Current concepts in the management of Oropharyngeal Cancer

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Content

• Epidemiology
• Imaging and work-up
• Early disease
• Advanced disease
• Surgical approaches
Oropharyngeal cancer and HPV

- In the US 1999-2006, there has been a 22% increase
- Pooled data from published series 2006-2009 shows that 55% of oropharyngeal cancer is HPV related
- NCCN and American College of Pathology recommend HPV-16 testing
Human Papillomavirus and Survival of Patients with Oropharyngeal Cancer

...the 3 year absolute benefit of HPV +ve status for overall survival was 25% and the absolute benefit of progression-free survival was 30%...
## HPV+ve effect on overall survival

<table>
<thead>
<tr>
<th>Modality</th>
<th>Hazard Ratio</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>RT (DAHANCA)</td>
<td>0.44</td>
<td>Lassen JCO 2009</td>
</tr>
<tr>
<td>CRT (TROG)</td>
<td>0.29</td>
<td>Rischin ASCO 2009</td>
</tr>
<tr>
<td>CRT (RTOG)</td>
<td>0.44</td>
<td>Gillison</td>
</tr>
<tr>
<td>Sequential (ECOG)</td>
<td>0.36</td>
<td>Fakhry JNCI 2008</td>
</tr>
<tr>
<td>Sequential (TAX324)</td>
<td>0.20</td>
<td>Posner</td>
</tr>
</tbody>
</table>
### Work-up for oropharyngeal cancer

#### Table 1. T staging for oropharyngeal tumours

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX</td>
<td>Primary tumor cannot be assessed</td>
</tr>
<tr>
<td>T0</td>
<td>No evidence of primary tumor</td>
</tr>
<tr>
<td>Tis</td>
<td>Carcinoma <em>in situ</em></td>
</tr>
<tr>
<td>T1</td>
<td>Tumor 2 cm or smaller in greatest dimension</td>
</tr>
<tr>
<td>T2</td>
<td>Tumor larger than 2 cm but 4 cm or smaller in greatest dimension</td>
</tr>
<tr>
<td>T3</td>
<td>Tumor larger than 4 cm in greatest dimension</td>
</tr>
<tr>
<td>T4a</td>
<td>Tumor invades the larynx, deep/extrinsic muscle of tongue, medial pterygoid, hard palate, or mandible</td>
</tr>
<tr>
<td>T4b</td>
<td>Tumor invades lateral pterygoid muscle, pterygoid plates, lateral nasopharynx, or skull base or encases carotid artery</td>
</tr>
</tbody>
</table>
MRI is best for oropharynx

Pros

• Better soft tissue definition
• T1 shows anatomy, T2 shows abnormal tissue, particularly STIR
• Less dental scatter artefact
• Ideal if surgery considered

Cons

• Takes longer (2-5 minutes per sequence), up 40 minutes in total
• Patient must lie still
• Expensive
MRI is better than CT
MRI is better than CT
MRI is better than CT
MRI is better than CT
MRI is better than CT
PET-CT is ideal if obtained before and after treatment
PET-CT for surveillance
PET-CT for surveillance
PET-CT for surveillance
PET-CT for surveillance
PET-CT for surveillance
Is panendoscopy necessary?

- If surgery is to be considered – panendoscopy is ideal to assess tumour and exposure for surgery

- The use of transnasal oesophagoscopy makes panendoscopy less useful

- In the non-smoker, panendoscopy is probably unnecessary
Deep biopsy or tonsillectomy?

- For obvious tumours, a simple biopsy is sufficient.
- Tonsillectomy worsens functional outcome after radiotherapy.
- If tumour is small but palpable – perform a tonsillectomy.
- In unknown primaries, perform bilateral tonsillectomy.
Bilateral disease?

- ‘Bilateral disease’ is most often confluent
- True bilateral synchronous tumours are being described
- MRI and PET-CT are now revealing more cases
- Implication on management is important

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**Diagnosis of Bilateral Tonsil Cancers via Staging PET/CT: Case Report and Review**

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Diagnosis of metastatic head and neck squamous cell carcinoma of unknown primary site has traditionally included CT and/or MRI imaging and endoscopic biopsies. Routine bilateral tonsillectomy is highly recommended and the role of PET/CT is evolving; both for identification of potential primary sites and the detection of distant metastases. We report a case of cervical nodal metastasis of squamous cell carcinoma from an unknown primary site, in which dual-modality PET/CT led to the unexpected diagnosis of synchronous bilateral tonsillar cancers. In addition, PET/CT correctly distinguished pulmonary sarcoidosis from metastatic disease in this patient.

1. Introduction

The standard workup for a head and neck squamous cell carcinoma of unknown primary site (CUP) includes physical exam, chest imaging, CT or MRI of the head and neck region, and panendoscopy with biopsies of potential primary sites. Given that a high proportion of occult tumors are located in the palatine tonsils, diagnostic unilateral tonsillectomy is frequently recommended. Bilateral tonsillectomy has been proposed but remains controversial. This case illustrates that clinical interpretation of PET/CT, incorporating a diagnostic quality anatomical imaging component, can correctly identify clinically inapparent synchronous tonsil cancers and assist in the evaluation for distant disease.

2. Case Report

A 57-year-old man presented with a flu-like syndrome and right neck swelling. Fine-needle aspiration of the right neck mass revealed squamous cell carcinoma, and a CT scan of the head and neck revealed an enlarged right jugulodigastric lymph node (2.9 × 2.5 cm). A CT scan of the chest showed mediastinal and bilateral hilar lymphadenopathy with bilateral interstitial nodular opacities in the upper lobes. A diagnostic PET scan showed the right jugulodigastric node to have a standardized uptake value (SUV) of 5.98 with bilateral oropharyngeal radiotracer activity. Surprisingly, radiotracer uptake in the oropharynx was higher in the left tonsil compared to the right. The patient underwent two rounds of panendoscopy with biopsies which revealed, respectively, mild dysplasia of the right tonsil and a friable and nodular inferior border of the right tonsil containing carcinoma in situ. Diagnostic right tonsillectomy showed extensive squamous cell carcinoma in situ with a high suspicion of invasion. The left tonsil was specifically noted to be clinically unremarkable.

A repeat PET/CT was performed for the purposes of radiotherapy planning and this study confirmed the presence
Bilateral synchronous tonsillar cancer
Bilateral synchronous tonsillar cancer
Bilateral synchronous tonsillar cancer
Bilateral synchronous tonsillar cancer
Bilateral synchronous tonsillar cancer
Principles of management

- Surgery and post-op RT gives best survival outcome
- Functional results were poor using conventional open surgery
- Chemoradiation offers good outcome
- IMRT now offers less xerostomia and ORN but not better trismus or swallowing
Principles of management

However...

- CRT does not equate ‘organ preservation’
- Data supporting ‘organ-preserving’ CRT comes from larynx trials
- Salvage surgery for oropharynx has worse outcome than in the larynx
- Primary transoral surgery offers better function
Early stage disease

Video 1

Video 2
Early stage disease

- Primary surgery +/- RT or RT then salvage
- 5 year disease-specific survival:
  - Surgery + Adj RT = 81-100%
  - RT + salvage = 77 - 89%
- Radical RT dose is 70 Gy in 35# but a 55Gy in 20# often is preferred

Transoral surgery offers most ‘functional outcome’
Late stage disease

- Primary surgery has poor functional outcome
- Selected T3 / T4 disease where clear margins can be achieved and free flap reconstruction possible
- Most patients will not be surgical candidates and be suitable for chemoradiation

[Video 3]
[Video 4]
Surgical access to the retropharynx is poor
Beware the RP node
Transoral Robotic Surgery (TORS)

- Developed by Weinstein and O’Malley in Philadelphia

Video 5
Transoral Robotic Surgery (TORS)

Benefits:

2 year disease-specific survival = 95.1%
2 year recurrence-free survival = 92.4%
97% of patients able to eat within 3 weeks
4.5% permanent G-tube; 1.5% long term tracheostomy
77.3% had pathological stage IV disease!
Transoral Robotic Surgery (TORS)

But:

- 72.1% were HPV+ve
- Complications in 7.6%
- 21.2% had post-op RT
  and 62.1% had post-op CRT
Neck dissection

• 10–31% of T1-2 N0 will have occult nodal disease

• Contralateral neck should be treated in tumours approaching midline

• Evidence suggests dissecting levels II - IV and possibly level I

• Level IIb need not be dissected, if no findings pre-operatively of level IIa disease

Synchronous neck dissection carries the risk of fistula formation
Conventional ‘open’ approaches

- Transpharyngeal
  - Lateral pharyngotomy
  - Suprahyoid pharyngotomy
- Transmandibular
  - Labiomandibular glossotomy
  - Mandibulotomy (mandibular swing)
  - Mandibulectomy
Open approaches
Open approaches

Incision

Tumor

Posterior pharyngeal wall

Epiglottis
Open approaches
Open approaches
Salvage surgery

- Salvage surgery has 21\% 5 year disease-free survival
- Complication rate was high at 40\% - including carotid rupture
- On multivariate analysis, tumour size and disease-free interval were main prognostic factors

Thank you

Questions?