Advances in the Treatment of Head & Neck cancer

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Macmillan Head & Neck CNS
Aims

- To provide a brief revision of Head & Neck anatomy and background statistics
- To demonstrate the processes within a diagnosis of Head & Neck cancer
- To examine our current treatment options
- To explore the latest developments in treating Head & Neck cancer
What is Head & Neck Cancer?

Head & Neck cancer consists of a group of tumours involving various tissues and organs within this anatomical area. This group comprises cancers of the lip, tongue, major salivary glands, gum, floor of mouth, other parts of the mouth, oropharynx, oral cavity and pharynx, nasal cavities, middle ear, sinuses and larynx.

(SCOTTISH AUDIT OF HEAD & NECK CANCER 1999 – 2002)
Oral / Oropharyngeal Cancer

- 1200 new registrations per year in Scotland.
- 600 Treated in WoS.
- 6% of all cancers, 5% of all cancer deaths worldwide
- Increasing incidence (younger, both sexes)
- 90% Squamous Cell Carcinoma
- Disease of deprivation
- 3/ 100,000 male deaths
5 year survival worldwide 46%
75% oral/oropharynx. 25% laryngeal Ca
¾ of head and neck cancers attributable to cigarettes and alcohol use.
Synergistic (16x more likely to get SCC)
Biggest risk is previous SCC (4% per year).
Aetiological factors
Aetiological factors

- Lifestyle
- Oral hygiene
- Smoking
- Alcohol
- Betel / pan
- Poor diet
- Chemical exposure
- Viral Infection – HIV, EBV and HPV
Swelling.
A lump or bump on lips, gums or inside the mouth.
White, red or dark patch.
Ongoing soreness in the mouth or throat.

(WoSCAP 2003)
Diagnosing Head & Neck Cancer

- Late Presentation
- Clinical Examination
- EUA and Biopsy
- Radiological Investigations
- Other pre-op investigations
- Multidisciplinary Team Meetings
- Treatment Decision
Treatment Options

- Surgery (Free flap)
- Radiotherapy
- Chemotherapy
- Palliative Care
- Combination of the above
Free Flaps

- A piece of tissue (skin, muscle, bone) taken from one area of the body, complete with it’s blood supply, then moved to the head & neck region to rebuild the tissue that has been removed due to cancer surgery.

- Using microsurgery techniques the blood supply is re-established to the flap tissue ensuring survival of the transferred tissue at it’s new site.
Flap donor sites
Aims of treatment

- Diagnosis & staging
- Excise the tumour
- Reconstruct the defect
- Restore function
- Aesthetic result
- Symptom management
- Maintain quality of life
- Rehabilitation – begins at diagnosis, holistic, involves MDT
Quality of Life

- Emotional
- Social
- Psychological
- Spiritual
- Patient & Family
- Physical
- Cosmesis
- Financial
- Intellectual
Then....
Now.....
Fact and Figures – the Future

- 4999 new patients between 1996 – 2000
- Predicted numbers between 2016 - 2020
  = 6571
- 31.4% difference

ISD Scotland 2007
<table>
<thead>
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<th>Year (01 April – 31March)</th>
<th>SGH</th>
<th>GRI</th>
<th>GRI FACIAL PALSY</th>
<th>TOTAL</th>
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<td>2009 - 2010</td>
<td>223</td>
<td>89</td>
<td>X</td>
<td>312</td>
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<tr>
<td>2010 - 2011</td>
<td>266</td>
<td>126</td>
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<td>2011 - 2012</td>
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<td>2012 - 2013</td>
<td>200</td>
<td>124</td>
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<td>394</td>
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<tr>
<td>2013 - 2014</td>
<td>234</td>
<td>141</td>
<td>27</td>
<td>402</td>
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<tr>
<td>2014 - 2015</td>
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<td>2015 - 2016</td>
<td>309**</td>
<td>**</td>
<td>2</td>
<td>311</td>
</tr>
<tr>
<td>2016 - 2017</td>
<td></td>
<td></td>
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New kids on the block?

- Home Risk Calculator
- Guidelines
- Multidisciplinary Team improvements
- Enhanced Recovery After Treatment (ERAS)
- New types of flaps
- Intensity modulated radiation therapy (IMRT)
- Survivorship initiatives / collaboration
- Scottish surgical quality collaborative for Head & Neck Cancer
- Research participation
Home Risk Calculator
Symptom Based Risk Calculator for Head And Neck Cancer Referral Calculator »

http://www.orlhealth.com/index.html
Guidelines

- Clinical Management Guidelines (CMG) — West of Scotland Cancer Network 2016
- Quality Performance Indicators (QPI) — Healthcare Improvement Scotland April 2014
- National Minimum Core Dataset for Head & Neck Cancer (Tumour codes for Head & Neck cancer sub sites) — ISD Scotland, 2014
- New National Head & Neck Guidelines
Quality Performance Indicators for Head and Neck Cancer

- QPI 1: Pathological Diagnosis of Head and Neck Cancer
- QPI 2: Imaging
- QPI 3: Multi-Disciplinary Team Meeting (MDT)
- QPI 4: Smoking Cessation
- QPI 5: Oral Assessment
- QPI 6: Nutritional Screening
- QPI 7: Specialist Speech and Language Therapist Access
- QPI 8: Surgical Margins
- QPI 9: Intensity Modulated Radiotherapy (IMRT)
- QPI 10: Post Operative Chemoradiotherapy
- QPI 11: 30 Day Mortality
## Codes and Values:

<table>
<thead>
<tr>
<th>ICD-10 Code</th>
<th>Value</th>
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<tbody>
<tr>
<td>Oral Cavity</td>
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</tr>
<tr>
<td>C00.3</td>
<td>Lip, inner aspect, mucosa of upper</td>
</tr>
<tr>
<td>C00.4</td>
<td>Lip, inner aspect, mucosa of lower</td>
</tr>
<tr>
<td>C00.5</td>
<td>Lip, inner aspect, unspecified</td>
</tr>
<tr>
<td>C02.0</td>
<td>Tongue, dorsal surface, anterior 2/3</td>
</tr>
<tr>
<td>C02.1</td>
<td>Tongue, lateral border, tip of tongue</td>
</tr>
<tr>
<td>C02.2</td>
<td>Tongue, ventral, inferior surface</td>
</tr>
<tr>
<td>C02.3</td>
<td>Anterior parts of tongue, part unspecified</td>
</tr>
<tr>
<td>C02.8</td>
<td>Overlapping lesion of tongue</td>
</tr>
<tr>
<td>C02.9</td>
<td>Tongue, unspecified</td>
</tr>
<tr>
<td>C03.0</td>
<td>Upper gum (including alveolar ridge and gingival)</td>
</tr>
<tr>
<td>C03.1</td>
<td>Lower gum (including alveolar ridge and gingival)</td>
</tr>
<tr>
<td>C03.9</td>
<td>Gum, unspecified</td>
</tr>
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</table>
TNM Classification of Malignant Tumours (7th Edition, UICC, 2009)

- **Primary Tumour (T)**
  - T1 Tumour 2cm or less in greatest dimension
  - T2 Tumour more than 2cm but not more than 4cm in greatest dimension
  - T3 Tumour more than 4cm in greatest dimension
  - T4a Tumour invades through cortical bone, into deep/extrinsic muscle of tongue (genioglossus, hypoglossal, palatoglossus, and styloglossus), maxillary sinus, or skin of face
  - T4b Tumour invades masticator space, pterygoid plates, or skull base, or encases internal carotid artery
  - Note: Superficial erosion alone of bone/tooth socket by gingival primary is not sufficient to classify a tumour as T4.
Regional Lymph Nodes (N)
- NX Regional lymph nodes cannot be assessed
- N0 No regional lymph node metastasis
- N1 Metastasis in a single ipsilateral lymph node, 3cm or less in greatest dimension
- N2 Metastasis as described below:
  - N2a Metastasis in a single ipsilateral lymph node, more than 3cm but not more than 6cm in greatest dimension
  - N2b Metastasis in multiple ipsilateral lymph nodes, none more than 6cm in greatest dimension
  - N2c Metastasis in bilateral or contralateral lymph nodes, none more than 6cm in greatest dimension
- N3 Metastasis in a lymph node more than 6cm in greatest dimension
- Note: Midline nodes are considered ipsilateral nodes.

Distant Metastasis (M)
- M0 No distant metastasis
- M1 Distant metastasis
Multidisciplinary Team

- Centralisation of Head & Neck Services at Queen Elizabeth University Hospital (QEUH)
- Reconfiguration of MDT – from 3 sites to 2 (North and South)
- Addition of new Palliative Care Consultant to team
- Addition of Specialist Pain CNS
- Early Dental Assessment
- Improved communication - electronic Outcome Summaries, stored on Portal and sent electronically to GP practice
- Monthly Mortality and Morbidity meetings to review complications using Clavien-Dindo Scoring system
The Clavien-Dindo Classification of Surgical Complications

<table>
<thead>
<tr>
<th>Full Scale</th>
<th>Contracted Form</th>
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</thead>
<tbody>
<tr>
<td>Grades</td>
<td>Definition</td>
</tr>
<tr>
<td>Grade I:</td>
<td>Any deviation from the normal postoperative course without the need for pharmacological treatment or surgical, endoscopic and radiological interventions.</td>
</tr>
<tr>
<td></td>
<td>Allowed therapeutic regimens are: drugs as antiemetics, antipyretics, analgetics, diuretics and electrolytes and physiotherapy. This grade also includes wound infections opened at the bedside.</td>
</tr>
<tr>
<td>Grade II:</td>
<td>Requiring pharmacological treatment with drugs other than such allowed for grade I complications. Blood transfusions and total parenteral nutrition are also included.</td>
</tr>
<tr>
<td>Grade III:</td>
<td>Requiring surgical, endoscopic or radiological intervention</td>
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<tr>
<td>-----------</td>
<td>------------------------------------------------------------</td>
</tr>
<tr>
<td>Grade III-a:</td>
<td>intervention not under general anesthesia</td>
</tr>
<tr>
<td>Grade III-b:</td>
<td>intervention under general anesthesia</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade IV:</th>
<th>Life-threatening complication (including CNS complications)‡ requiring IC/ICU-management</th>
<th>Grade IV:</th>
<th>Grades IVa &amp; IVb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade IV-a:</td>
<td>single organ dysfunction (including dialysis)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade IV-b:</td>
<td>multi organ dysfunction</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Grade V:</th>
<th>Death of a patient</th>
<th>Grade V:</th>
<th>Same as for Full Scale</th>
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<tbody>
<tr>
<td>Suffix 'd':</td>
<td>If the patient suffers from a complication at the time of discharge, the suffix “d” (for ‘disability’) is added to the respective grade of complication. This label indicates the need for a follow-up to fully evaluate the complication.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The enhanced recovery programme is about improving patient outcomes and speeding up a patient’s recovery after surgery. It results in benefits to both patients and staff. The programme focuses on making sure that patients are active participants in their own recovery process. It also aims to ensure that patients always receive evidence based care at the right time.

Outcomes of the enhanced recovery programme are:
Better outcomes and reduced length of stay
Increased numbers of patients being treated (if there is demand) or reduced level of resources necessary
Better staffing environment.

There are four elements to the enhanced recovery programme:
1. Pre-operative assessment, planning and preparation before admission.
2. Reducing the physical stress of the operation.
3. A structured approach to immediate post-operative and during (peri-operative) management, including pain relief.
4. Early mobilisation.
Improvements in Flap repair

- 3D Imaging and Models
- Medial Sural Artery Perforator Flap (MSAP)
- Lateral Arm Flap
- Bespoke Flaps
Template for 3-D Flap reconstruction

- Oral layer
- Tuberosity
- Tonsil/lat pharynx
- Buccal
- Lingual sulcus
- Nasal layer
- Lateral pharynx
- Tongue base
- Lateral oral tongue

8 cm width by 14 cm Length
Nasal layer of soft palate
Buccal tissue
Tongue base
Vallecula
IMRT

- Intensity modulated radiation therapy

Goals of IMRT:
- Improves target volume and localisation
- Reduces toxicity by improved dose distribution to organs at risk
- Allows for higher dose of radiotherapy to be administered to the tumour
- Where conventional radiotherapy uses 2-3 fields IMRT uses 5-9 fields allowing for more accurate dose distribution of radiation
Unlike conventional approaches, IMRT conforms the radiation dose to the shape of the target tissues in 3-dimensions, reducing the dose delivered to the nearby normal tissues including the salivary glands. IMRT has been shown to have less damage to the salivary glands.
Survivorship initiatives / collaboration

- Health Improvement Scotland
- What matters to you?
- Transforming Care After Treatment (TCAT) –
- Macmillan Long Term Conditions
- Improving the Cancer Journey
- Research - Napier University – Holistic Needs Assessment
Towards a Scottish Head and Neck Cancer Quality Collaborative
Inaugural Meeting - Wednesday 4th May 2016
Teaching & Learning Centre, Queen Elizabeth University Hospital, Glasgow
Thank you for listening,
Any questions?