Locally advanced papillary thyroid cancer

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Content

• Case report
• Imaging
• Primary Therapy – Surgery
• Pathology
• Adjuvant Therapy
Case report

- 56y female patient
- Persistent left lower neck mass
- Voice and Airway NAD
- Swallowing NAD
- No family history MTC/PTC
- No radiation exposure
- Obesity, Hypertension, OSAS
- Investigations?
Case Report

- FNAC Bethesda 6
- USS suspicious mass 6cm ?extra-thyroidal
- What investigations?
- Treatment options?

- Total Thyroidectomy
- Fixed to trachea and larynx

- How to proceed?
- How to decide intra-operatively?
Case report

- Right hemithyroidectomy performed
- Open biopsy left thyroid
- Procedure abandoned
Normal thyroid histology
Histology – incisional biopsy
Intranuclear cytoplasmic inclusions

Nuclear grooves
Case report

• Patient offered ERBT
  – 5/52 course
• Sorafanib
  – 3/12 course
• Then offered resection
  – ?laryngectomy
• Sought second opinion

• Comments?
ERBT in PTC?

• Treatment as primary modality
  – Palliative setting only
  – Addressing specific symptom with no possibility of cure

• Treatment of DTC as adjuvant therapy
  – High risk of loco regional recurrence
    • Gross local invasion
    • Recurrence in non-iodine concentrating disease where surgery is impractical

• Metastasis in inaccessible places (palliative)
  – Brain
  – Spine
  – Bone

Sorafenib in PTC?

- Small molecular therapy (TKinase inhib)
  - Inhibits angiogenesis (RET, KIT, VEGFR1-3, PDGFR-B)
  - Improves DFS not DSS (phase III RCT)

- FDA licensed for RAI resistant DTC

- The principal indication for targeted treatments is progressive, symptomatic disease, refractory to conventional treatments (4, D).

- Targeted therapies should only be administered in the setting of cancer units that have experience in monitoring and managing adverse effects of targeted therapies (4,D)

- Consideration should therefore be given to entry into clinical studies (4,D)

Case report

• Firm ?fixed mass left lower neck
• No palpable nodes
• No voice airway issue
• Received ERBT and sorafanib

• Comments?
• Investigations?
CT
CT/MRI

- Carotid abutted not obviously encased
- Pre-vertebral muscles not obviously invaded
- No luminal tracheal/laryngeal invasion
- Oesophagus not clearly involved
  - MRI higher sensitivity/specificity

FDG-PET
Role of PET-CT in PCT?

- Detection of recurrent disease in patients with rising Tg
  - Identification of resectable disease
- Detection for suspected metastasis
- RAI uptake inversely proportional to SUV
- May serve as a prognostic marker (marker of dedifferentiation)

Treatment options?

• Principles?
  – Resection
    • Challenges
  – Reconstruction

• Options?
  – How do we prepare

• How to consent the patient?
What we did

• Completion thyroidectomy
  – Major vessels peeled off tumour
  – IJV and CC preserved
  – RLN sacrificed
• Neck dissection
  – Access to retro-pharyngeal nodes
• Tracheal shave
  – Positive margin frozen sections
• Window resection tracheal
• Further tracheal resection
• Fascio-cutaneous infra-clavicular pedicled flap
  – De-epitheliased
  – Sutured around tracheostomy
Intra-operative: Ablation
Intra-operative: Reconstruction
Intra-operative: Reconstruction
Diagnosis

• Left lobe - Papillary thyroid carcinoma
  – Extrathyroidal extension
  – LVI
  – No evidence of anaplastic transformation
  – BRAFV600E +
  – Thyroglobulin +

• Right lobe - NEOM
Variants with aggressive behaviour

- PTC with transformation to anaplastic carcinoma
- Diffuse sclerosing variant (lymph node and lung metastasis more common)
- Tall cell variant
- Columnar cell variant
- Solid variant (found in children with hx radiation exposure; vascular invasion and extra-thyroidal extension occur in 1/3)
- PTC with prominent hobnail-features (50% mortality from metastases)
- PTC with focal insular component (potentially more aggressive than conventional PTC)
Variants of papillary carcinoma

- Follicular variant (most common)
- Macrofollicular variant (diagnostically difficult)
- Cribriform morular variant (need to check for FAP)
- Oncocytic variant
- Clear cell variant (diagnostically difficult at metastatic site)
- Papillary microcarcinoma (<1cm, often incidental, multifocal)
- PTC with fasciitis-like stroma
# Prognosis papillary thyroid carcinoma

<table>
<thead>
<tr>
<th>Stage</th>
<th>5-Year Relative Survival Rate</th>
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<tbody>
<tr>
<td>I</td>
<td>97.1%</td>
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<tr>
<td>II</td>
<td>92.8%</td>
</tr>
<tr>
<td>III</td>
<td>82%</td>
</tr>
<tr>
<td>IV</td>
<td>41.4%</td>
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</tbody>
</table>
Case report: Post operative recovery

• Covering tracheostomy through defect

• Neck drains

• NG feeding

• Requiring significant PEEP to maintain sats
Summary so far

• ypT4a ypN1b M0 PTC no atypical features

• Completely excised

Adjuvant therapy?
Radio active iodine treatment

<table>
<thead>
<tr>
<th>Factors</th>
<th>Description</th>
<th>Expected benefit</th>
<th>RRA usually recommended</th>
<th>Strength of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Decreased risk of death</td>
<td>Decreased risk of recurrence</td>
<td>May facilitate initial staging and follow up</td>
</tr>
<tr>
<td>T1</td>
<td>1 cm or less, intra-thyroidal or microscopic multifocal</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>1–2 cm, intra-thyroidal</td>
<td>No</td>
<td>Conflicting data*</td>
<td>Yes</td>
</tr>
<tr>
<td>T2</td>
<td>&gt;2–4 cm, intra-thyroidal</td>
<td>No</td>
<td>Conflicting data*</td>
<td>Yes</td>
</tr>
<tr>
<td>T3</td>
<td>&gt;4 cm</td>
<td>No</td>
<td>Conflicting data*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>&lt;45 years old</td>
<td>No</td>
<td>Conflicting data*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>≥45 years old</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Any size, any age, minimal extra-thyroidal extension</td>
<td>No</td>
<td>Inadequate data*</td>
<td>Yes</td>
</tr>
<tr>
<td>T4</td>
<td>Any size with gross extra-thyroidal extension</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>N0</td>
<td>No metastatic nodes documented</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>N1</td>
<td>&lt;45 years old</td>
<td>No</td>
<td>Conflicting data*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>≥45 years old</td>
<td>Conflicting data*</td>
<td>Conflicting data*</td>
<td>Yes</td>
</tr>
<tr>
<td>M1</td>
<td>Distant metastases present</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Because of either conflicting or inadequate data, recommendations cannot be made either for or against RRA for this entire subgroup. However, selected patients within this subgroup with higher risk features may benefit from RRA.
Adjuvant therapy?

- $^{131}$
- ERBT
- Chemotherapy
- Small molecular therapy