

**A prospective randomised comparative clinical trial:  
Laser Assisted Uvulopalatoplasty versus  
Radiofrequency Procut Palatoplasty for snoring and  
obstructive sleep apnoea**

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## Our Aim

- To compare a new technique of RF Procut palatoplasty against an older one of LAUP
- To set-up a randomised comparative trial  
Generates high level of evidence
- To address patient satisfaction & acceptability

# Prospective Randomised Clinical Study

- Ethical Committee Approval – Interim Stats
  - 50 patients with snoring and mild OSA
  - Palatal snorers
  - Patients were randomly assigned into 2 groups 25 in each group
- LAUP v/s RF Procut Palatoplasty**
- Investigator blinded
  - Both procedures conducted under G A

## Inclusion and exclusion criteria

- Age < 65
- BMI up to 33
- Investigations
  - **Sleep Nasendoscopy** grade 1 & 2
  - **Sleep study**
- Simple Snorer
- OSA - AHI < 30
- **BMI > 33**
- **Age above 65**
- **AHI > 30**
- **Poor general condition**
- **Coagulopathy**
- **Mentally or psychologically unfit**
- **SNE = Excessive Lat Pharyngeal Wall Collapse**

## Sleep Nasoendoscopy

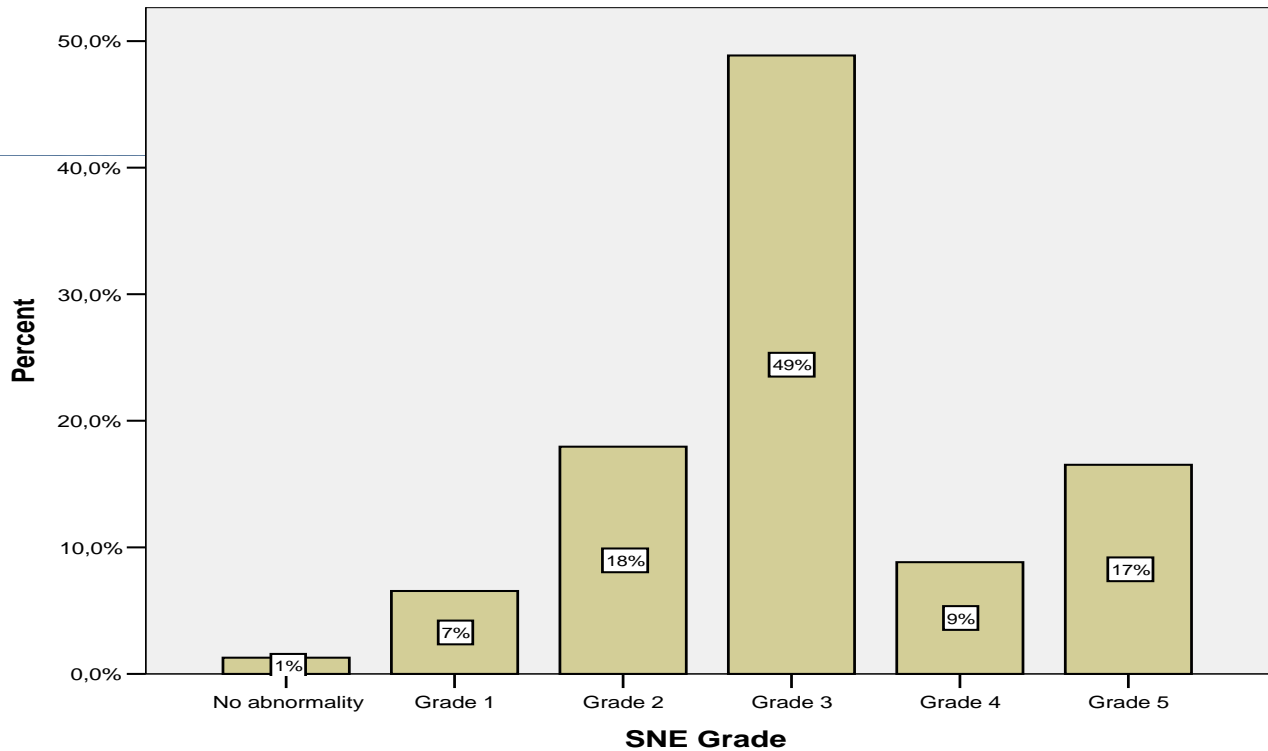


## Sleep Nasendoscopic Grading

- **Grade I**  
**Palatal flutter**
- **Grade II**  
**Palatal flutter & Nasopharyngeal collapse**
- **Grade III**  
**Multi Segmental Obstruction on inspiration**
- **Grade IV**  
**Multigemental on inspiration & expiration**
- **Grade V**  
**Retraction of tongue base & epiglottis**

*Pringle M B & Croft C B 1993*

# Breakdown of 2300 Sleep Nasoendoscopies



## Demographics

### LAUP Group

- Sex Male 18: Female 7

- Age

Median 47 years

Range 28 - 65

- BMI

Preop (20 - 33)

postop (20 - 33)

### RF Group

- Male 16 : Female 9

- Age

Median 42 years

Range 31 - 64

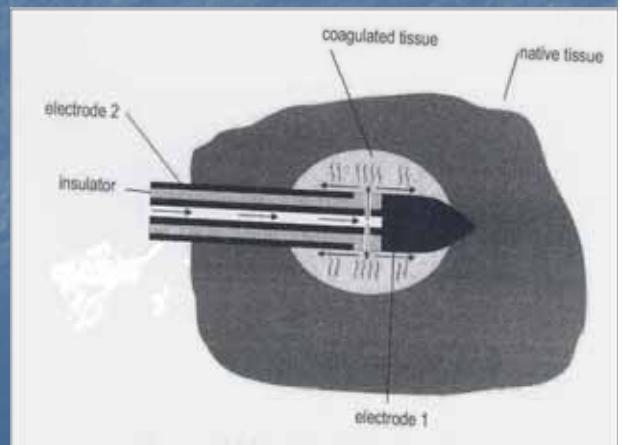
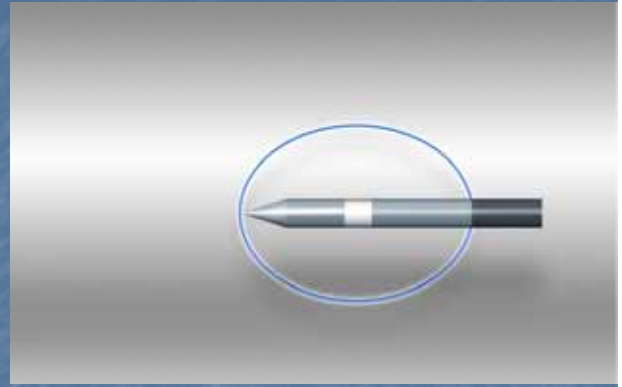
- BMI

Preop ( 21 - 33)

Postop (20 - 34)

# Basic Principle of RFITT

- Cylindrical electrode
- Low current density is generated
- The tissue is heated up to the coagulation  $60^{\circ}\text{C}$
- Ultimately necrosis and a scar formation occurs
- Stiffening and volumetric reduction of tissue



## Bipolar Radio-frequency Group

### Celon Lab Generator

- Energy control
- Acoustic feedback
- Auto stop signal

### Pro-sleep plus Probe

- Bipolar Probe
- 4 -8 seconds/puncture
- 10 Applications -10 Watts setting

### ProCut Needle 1.2 mm

Sharp cutting 25 Watts

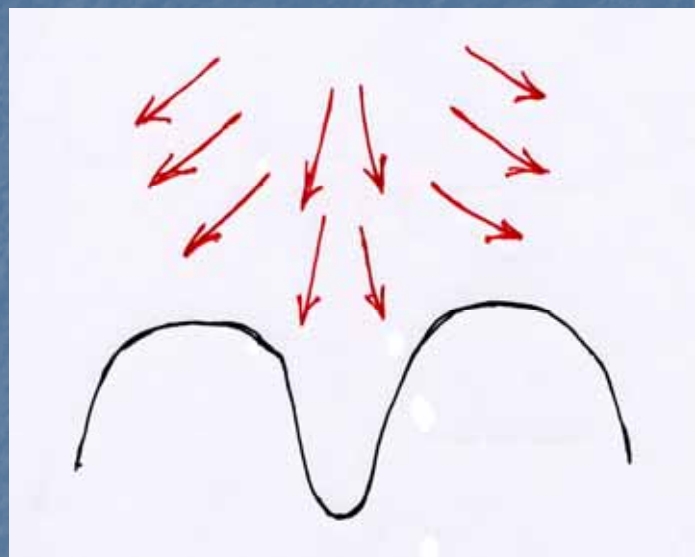


# Celon Procut Needles & Forceps



## Interstitial Radiofrequency

- 10 Applications
- 4 Median
- 6 lateral
- 10 watts = 60J each



## RF Procut Palatoplasty Healing



pre op



immediately post op



3 weeks post op

## LAUP

- Kotecha Technique (Eur Arch Otorhino 2006, 263: 152-155)  
Co<sup>2</sup> laser – Microscope mounted  
10 Watts
- Boyls Davis Gag  
Tongue piece with suction
- Wet Swabs for
  - skin exposed area
  - naso/ Oro pharynx

# LAUP Postop Healing



Pre Op



3 weeks post op

## Summary of Statistical Analysis

- Analysis of Each Individual Treatment
- Two Group Comparison
  - Paired Sample t test
- Repeated Measures ANOVA
- Tests of Within Subjects Effects
- Pair-wise Comparison
- Adjustments for Multiple Comparisons - Bonferroni

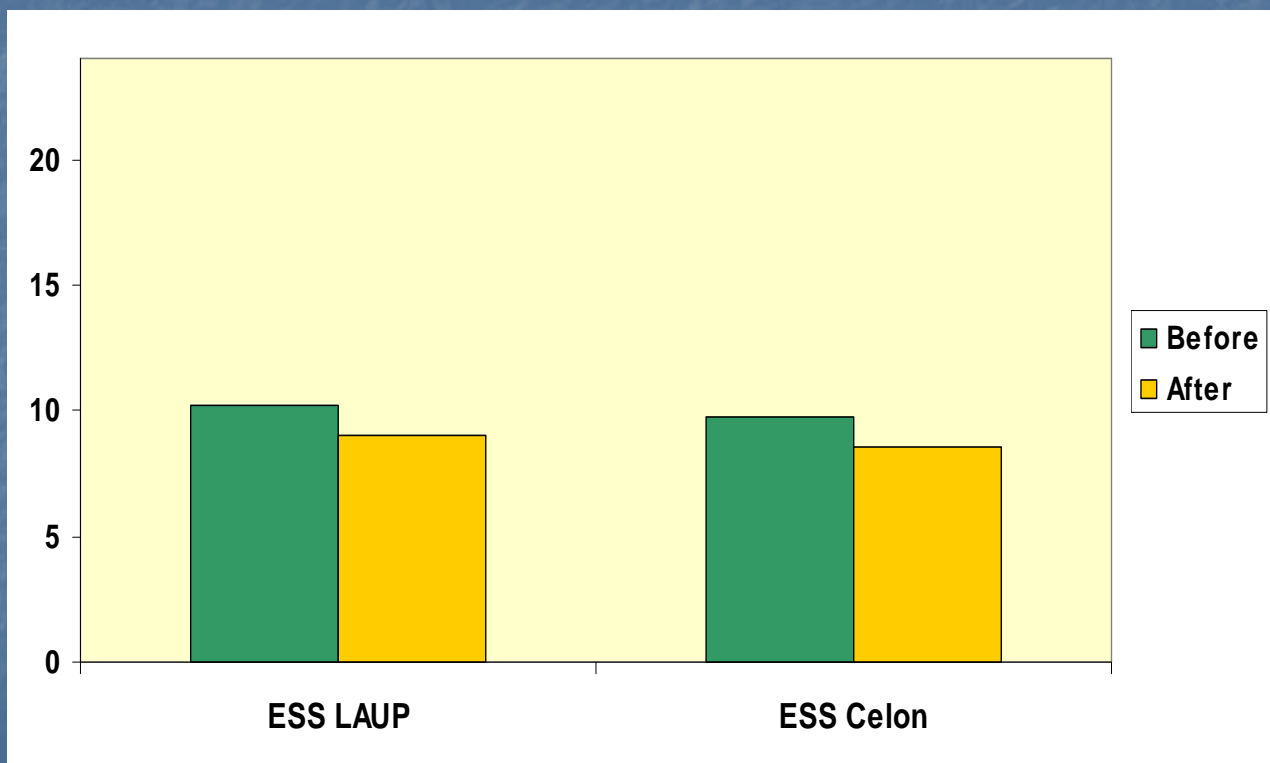


## MEAN - Pain with swallowing

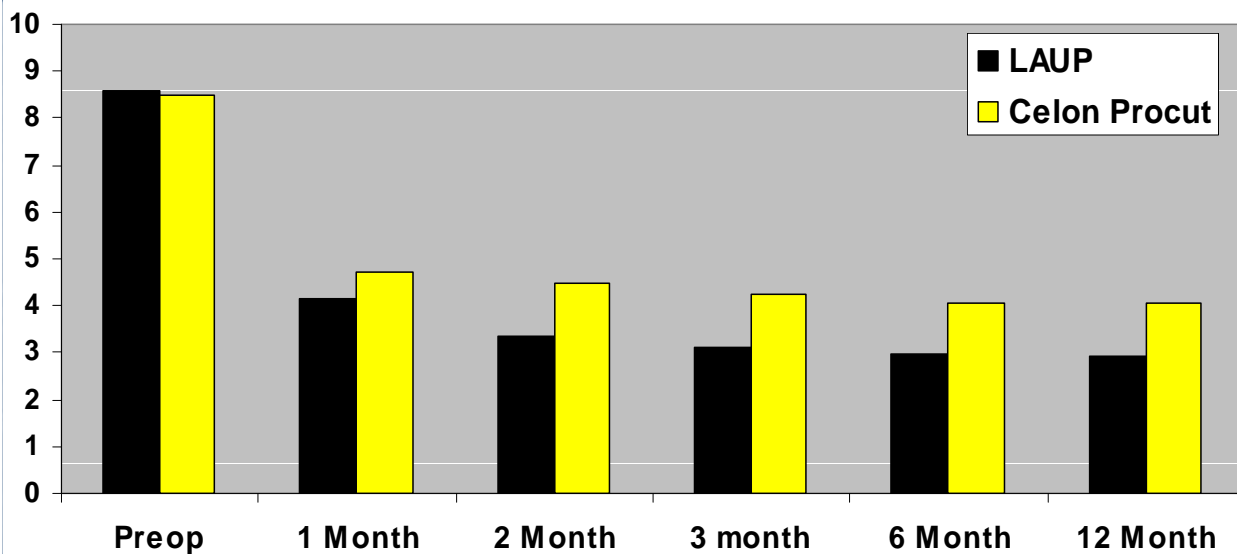
	LAUP	Celon
Day 1	5.12	5.03
Day 7	5.54	4.29

No Statistical Significance between the two groups

## Mean – Epworth Sleepiness Score



## Mean VAS of Snoring



## LAUP Versus RF Palatoplasty Paired T Test

VAS Snoring at 12 month

Slightly significant difference

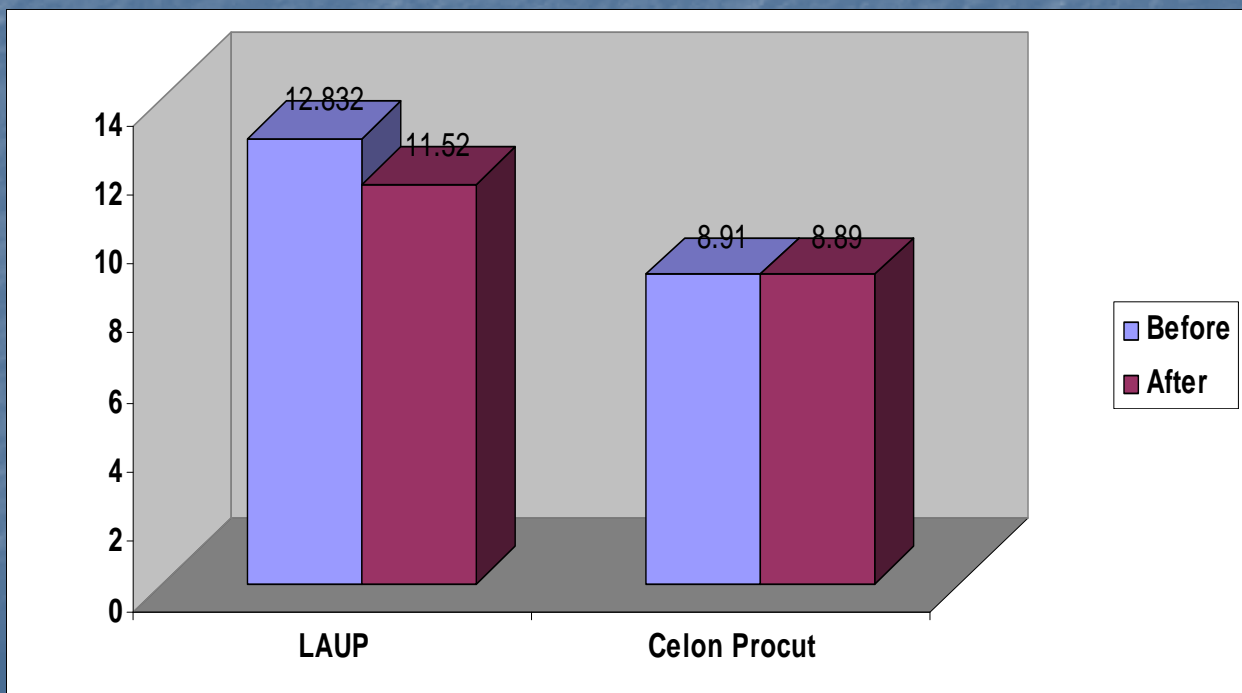
$t=2.169$  -  $df=48$  -  $p<0.05$

Snoring is statistically significantly better  
with LAUP

# Sleep Study Analysis



## Mean AHI Before and After LAUP & RF procut



# Complications / Undesirable effect

- **Celon procut group**

Ulceration - two patients

Superficial Needle?

Delayed healing

3 weeks - one patient

- **LAUP group**

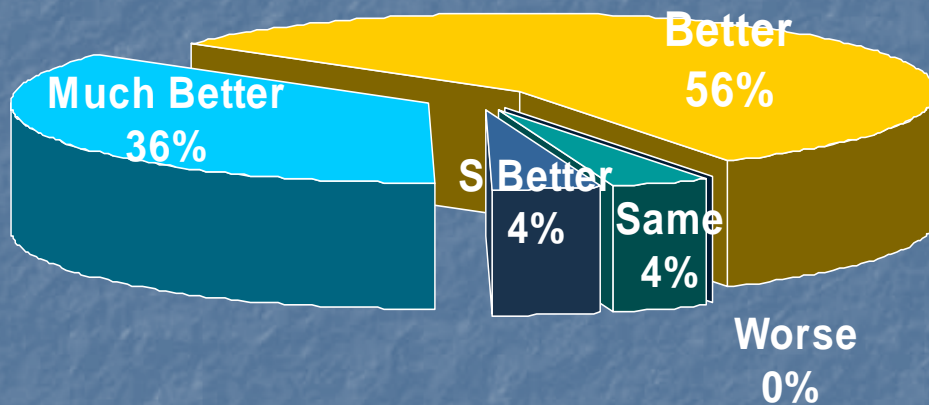
Mild sensation of discomfort in the throat

With 3 patients

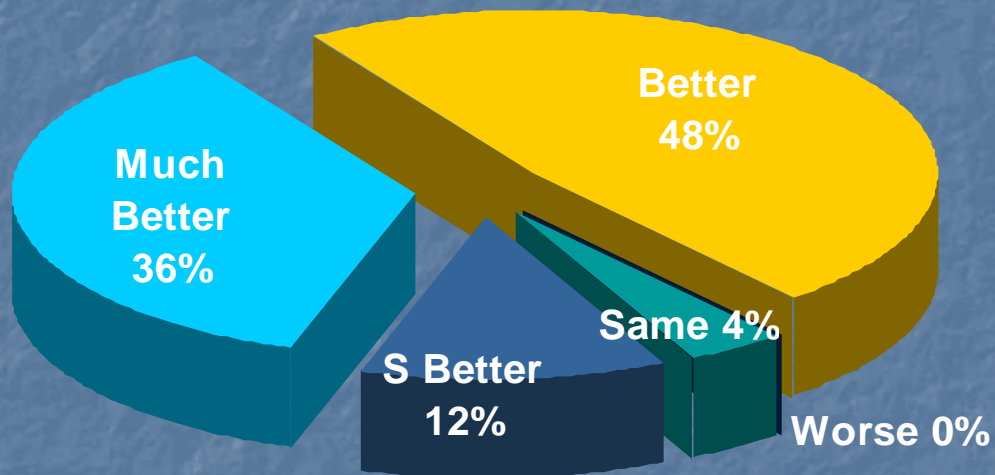


# Patient Satisfaction

## LAUP



# Celon RF Procut Palatoplasty



## In Conclusion

- Snoring improved in both groups
- LAUP is to give slightly better results
- Healing duration comparable
- With time some snoring would recur
- Patients in RF group will require further treatment sooner
- Pain is slightly less with Celon Procut
- Long term f/U
- Larger sample size is recommended

*All I Want Is a Good Night's Sleep*



**I love you Alexandria**



*Hesham Khalil*