Percutaneous endoscopic gastrostomy in head and neck malignancies

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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…

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Progressive protein-calorie malnutrition

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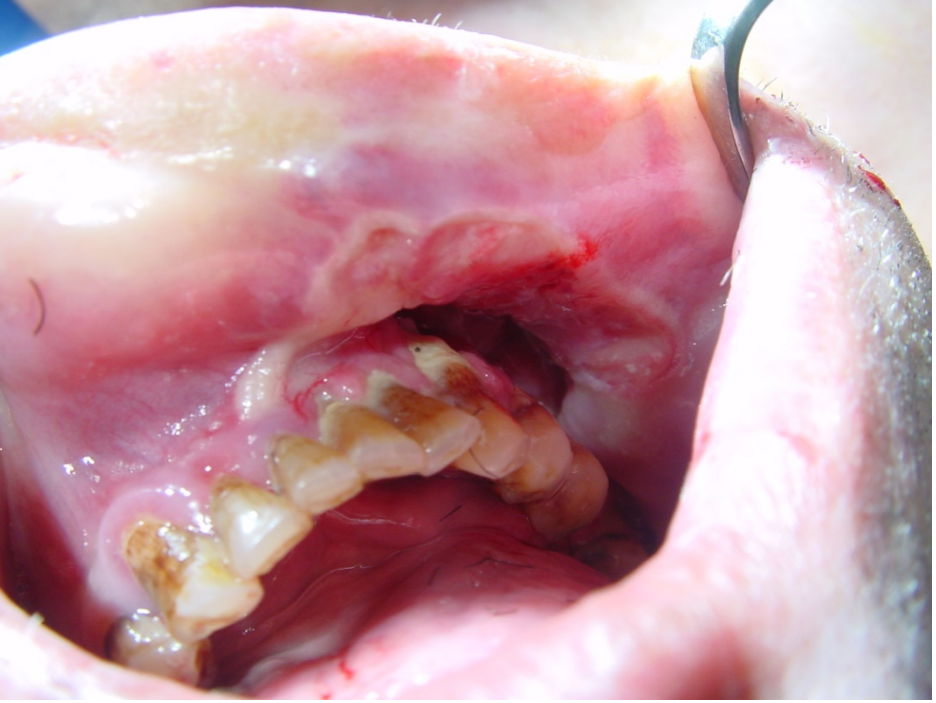
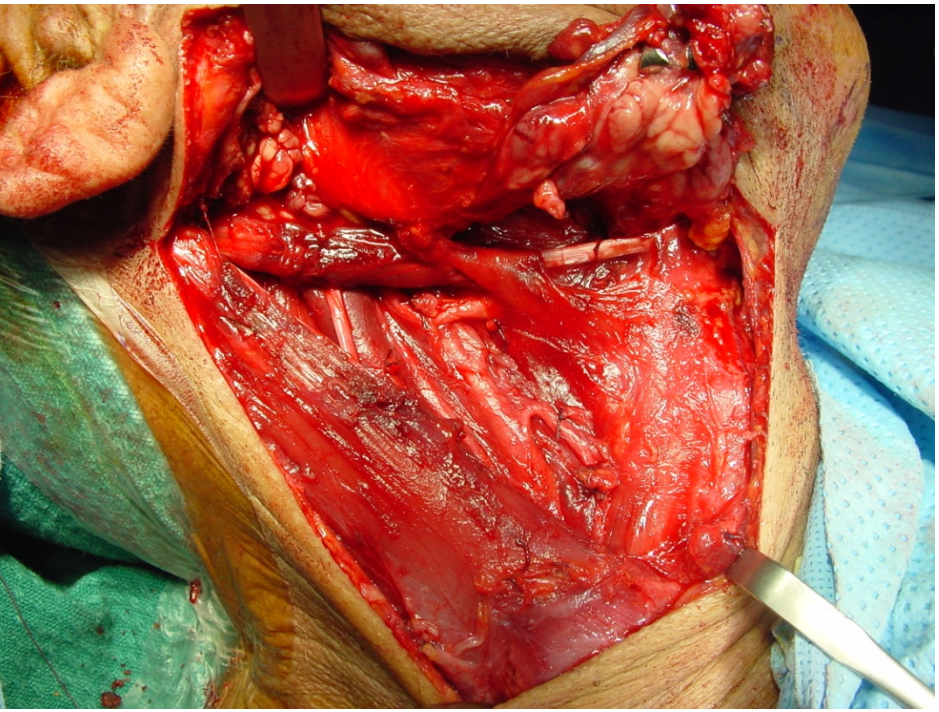
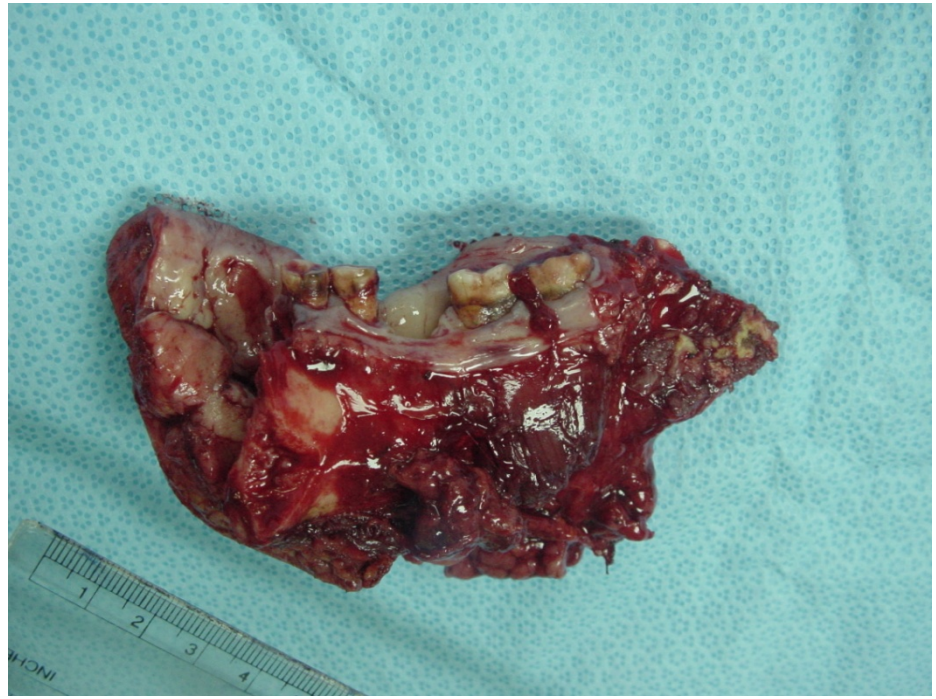
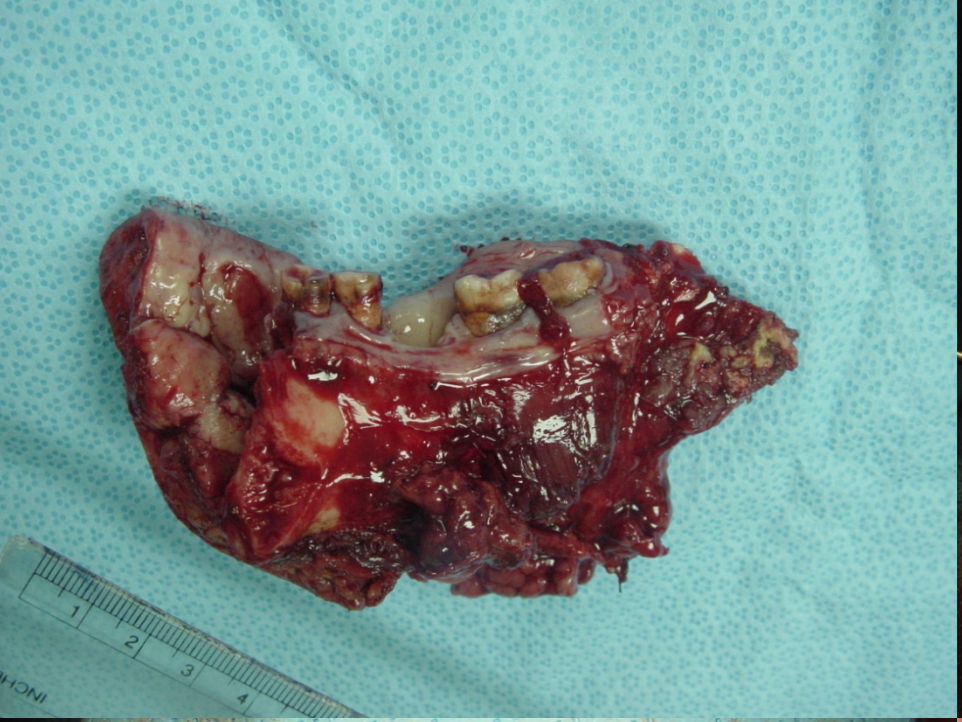
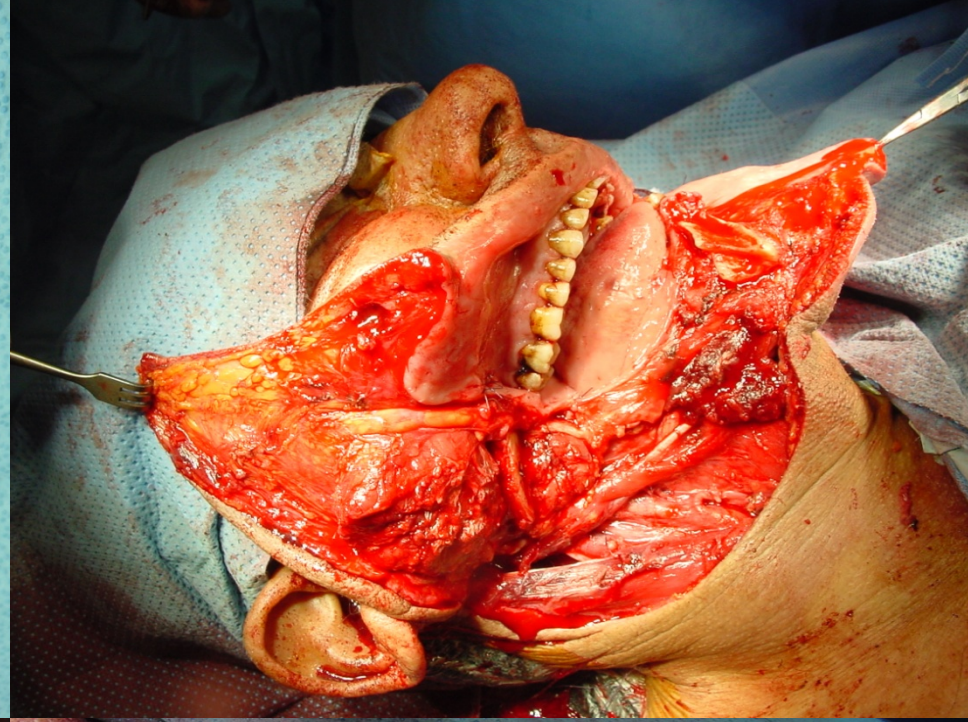
Depleted protein & fat stores > weight loss > immune functions ↓







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

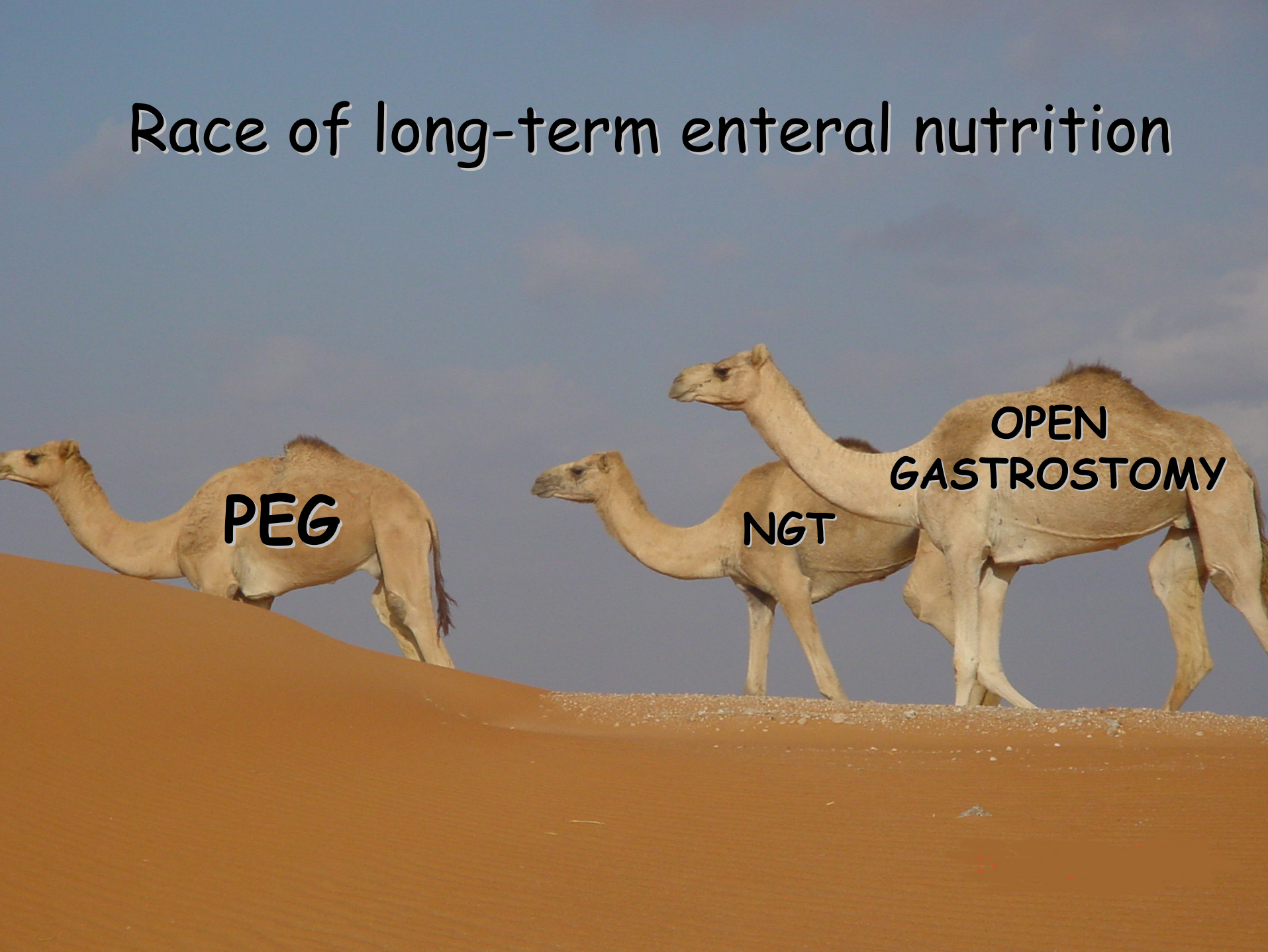
- More efficient feeding.
- Less side effects.
- Socially more acceptable.
- More comfortable

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

Surgical gastrostomy	PEG
Laparotomy	Direct access
Morbility- mortality rate higher	Less complications
Often general anesthesia / OR	Sedation / bedside
More cost, hospitalization ↑	Quicker procedure

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

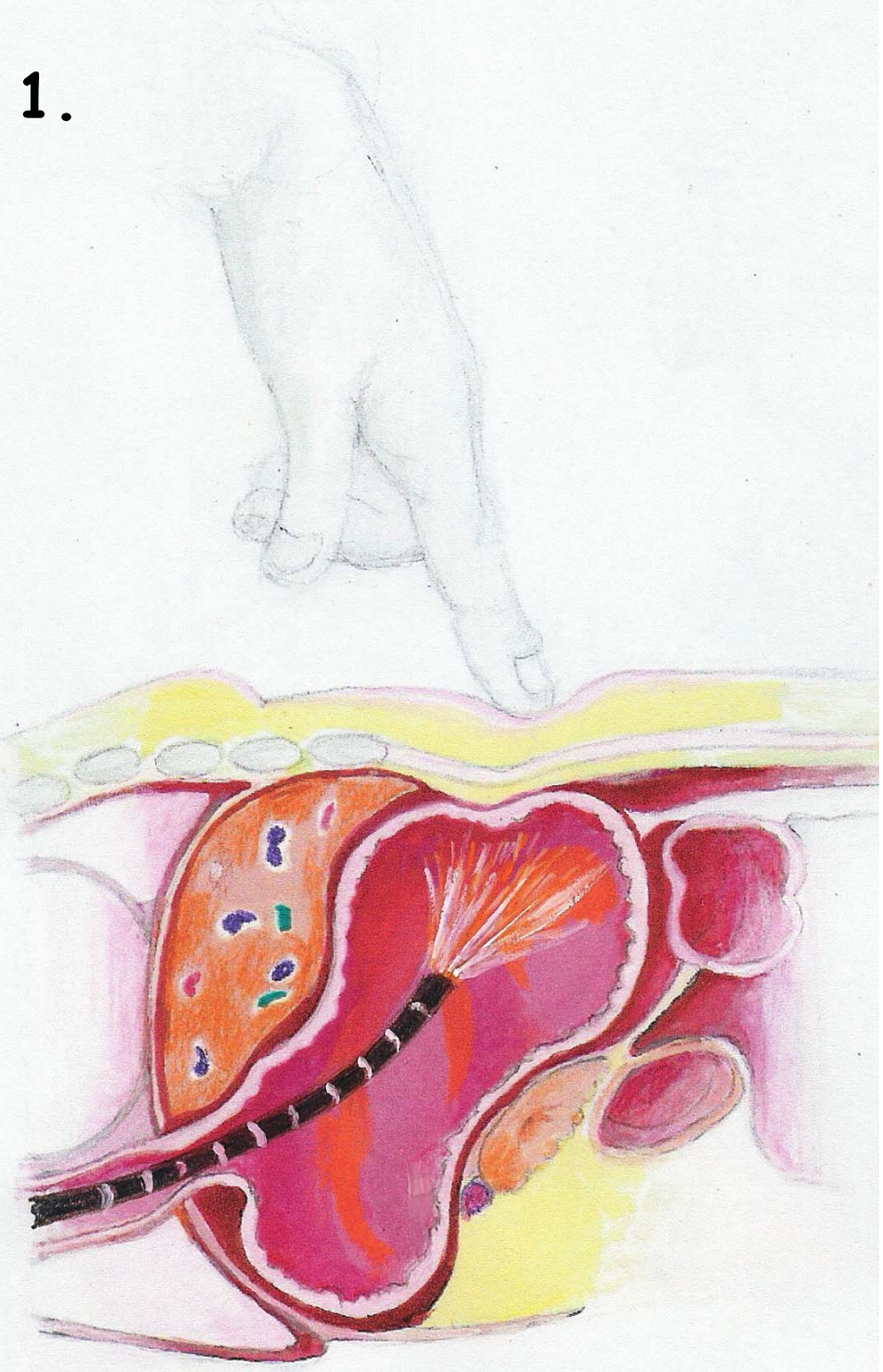
Race of long-term enteral nutrition



PEG techniques

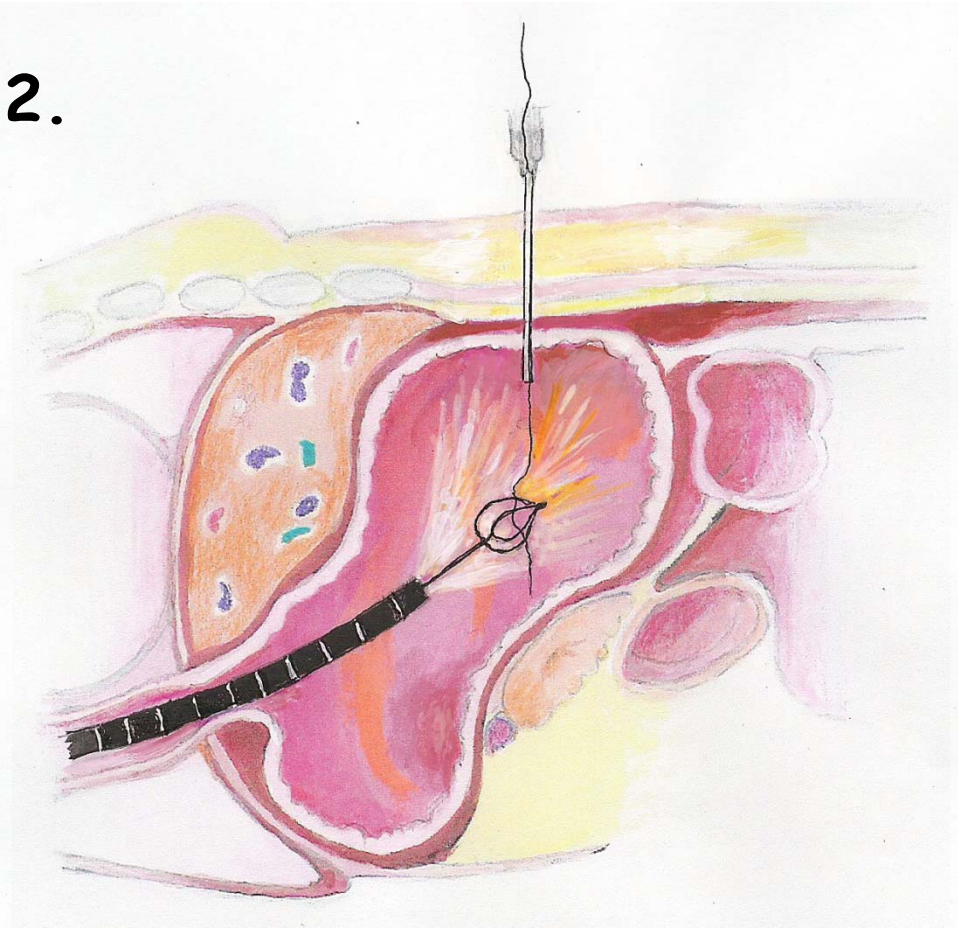
1. "Pull"
2. "Push"
3. "Introducer"

1.



" Pull-back" PEG. Surgical technique I.

2.



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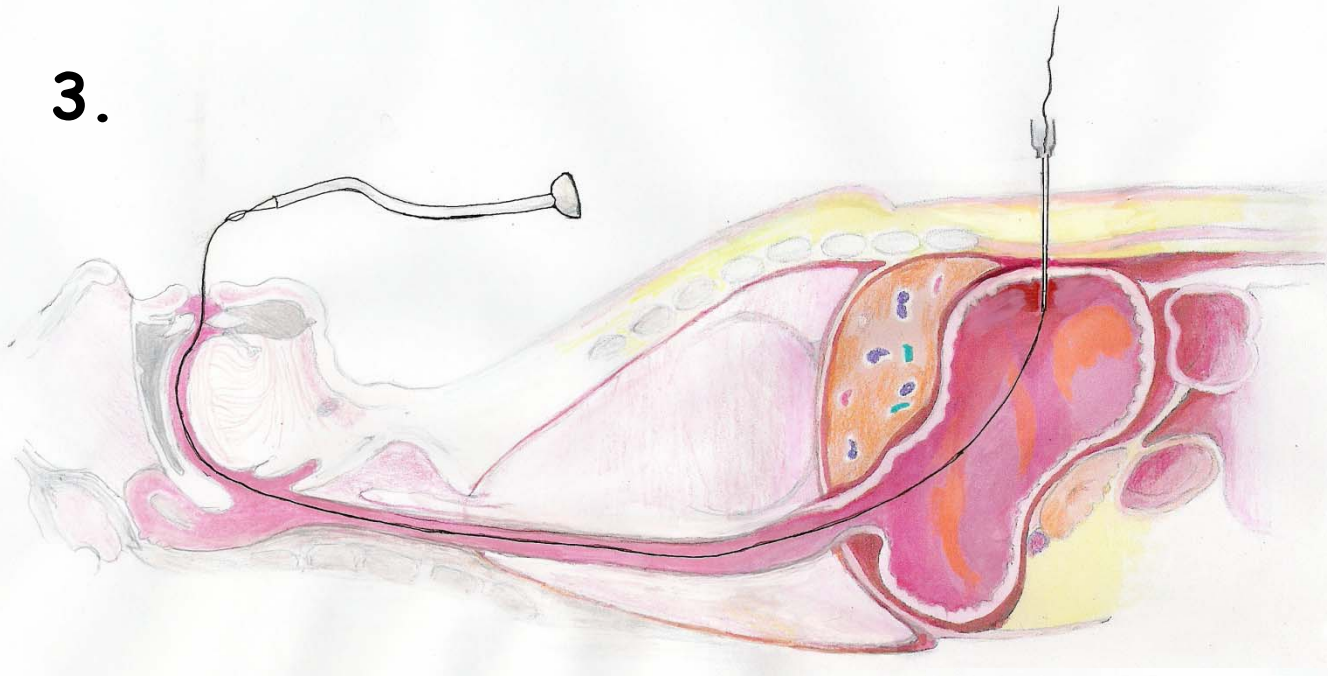
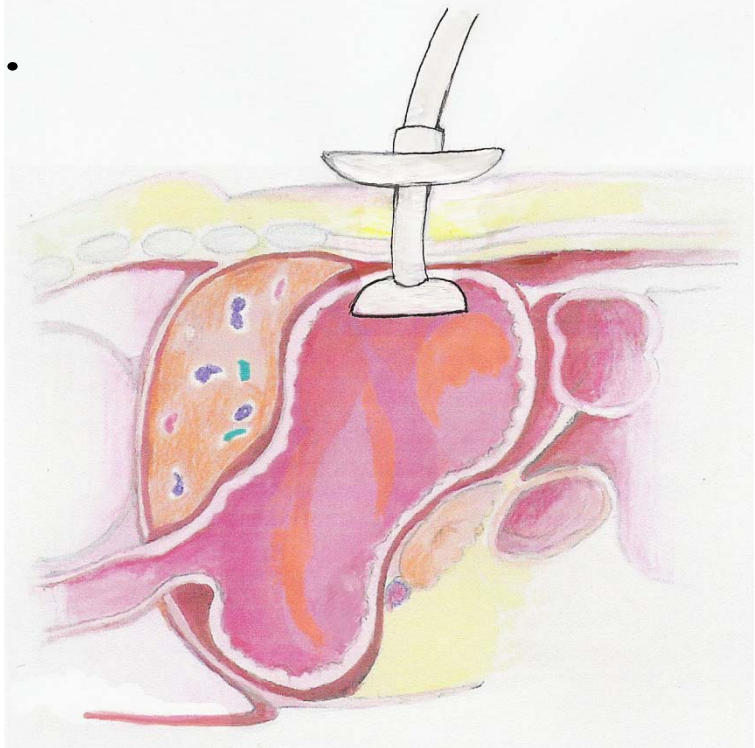


" Pull-back" PEG. Surgical technique II.

4.



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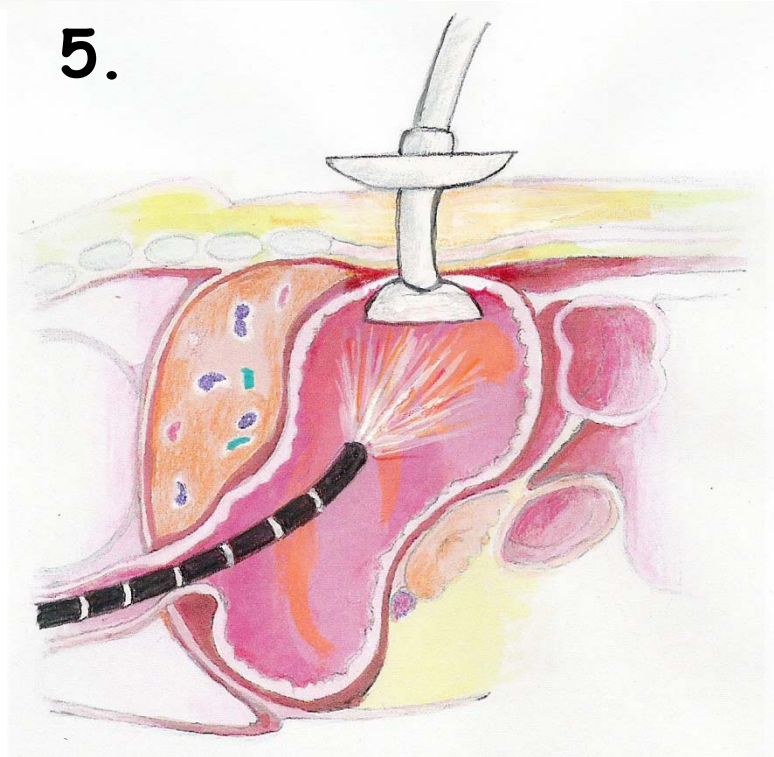


Head and neck cancer patients

P

E

G

-Insertion methods

-Placement routes

(huge tu. blockage, trismus…)

-Timing

-Indication

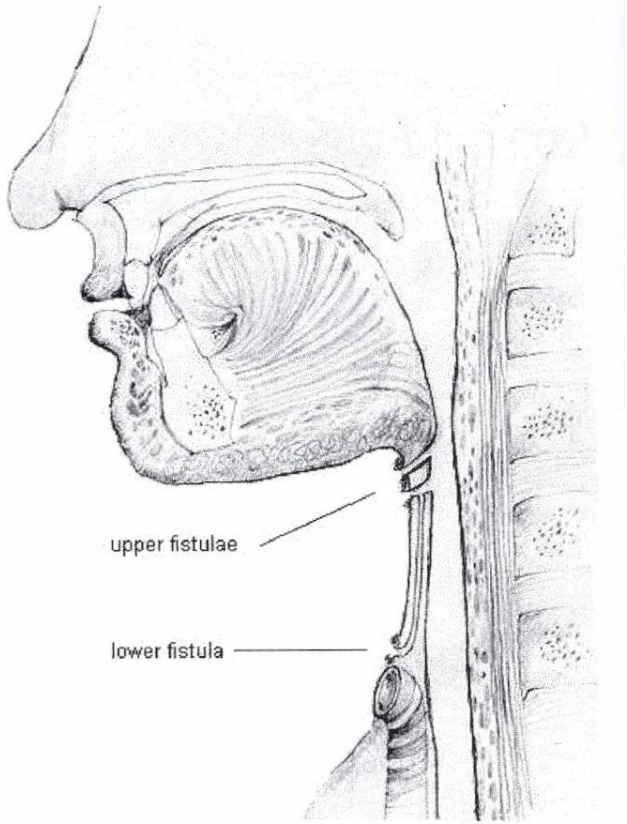
PLACEMENT ROUTES OF PEG

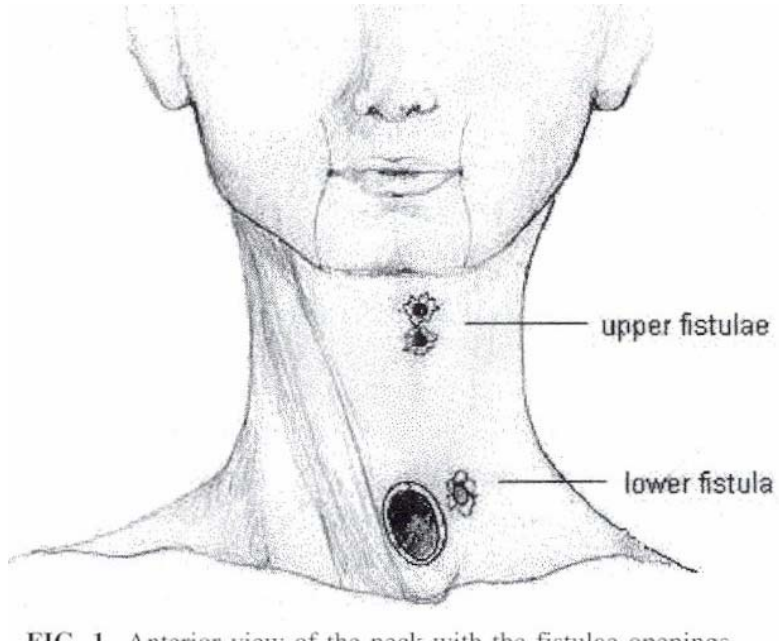
- Per oral with standard-size gastroscope
- Per oral with pediatric / ultra-thin gastroscopes
- Per oral-with assistance of Kleinsasser`s rigid laryngoscope
- Trans-nasal
- Via cervical fistula
- Trans-cervical during head and neck surgical procedure (intraoperative)

Advantages of intraoperative PEG

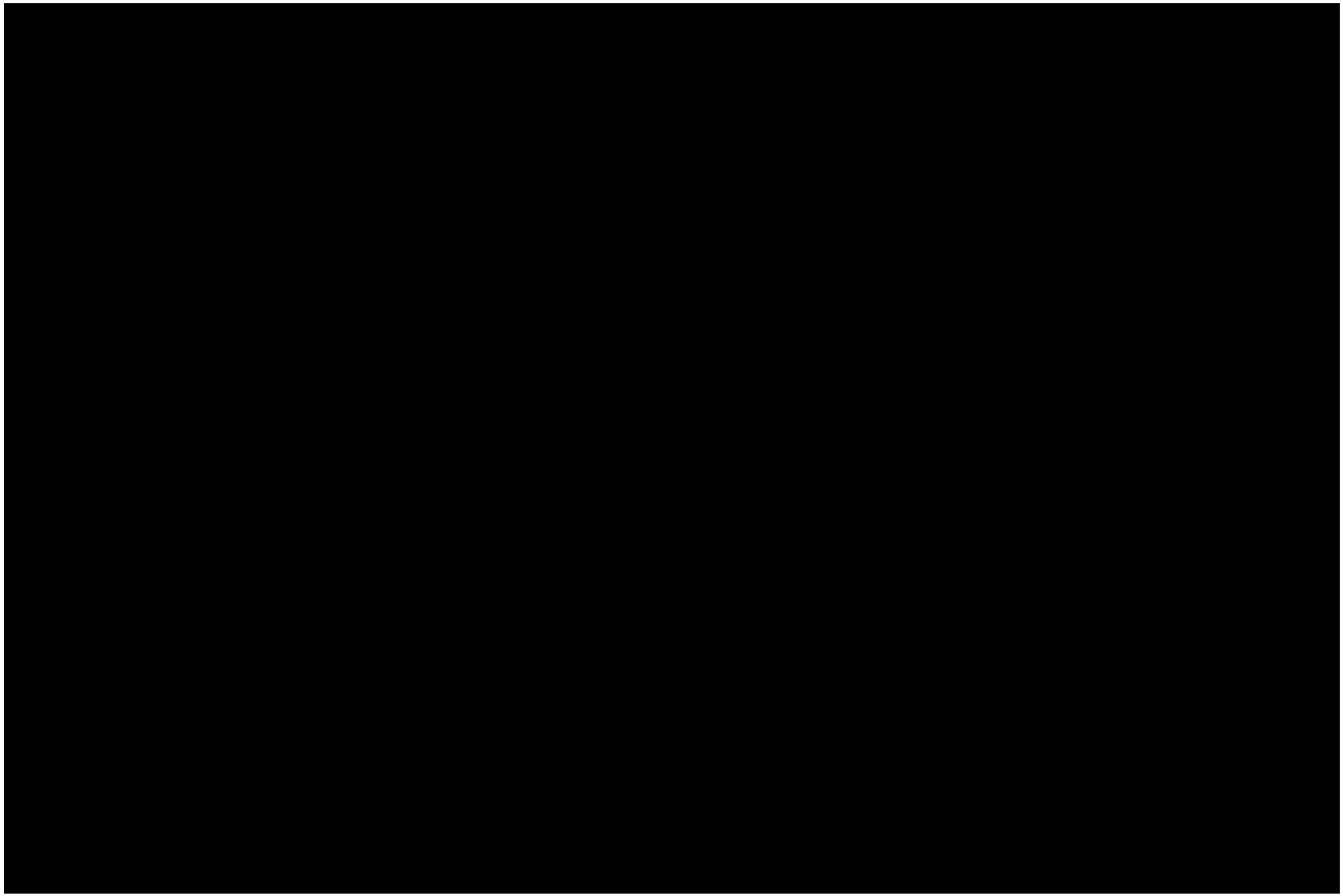
- Free passage for gastroscope and feeding tube.
- No tumor cell seeding.
- Less PEG-related complication.
- No additional discomfort for patient.

PEG via cervical pharyngo-cutaneous fistula





Reference: Lujber L., Fábián 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 Laparascopy, endoscopy & Percutaneous Techniques. 2001. 11(5):327-329.



Head and neck cancer patients

P

E

G

-Insertion methods

-Placement routes

-**Timing**

-Indication

Preoperative PEG	Rel. early start of nutr. supplement. Avoids additional surgical event.
Intraoperative PEG	Safer and easier procedure.
Postoperative PEG	"Rescue" procedure.

Head and neck cancer patients

P

E

G

-Insertion methods

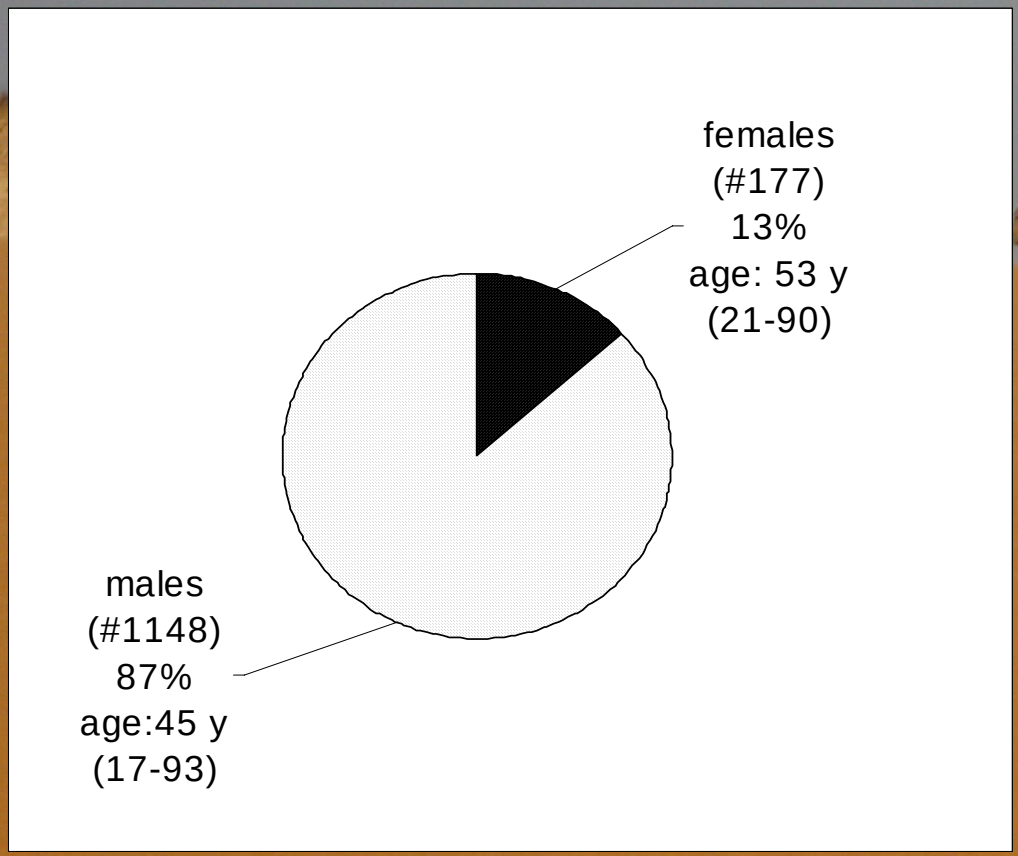
-Placement routes

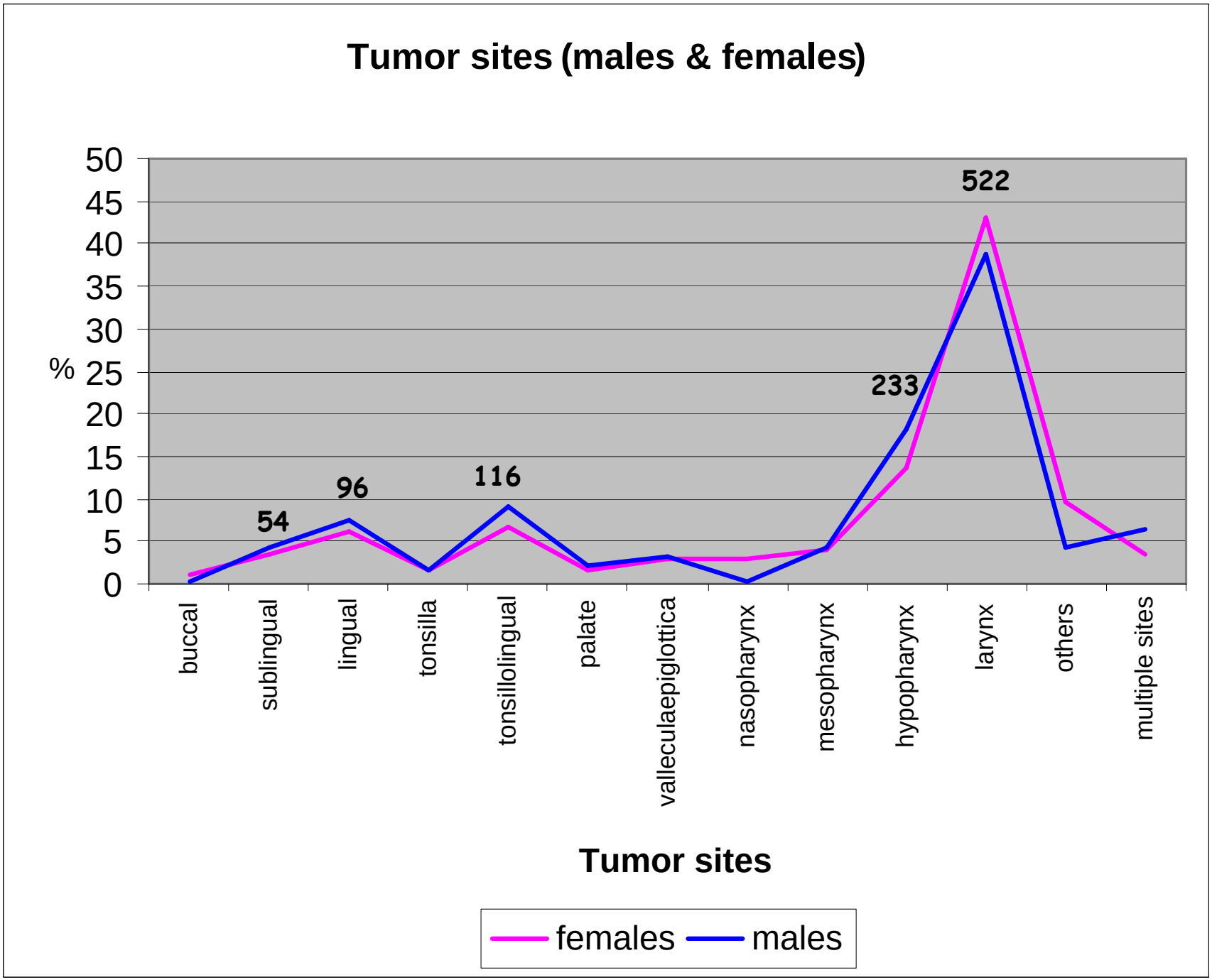
-Timing

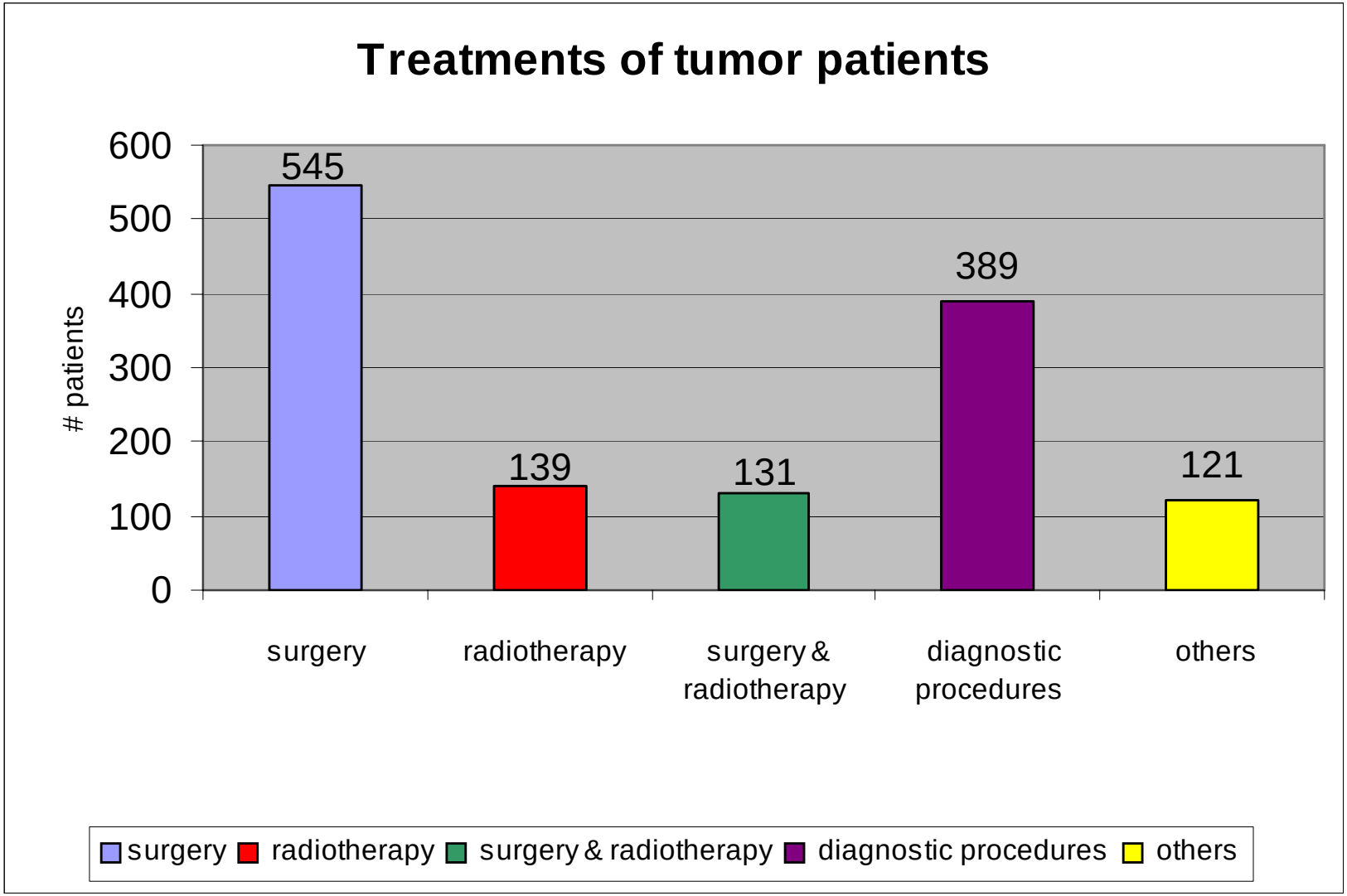
-Indication

CANCER REGISTRY

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




Tumor sites (males & females)
50
45
40
35
30
% 25
20
15
10
5
0
54
96
116
233
522
buccal
sublingual
lingual
tonsilla
tonsillolingual
palate
valleculaepiglottica
nasopharynx
mesopharynx
hypopharynx
larynx
others
multiple sites
Tumor sites
females
males

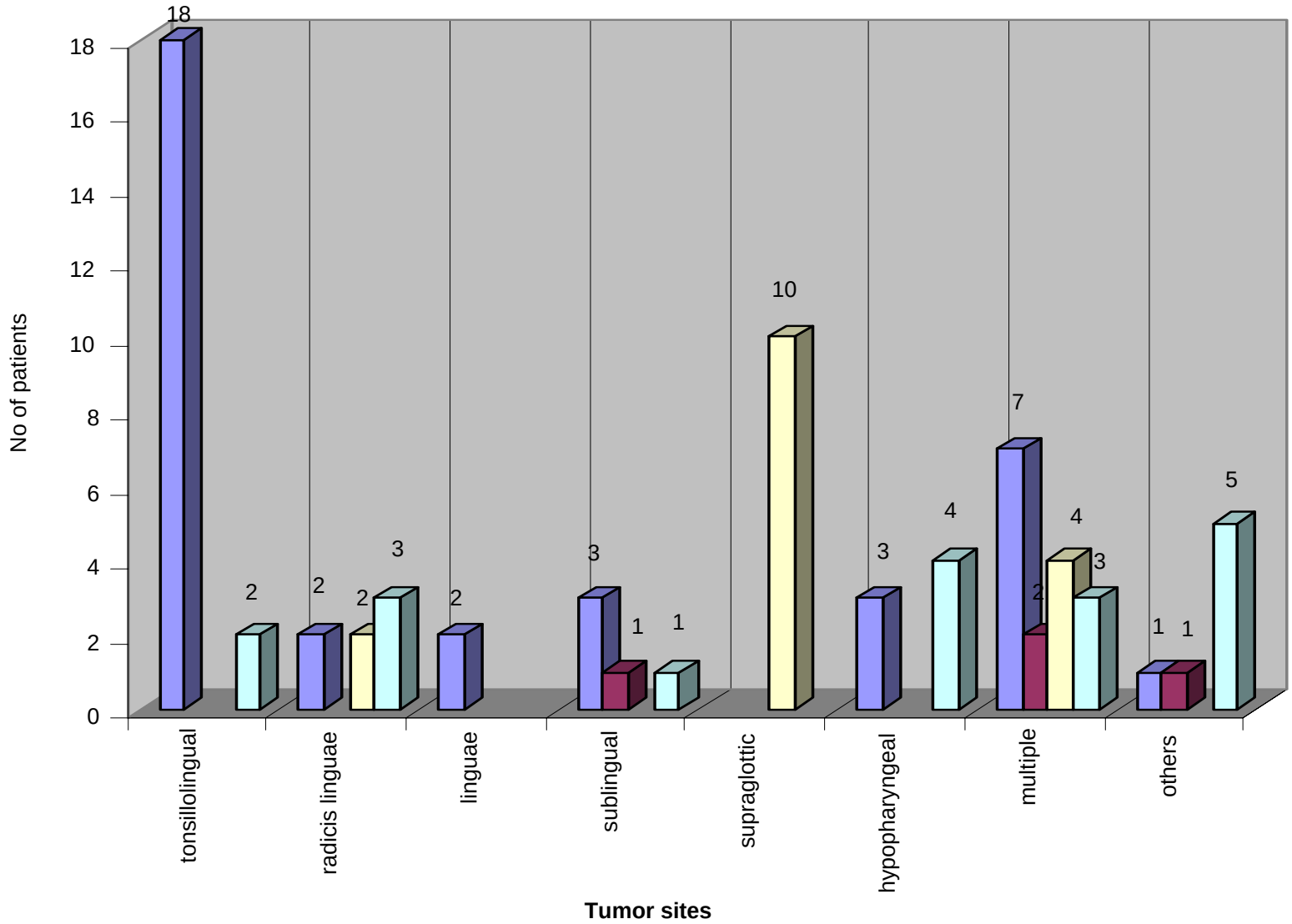


- 1325 H&N CA pts, • 676 pts with surgery, • 834 surgical events,
- 23 diff. surg. proc., • 559 artificial enteral nutrition (NGT, PEG…)

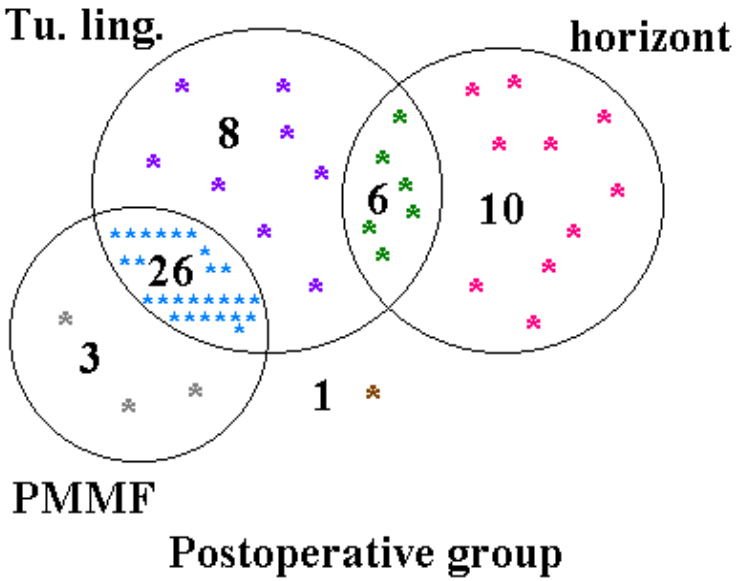
PEG: Patients and methods.

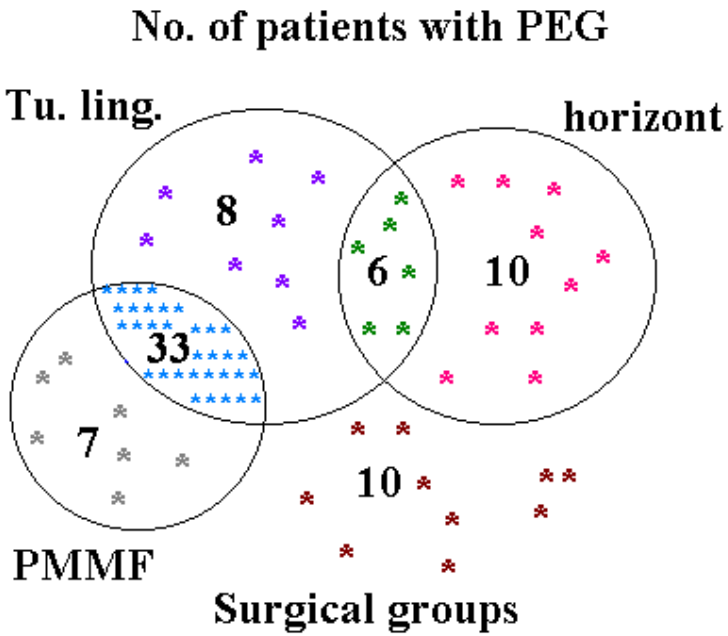
- Pécs University, Medical School, ENT Dept.
- 7 Jan 1997-31 Dec 2003 (7 yrs)
- 115 PEGs on 98 H&N Ca. pts.
- Mean age: ♂ 54 yrs (31-78); ♀ 62 yrs (48-76).
- Insertions: postop. 59; intraop. 10; preop. 5; palliative 24.
- Multiple PEG insertions carried out for 11 patients.
- "Pull back" and "Push" techniques 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



No. of patients with PEG

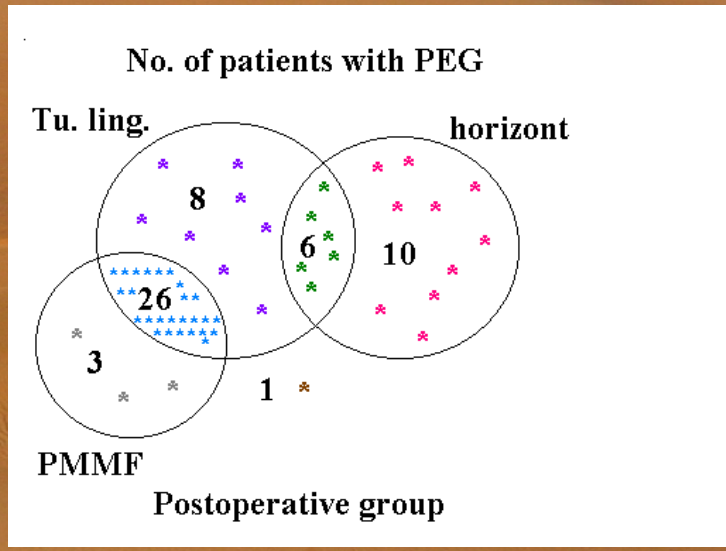




	Duration of PEG feeding (days)
Postoperative group	307 (6-2403)
Intraoperative group	316 (40-534)
Preoperative group	81 (10-143)

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%**.