95 % of HNC are squamous cell carcinoma (HNSCC)
90 % of HNSCC are due to tobacco consumption (± alcohol abuse)

⇒ high risk of second primary cancers (head & neck/esophagus/lung/bladder)

⇒ high frequency of comorbid illnesses
  • chronic obstructive broncho-pneumopathy
  • arteriopathy
  • liver dysfunction/cirrhosis
  • neuropathy
  • encephalopathy

2/3 of HNSCC are diagnosed at stage 3 or 4

⇒ 80 % regional involvement
⇒ 15 % distant metastases

⇒ combined therapies required
HNSCC management, the challenge:

- part of the body that is permanently uncovered (ie. visible)
- rich vasculature and innervation
- upmost importance in the daily life:
  - vital functions (deglutition, breathing)
  - social functions (speaking, hearing etc.)

⇒ An uncontroled evolution above the clavicles generates dreadful symptoms (dysfigurement, pain, bleeding, dyspnea, dysphagia etc.)

⇒ The sequels (cosmetic, functional) of treatment may also have a deleterious impact on quality of life.

Food intake:

Chewing:
- mobile tongue motion
- teeth/gum contact

Swallowing
- base of tongue
- larynx vertical motion
- glottis closure

Risks:
- malnutrition
- aspiration

Feeding tube
- rhinorrhea (if nasal tube)
- gastric incomfort
- perfusor dependency
- visible device (if nasal)
**Respiration**

**Breathing:**
- glottis opening

**Coughing/ spitting**
- glottis opening/closing
- base of tongue motion

**Risks**
- dyspnea
- bronchopneumopathy

**Tracheotomy/ stomy**
- bronchorrhea
- tracheal mucosal obstruction

- trach-tube maintenance/change
- tracheal spray/aspiration

- loss of normal voice/social isolation

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**Speaking**

**Elocution**
- lips
- teeth
- tongue (from tip to base according to language)

- pharynx (soft palate)

**Phonation**
- true vocal cords mobility

**Risks**
- impaired elocution/intelligibility
- dysphonia

**Voice rehabilitation**
- speech therapy
- esophageal voice/tracheo-esophageal prothesis/vibrator

- social isolation
Magnitude of the problem for head and neck cancer surgery in elderly patients:

Pro:
- postop morbidity lower than for other types of cancer surgery
- 95% of classes 1 and 2 (3) of Altmeier's scale
- rare hemodynamic shift
- short time before mobilization after surgery

Con:
- usual effects of ageing
  - impaired renal function
  - impaired immunologic competence
  - decreased cardiac and pulmonary reserve
  - atherosclerosis
  - impaired muscular and cutaneous tonicity
  - frequent malnutrition/dehydration
  - possibly decreased cognitive function
  - possible social deprivation/loneliness/depression
- tobacco/alcohol-related comorbidities
- unpredictable functional recovery
- possible neuropsychological impact of prolonged hospital stay

Minimally invasive head and neck surgery

- Transoral resection
- Endoscopic surgery
- Adenectomy/lumpectomy

≤ 1-hour procedure/GA
No trach/feeding tube
1-day hospital stay (max 2 days)
No postop adjuvant therapy

**No risk for postop complication**
**Limited open surgery**

- Oral/pharyngeal resection
- Partial laryngectomy
- Elective neck dissection

  Trach: rare  
  Feeding tube < 1 week  
  Suction drains 3 days  

  Postop stay 2-4 days  
  Postop RT if N+  

  **No major risk for postop complication**  
  **Possible transient minor aspiration**

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**Large open surgery**

- Transmandibular resection (± hemimandibulectomy)  
- Extended partial laryngectomy  
- Total laryngectomy  
- Radical neck dissection  
- Locoregional flap if any

  Temporary trach 1-2 weeks (permanent if total laryngectomy)  
  Feeding tube 1-2 weeks  
  Suction drains 3-4 days  

  Postop stay 1-2 weeks  

  **Possible salivary leakage/tissue necrosis**  
  **Possible lasting aspiration**  
  **Possible delay in oral intake recovery**  
  **Possible delay in trach removal**
Extended open surgery

Buccopharyngectomy
Extended total laryngectomy
Radical neck dissection

Pedicle or free flap

Temporary trach 1-2 weeks (permanent if total laryngectomy)
Feeding tube 1-2 weeks
Suction drains 3-4 days

Postop stay ± 2 weeks (if no complication)

Postop RT ± CT

Risk of healing concern/tissue necrosis/salivary leakage
Risk of aspiration
Cosmetic and functional sequels

Predictive factors for complications in elderly patients who underwent head and neck oncologic surgery


Retrospective study 242 pts ≥ 70 yrs (median 73.5 yrs, range 70-95)

Comorbidities in 212 pts (87.6 %)
- COPD 62 %, hypertension 46.3 %, cardiac disease 44.2 %
- diabetes mellitus 11.1 %, sequelae of cerebrovascular event 3.3 %

Postop complication in 137 pts (56.6 %)
- local complication 44.6 %, systemic complication 28.5 %

Postop death in 11 pts (4.6 %)

Predictive factors:
- male sex, bilateral ND, ≥ 2 comorbidities, reconstruction, stage IV
# Surgical outcomes in head and neck cancer patients 80 years of age and older


Retrospective study of 43 pts ≥ 80 yrs (median: 83 yrs, range: 80-93) compared with 79 similar pts ≤ 65 yrs (median: 56 yrs, range: 22-65)

**Comorbidities**
- ASA classes ≥ 3: 93 % in group 1 vs 63 % in group 2 (p< .001)

**Pathology:**
- no difference positive margins/perineural invasion/vascular embolisms
- no difference positive LN/extracapsular spread

**Postop complications:**
- Minor: 27.7 % in group 1 vs 22.6 % in group 2
- Major: 23.2 % in group 1 vs 20.2 % in group 2
  - cardiovascular/pulmonary: group 1 > group 2
  - wound –related: group 2 > group 1

**Survival:**
- OS, disease-specific S: group 1 < group 2
- OS group 1 similar to expected survival on cohort life statistics

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# Age as a prognostic factor for complications of major head and neck surgery


Retrospective study on 157 pts of whom 31 pts ≥ 70 yrs

**Major complications** (pneumonia, MRSA, myocardiac infraction, aspiration,delirium etc) occurred in 10 pts (6 %) while 57 pts (36 %) had minor/major complications.

**Factors associated with major complications:**
- time under GA
- comorbidity indexes
- **no correlation with age or sex**
Major surgery in elderly head and neck cancer patients: immediate and long-term surgical results and complication rates.


Retrospective study on 24 pts ≥ 70 yrs (median: 72.9 yrs, range 70-81)

En-bloc (T + N) resection (with flaps in 19 pts)

**Postop hospital stay:** 16 days (5-31)

**Complications** occurred in 15 pts (63 %), severe in 9 %

**Moderate and severe systemic complication correlated with**

comorbidities
advanced stages

**Moderate and severe surgical complication correlated with**

advanced stages
flap reconstruction

Complications of microvascular head and neck surgery in the elderly.


Retrospective study on 52 pts ≥ 70 yrs (median:74 yrs, range:70-82) and compared with 35 comparable pts < 70 yrs (median: 55 yrs, range: 3-69)

**Overall complication rate:** 48 % in group 1 vs 57 % in group 2

surgical morbidity: group 1 < group 2
medical morbidity: group 1 > group 2

**Mortality rate:** 6 % in group 1 vs 0 % in group 2

**Overall flap success rate:** 100 % in group 1 vs 94 % in group 2

**Factors correlating with complication:** ASA scores 3 and 4
Microvascular free tissue transfert in elderly patients: the Toronto experience.


Retrospective analysis of 288 intraoral free flaps in 4 groups of pts:

<table>
<thead>
<tr>
<th>Age (yrs)</th>
<th>No. pts</th>
<th>&lt; 50</th>
<th>51-60</th>
<th>61-70</th>
<th>&gt; 70</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>71</td>
<td>85</td>
<td>79</td>
<td>53</td>
</tr>
<tr>
<td>Preop medical problem:</td>
<td></td>
<td>18 %</td>
<td>46 %</td>
<td>58 %</td>
<td>58 %</td>
</tr>
<tr>
<td>Mortality:</td>
<td></td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>4 %</td>
</tr>
<tr>
<td>Morbidity:</td>
<td>Surgical complications flap loss:</td>
<td>7 %</td>
<td>6 %</td>
<td>8 %</td>
<td>4 %</td>
</tr>
<tr>
<td></td>
<td>minor:</td>
<td>21 %</td>
<td>14 %</td>
<td>28 %</td>
<td>13 %</td>
</tr>
<tr>
<td></td>
<td>Medical complications</td>
<td>3 %</td>
<td>11 %</td>
<td>16 %</td>
<td>19 %</td>
</tr>
<tr>
<td>Hospital stay (days)</td>
<td></td>
<td>15</td>
<td>17</td>
<td>20</td>
<td>22</td>
</tr>
</tbody>
</table>

Head and neck free-flap reconstruction in the elderly.


Retrospective study on 418 pts who underwent free-flap, of whom 95 pts were ≥ 70 yrs.

Local complications: 32 % in pts < 70 yrs vs 31 % in patients ≥ 70 yrs circumferential pharyngolaryngectomy salvage surgery

General complications: 10 % in pts < 70 yrs vs 21 % in patients ≥ 70 yrs (no difference in postop death rate) comorbidities
**Decision making**

**Multidisciplinary discussion**
- head and neck surgeon/radiation oncologist/medical oncologist
- internist/anesthesiologist/oncogeriatrist
- radiologist/biologist
- supportive care providers
- + patient and relatives

**Physiologic performance >>>> chronologic age**
- comprehensive geriatric assessment/cormorbidities scales

**To be taken into consideration:**
- surgery vs non surgical alternative
  - chances for satisfactory margins
  - risks of salvage surgery
  - length of procedure (ie. time under GA)
  - foreseeable functional recovery and hospital stay
- role of family and social network
- patient’s motivation and wishes

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**Once surgery is decided:**

**Preop phase:**
- identification of co-morbidities
- identification of current medications (anticoagulant drugs)
- nutritional balance
- hydratation

**Peroperative phase:**
- cardiac monitoring
- O² saturation

**Postoperative phase:**
- limited use of anxiolytics
- cognitive functions evaluation
- bronchial hygiene
- kinesitherapy
- speech therapy (phonation, swallowing)
- rapide ambulation
- diuresis control (uroscan)
- postop stay as short as possible
**Conclusion:**

Head and neck cancer surgery (even major surgery) is feasible in elderly patients, pending a thorough preoperative workup (geriatric assessment)

Factors associated with postop morbidity:
- co-morbidities
- length of procedure

In general head and neck surgery is associated with less postop morbidity than other surgeries but with more functional sequelae