Management of Esophageal Cancer: Evidence Based Review of Current Guidelines

Madhuri Rao, MD
PGY-5
SUNY Downstate Medical Center
Case Presentation

• 68 y/o male
• PMH: NIDDM, HTN, hyperlipidemia, CAD s/p stents, Glaucoma
• PSH: nil
• Meds: ASA, Plavix, metoprolol, metformin, HCTZ, Flomax
• Ex smoker
Case Presentation

• Weight loss, dysphagia- 2 months

• Admission labs: WNL
  Albumin 4.1

• EGD: esophageal mass at 23-30cms, 75% circumferential; GEJ at 35cm

• Pathology: moderately differentiated SCC
CT Chest, Abdomen, Pelvis
Case Presentation

Multi-disciplinary Discussion

- Cardiology, hematology/oncology, radiation oncology, cardiothoracic surgery
- Neoadjuvant chemoradiation vs. surgery
- Decision to proceed with surgical option
Case Presentation

OR Details

• Bronchoscopy, EGD, laparotomy and right thoracotomy, esophagectomy with cervical esophagogastric anastomosis, pyloroplasty, feeding jejunostomy

• Necrotic tumor with rupture during dissection

• Splenic capsular tear – packing and gel foam/thrombin

• EBL 900cc
Case Presentation

Pathology

• High grade squamous cell carcinoma
• Circumferential margin positive
• Proximal and distal margins clear
• Lymphovascular invasion
Case Presentation

Post Operative Course

- Extubated on POD 1
- POD 2-4
  - Decreased respiratory effort
  - BiPAP → reintubation
  - Tolerating J tube feeds
Case Presentation

• POD 5
  – Hemodynamic instability
  – Drop in HCT (32 → 23)
  – Return to OR for emergent splenectomy and distal pancreatectomy
  – Lacerated spleen, significant intra-abdominal hemorrhage

Pathology
Spleen with multiple hemorrhagic, necrotic defects
Fungal organisms
POD 1/6 – 10/16

- SIRS and VAP; inability to wean ventilatory support
- Pressor support
- Broad spectrum antibiotics and antifungals

POD 11/17 – Current

- S/p tracheostomy
- Slow weaning
- Tolerating J tube feeds
Management

- Surgery alone
- Chemoradiation vs. chemo or RT alone
- Trimodality treatment vs. surgery alone
- Definitive chemoradiation
- Adjuvant treatment
- Surgical options
  - Transhiatal vs. transthoracic
  - Extended lymphadenectomy
Epidemiology

- 17,990 new cases (2013)
- 15,210 deaths
- 2 major histological types

**Squamous cell carcinoma**
- 70% in upper & middle third
- Most common worldwide

**Adenocarcinoma**
- Distal third
- Most common in Western world
History

- Czerny 1877 – 1st esophageal resection for cervical tumor
- Torek 1911 – Resection of thoracic esophagus
- Dent 1913 – 1st transhiatal esophagectomy in cadavers
- Turner 1933 – Transhiatal esophagectomy for Ca
- Ivor Lewis 1946 – Ivor Lewis is esophagectomy
Diagnostic Work Up

NCCN Guidelines Version 2.2013
Esophageal and Esophagogastric Junction Cancers

- H&P
- Upper GI endoscopy and biopsy
- Chest/abdominal CT with oral and IV contrast
- Pelvic CT as clinically indicated
- PET-CT evaluation if no evidence of M1 disease
- CBC and chemistry profile
- Endoscopic ultrasound (EUS), if no evidence of M1 disease
- Endoscopic mucosal resection (EMR) may contribute to accurate staging of early stage cancers
- Nutritional assessment and counseling
- Biopsy of metastatic disease as clinically indicated
- HER2-neu testing if metastatic adenocarcinoma is documented/suspected
- Bronchoscopy, if tumor is at or above the carina with no evidence of M1 disease
- Assign Siewert category
- Smoking cessation advice, counseling, and pharmacotherapy
Staging Updates

Worldwide Esophageal Cancer Collaboration Study

- 4627 patients from 3 continents
- pN0M0 – histopathological cell type, histologic grade
- pN+M0 – number of cancer positive nodes
- Subclassification of T4 based on potential resectability
<table>
<thead>
<tr>
<th>HISTOLOGY</th>
<th>ADENOCARCINOMA</th>
<th>SQUAMOUS CELL CARCINOMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage</td>
<td>TNM</td>
<td>Grade</td>
</tr>
<tr>
<td>0</td>
<td>T1N0M0</td>
<td>G1</td>
</tr>
<tr>
<td>IA</td>
<td>T1N0M0</td>
<td>G1-2</td>
</tr>
<tr>
<td>IB</td>
<td>T1N0M0</td>
<td>G3</td>
</tr>
<tr>
<td></td>
<td>T2N0M0</td>
<td>G1-2</td>
</tr>
<tr>
<td>II A</td>
<td>T2N0M0</td>
<td>G3</td>
</tr>
<tr>
<td>II A</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td>II B</td>
<td>T3N0M0</td>
<td>Any</td>
</tr>
<tr>
<td>II B</td>
<td>T1-2N1M0</td>
<td>Any</td>
</tr>
<tr>
<td>III A</td>
<td>T1-2N2M0</td>
<td>Any</td>
</tr>
<tr>
<td>III A</td>
<td>T3N1M0</td>
<td>Any</td>
</tr>
<tr>
<td></td>
<td>T3aN0M0</td>
<td>Any</td>
</tr>
<tr>
<td></td>
<td>T4aN0M0</td>
<td>Any</td>
</tr>
<tr>
<td></td>
<td>T3N2M0</td>
<td>Any</td>
</tr>
<tr>
<td></td>
<td>T4aN1-2M0</td>
<td>Any</td>
</tr>
<tr>
<td></td>
<td>T4bNAnyM0</td>
<td>Any</td>
</tr>
<tr>
<td></td>
<td>TAnyN3M0</td>
<td>Any</td>
</tr>
<tr>
<td></td>
<td>TAnyNAnyM1</td>
<td>Any</td>
</tr>
<tr>
<td>HISTOLOGY</td>
<td>ADENOCARCINOMA</td>
<td>SQUAMOUS CELL CARCINOMA</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td></td>
<td>TNM</td>
<td>Grade</td>
</tr>
<tr>
<td>0</td>
<td>TisN0M0</td>
<td>G1</td>
</tr>
<tr>
<td>IA</td>
<td>T1N0M0</td>
<td>G1-2</td>
</tr>
<tr>
<td>IB</td>
<td>T1N0M0</td>
<td>G3</td>
</tr>
<tr>
<td></td>
<td>T2N0M0</td>
<td>G1-2</td>
</tr>
<tr>
<td>IIA</td>
<td>T2N0M0</td>
<td>G3</td>
</tr>
<tr>
<td>IIB</td>
<td>T3N0M0</td>
<td>Any</td>
</tr>
<tr>
<td></td>
<td>T1-2N1M0</td>
<td>Any</td>
</tr>
<tr>
<td>IIIA</td>
<td>T1-2N2M0</td>
<td>Any</td>
</tr>
<tr>
<td>IIIB</td>
<td>T3N1M0</td>
<td>Any</td>
</tr>
<tr>
<td>IIIC</td>
<td>T4aN1-2M0</td>
<td>Any</td>
</tr>
<tr>
<td></td>
<td>T4bNAnyM0</td>
<td>Any</td>
</tr>
<tr>
<td></td>
<td>TAnyN3M0</td>
<td>Any</td>
</tr>
<tr>
<td>IV</td>
<td>TAnyNAnyM1</td>
<td>Any</td>
</tr>
</tbody>
</table>
Management: Medically Fit SCC

NCCN Guidelines Version 2.2013
Esophageal and Esophagogastric Junction Cancers

HISTOLOGY

Squamous cell carcinoma

Tumor Classifications:
- Tis
- T1a
- T1b, N0
- T1b, N+, T2-T4a, N0-N+, h,o
- T4b

Primary Treatment Options for Medically Fit Patients:
- Endoscopic mucosal resection (EMR) or Ablation
- EMR followed by ablation (preferred)
- Esophagectomy
- Preoperative chemoradiation (non-cervical esophagus)
- Definitive chemoradiation (only for patients who decline surgery)
- Definitive chemoradiation (recommended for cervical esophagus)
- Esophagectomy (non-cervical esophagus)
- Consider chemotherapy alone in the setting of invasion of trachea, great vessels, or heart

Periodic endoscopic surveillance
See ESOPH-A (3 of 4)

See Surgical Outcomes After Esophagectomy (ESOPH-5)
See Response Assessment (ESOPH-4)
See Surgical Outcomes After Esophagectomy (ESOPH-5)
See Response Assessment (ESOPH-4)

See Palliative Therapy (ESOPH-9)
Management: Medically Fit Adenocarcinoma

NCCN Guidelines Version 2.2013
Esophageal and Esophagogastric Junction Cancers

TUMOR CLASSIFICATION

Tis^f

T1a^m

T1b,^n N0

T1b,^n N+
T2-T4a, N0-N+^h,o

T4b^p

PRIMARY TREATMENT OPTIONS FOR MEDICALLY FIT PATIENTS

Endoscopic mucosal resection (EMR)^a,r or Ablation^a

EMR^a,r followed by ablation^a (preferred) or Esophagectomy^d,t,u

Esophagectomy^d,t,u

Preoperative chemoradiation^v,w,dd (preferred) (RT, 41.4-50.4 Gy + concurrent chemotherapy) or Definitive chemoradiation (only for patients who decline surgery)^v,w (RT, 50-50.4 Gy + concurrent chemotherapy) or Preoperative chemotherapy^v or Esophagectomy^d,t,u (low risk lesions, < 2cm, well differentiated lesions)

Definitive chemoradiation^v,w (RT, 50-50.4 Gy + concurrent chemotherapy)

Periodic endoscopic surveillance

See ESOPH-A (3 of 4)

See Surgical Outcomes After Esophagectomy (ESOPH-13)

See Response Assessment (ESOPH-12)

See Surgical Outcomes After Esophagectomy (ESOPH-13)

See Response Assessment (ESOPH-12)
Literature Review

Surgery alone

- 30-40% resectable cases at presentation
- 5 year survival rate – 15-20%

Radiation Therapy Alone

- Survival rate < 10%
- Trials involved more medically unfit patients
**Chemoradiation vs. Radiation Alone**


Department of Radiation Oncology, New York University, NY, USA. Jay.Cooper@Med.NYU.edu

---

**Table 1. Overall Survival by Treatment Group**

<table>
<thead>
<tr>
<th>Time, y</th>
<th>No. (%) Alive Following Radiation Therapy Only (Randomized)</th>
<th>No. (%) Alive Following Combined Modality Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Randomized</td>
<td>Nonrandomized</td>
</tr>
<tr>
<td>0</td>
<td>62 (100)</td>
<td>61 (100)</td>
</tr>
<tr>
<td>1</td>
<td>21 (34)</td>
<td>32 (52)</td>
</tr>
<tr>
<td>2</td>
<td>6 (10)</td>
<td>22 (36)</td>
</tr>
<tr>
<td>3</td>
<td>0 (0)</td>
<td>18 (30)</td>
</tr>
<tr>
<td>4</td>
<td>0 (0)</td>
<td>17 (30)</td>
</tr>
<tr>
<td>5</td>
<td>0 (0)</td>
<td>14 (26)</td>
</tr>
<tr>
<td>6</td>
<td>0 (0)</td>
<td>12 (22)</td>
</tr>
<tr>
<td>7</td>
<td>0 (0)</td>
<td>12 (22)</td>
</tr>
<tr>
<td>8</td>
<td>0 (0)</td>
<td>10 (22)</td>
</tr>
<tr>
<td>9</td>
<td>0 (0)</td>
<td>4 (20)†</td>
</tr>
<tr>
<td>10</td>
<td>0 (0)</td>
<td>3 (20)†</td>
</tr>
<tr>
<td>Total dead (median, mo)</td>
<td>62/62 (9.3)</td>
<td>48/61 (14.1)</td>
</tr>
</tbody>
</table>

*Percentages are estimated. Data compiled by Kaplan-Meier method. Statistical test results of the log-rank test are: randomized comparison, \( P < .001 \); and combined modality therapy and radiation therapy (randomized vs nonrandomized), \( P = .24 \) (stratified by tumor stage). Ellipses indicate data not available because follow-up lasted less than 8 years.

†Percentages are unreliable due to the small number of people at risk.


Department of Radiation Oncology, New York University, NY, USA. Jay.Cooper@Med.NYU.edu
Chemoradiation vs. Radiation Alone

- 19 RCTs

- Concomitant RTCT
  - Significant reduction in mortality
  - Absolute reduction of local recurrence rate – 12%
  - Local recurrence rate with RT – 68%
Preoperative Chemoradiotherapy for Esophageal or Junctional Cancer


*The members of the Chemoradiotherapy for Oesophageal Cancer Followed by Surgery Study (CROSS) Group

Preoperative Chemoradiation

837 Patients were assessed for esophageal or EGJ cancer

469 Were excluded

368 Underwent randomization

180 Were assigned to chemoradiotherapy and surgery

2 Withdrew consent
7 Did not receive any chemoradiotherapy

171 Received chemoradiotherapy
168 Underwent surgery
161 Underwent resection

178 Were included in the analysis

188 Were assigned to surgery alone

186 Underwent surgery
161 Underwent resection

188 Were included in the analysis
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Chemoradiotherapy and Surgery (N=178)</th>
<th>Surgery Alone (N=188)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age — yr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Range</td>
<td>36–79</td>
<td>36–73</td>
</tr>
<tr>
<td>Male sex — no. (%)</td>
<td>134 (75)</td>
<td>152 (81)</td>
</tr>
<tr>
<td>Tumor type — no. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adenocarcinoma</td>
<td>134 (75)</td>
<td>141 (75)</td>
</tr>
<tr>
<td>Squamous-cell carcinoma</td>
<td>41 (23)</td>
<td>43 (23)</td>
</tr>
<tr>
<td>Other</td>
<td>3 (2)</td>
<td>4 (2)</td>
</tr>
<tr>
<td>Tumor length — cm†</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Interquartile range</td>
<td>3–6</td>
<td>3–6</td>
</tr>
<tr>
<td>Tumor location — no. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Esophagus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proximal third</td>
<td>4 (2)</td>
<td>4 (2)</td>
</tr>
<tr>
<td>Middle third</td>
<td>25 (14)</td>
<td>24 (13)</td>
</tr>
<tr>
<td>Distal third</td>
<td>104 (58)</td>
<td>107 (57)</td>
</tr>
<tr>
<td>Esophagogastric junction</td>
<td>39 (22)</td>
<td>49 (26)</td>
</tr>
<tr>
<td>Missing data</td>
<td>6 (3)</td>
<td>4 (2)</td>
</tr>
<tr>
<td>Clinical T stage — no. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cT1</td>
<td>1 (1)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>cT2</td>
<td>26 (15)</td>
<td>35 (19)</td>
</tr>
<tr>
<td>cT3</td>
<td>150 (84)</td>
<td>147 (78)</td>
</tr>
<tr>
<td>cT4</td>
<td>0</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Could not be determined§</td>
<td>1 (1)</td>
<td>4 (2)</td>
</tr>
<tr>
<td>Clinical N stage — no. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N0</td>
<td>59 (33)</td>
<td>58 (31)</td>
</tr>
<tr>
<td>N1</td>
<td>116 (65)</td>
<td>120 (64)</td>
</tr>
<tr>
<td>Could not be determined§</td>
<td>3 (2)</td>
<td>10 (5)</td>
</tr>
<tr>
<td>WHO performance status score — no. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>144 (81)</td>
<td>163 (87)</td>
</tr>
<tr>
<td>1</td>
<td>34 (19)</td>
<td>25 (13)</td>
</tr>
</tbody>
</table>
Preoperative Chemoradiation

A. Survival According to Treatment Group

- Proportion Surviving
- Follow-up (mo)
- No. at Risk
  - CRT + surgery: 178, 145, 119, 75, 49, 28
  - Surgery alone: 188, 131, 94, 62, 33, 17
- Total: 366, 276, 213, 137, 82, 45
- P = 0.003

B. Survival According to Tumor Type and Treatment Group

- Proportion Surviving
- Follow-up (mo)
- No. at Risk
  - SCC, CRT + surgery: 134, 107, 87, 53, 34, 18
  - AC, CRT + surgery: 141, 99, 73, 50, 25, 10
  - AC, surgery alone: 41, 35, 30, 21, 15, 8
  - SCC, surgery alone: 43, 29, 19, 11, 8, 4
- Total: 359, 270, 209, 135, 82, 40

www.downstatesurgery.org
Preoperative Chemoradiation

R0 Resection

- ChemoXRT/Surgery 92%, surgery 69% \((p < 0.001)\)

p Complete Response with ChemoXRT

- Adeno Ca 23% vs. SCC 49%
- No effect in overall survival

+ Lymph Nodes in Resection Specimen

- ChemoXRT/Surgery 31%, surgery 75% \((p < 0.001)\)
Survival after neoadjuvant chemotherapy or chemoradiotherapy for resectable oesophageal carcinoma: an updated meta-analysis.

- 24 trials
- n = 4188
- Absolute survival benefit of 8.7% with neoadjuvant chemoradiation
- Similar benefit for SCC and Adeno Ca
- No clear advantage of neoadjuvant chemoradiation vs. neoadjuvant chemotherapy
Chemoradiation vs. Surgery: Preoperative Chemoradiation

Current Status of Multimodality Therapy for Esophageal Carcinoma

, and Keith S. Naunheim, M.D.¹


St. Louis University Health Sciences Center, 3635 Vista Avenue, St. Louis, Missouri

Nonrandomized Trials of Preoperative Chemoradiation for Esophageal Cancer

<table>
<thead>
<tr>
<th></th>
<th>RT (cGy)</th>
<th>Agents</th>
<th>Op Mort</th>
<th>MS</th>
<th>2 yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wolfe [31]</td>
<td>29 4500</td>
<td>DDP, VP16</td>
<td>0%</td>
<td>18</td>
<td>44%</td>
</tr>
<tr>
<td>Poplin [32]</td>
<td>106 3000</td>
<td>DDP, FU</td>
<td>11%</td>
<td>14</td>
<td>28%</td>
</tr>
<tr>
<td>McFarlane [33]</td>
<td>22 3000</td>
<td>DDP, FU</td>
<td>11%</td>
<td>22</td>
<td>52%</td>
</tr>
<tr>
<td>Orringer [34]</td>
<td>43 4500</td>
<td>DDP, FU, Vb</td>
<td>2%</td>
<td>29</td>
<td>60%</td>
</tr>
<tr>
<td>Naunheim [35]</td>
<td>42 3000</td>
<td>DDP, FU</td>
<td>3%</td>
<td>24</td>
<td>47%</td>
</tr>
<tr>
<td>Bedenne [36]</td>
<td>96 3000</td>
<td>DDP, FU</td>
<td>9%</td>
<td>17</td>
<td>40%</td>
</tr>
<tr>
<td>Keller [37]</td>
<td>72 6000</td>
<td>FU, Mito</td>
<td>8%</td>
<td>17</td>
<td>27%</td>
</tr>
<tr>
<td>Raoul [38]</td>
<td>32 4500</td>
<td>DDP, FU</td>
<td>10%</td>
<td>—</td>
<td>61%</td>
</tr>
</tbody>
</table>
Chemoradiation vs. Surgery: Preoperative Chemoradiation

Current Status of Multimodality Therapy for Esophageal Carcinoma

, and Keith S. Naunheim, M.D.¹


St. Louis University Health Sciences Center, 3635 Vista Avenue, St. Louis, Missouri

<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>RT (cGy)</th>
<th>Agent</th>
<th>Mort</th>
<th>MS</th>
<th>3 yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>LePrise [41]</td>
<td>41</td>
<td>2000</td>
<td>DDP, FU</td>
<td>8%</td>
<td>10</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>0</td>
<td>None</td>
<td>7%</td>
<td>10</td>
<td>14%</td>
</tr>
<tr>
<td>Bosset [42]</td>
<td>143</td>
<td>3700</td>
<td>DDP, FU</td>
<td>13%</td>
<td>18</td>
<td>39%</td>
</tr>
<tr>
<td></td>
<td>139</td>
<td>0</td>
<td>None</td>
<td>4%</td>
<td>18</td>
<td>37%</td>
</tr>
<tr>
<td>Law [43]</td>
<td>30</td>
<td>4000</td>
<td>DDP, FU</td>
<td>8%</td>
<td>26</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>0</td>
<td>None</td>
<td>7%</td>
<td>27</td>
<td>NA</td>
</tr>
<tr>
<td>Apinop [44]</td>
<td>35</td>
<td>4000</td>
<td>DDP, FU</td>
<td>12%</td>
<td>10</td>
<td>26%</td>
</tr>
<tr>
<td></td>
<td>34</td>
<td>0</td>
<td>None</td>
<td>15%</td>
<td>7</td>
<td>20%</td>
</tr>
<tr>
<td>Walsh [45]</td>
<td>58</td>
<td>4000</td>
<td>DDP, FU</td>
<td>8%</td>
<td>16</td>
<td>32%</td>
</tr>
<tr>
<td></td>
<td>55</td>
<td>0</td>
<td>None</td>
<td>4%</td>
<td>11</td>
<td>6%</td>
</tr>
<tr>
<td>Urba [46]</td>
<td>50</td>
<td>4500</td>
<td>DDP, FU, Vb</td>
<td>2%</td>
<td>17</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>None</td>
<td>None</td>
<td>4%</td>
<td>18</td>
<td>10%</td>
</tr>
<tr>
<td>Burmeister</td>
<td>128</td>
<td>3500</td>
<td>DDP, FU</td>
<td>NA</td>
<td>19</td>
<td>NA</td>
</tr>
</tbody>
</table>

¹ Corresponding author

This table summarizes the results of randomized trials comparing preoperative chemoradiation to surgery for esophageal cancer. The trials listed include the number of patients (N), radiation dose (RT), chemotherapy agents (Agent), mortality (Mort), and survival at 3 years (3 yr) for each study.
Preoperative Chemoradiation: Conflicting Evidence

Surgery alone versus chemotherapy followed by surgery for localized esophageal cancer: Analysis of a randomized controlled phase III trial FFCD 9901

- \( n = 195 \)
- Median follow up – 5.7 years
- No significant difference in median survival
  - 43.8 (S group) vs. 31.8 (CRT group)
- Increased postop mortality in CRT group for stage I and II
Randomized trial of preoperative chemoradiation versus surgery alone in patients with locoregional esophageal carcinoma.


- RCT odor 100 patients
- Median follow up – 8.2 years
- No significant difference (17.6 months vs. 16.9 months)
Definitive Chemoradiation

- Equivalent overall survival in chemoradiation vs. chemoradiation + surgery in RCTs
- Increased treatment related mortality in surgery group
- Surgery group
  - Better locoregional control
  - Lesser need for palliative procedures
NCCN Guidelines Version 2.2013
Esophageal and Esophagogastric Junction Cancers

TUMOR CLASSIFICATION for patients with squamous cell carcinoma

Tis
→ EMR or Ablation

T1a
→ EMR followed by Ablation

Superficial T1b
→ EMR followed by Ablation
or Consider chemoradiation for tumors with poor prognostic features
Definitive Chemoradiation (50-50.4 Gy of RT + concurrent chemotherapy) (Fluoropyrimidine- or taxane-based) (preferred)
or Chemotherapy
or RT
or Best supportive care

T1b, N+, T2-T4a, N0-N+, or T4b (unresectable)
→ Medically unfit for surgery or surgery not elected and patient medically able to tolerate chemotherapy or chemoradiation
→ Palliative RT or Best supportive care

Medically unfit for surgery and patient unable to tolerate chemotherapy or chemoradiation
→ Medically Unfit Patients

www.downstatesurgery.org
Management: Medically Unfit SCC
**NCCN Guidelines Version 2.2013**

**Esophageal and Esophagogastric Junction Cancers**

<table>
<thead>
<tr>
<th>TUMOR CLASSIFICATION</th>
<th>PRIMARY TREATMENT FOR MEDICALLY UNFIT PATIENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tis¹</td>
<td>EMR or Ablationᵃ</td>
</tr>
<tr>
<td>T₁ᵃᵐ</td>
<td>EMR followed by Ablationᵃ</td>
</tr>
<tr>
<td>Superficial T₁ᵇⁿ</td>
<td>EMR followed by Ablationᵃ</td>
</tr>
<tr>
<td></td>
<td>Consider chemoradiation^{v,w} for tumors with poor prognostic features^{aa}</td>
</tr>
<tr>
<td>T₁ᵇⁿ N⁺, T₂⁻T₄ᵃ, N₀⁻N⁺^{h,o} or T₄ᵇ (unresectable){p}</td>
<td>Medically unfit for surgery or Surgery not elected and patient medically able to tolerate chemotherapy or chemoradiation</td>
</tr>
<tr>
<td></td>
<td>Medically unfit for surgery and patient unable to tolerate chemotherapy or chemoradiation</td>
</tr>
<tr>
<td></td>
<td>Definitive Chemoradiation (50-50.4 Gy of RT + concurrent chemotherapy) (Fluoropyrimidine- or taxane-based) (preferred)^{v,w} or Chemotherapy^{v} or RT^{w} or Best supportive care^{bb}</td>
</tr>
<tr>
<td></td>
<td>Palliative RT^{w} or Best supportive care^{bb}</td>
</tr>
</tbody>
</table>

---

¹ Tis: Carcinoma in situ
² EMR: Endoscopic mucosal resection
³ Ablation: Thermal ablation
⁴ Chemoradiation: Chemotherapy and radiation therapy
⁵ Fluoropyrimidine: A class of chemotherapy drugs
⁶ Taxane-based: Drugs from the taxane family
⁷ RT: Radiation therapy
⁸ Supportive care: Care aimed at improving symptoms and quality of life
⁹ NCCN: National Comprehensive Cancer Network

---

www.downstatesurgery.org
Management: Medically Fit SCC

NCCN Guidelines Version 2.2013
Esophageal and Esophagogastric Junction Cancers

**PRIMARY TREATMENT FOR MEDICALLY FIT PATIENTS WITH SQUAMOUS CELL CARCINOMA**

**RESPONSE ASSESSMENT**

- **Preoperative chemoradiation**
  - CT scan with contrast (not required if PET/CT is done)
  - PET/CT or PET (category 2B)
  - Upper GI endoscopy and biopsy (optional)

- **Definitive chemoradiation**
  - CT scan with contrast (not required if PET/CT is done)
  - PET/CT or PET (category 2B)
  - Upper GI endoscopy and biopsy

**OUTCOME**

- **No evidence of disease**
  - Esophagectomy or Surveillance (category 2B)

- **Persistent local disease**
  - Esophagectomy (preferred)
  - See Palliative Therapy

- **Unresectable or Metastatic disease**
  - See Palliative Therapy

**ADJUVANT TREATMENT**

- See Surgical Outcomes After Esophagectomy (ESOPH-6)
- See Surgical Outcomes After Esophagectomy (ESOPH-6)
- Follow-up (See ESOPH-8)
- See Palliative Therapy (ESOPH-9)
Management: Medically Fit SCC

NCCN Guidelines Version 2.2013
Esophageal and Esophagogastric Junction Cancers

SURGICAL OUTCOMES/CLINICAL PATHOLOGIC FINDINGS FOR SQUAMOUS CELL CARCINOMA (Patients Have Not Received Preoperative Chemoradiation or Chemotherapy)

- Node negative
  - R0 resection
    - Node negative
      - Observate
  - Node positive

- R1 resection
  - Chemoradiation (Fluoropyrimidine-based)
- R2 resection
  - Chemoradiation (Fluoropyrimidine-based) or Palliative therapy (See ESOPH-9)
Management: Medically Fit SCC

NCCN Guidelines Version 2.2013
Esophageal and Esophagogastric Junction Cancers

SURGICAL OUTCOMES/CLINICAL PATHOLOGIC FINDINGS FOR SQUAMOUS CELL CARCINOMA (Patients Have Received Preoperative Chemoradiation or Chemotherapy)

Node negative

R0 resection²

Node positive

R1 resection²

R2 resection²

POSTOPERATIVE TREATMENT

Observe

Observation until progression or Chemoradiation\(^\text{v,w}\) (Fluoropyrimidine-based), only if not received preoperatively

Chemoradiation\(^\text{v,w}\) (Fluoropyrimidine-based), only if not received preoperatively or Palliative therapy (See ESOPH-9)
Surgery: Transthoracic vs. Transhiatal Esophagectomy
Surgery: Transthoracic vs. Transhiatal Esophagectomy

IVOR LEWIS ESOPHAGECTOMY
Modified McKeown/Tri-incisional Technique

- Combination of Ivor Lewis and transhiatal approaches
- Laparotomy
- Right thoracotomy
- Cervical anastomosis
Mortality and Morbidity

- Lower morbidity with transhiatal approach
- Higher observed 5 year survival
- No long term survival difference between the 2 after adjusting for tumor stage and patient factors


Surgery: Extent of Lymphadenectomy

- Standard 2 field lymphadenectomy – mediastinal and upper abdominal
- SEER database review – significant reduction in mortality if > 30 nodes examined
- Independent predictor of survival
- Esophagectomy without preoperative chemoradiotherapy (chemoXRT) at least 15 lymph nodes for staging
- 3 field lymphadenectomy in Asia
- Trend towards better 5 year survival with transthoracic esophagectomy in N+ type I adenocarcinoma (Ca)

Surgery: Cervical vs. Thoracic Anastomosis

Cervical Anastomosis

- Higher leak rate but limited morbidity
- Recurrent laryngeal nerve injury

No Difference In

- Pulmonary complications
- Perioperative mortality
- Benign stricture formation
- Tumor recurrence at anastomosis
Management of esophageal cancers warrants a multi-disciplinary approach

Medically fit SCC and Adeno Ca > T1b
  – Conflicting evidence
  – Esophagectomy/Preoperative or definitive chemoXRT

Medically unfit SCC and Adeno Ca
  – Definitive chemoXRT
  – Palliative RT
  – Supportive care
Conclusion

• Surgical options
  – No definitive guidelines for approach to esophagectomy
  – Adequate lymphadenectomy or lymph node sampling recommended
A 75-year-old male with a history of esophageal adenocarcinoma undergoes a transhiatal esophagectomy. Which of the following is true of the procedure?

A. Three incisions are required: cervical, thoracic, and abdominal
B. A gastric conduit is preferred, and the blood supply is based on the right gastroepiploic artery.
C. More lymph nodes can be harvested than with en bloc esophagectomy.
D. A substernal route of the replacement conduit is preferred because of the shorter route.
E. Cervical anastomotic leak rates are lower than thoracic leak rates but carry the same morbidity
A 75-year-old male with a history of esophageal adenocarcinoma undergoes a transhiatal esophagectomy. Which of the following is true of the procedure?

A. Three incisions are required: cervical, thoracic, and abdominal
B. A gastric conduit is preferred, and the blood supply is based on the right gastroepiploic artery.
C. More lymph nodes can be harvested than with en bloc esophagectomy.
D. A substernal route of the replacement conduit is preferred because of the shorter route.
E. Cervical anastomotic leak rates are lower than thoracic leak rates but carry the same morbidity.
Questions

Which of the following is true regarding multi-modality therapy for esophageal cancer management?

A. A complete histologic response occurs in approximately 25% of patients
B. SCC and adeno Ca have similar response to radiation
C. Survival beyond 5 years has not been reported in patients with stage IV disease
D. Radiation therapy alone is an option for stage I disease
Questions

Which of the following is true regarding multi-modality therapy for esophageal cancer management?

A. A complete histologic response occurs in approximately 25% of patients
B. SCC and adeno Ca have similar response to radiation
C. Survival beyond 5 years has not been reported in patients with stage IV disease
D. Radiation therapy alone is an option for stage I disease
References

- NCCN Guidelines Version 2.2013, Esophageal and Esophagogastric Junction Cancers


