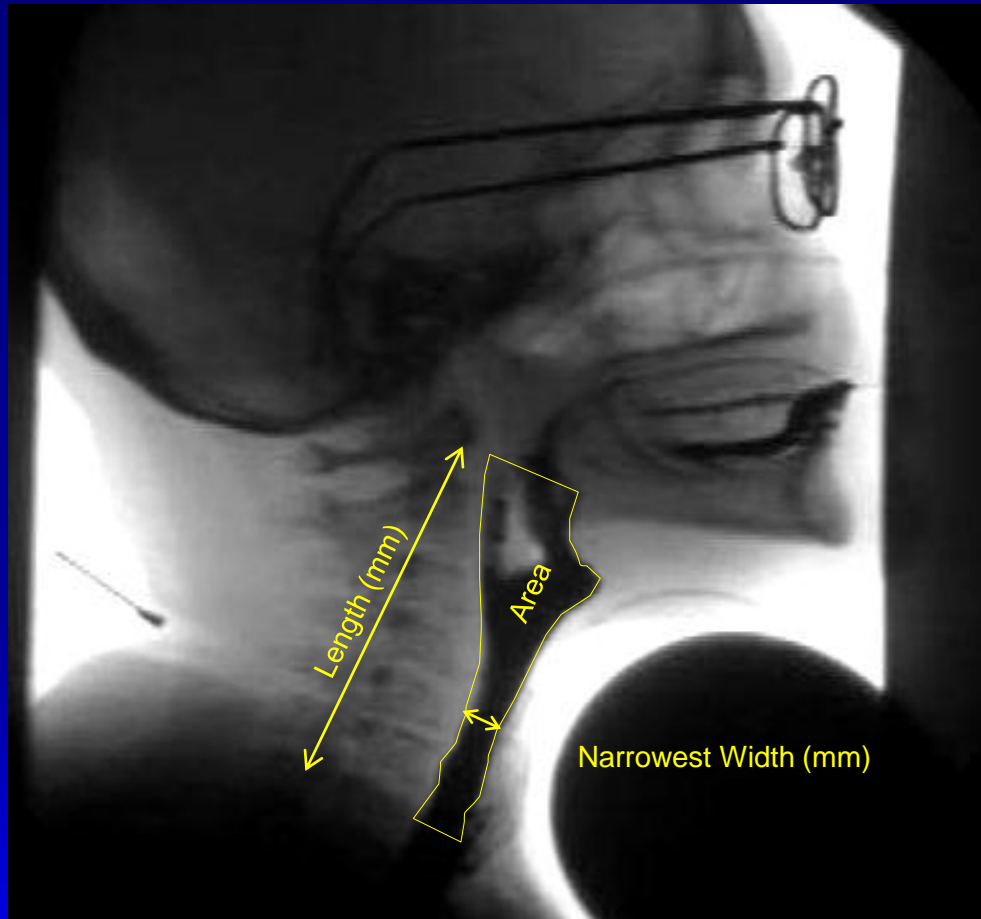
METHODS

PHARYNGEAL MANOMETRY



METHODS

PHARYNGEAL DIMENSIONS



RESULTS

DEMOGRAPHICS

- n = 24 46 to 82 y.o. (19 males)
- 12 had self-reported dysphagia
- Adjuvant treatment
18 radiotherapy, 3 chemoradiation
- Time after surgery
< 5yrs n = 15

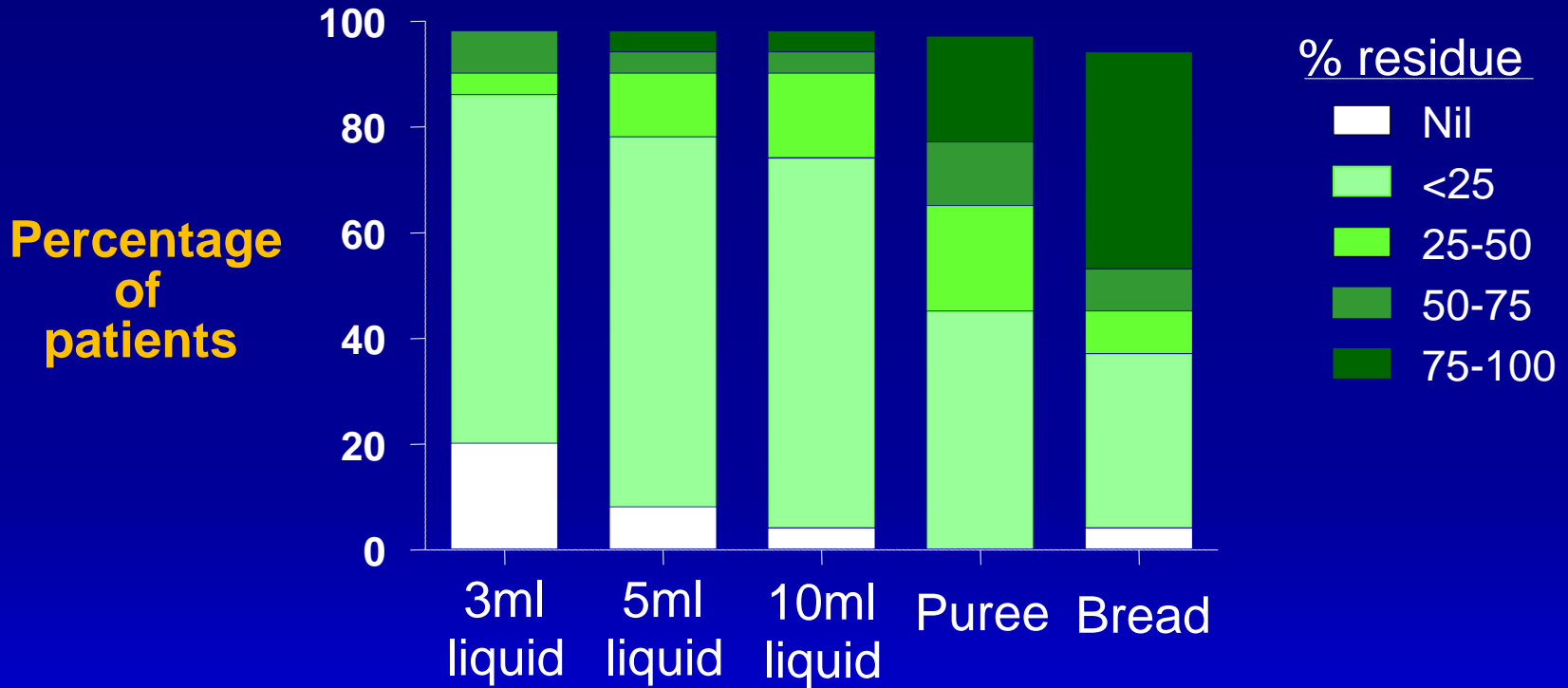
RESULTS

SURGICAL VARIABLES

- Level of pharyngeal closure
 - mucosa alone: n = 4
 - mucosa and muscle: n = 20
- Direction closure
 - Transverse, T or Y closure: n = 12
 - Vertical closure: n = 8
 - Unknown: n = 3
- Myotomy n = 14 (2 unknown)

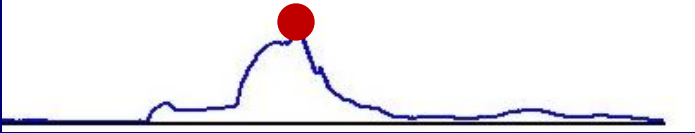
RESULTS

Pharyngeal residue post-swallow

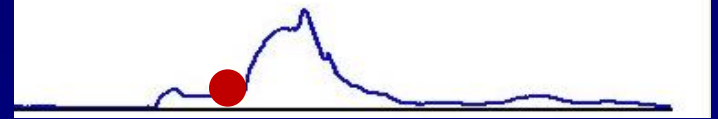


RESULTS

Peak hypopharyngeal pressure

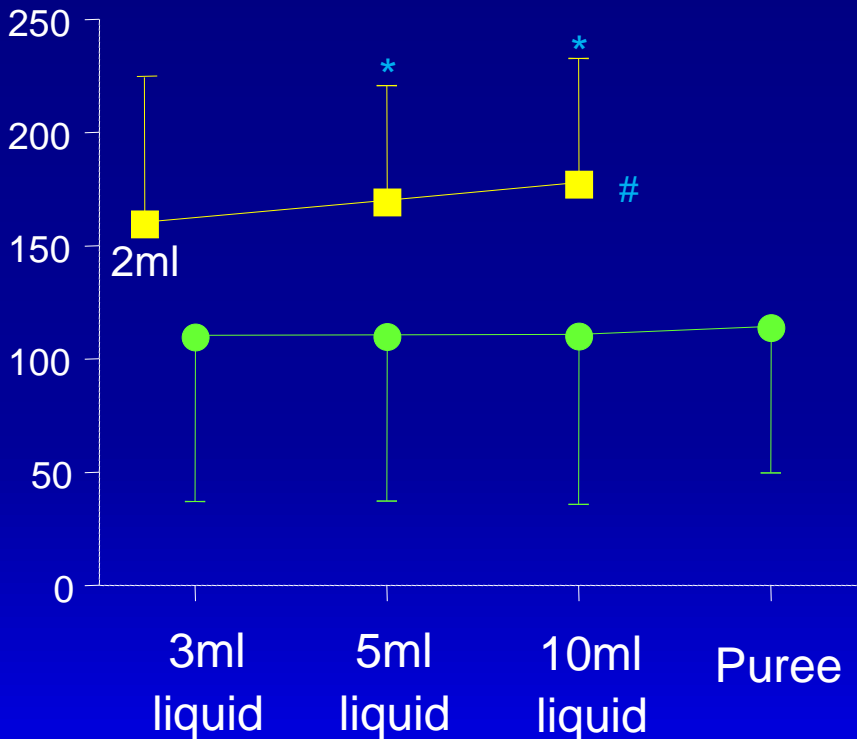


Intrabolus pressure

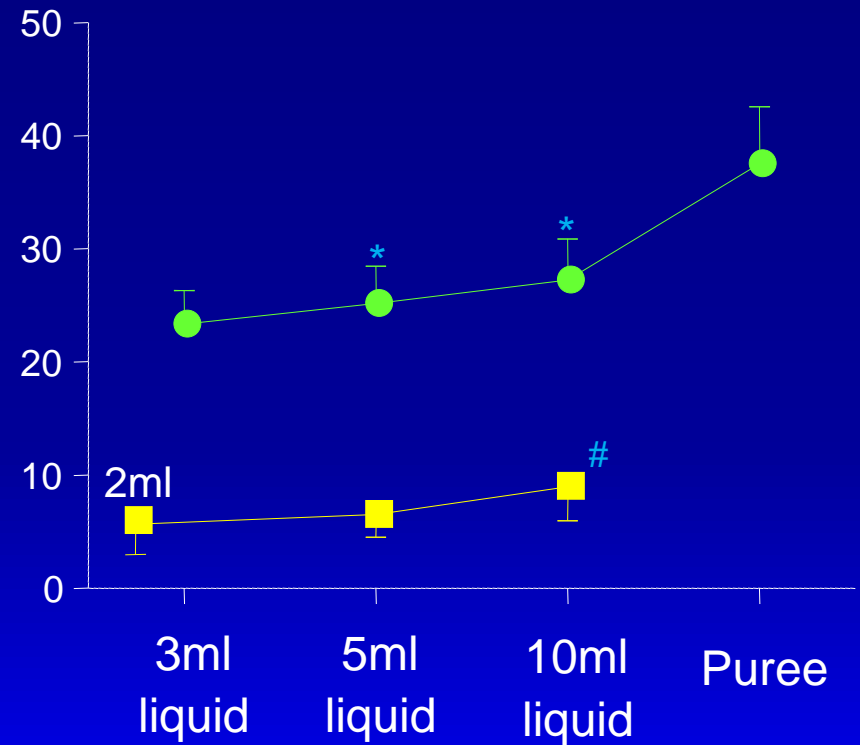


● Laryngectomy patients ■ Aged controls

mmHg



mmHg

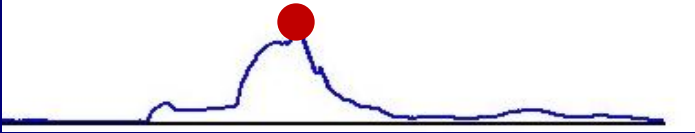


* $p < 0.05$

Laboratory normal ranges

RESULTS

Peak hypopharyngeal pressure



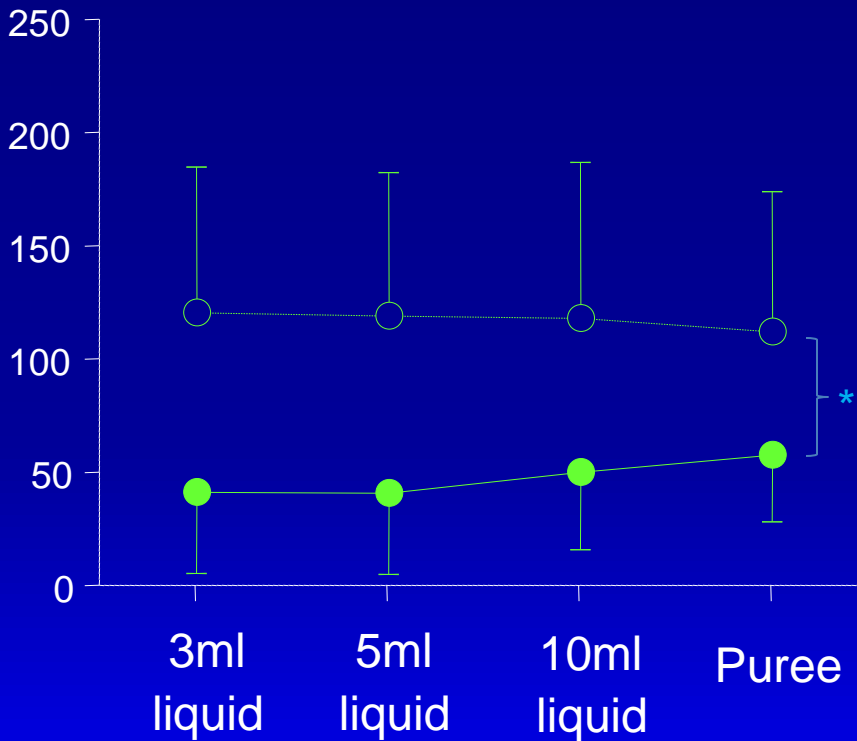
Intrabolus pressure



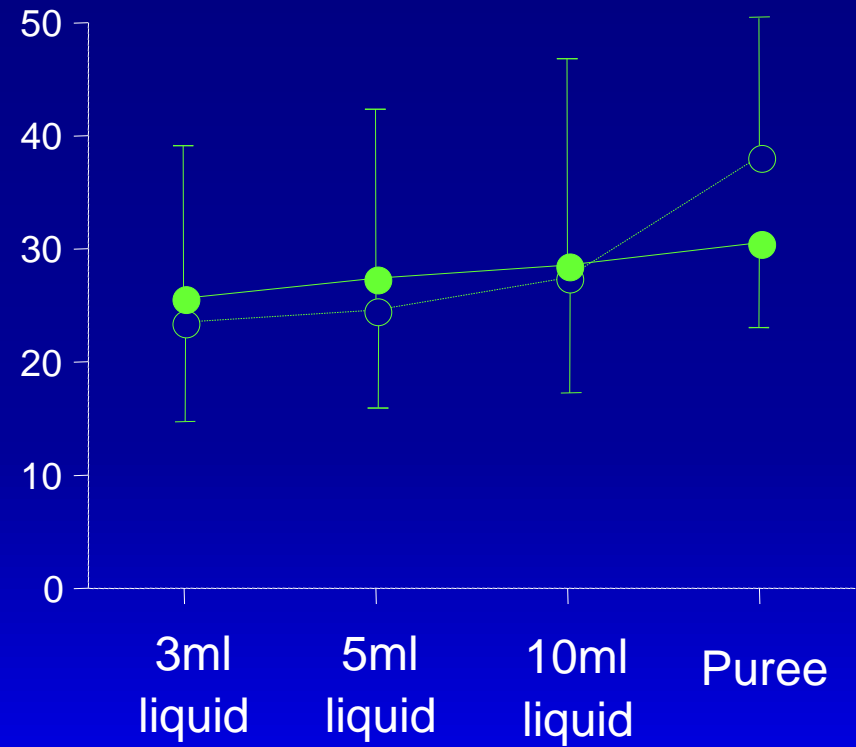
● Mucosa alone closure

○ Mucosa and muscle closure

mmHg



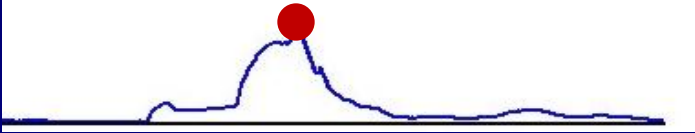
mmHg



* $p < 0.05$

RESULTS

Peak hypopharyngeal pressure



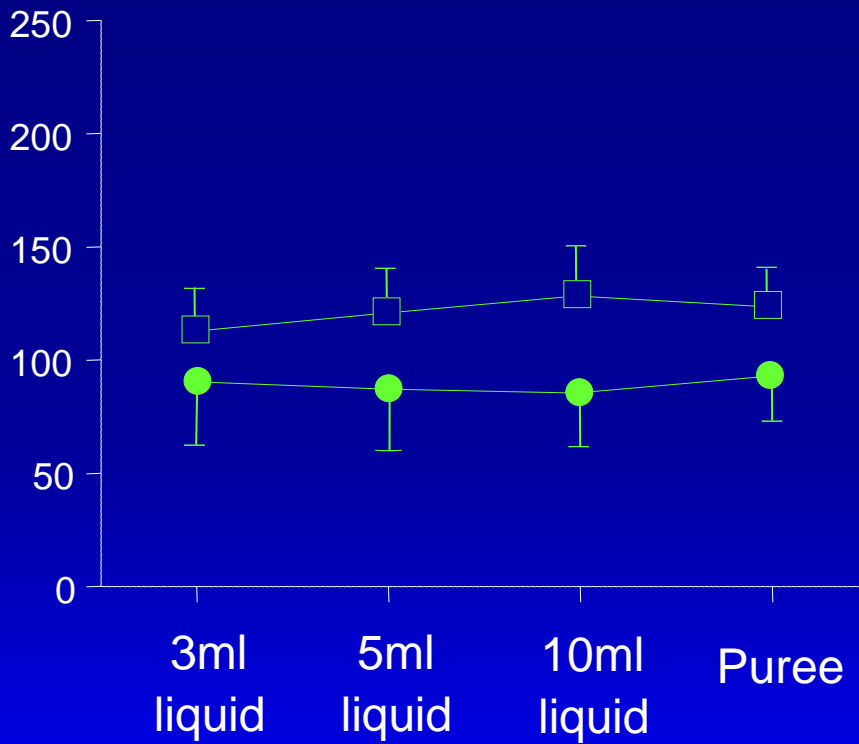
● Vertical closure

Intrabolus pressure

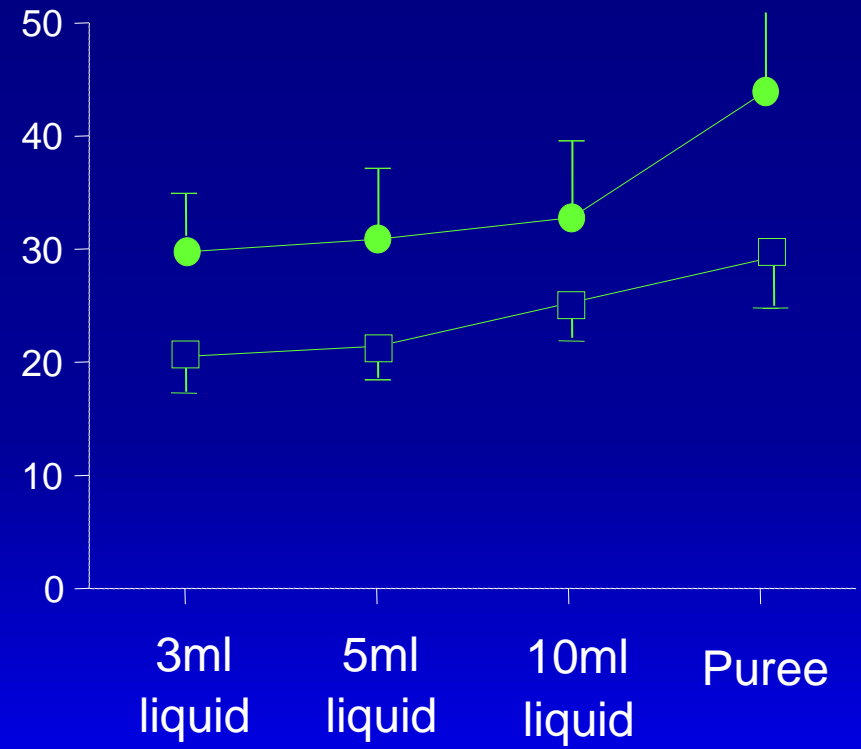


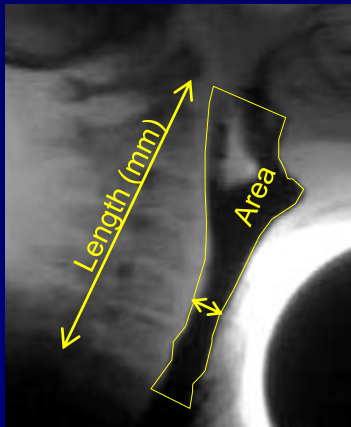
○ Transverse or combined closure

mmHg



mmHg

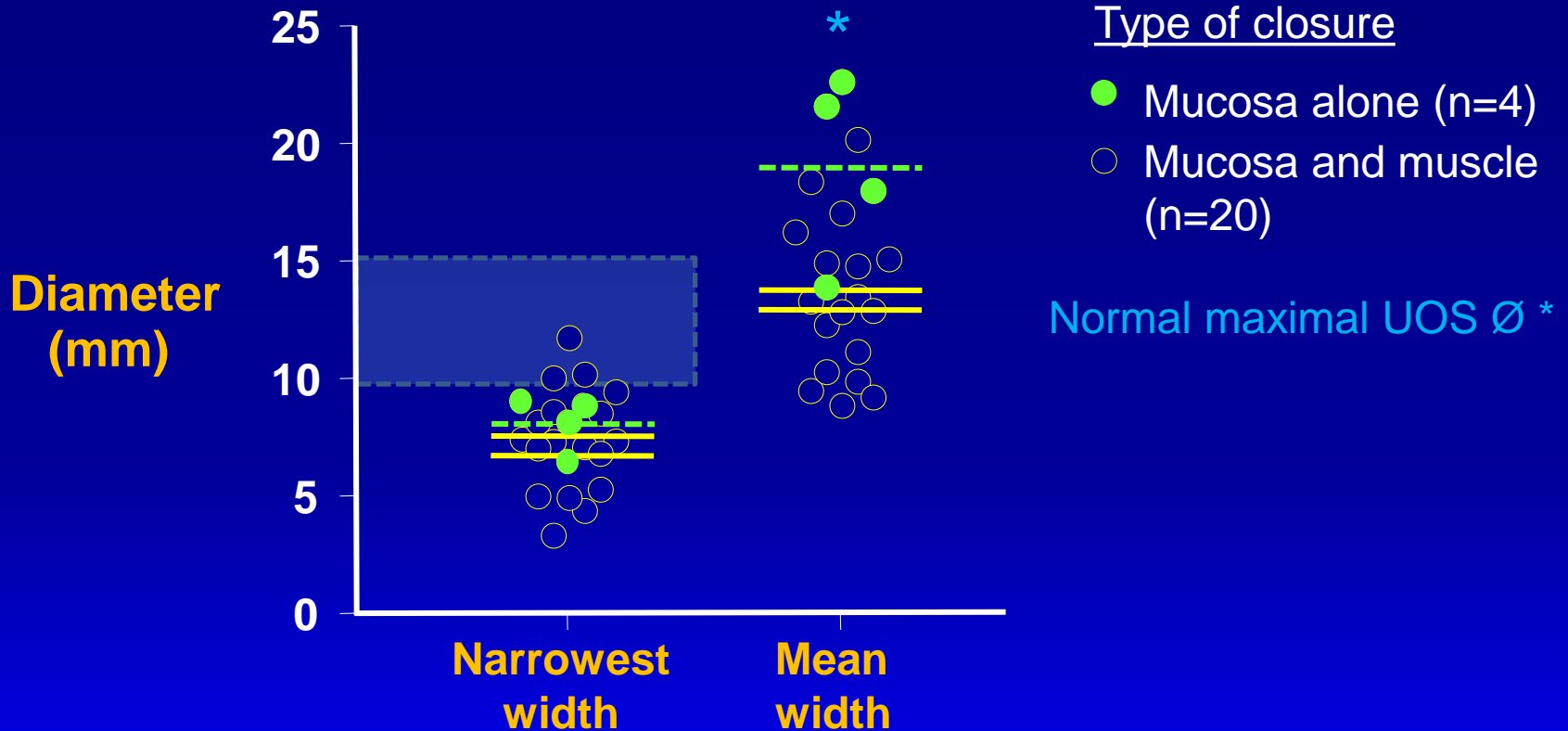




RESULTS

Pharyngeal dimensions

Sagittal Projection



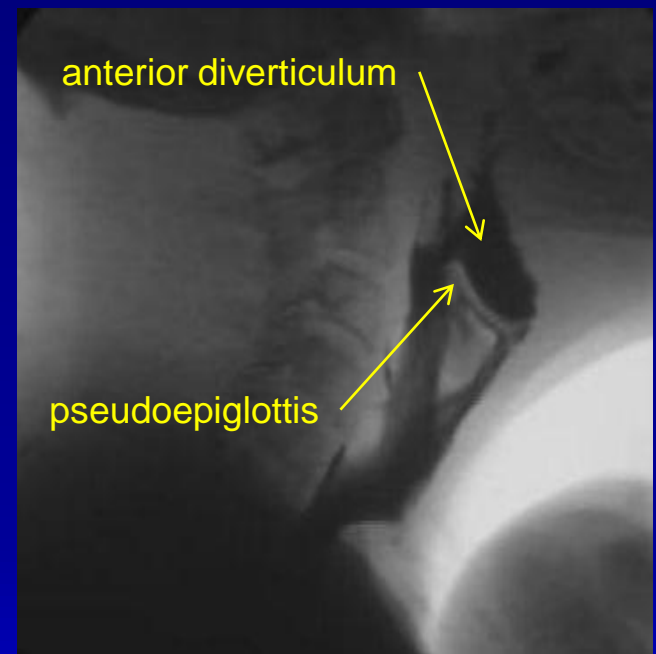
*Cook, Dodds et al. AJP 1989

RESULTS

Anatomical deformations

Anterior pharyngeal diverticula and/or pseudoepiglottis

- mucosa closure 4/4 (100%)
- mucosa and muscle closure
9 of 19 (47%)



Summary and conclusions

Following a total laryngectomy surgery:

- Swallowing function is compromised.
 - with diminished pharyngeal diameter
 - increased intrabolus pressures
 - pharyngeal residue post-swallow.
- Swallowing efficiency appears to be related to the techniques used in the pharyngeal reconstruction
 - tentative evidence that mucosal and muscle closure is superior
 - ↑ peak pharyngeal pressure
 - ↓ diverticula

Acknowledgements

