Second Alexandria Workshop on Snoring & OSA Update

THYROHYOIDPEXY: WHY NOT?
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University of Pavia
School of Medicine
ENT Clinic
Ronchopathy Surgery Course

University of Parma
School of Medicine
Maxillo-Facial Clinic
SDB Surgery Course

AIMS Board
&
ENT-Maxillo-Facial
Joint Commission

Presentation topics:

✦ Anatomic review
✦ Surgical Rationale
✦ Historical analysis
✦ Forlì’s experience
Presentation topics:

- **Anatomic review**
- Surgical Rationale
- Historical analysis
- Forlì’s experience

Hyoid & Head & Neck Skeleton
Shape & Dimension

Muscles Insertions
Supra & Infra Hyoid Muscles

Mandibulo-Hyoid Muscles
Vectorial Muscle Arrangement

VADS & Hyoid
Presentation topics:

- Anatomic review
- **Surgical Rationale**
- Historical analysis
- Forlì’s experience
Hyoid Bone SDB Surgery Babel

Operative techniques in Literature

- H. sectioning
- H. expansion/plasty
- H. distraction
- H. myotomy
- Suspension to surrounding structures with displacement (Pexy)
  - Mandibulo-Hyoidopexy
  - Thyro-Hyoidopexy

Riley RW, Powell NB, Guilleminault C.

Hyoid Bone SDB Surgery - Classification Criteria

A. Transversal Widening \(\Rightarrow\) **Hyoid-PLASTY**

B. Suspension to surrounding structures with displacement \(\Rightarrow\) **Hyoid-PEXY**
A. Transversal Widening (TW)
HYOID-PLASTY (HPL)

- Simple Medial Body Resection (Kaya, 1984)
- Expansion Hyoidoplasty by double lateral body sections with stainless steel brace stabilisation (Patton & Coll., 1983 a e b; Patton & Coll., 1984; Patton & Thawley, 1984)
- Midline Sectioning and Lateral Mandibular Fixation by means of a REPOSE® Kit (Fibbi & Coll., 2000)

B. Suspension to surrounding structures with displacement: HYOID-PEXY (HPX)

With Mandible: MANDIBULO – HYOID-PEXY
MHPX anterior lateral

With Thyroid Cartilage: THYRO – HYOID-PEXY
THPX inferior anterior lateral
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MANDIBULO-HYOID-PEXY ('80-'90 yrs.)

- Riley & Coll., 1986+ (+ inf mand osteotomy)
- Riley & Coll., 1989 (+ inf mand osteotomy)
- Riley & Coll., 1990
- Riley & Coll., 1993
- Korchia & Coll., 1994
- Ramirez & Loube, 1996 (+ inf genioplasty)
- Coleman & Bick, 1999 (suture & screw)
- Kang & Coll., 2003
- Heller & Coll., 2006 (+ genioplasty in mandibular hypoplasia)
THYRO-HYOID-PEXY
(‘90-’2000 yrs.)

- Riley & Coll., 1994
- Riley & Coll., 1999
- Hormann & Coll., 2001 (MIVS+steel wire)
- Hsu & Brett, 2001
- Villaseca & Coll., 2002
- Neruntarat, 2003
- Neruntarat, 2003 (local anaesthesia)
- Verse & Coll., 2004 (multilevel)
- Hormann & Baisch, 2004
- Hormann & Coll., 2004 (multilevel)
- Den Herder & Coll., 2005 (primary !)

Hormann K.
Modified hyoid suspension for therapy of sleep related breathing disorders. Operative technique and complications.
Laryngorhinotologie, 2001
Presentation topics:

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HYOID SUSPENSION & MIOTOMY PROCEDURE

Surgical technique

According TO our routinary HTP Procedure as described in:

C.Vicini & Coll.
Le Sospensioni Ioidée in Chirurgia della Roncopatia – Dompè 2007
FORLI’s Experience

In Multilevel Surgery

Nose Oropharynx Hypopharynx
539 THPX

Introduced with many other SDB procedures, including:
SPL, TPL, VPL, LAUP, UP3, ESP, UPF, RFVR, Pillar®, snoreplasty,
THP, Repose®, GGA, TBRHE, Skin-lined trach, MMA

1965 patients

• 1444 in general anesthesia:
  269 (19.7%) procedures on 1 site
  623 (46.6%) procedures on 2 sites *
  538 (32.4%) procedures on 3 sites *
  14 (1.3%) procedures on 4 sites *

• in local anesthesia 529

5077
Overall procedures on different sites

* At the same time in the same patient

Study Design

✓ A Retrospective Study
✓ from ENT SDB Surgery Series, Forlì
✓ In UARS/OSAHS treatment

ORL - FORLI'
(Head: Prof. Claudio Vicini)
up to 1st January 2012
RETROSPECTIVE EVALUATION

- Retrospective search (clinical & instrumental data)
- Between 1996 and 2009: **391 HTPs**
- Excluded - follow up dropped pts
  - < 6 months follow up
  - incomplete data set

- Useful data available: **109 cases**
  - **100 cases HTP (25.6%)**
  - 9 cases HTP+GGA (genio-glossus adv.)

Multilevel Surgeries Associations

- **Nose Procedures** 87/100
  - Septal Surgery 55
  - Turbinate Surgery 81
  - FESS 5
  - Other 2

- **OroPharyng.Procedures** 99/100
  - UPPP 89 TS+ 59
    - TS- 30
  - UPF 2 TS- 2
  - LAUP 7 TS- 7
  - TS + uvulectomy 1
**DIAGNOSTIC WORK-UP**

- **HISTORY, PHYSICAL EXAMINATION & BIOMETRICS**
- **PANOREX and LATERAL TELERADIOGRAPHY**
- **SLEEP STUDIES**
- **PSICOMETRICS**
- **AWAKE ENDOSCOPY**
- **(SLEEP ENDOSCOPY)**

**Selection Criteria**

- UARS or OSAHS clinically and PSG demonstrated
- Conservative options not acceptance or CPAP drop out
- Endoscopical and/or Imaging demonstration of hypopharyngeal obstruction
- Lateral wall collapse++++
- Minimal Oropharyngeal Obstruction
Outcomes Evaluated
according to Sundaram & Coll., The Cochrane Collaboration, 2007

PRIMAR
- AHI (Apnoea Hypopnea Index)
- ESS (Epworth Sleepiness Scale)

SECONDARY
- Visual Analogue Scale-VAS (satisfaction)
- Complications (type & rate)
- Postoperative Morbidity*
- Postoperative Mortality*
- One Year Mortality*

* no morbidity and/or mortality registered

Other Parameters Evaluated

- THP surgical time
- Visual Analogue Scale-VAS (Pain)
- Visual Analogue Scale-VAS (Snoring)
- SF36 QOL Questionnaire
Conclusions - 1

- **THP in our experience proved to be a simple, quick and easily implementable procedure** in a Multilevel Surgical approach

- **Learning curve is steady but significant complications are possible** in unexperienced hands

- Overall **Subjective** as well as **Objective Outcomes are interesting** and not far from many of the reported data in Literature

Conclusions - 2

- Among many different success predicting index preoperative **AHI and BMI must be put into account (BMI and AHI less than 30!!)**

- THP is probably the **best balanced hypopharyngeal procedure** in terms of cost/efficacy ratio

- In **severe OSAHS surgery** area probably **major procedures are more effective**
THANK YOU FOR YOUR ATTENTION