

Percutaneous endoscopic gastrostomy in head and neck malignancies

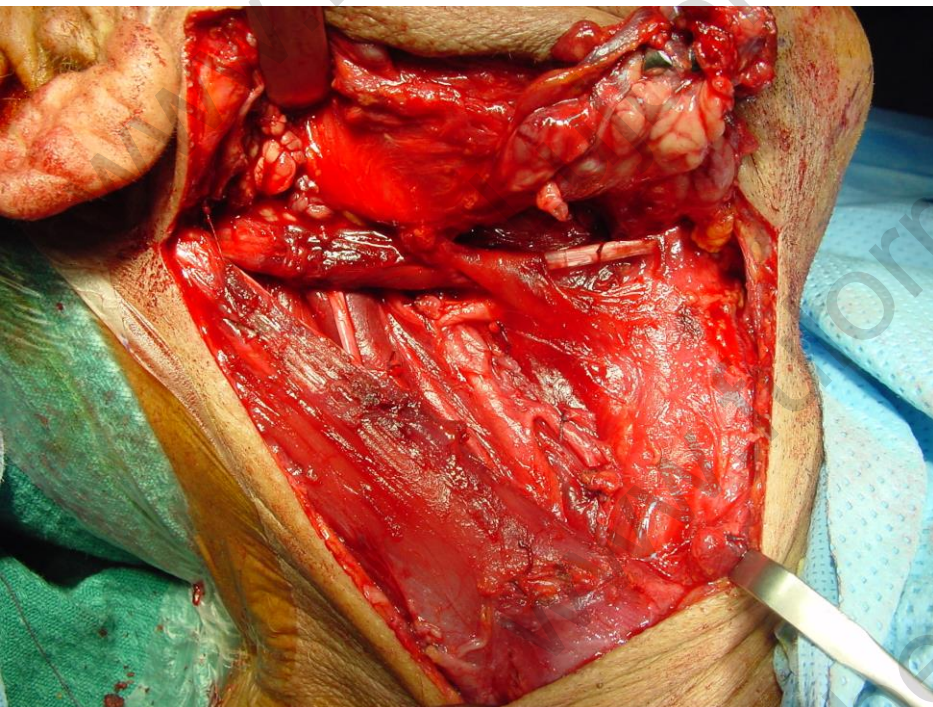
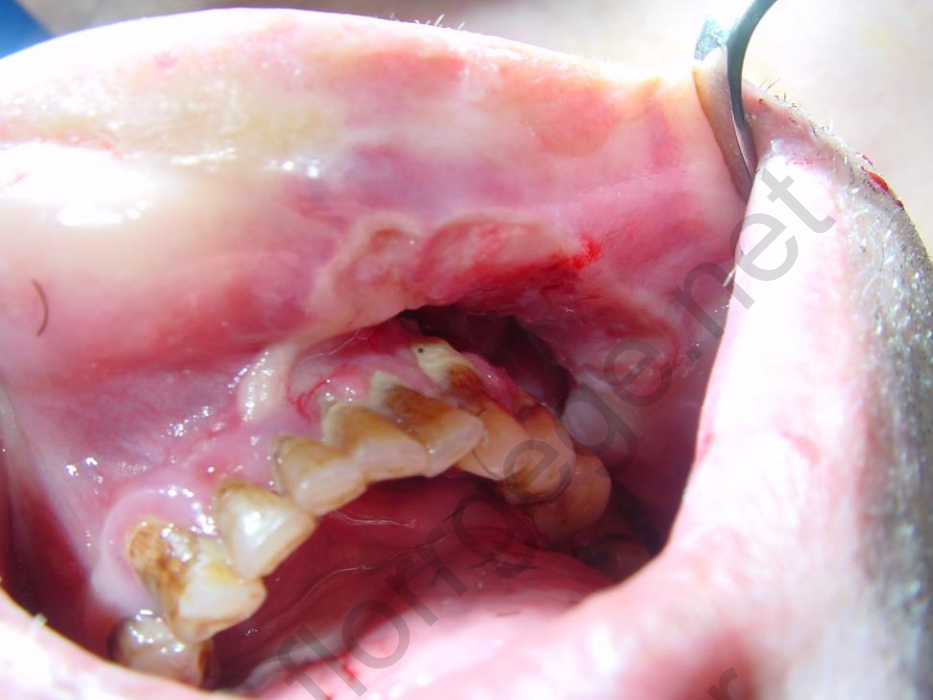
Dr. Lujber László

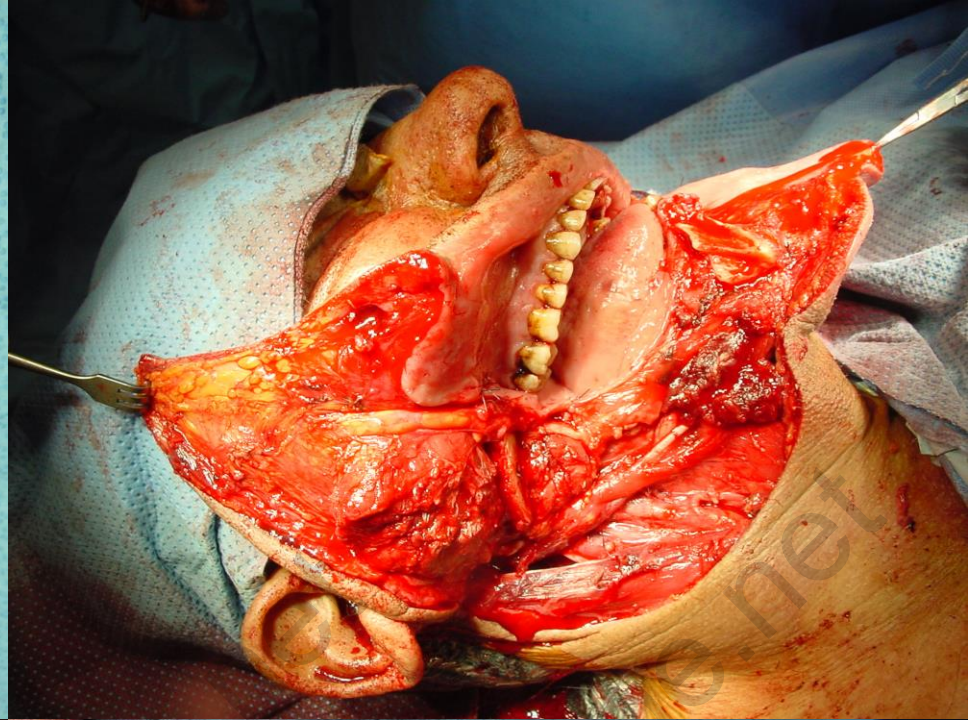
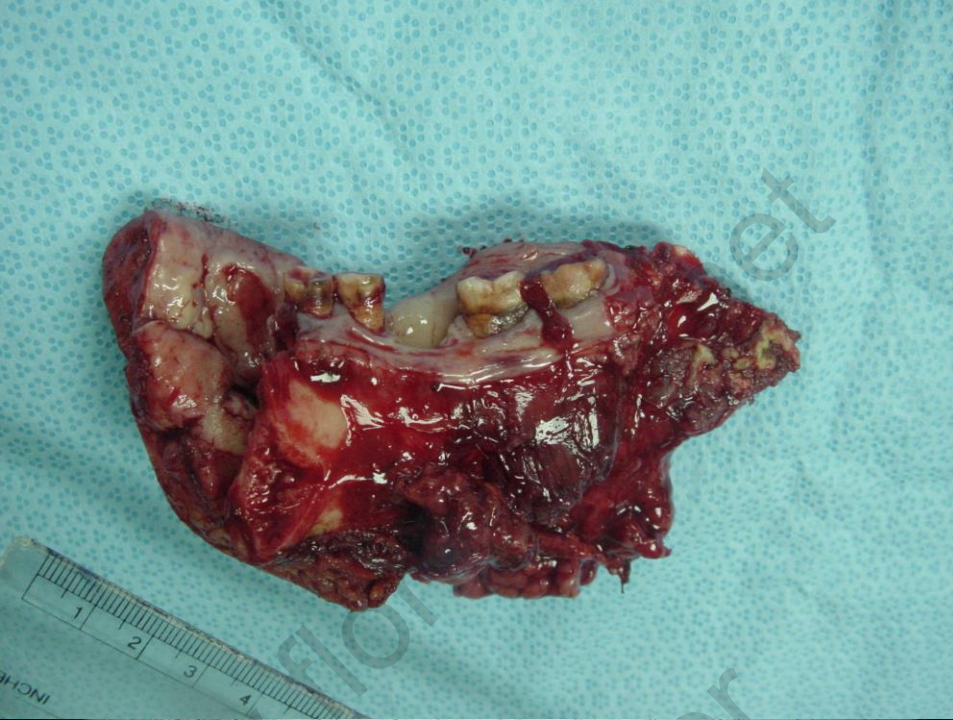
**Pécs University Medical School
ENT Head & Neck Surgery Dept.**

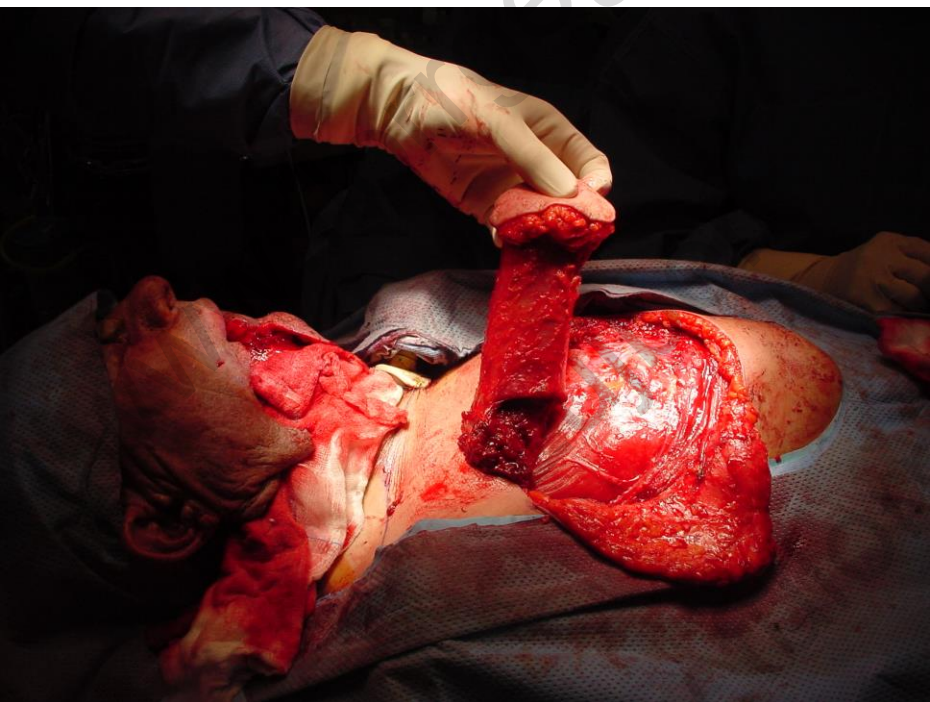
Reasons of malnourishment of head and neck cancer patients

- Alcoholism, smoking, poor diet has high prevalence → protein-, vitamins-, mineral uptake decreased
 - Local tumor growth → dysphagia, odynophagia, smell-taste distortion, aspiration
 - Increased metabolic rate of cancer cells → accelerated protein catabolism
 - Surgery → anatomical alterations, pain, dysmotility, aspiration...
 - Radiotherapy- chemotherapy → mucositis, pain, edema, nausea, xerostomia...
- ↓
- Progressive protein-calorie malnutrition
- ↓
- Depleted protein & fat stores > weight loss > immune functions ↓









Nutritional state

influences

- Healing
- Surgical outcome
- Quality of life
- Hospital stay
- Cost of care

Enteral Nutrition - versus - Total Parenteral Nutrition

“When gut works use it !”

Quality of food

Quantity of food

Route of alimentation

- Well-fed intestine

- absorbs nutrients

- protective barrier against toxins, bacteria by peristalsis, secr. IgA, mucin, intact mucosa

- Starvation

- GI mucosal mass ↓, permeability ↑, alters immune function

Enteral feeding → gut mass-, metabolic-, hormonal-, immunologic funct. preserved → incidence of surg. compl. ↓

WAY OF ENTERAL FEEDING

I. Per oral

II. Tube feeding

1. **Naso-gastric**, -duodenal, -jejunal
2. (Oro- gastric, -duodenal, -jejunal)

III. Stomal feeding

1. Pharyngostomy

2. Oesophagostomy

3. Gastrostomies

- Surgical open (Stamm`s)
- **Percutaneous endoscopic**
- Percutaneous radiologic
- Percutaneous ultrasound guided
- Percutaneous CT or MRI guided
- Laparoscopic

4. Jejunostomies

- Surgical
- PEG with jejunal extension
- Laparoscopic
- Percutaneous endoscopic
- Needle catheter

Percutaneous endoscopic gastrostomy

PEG

- Michael Gauderer and Jeffrey Ponsky 1980
- Safe, simple, efficient, local anesthesia
- 216.000 procedures annually in USA, 2nd most common indication for upper gastrointestinal endoscopy

GENERAL INDICATIONS FOR PEG PLACEMENT 1.

I. LONG-TERM NUTRITION

- **Head and neck tumors.**
(Maintenance of nutrition and fluid balance during treatment of cancer is a strong indication for PEG)
- **After an acute stroke**
(Strong recommendation based on the finding that 25-40% of patients develop dysphagia after an acute cerebrovascular episode)
- **Extensive traumatic injury.**
(e.g. certain maxillo-facial trauma, abdominal trauma)

GENERAL INDICATIONS FOR PEG PLACEMENT 2.

- **Neurological disorder**
(Diseases that are chronic in nature and result in significant dysphagia, psychiatric indications)
- **Growth failure in children.**
(Prevention and treatment of pediatric clinical conditions such as e.g. Crohn`s disease, cystic fibrosis etc.)
- **Other hyperkatabolic states**
(severe burns, Crohn`s disease, toxic epidermal necrolysis)

II. DECOMPRESSION

- Diabetic gastroparesis,
- Intestinal pseudo-obstruction,
- Mechanical obstruction (tumor, surgery, etc.)

GENERAL INDICATIONS FOR PEG PLACEMENT 3.

III. OTHERS

- gastric volvulus / gastric fixation
- formation of biliogastric shunt
- to deliver pharmacotherapy
(administration on non-palatable medications)
- access "avenue" to stomach
(multiple PEG portals to permit intragastric surgical interventions)

NGT

- Side effects: ulcers, rhagads, sinusitis, mucosal edema, reflux, aspiration.
- Frequent dislodgement.
- Socially less acceptable.
- Uncomfortable.

PEG

- More efficient feeding.
- Less side effects.
- Socially more acceptable.
- More comfortable

PEG indicated if enteral feeding is required for more than 4 weeks.

Surgical gastrostomy

Laparotomy

Morbidity- mortality rate higher

Often general anesthesia / OR

More cost, hospitalization ↑

PEG

Direct access

Less complications

Sedation / bedside

Quicker procedure

PEG indicated if enteral feeding is required for more than 4 weeks.

Race of long-term enteral nutrition



PEG

NGT

**OPEN
GASTROSTOMY**

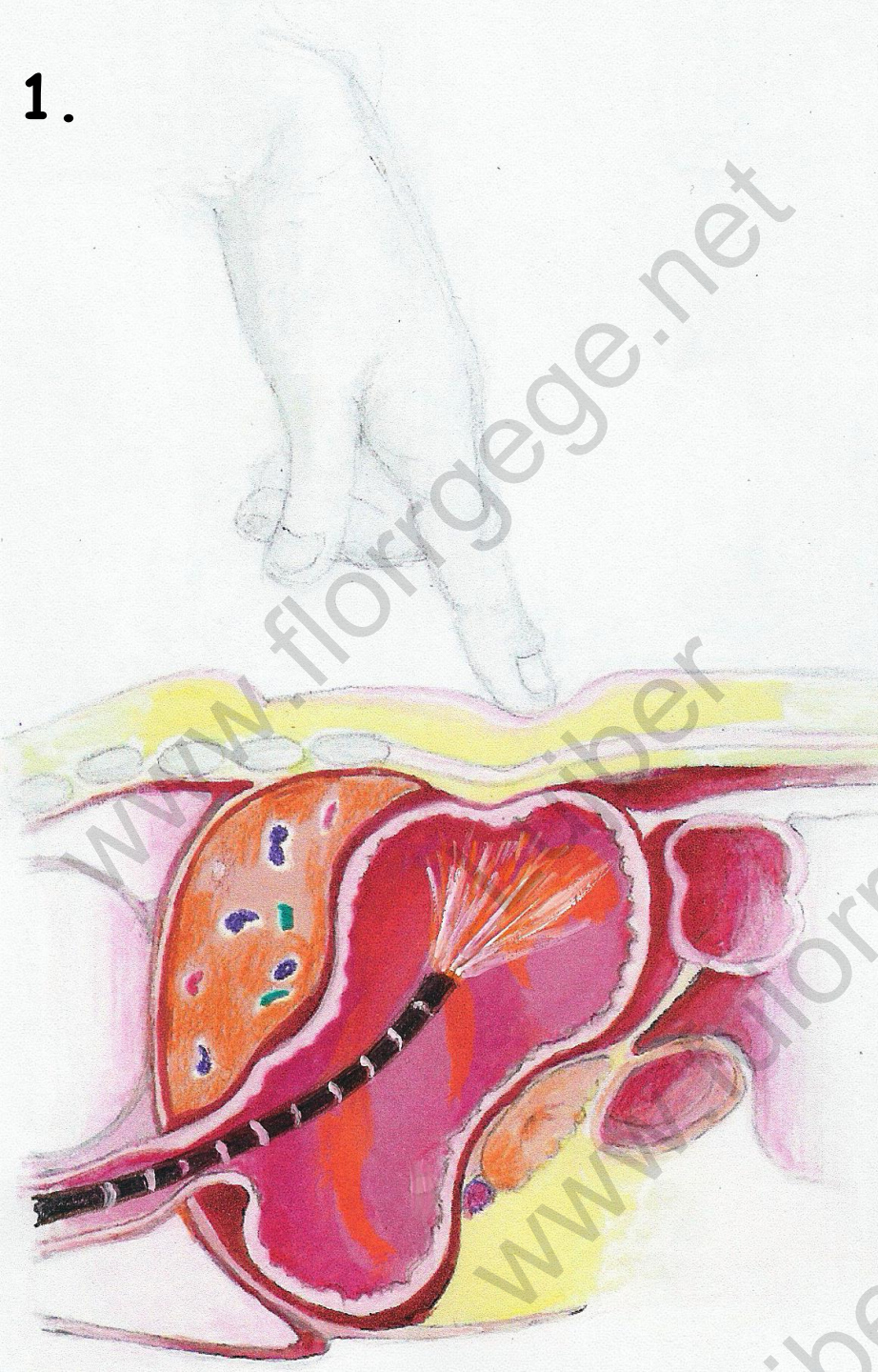
PEG techniques

1. "Pull"

2. "Push"

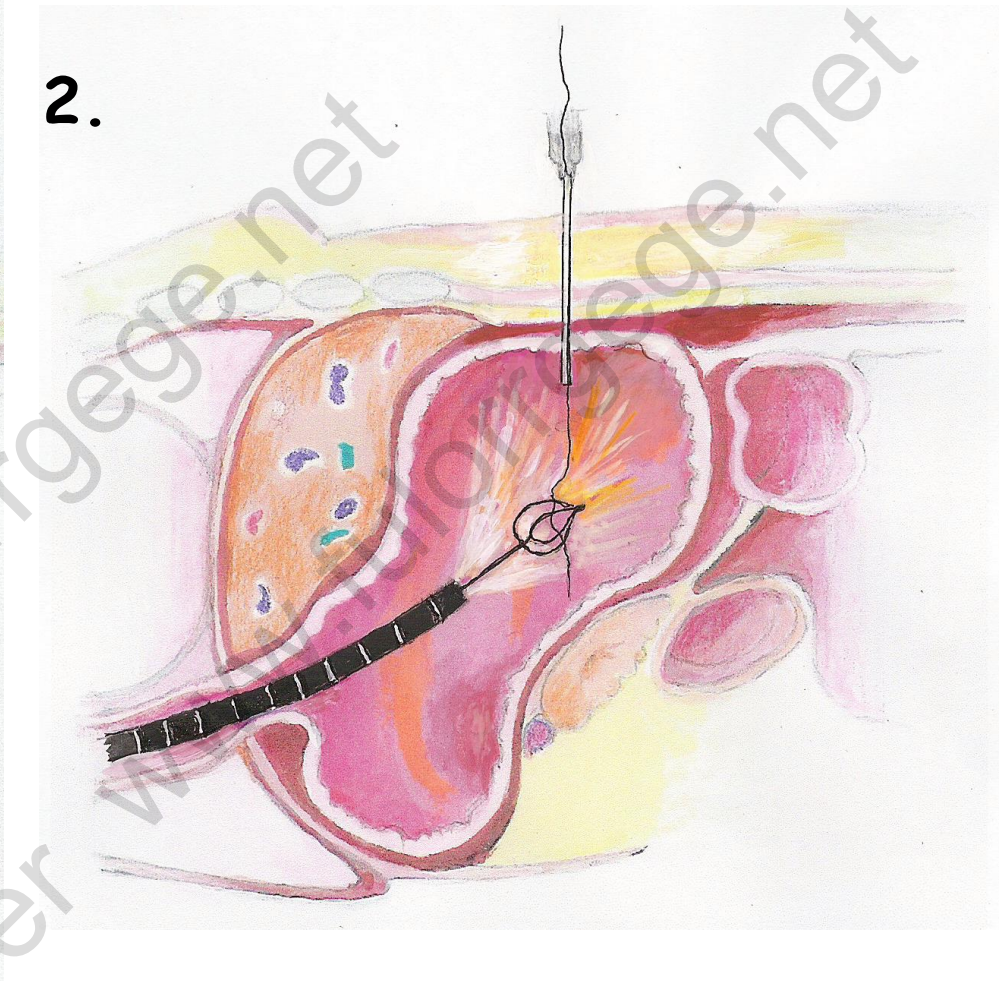
3. "Introducer"

1.

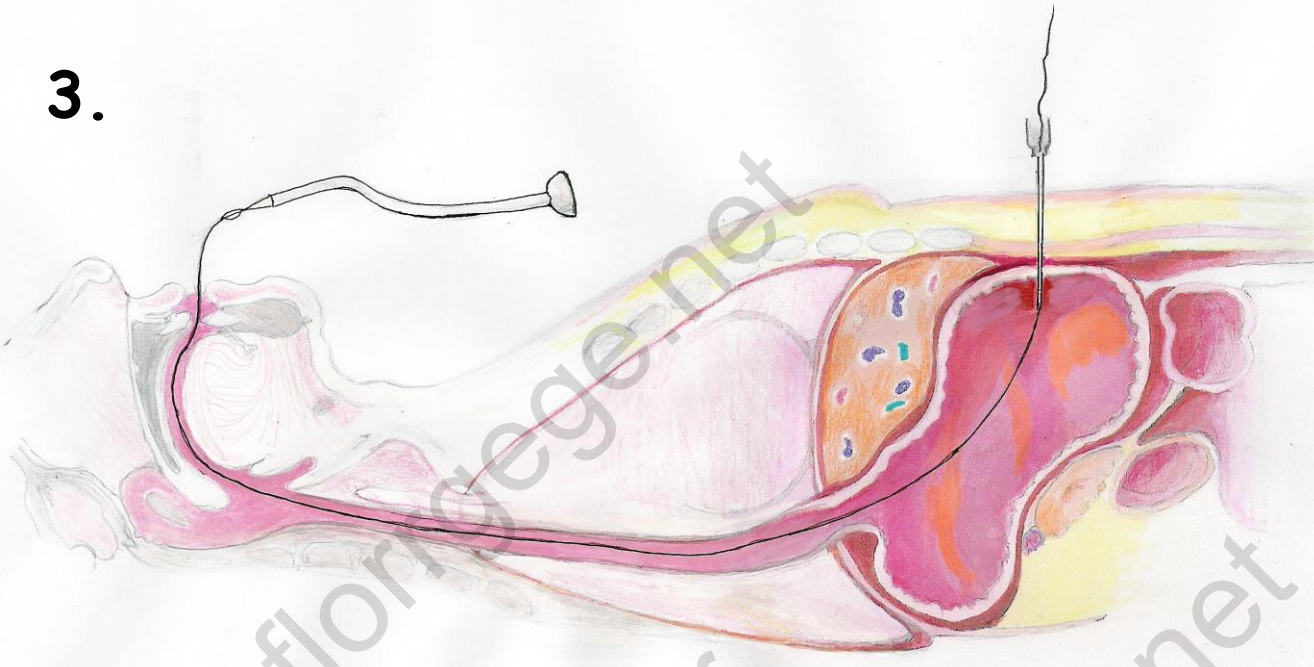


" Pull-back" PEG. Surgical technique I.

2.

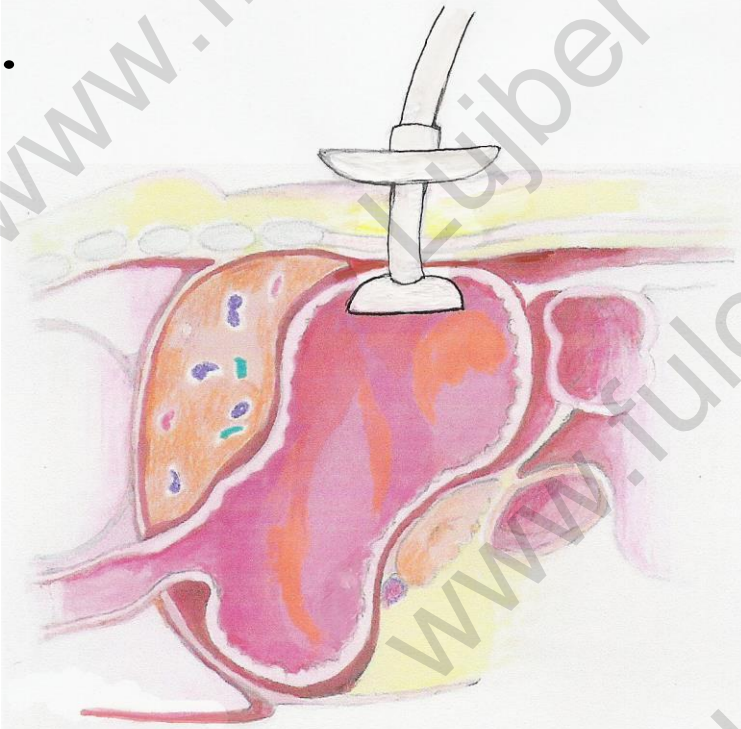


3.

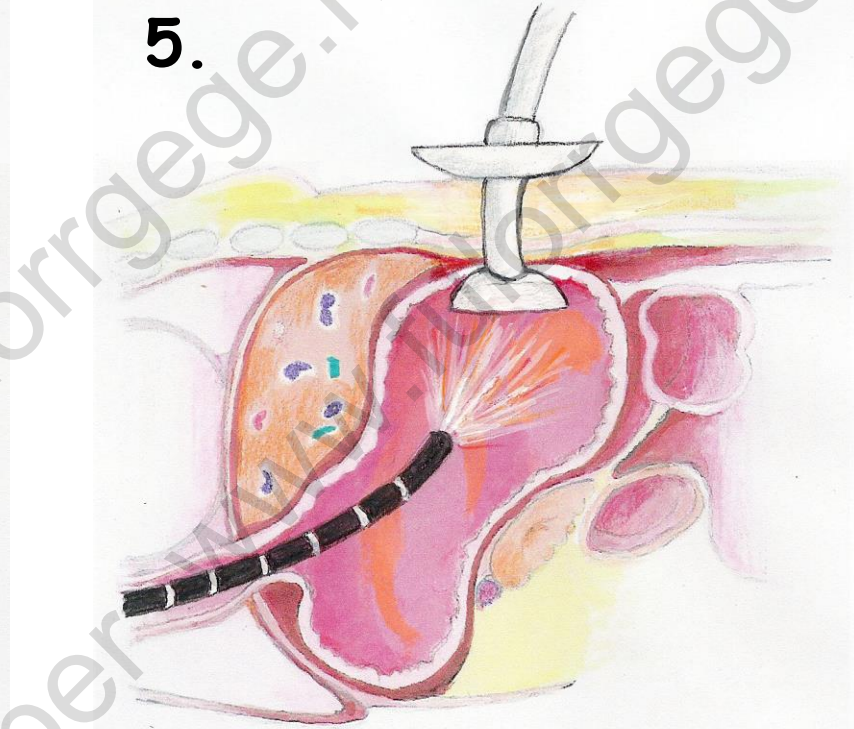


" Pull-back"
PEG.
Surgical
technique II.

4.



5.



Head and neck cancer patients

P

-Insertion methods

E

-Placement routes

(huge tu. blockage, trismus...)

G

-Timing

-Indication

PLACEMENT ROUTES OF PEG

- Per oral with standard-size gastroscope
- Per oral with pediatric / ultra-thin gastroscopes
- Per oral-with assistance of Kleinsasser`s rigid laryngoscope
- Trans-nasal
- Via cervical fistula
- Trans-cervical during head and neck surgical procedure (intraoperative)



www.florridgege.net
Lujber

www.fulorridgege.net
Lujber

www.fulorridgege.net

Advantages of intraoperative PEG

- Free passage for gastroscopie and feeding tube.
- No tumor cell seeding.
- Less PEG-related complication.
- No additional discomfort for patient.

PEG via cervical pharyngo-cutaneous fistula

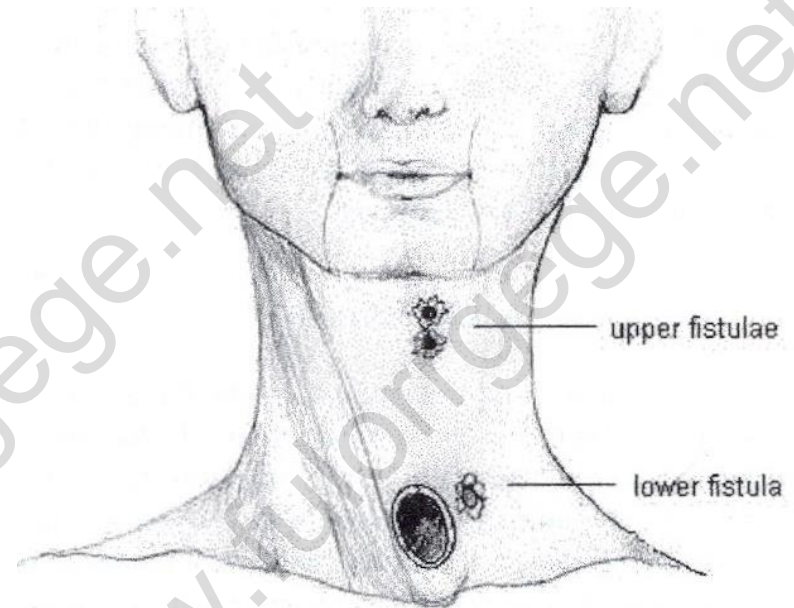
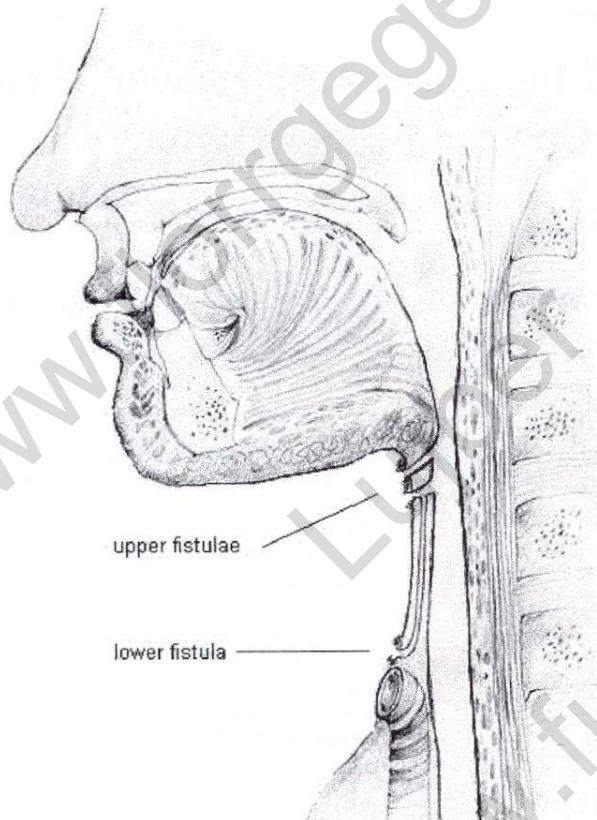
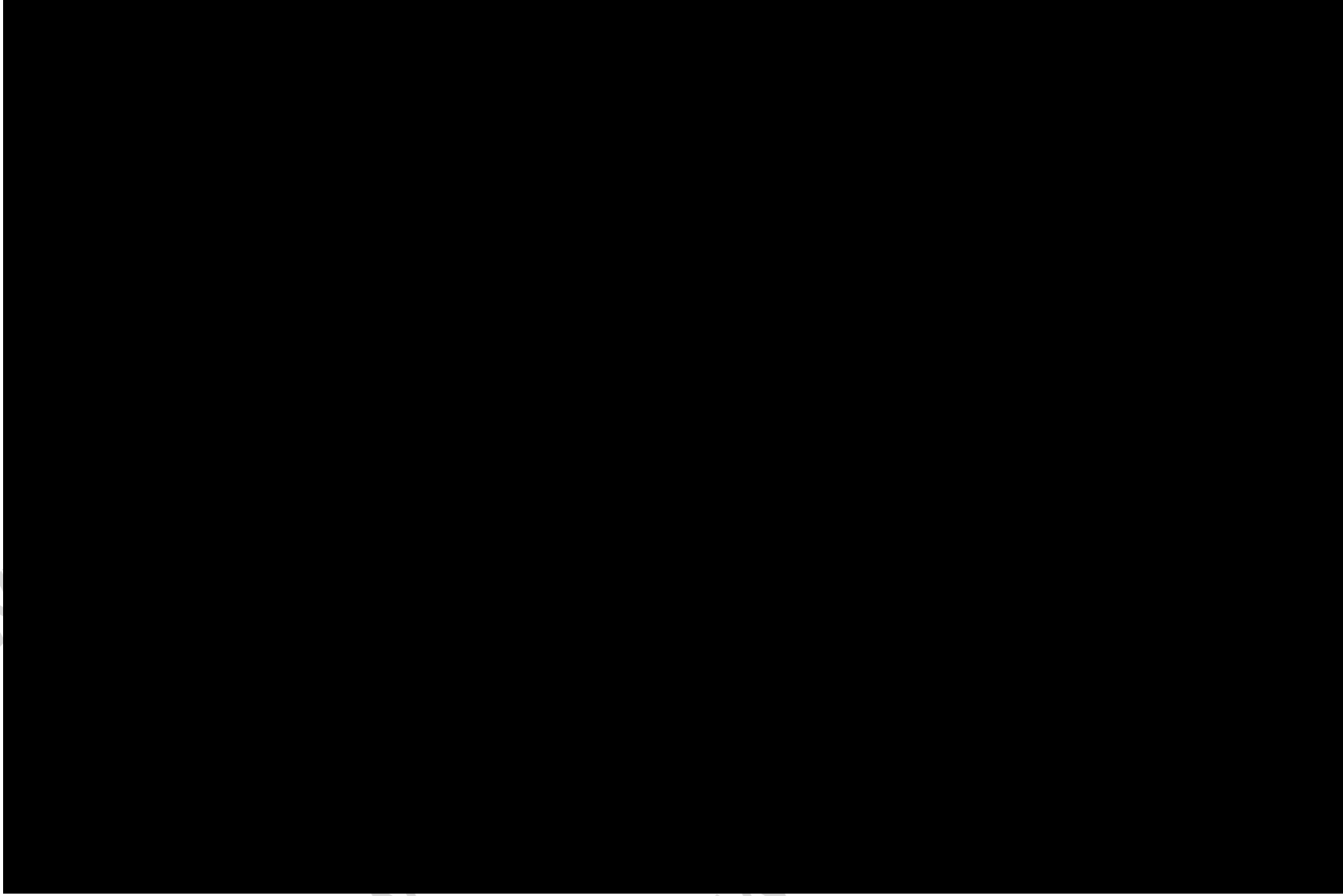


FIG. 1. Anterior view of the neck with the fistulae opening.

Reference: Lujber L., Fábíán Gy., Pytel J. Inserting a percutaneous endoscopic gastrostomy tube via a cervical fistula formed after major surgery on a patient with a head and neck tumor. *Surgical Laparoscopy, endoscopy & Percutaneous Techniques*. 2001. 11(5):327-329.



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Head and neck cancer patients

P

E

G

-Insertion methods

-Placement routes

-Timing

-Indication

Preoperative PEG

Intraoperative PEG

**Rel. early start of nutr.
supplement.**

**Avoids additional surgical event.
Safer and easier procedure.**

Postoperative PEG

"Rescue" procedure.

Head and neck cancer patients

P

-Insertion methods

E

-Placement routes

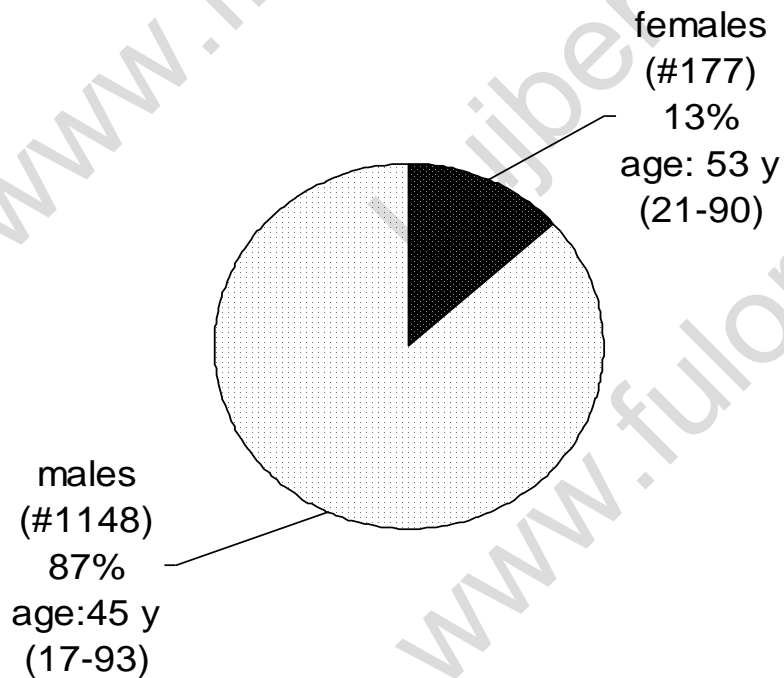
G

-Timing

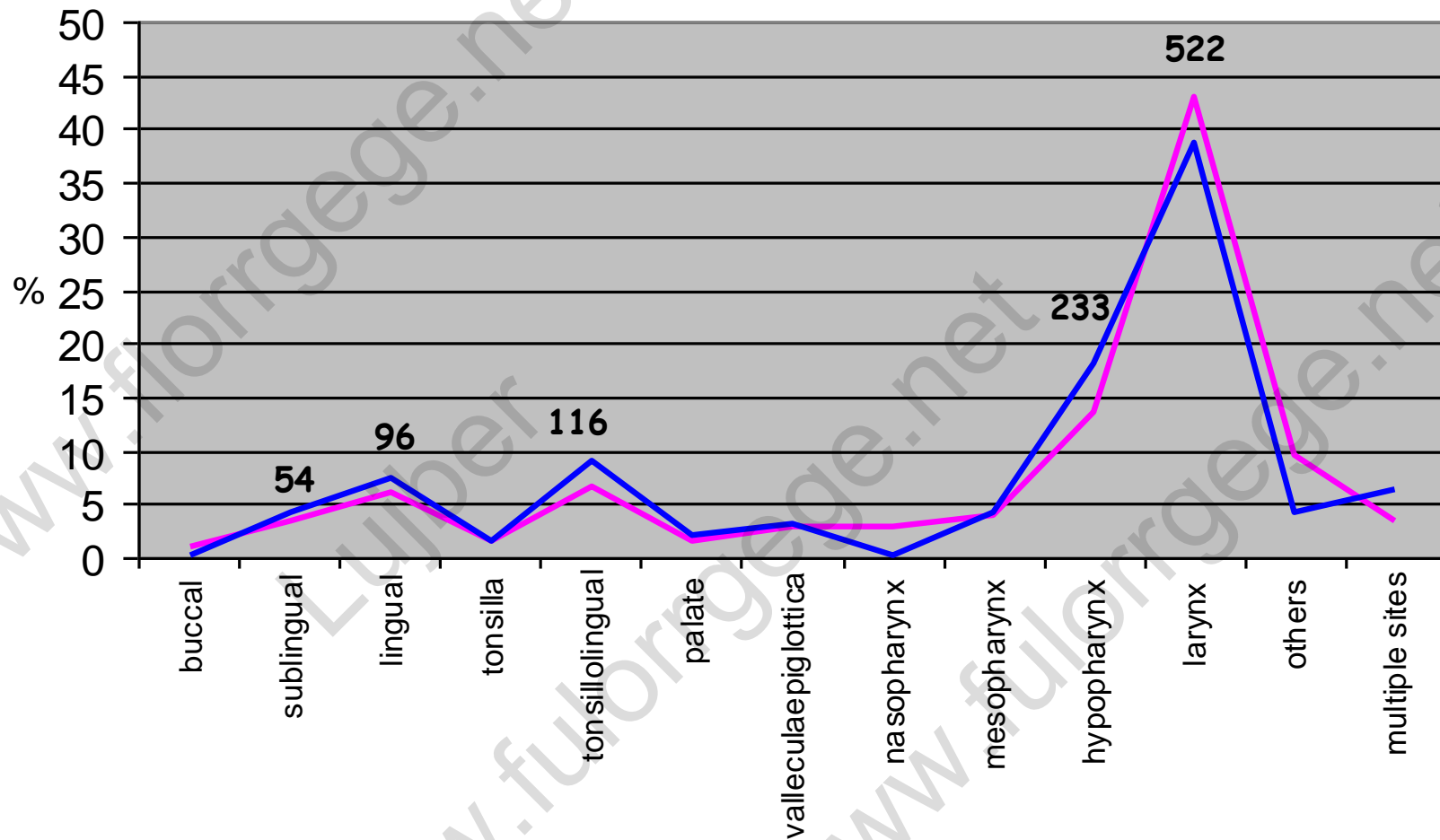
-Indication

CANCER REGISTRY

- PTE ENT H. & N. Surg. Dept.
- Jan 1997-Dec 2003
- 1325 Malignant H. & N. Carcinoma
- 2125 hospital admissions



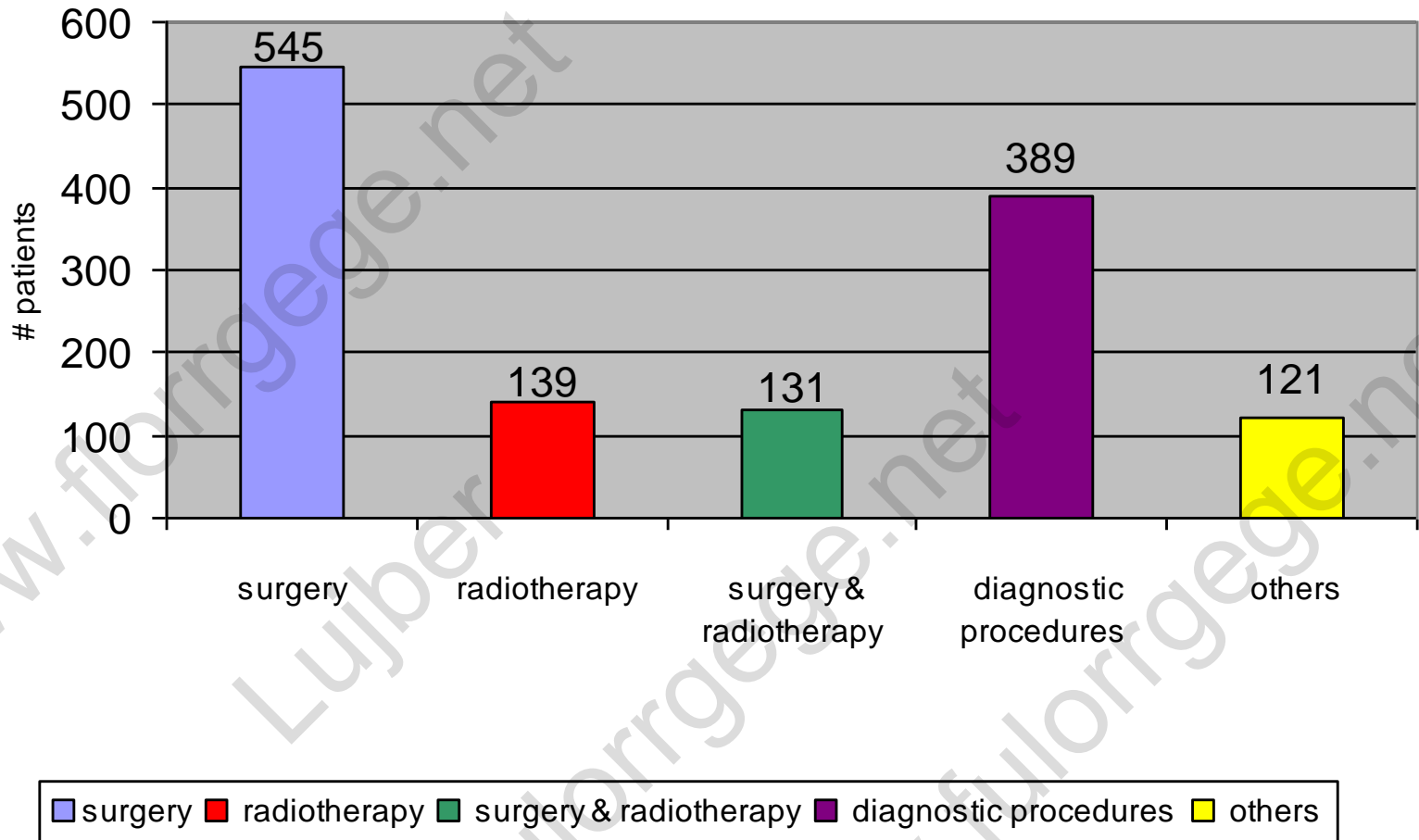
Tumor sites (males & females)



Tumor sites

— females — males

Treatments of tumor patients

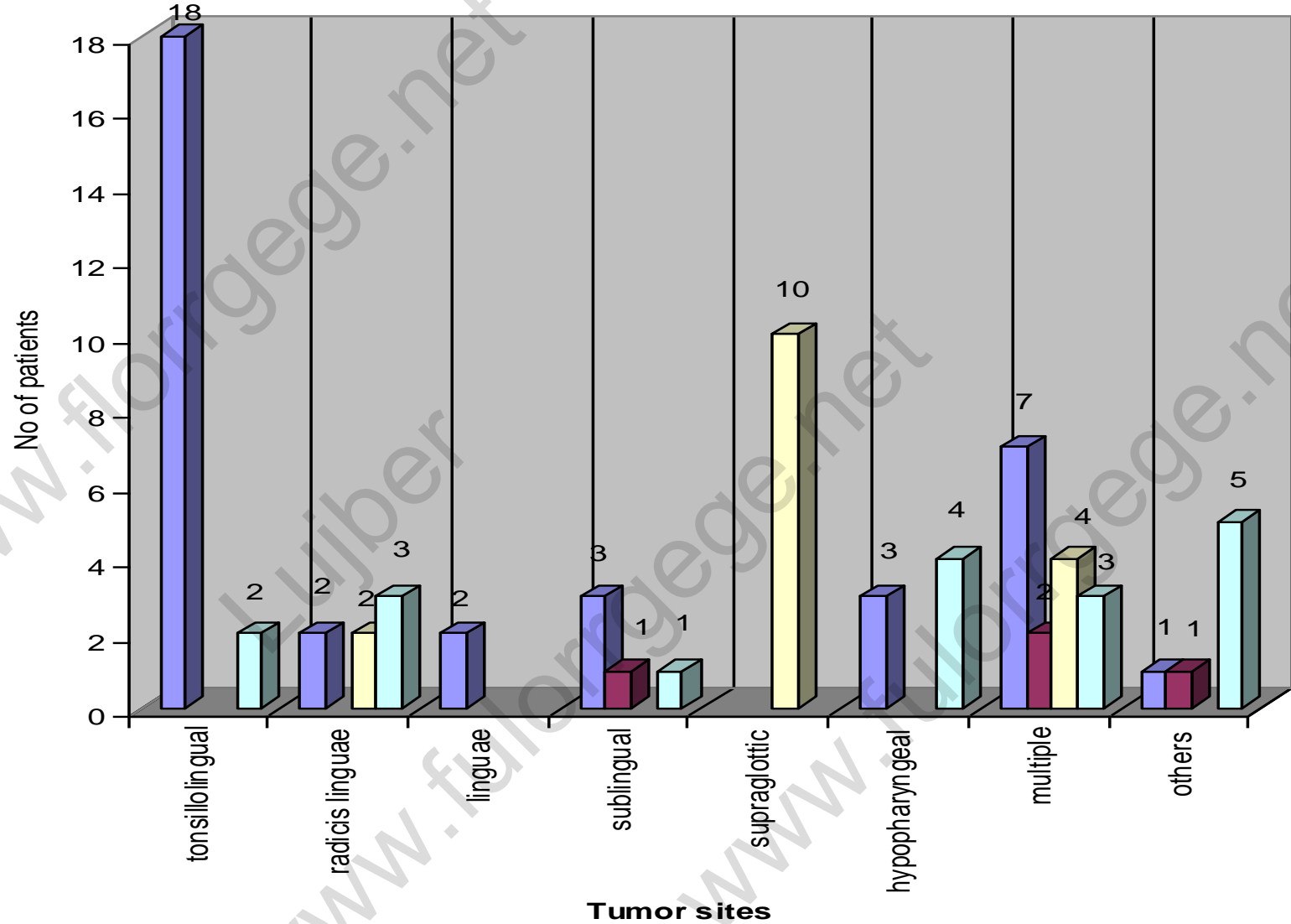


- 1325 H&N CA pts,
- 676 pts with surgery,
- 834 surgical events,
- 23 diff. surg. proc.,
- 559 artificial enteral nutrition (NGT, PEG...)

PEG: Patients and methods.

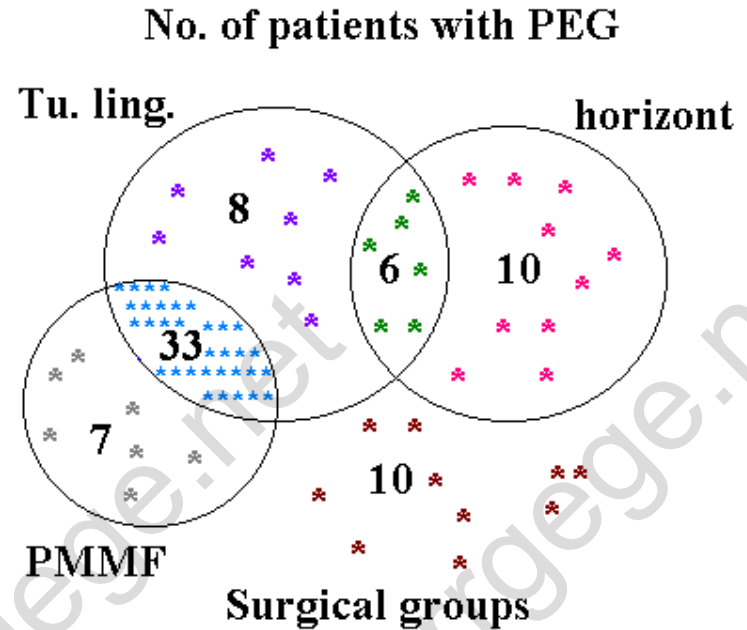
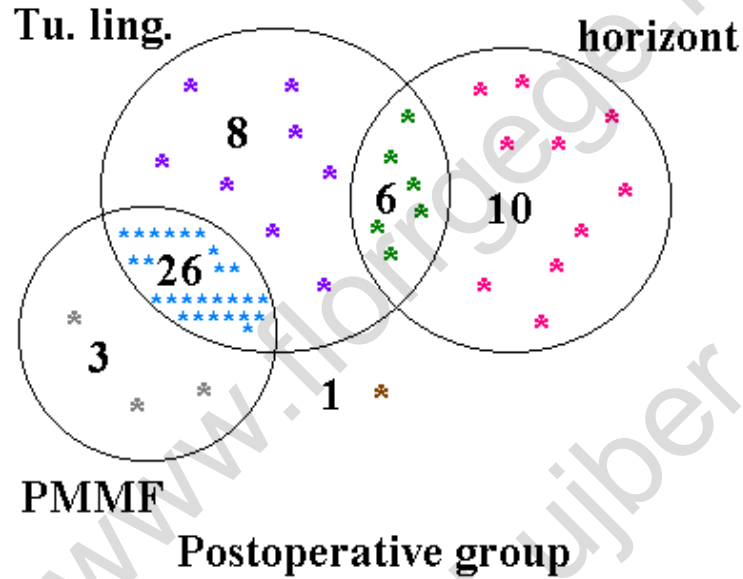
- Pécs University, Medical School, ENT Dept.
- 7 Jan 1997-31 Dec 2003 (7 yrs)
- 115 PEGs on 98 H&N Ca. pts.
- Mean age: ♂ 54 yrs (31-78); ♀ 62 yrs (48-76).
- Insertions: postop. 59; intraop. 10; preop. 5; palliative 24.
- Multiple PEG insertions carried out for 11 patients.
- "Pull back" and "Push" techniques were used.
- GA (33 pts).
- Antibiotic prophylaxis (79 pts).
- Laryngoscopy assistance in 10 cases.
- "Second-look" endoscopy was always performed at the end.

Tumor sites and surgeries of PEG patients



■ pectoralis major myocutaneous flap ■ forarm free flap
■ resectio horisontalis laryngis ■ others

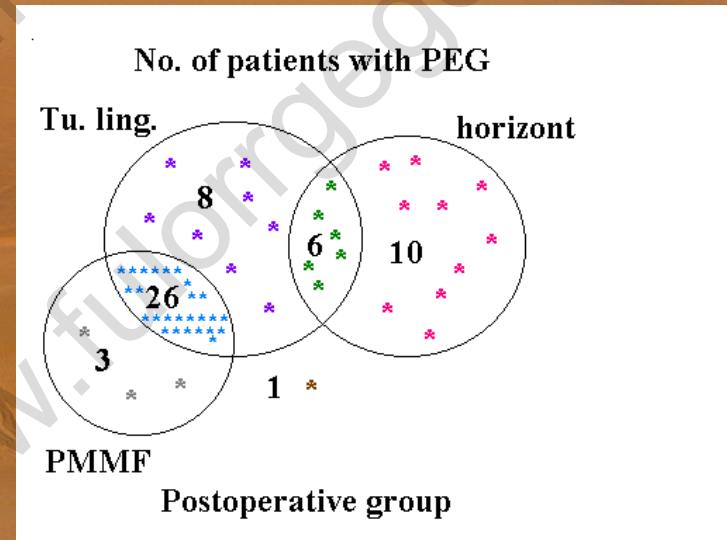
No. of patients with PEG



	Duration of PEG feeding (days)
Postoperative group	307 (6-2403)
Intraoperative group	316 (40-534)
Preoperative group	81 (10-143)

In Sum:

- 73% of patients who needed PEG postoperatively, had either carcinoma of the "tongue" or surgery with skin flap reconstruction.
- 30% of the patients in postoperative PEG group had previously horizontal supraglottic resections.
- 98 % of the patients had radical surgery of "tongue region" with or without flaps or underwent supraglottic horizontal resection.



Complications of PEG I.

Morbidity: 

- Minor ~ 5-15%
- Major ~ 3%

Mortality: 1-2 %

Complications of PEG II.

"In use"

- Feeding tube blockage (1 pt)
- Fracture (2 pts)
- Dislodgement (7 pts)
- Detachment of bumpers
- Deterioration of tubes

All changed to new
PEG

Complications of PEG III.

"Procedure-related"

- Peritubal leakage (4 pts)

(on day 3,6,37, 149 reinsert.)

- Local peritonitis? (2 pts)

(feeding tube removed for good)

- Wound infection at stoma site (4 pts)

(on day 4,4,5, 569 changed)

Systemic antibiotics

H-2 Blockers

Suspended enteral feeding

Local wound care

4 pts in the palliative group died on day 5, 5, 7, 13, of causes unrelated to PEG.

Overall procedure-related complication rate was **8.77%**.