downstatesurgery.org

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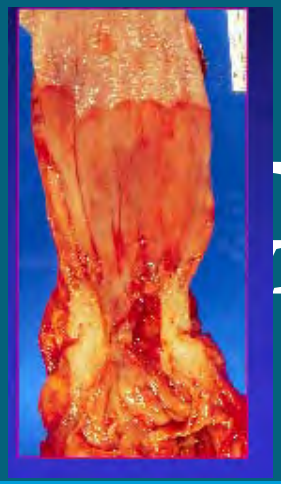


EE JUNCTIO

Kiyanda Baldwin
SUNY Downstate Medical Center
Morbidity & Mortality Conference
Kings County Hospital
June 10, 2010

CASE PRESENTATION

This is a 69 y/o man who presented to KCH 3/10 w/ CC of worsening dysphagia

- HPI:
  - Dysphagia since 12/09
  - 20lb weight loss
  - Diagnosed in 2/10 in St. Lucia w/ gastric adenocarcinoma extending into distal esophagus
  - Denied h/o GERD, melena, hematemesis

CASE PRESENTATION

- PMH: BPH
- PSH:TURP ‘06
- Meds:denies
- All:NKDA
- SH:denies tobacco, alcohol, or drug use, works as electrician, runs 1 mile & swims daily
- FH: noncontributory

PHYSICAL EXAM

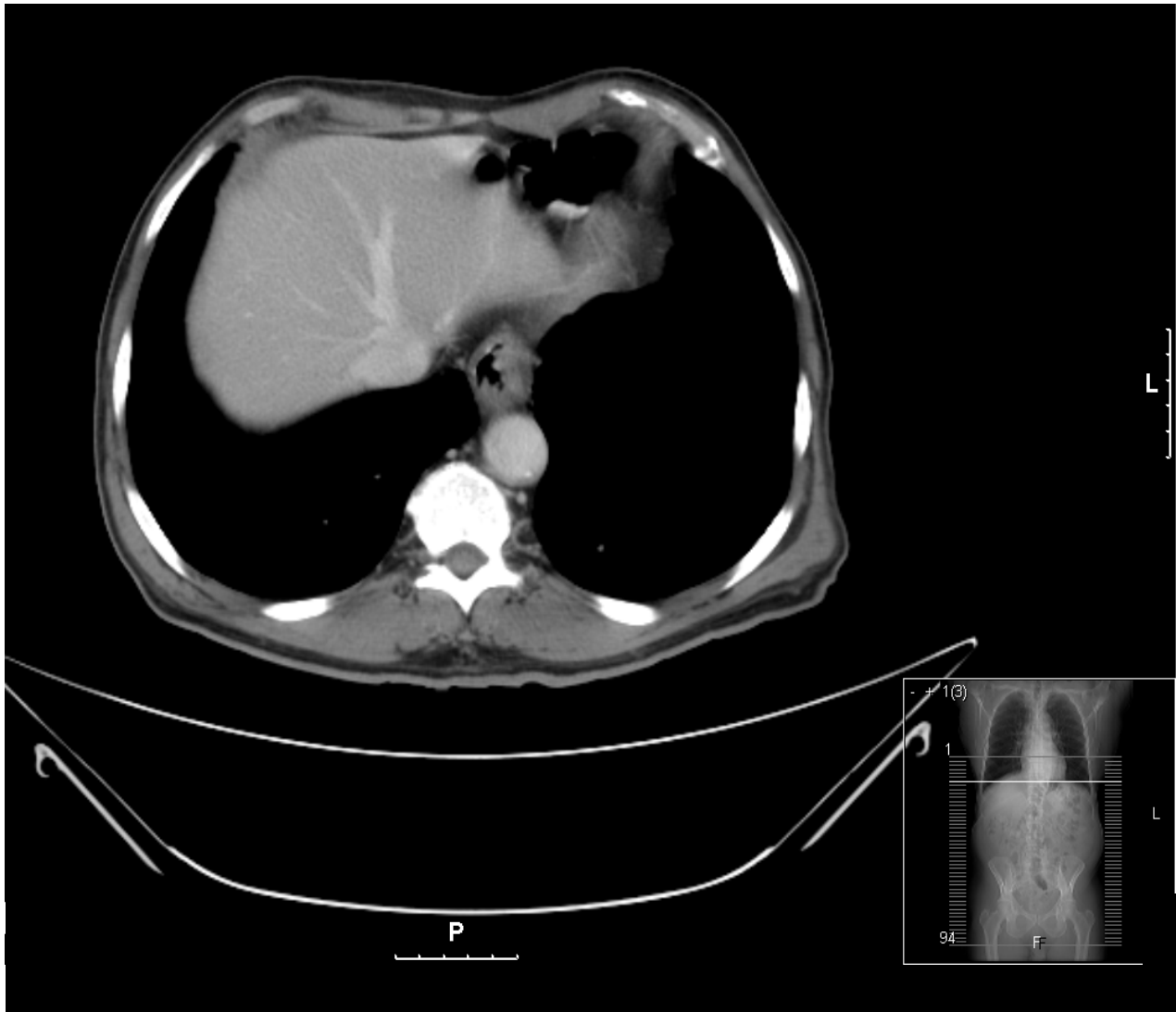
- Vitals:
  - T=98.8; BP= 134/80; HR=55; RR=20; 100%
- Gen: healthy, well built
- HEENT: WNL
- CVS: S1S2 RRR
- Chest: CTA B/L
- Abd: soft, NT, ND, +BS, no masses appreciated
- Rectal: no masses appreciated, guiaic neg
- Ext: FROM x4, 2+ x4
- Lymphatic: no lymphadenopathy appreciated

LABS

- CBC: 6.7 / 11.5 / 36 / 436
- BMP: 145 / 4.5 / 108 / 28 / 15 / 1 / 95
- LFTs: 7.4 / 4.1 / 19 / 18 / 42 / 0.5
- Coags: 12.6 / 23.6 / 1
- RA ABG: 7.42 / 38.3 / 113 / 27.3 / 98.9 / 3

RADIOLOGY

- CXR WNL
- CT chest
  abdomen

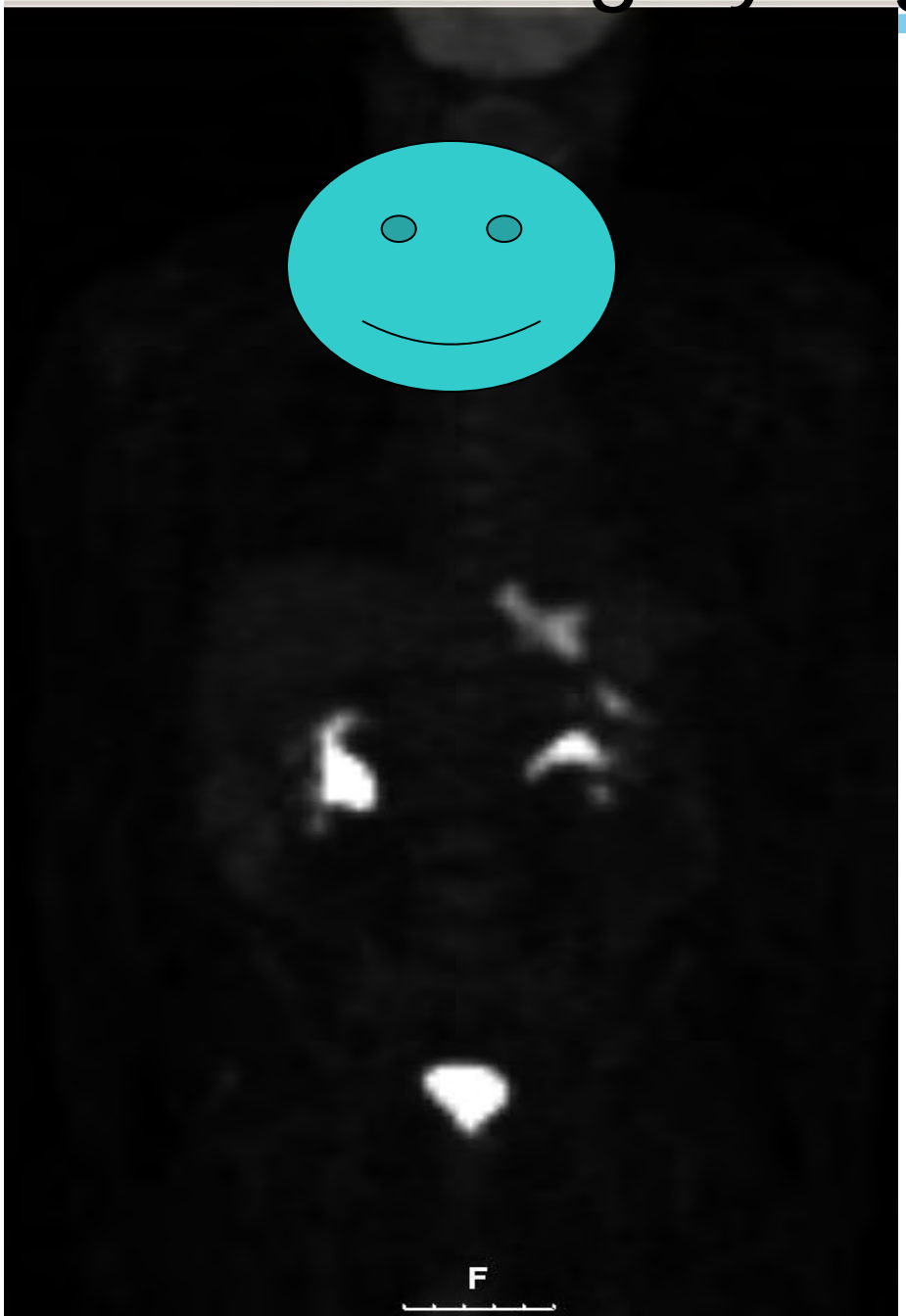


EGD

- Fungating, ulcerated, friable mass in distal 1/3 of the esophagus through the GE junction into the cardia of the stomach

- EUS probe could not be passed
- Pathology: moderately differentiated adenocarcinoma of GEJ origin

PET



Operative Intervention

- Bronchoscopy, Endoscopy, Laparotomy, Transhiatal esophagectomy with cervical anastomosis

- Operative Findings
  - Endoscopy: near obstructing mass at 40cm
  - Mass ~2cm above and below GEJ
  - Celiac node negative on frozen section

PATHOLOGY

- 6.5 X 5.5 cm GEJ/cardia adenocarcinoma
- Grade III, poorly differentiated
- Penetrates adventitia but no adjacent structures
- 2cm gastric margin
- 2/14 regional LN positive, celiac node neg, L. cervical node neg
- T3N1M0
- Chronic H. pylori gastritis

POSTOP COURSE

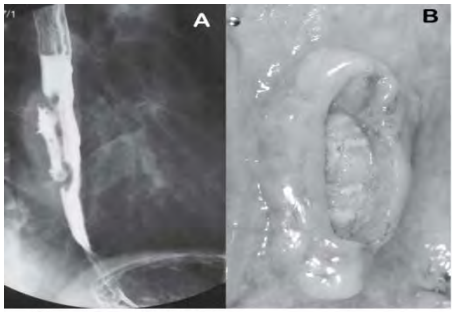
- POW #1:
  - Extubated, Jej feeding, Esophagram: postop edema, no leak
- POW #2:
  - Tx to floor from SICU, difficulty w/ PO intake, failed S&S
  - modified barium swallow: persistent post op edema & near obstruction at anastomosis
- POW #3:
  - Chemoport placed, esophageal dilatation performed
- POW #4:
  - Persistent difficulty w/ PO intake
- POW #5:
  - Rpt modified barium swallow persistent anastomotic obstruction, Rpt esophageal dilatation
- POW #6:
  - Rpt esophageal dilatation
- POW #7:
  - Rpt esophageal dilatation & stent placement

Management of GEJ Adenocarcinomas

The first patient to have transthoracic esophagectomy. Notice patient has a rubber tube as esophagus.

Presentation

- Dysphagia
- Odynophagia
- Wt loss
- Dyspnea
- Cough
- Hoarseness
- Pain



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DIAGNOSIS

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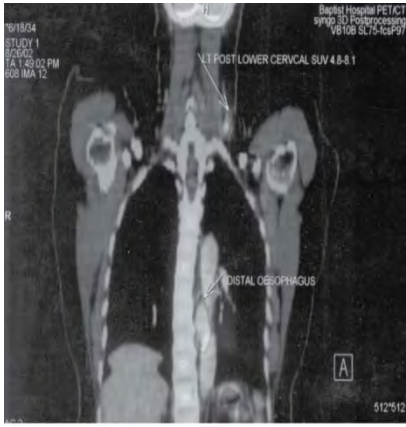

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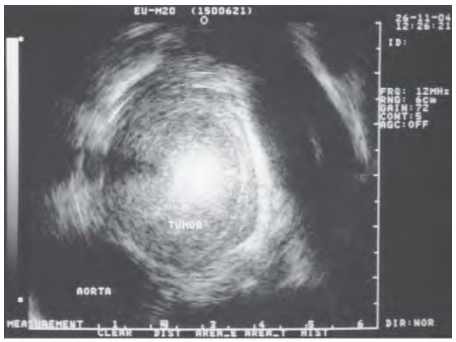

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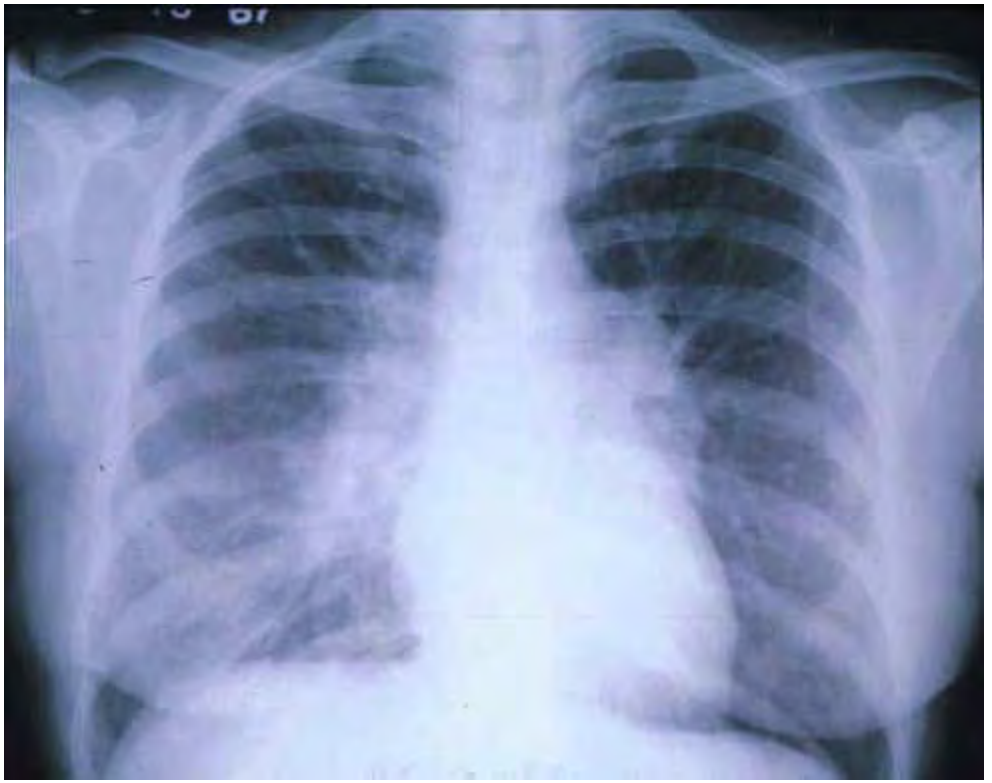
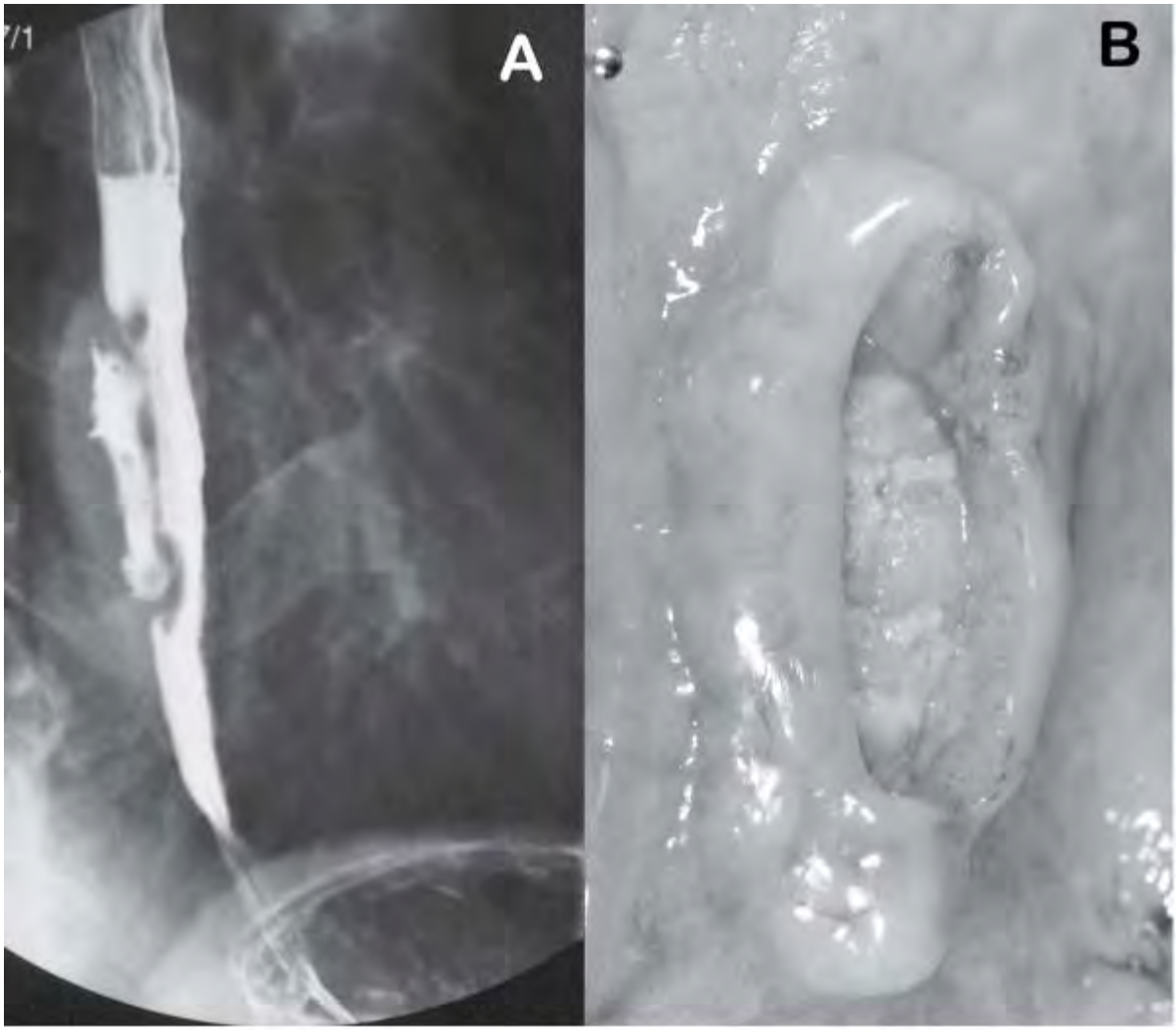
CXR

- Mediastinal or hilar lymphadenopathy
- Pulmonary infiltrates
- Lung mets
- Pulmonary effusion



ESOPHAGRAM

- mucosal irregularity and shouldering
- narrowing of the lumen, and proximal dilatation



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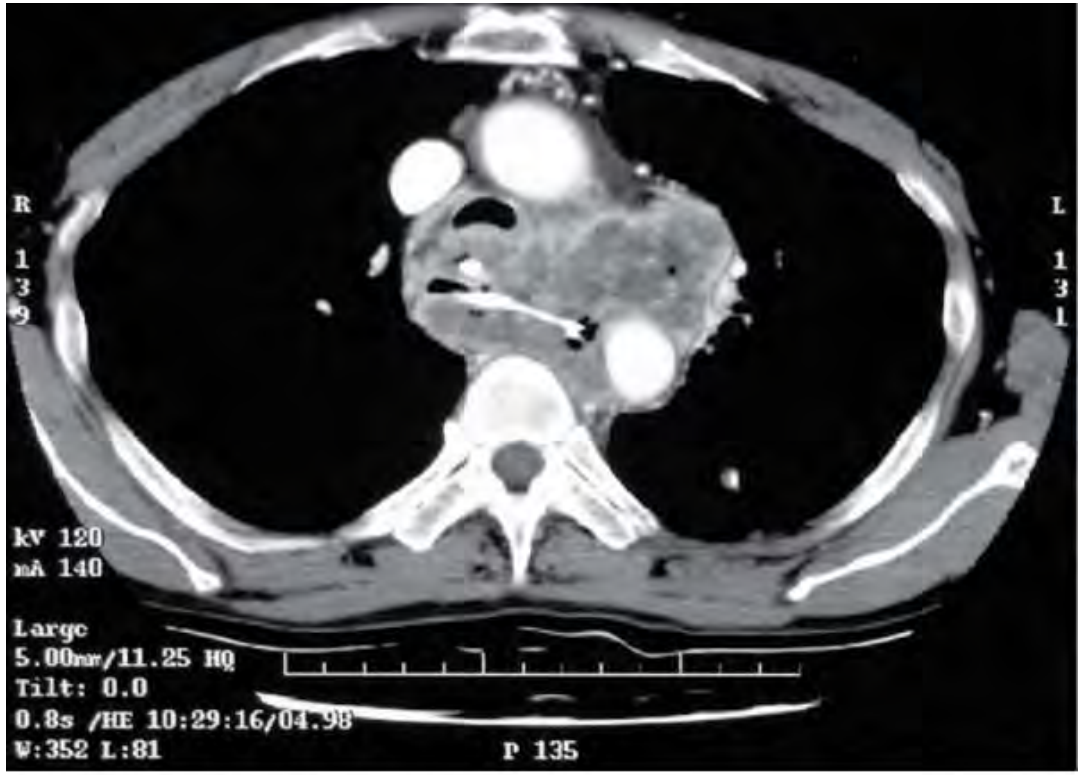
CT Scan



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- Detect mets
- Cannot distinguish tumor stage
- Low sensitivity in detecting nodal involvement
- Monitor tumor response to cytoreductive therapy

BRONCHOSCOPY

- Assess involvement of tracheobronchial tree
  - Widened carina
  - External compression
  - Tumor infiltration
  - Fistulization

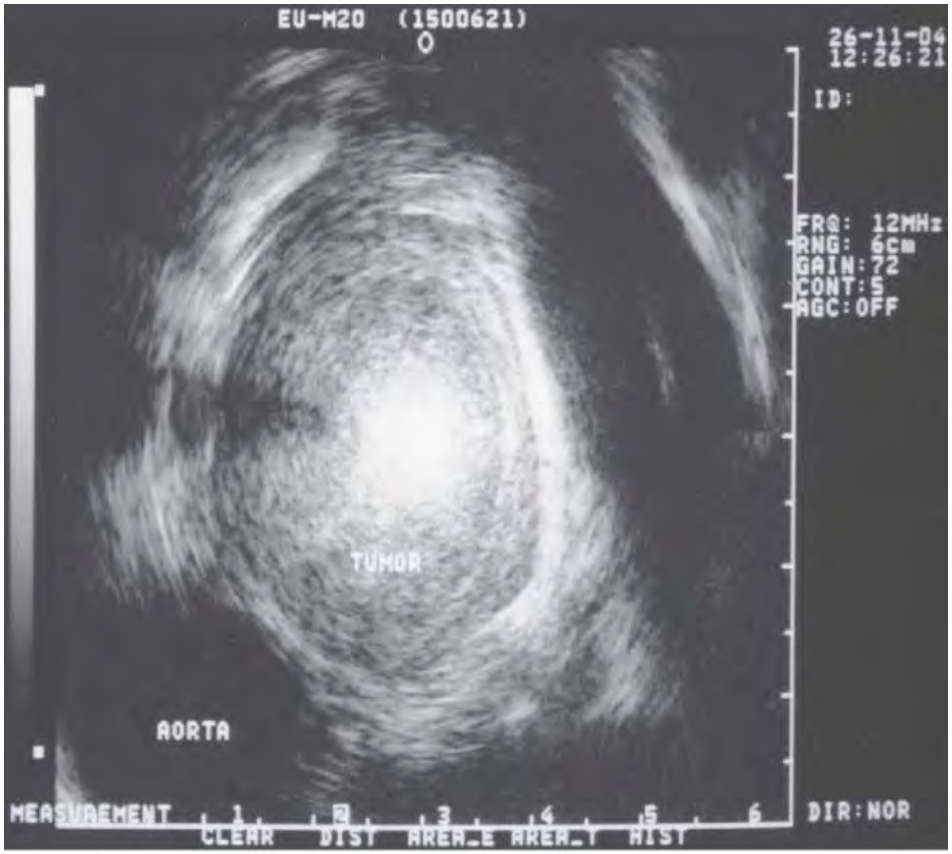
Endoscopy

- Bx
- Detect other path

emedicine.medscape.com/article/277930-overview

EUS

- Only imaging that can distinguish the layers of the esophageal wall
- T staging 85% accurate
- N staging 75% accurate
  - Up to 2cm from esophagus
- 1/3 non-traversable stricture
- Less accurate post-therapy



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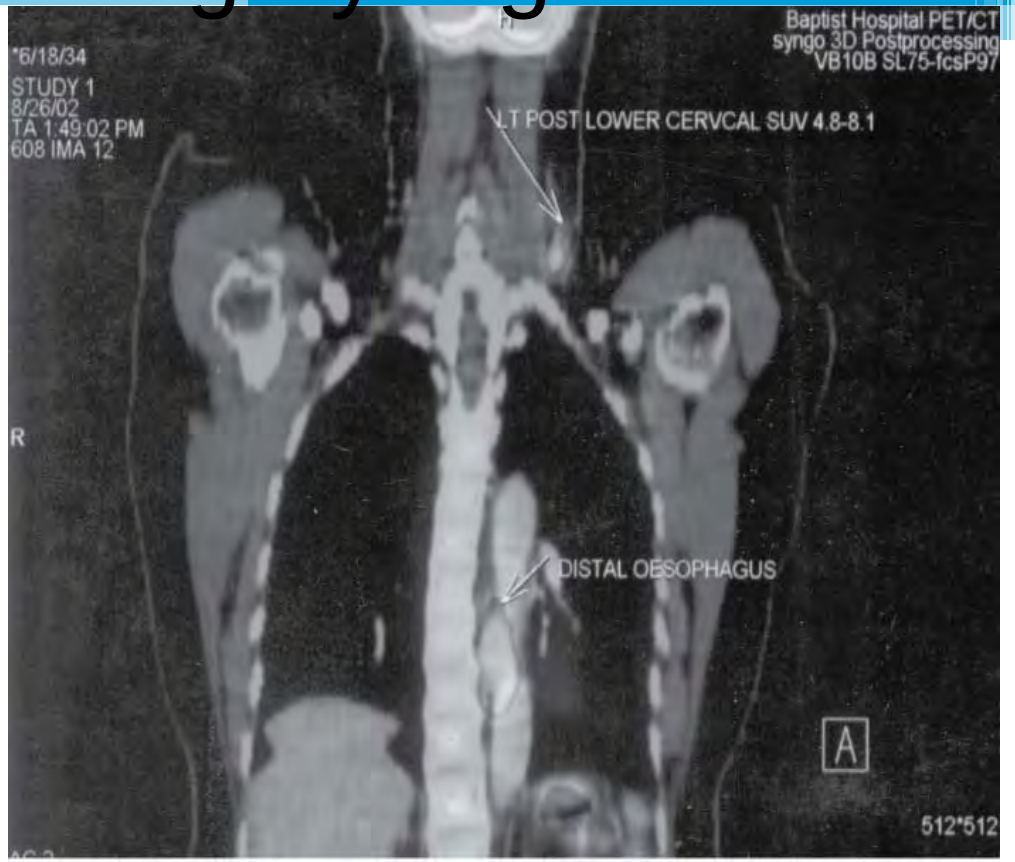
PET

- Detects mets not seen on CT
- No value in T staging
- Better for detecting higher nodes (cervical>thoracic>abdominal)
- Assess response to cytoreduction Tx



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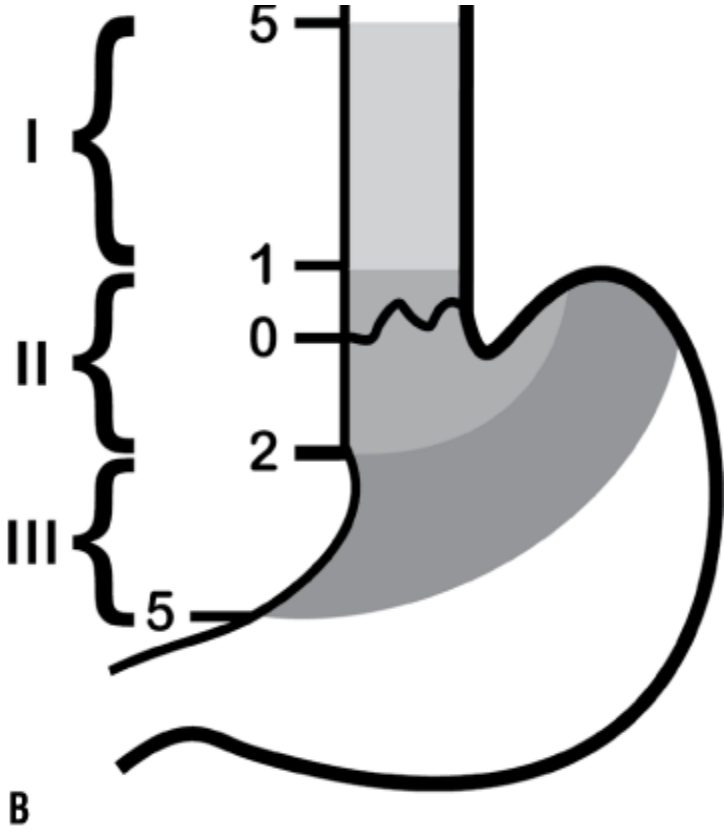
Siewert Classification

Tumors of GEJ = tumors w/ centers w/in 5cm proximal or distal to the cardia

- Type I
  - Distal esophagus
- Type II
  - True Ca of the cardia
- Type III
  - Subcardial gastric Ca



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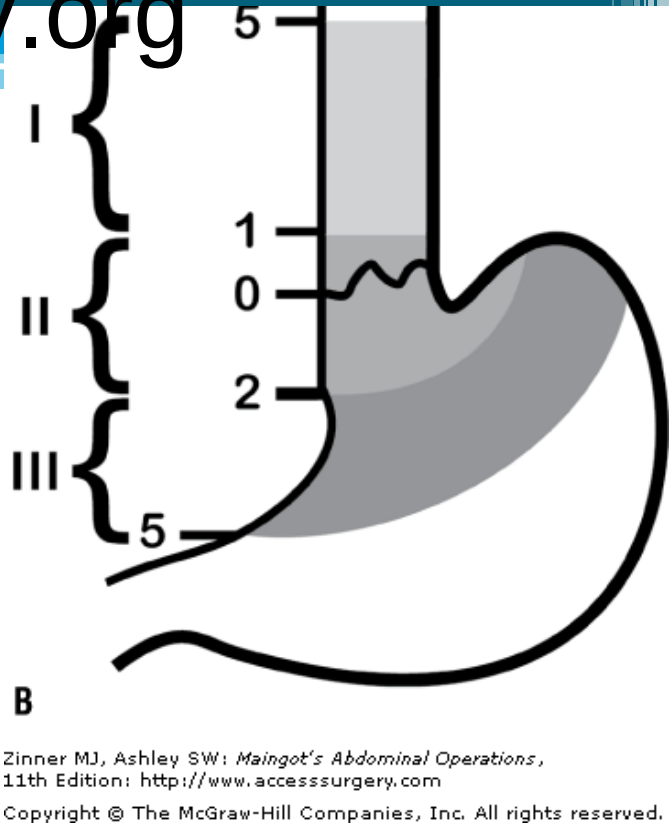
Stein et al 2000

Etiology & Pathology



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- Male predominance, 1.5 : 1 – 8:1, >Type I
- Type I: more likely to have long standing GERD, or esophageal hernia
- Higher incidence of H.pylori w/ Types II & III
- Lymphatic spread w/ Type I → mediastinum & celiac axis
- Lymphatic spread w/ Types II & III → celiac axis preferentially, also splenic hilus, & paraaortic

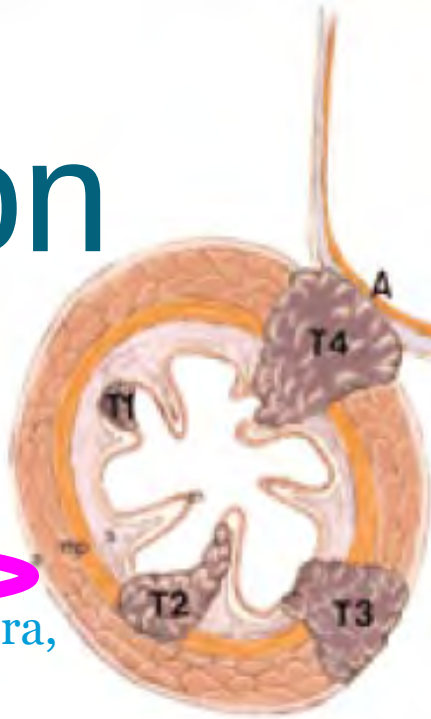
Stein et al 2000, Maingot 2007

Staging of esophagus & GEJ Ca

Rvw of 4600 esophagectomy pts (13 institutions, 5 countries: Worldwide Esophageal Cancer Collaboration)

7th edition of the AJCC Cancer Staging Manual 2009

TNM Classification



- T classification
  - Tis High-grade dysplasia
  - T1: invades lamina propria/submucosa but not beyond
  - T2: invading into but not beyond muscularis propria
  - T3: invades adventia but not adjacent structures
  - T4a Resectable cancer invades adjacent structures such as pleura, pericardium,diaphragm
  - T4b Unresectable cancer invades adjacent structures such as aorta, vertebral body,trachea
- N classification
  - = Any periesophageal lymph node from cervical nodes to celiac nodes
  - N0: No regional lymph node metastases
  - N1: 1 to 2 positive regional lymph nodes
  - N2: 3 to 6 positive regional lymph nodes
  - N3: ≥7 positive regional lymph nodes
- M classification
  - M0 No distant metastases
  - M1 Distant metastases

7th edition of the AJCC Cancer Staging Manual 2009
Maingot 2007

TABLE 2 Adenocarcinoma stage groupings

Stage	T	N	M	G
0	is (HGD)	0	0	1
IA	1	0	0	1–2
IB	1	0	0	3
	2	0	0	1–2
IIA	2	0	0	3
IIB	3	0	0	Any
	1–2	1	0	Any
IIIA	1–2	2	0	Any
	3	1	0	Any
	4a	0	0	Any
IIIB	3	2	0	Any
IIIC	4a	1–2	0	Any
	4b	Any	0	Any
	Any	N3	0	Any
IV	Any	Any	1	Any

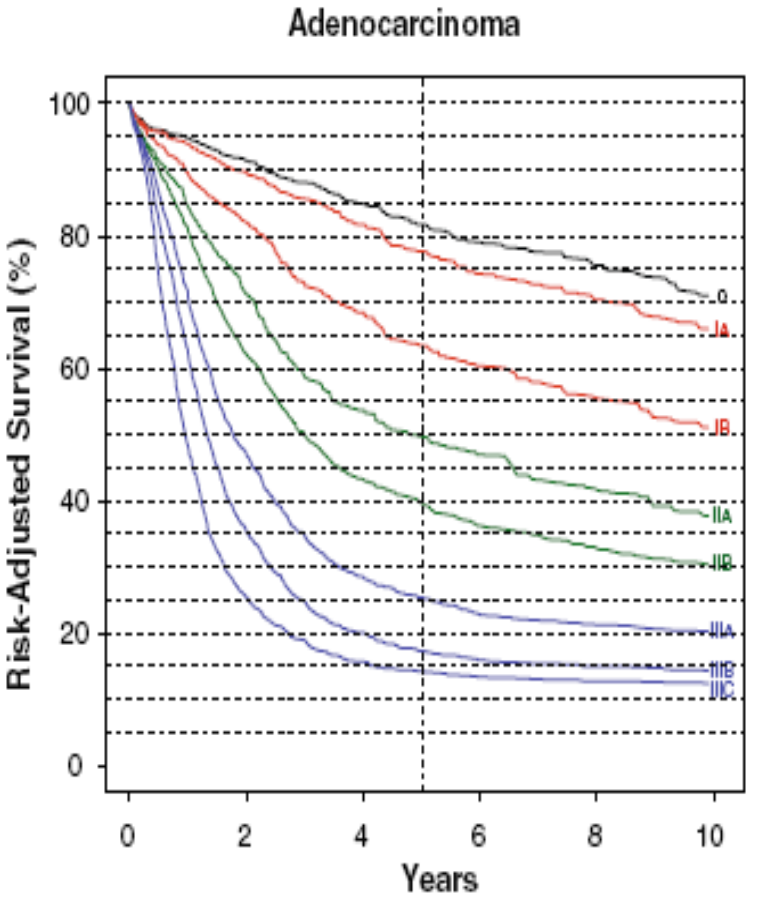
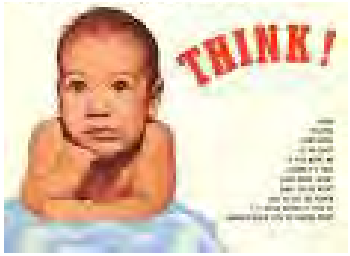


FIG. 1 Risk-adjusted survival for adenocarcinoma according to the American Joint Committee on Cancer *Cancer Staging Manual*, 7th edition, stage groups

Surgical Approach - PreOp

- Consider age – typically not done if >80 y/o
- Cardiopulmonary reserve
  - FEV-1 : >2L is ideal; >1.25 for thoracotomy
  - Clinical eval, EKG, echo
- Nutritional status
  - Most predictive of postop complications (wt loss >20lb, albumin <3.5)
- Clinical staging
  - Paralysis of diaphragm
  - Bronchiotracheal involvement
  - Malignant pleural effusion



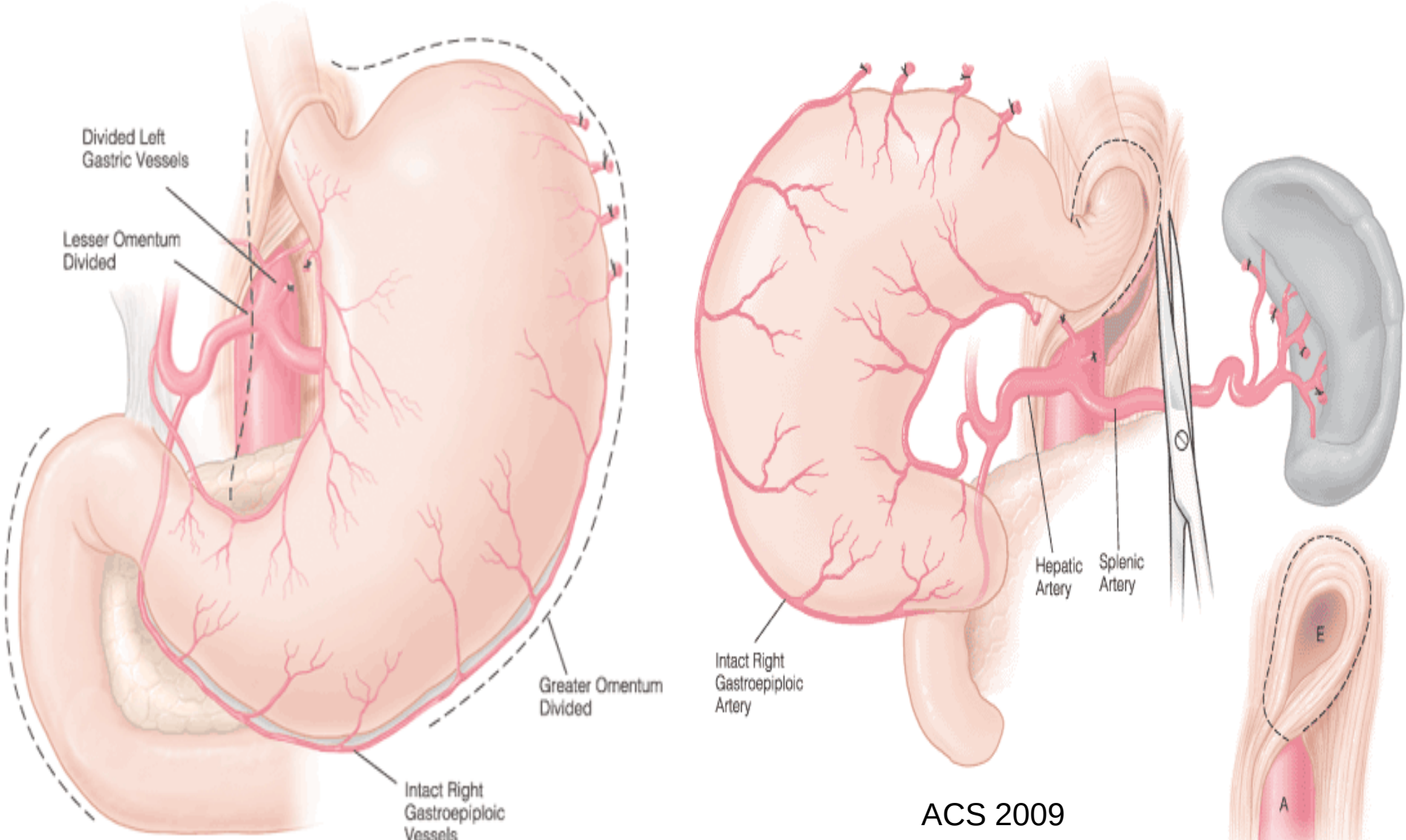
Schwartz 2010

Different Surgical Approaches

- Ivor Lewis
  - Abdominal/thoracic dissection
  - Thoracic esophagogastrostomy
- Left Thoracoabdominal
- Transhiatal
  - Cervical and upper midline incisions
  - Blind chest dissection
  - Cervical esophagogastrostomy

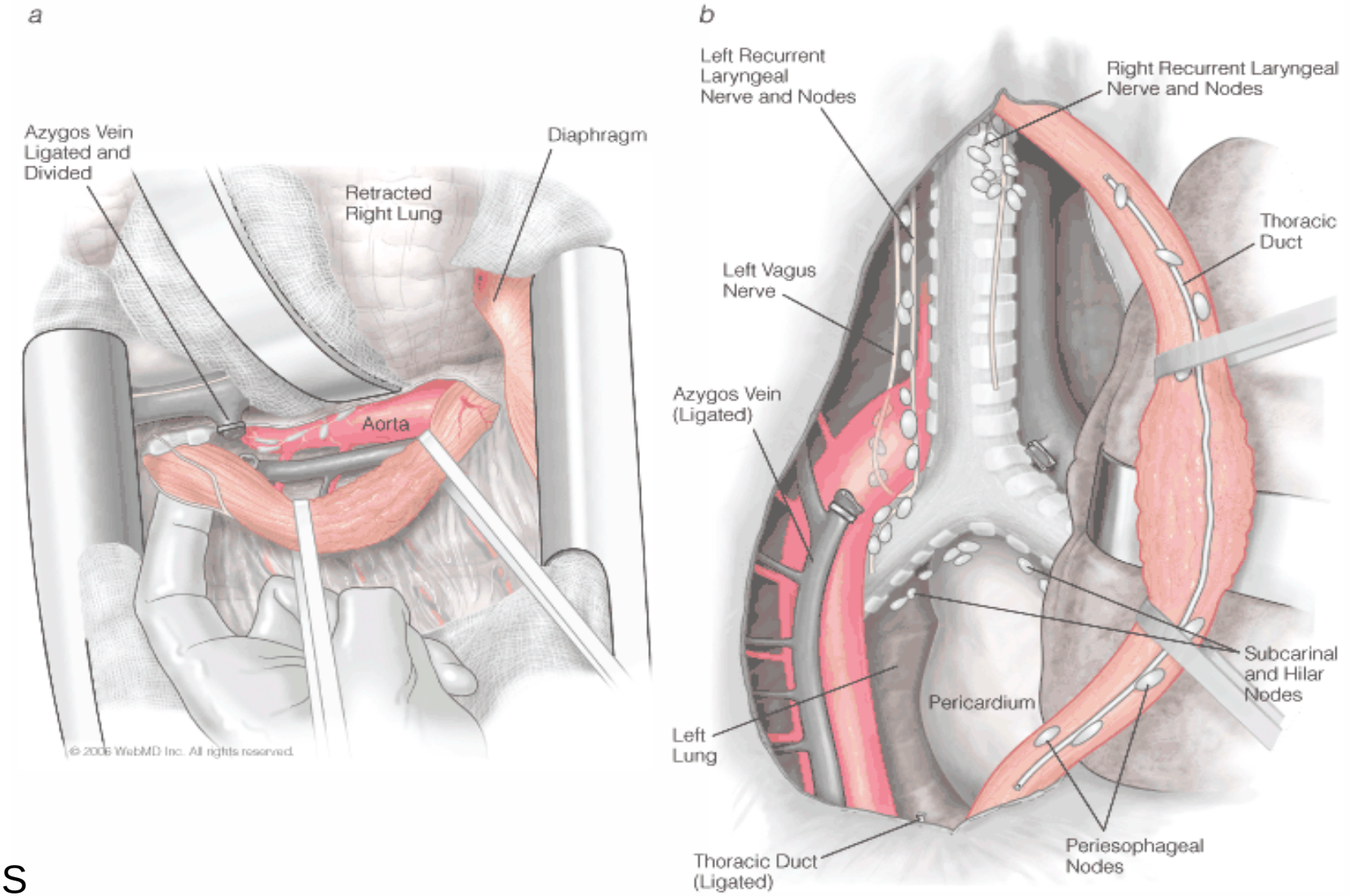
➢ Feeding jejunostomy

Abdominal Dissection



ACS 2009

Esophageal Dissection



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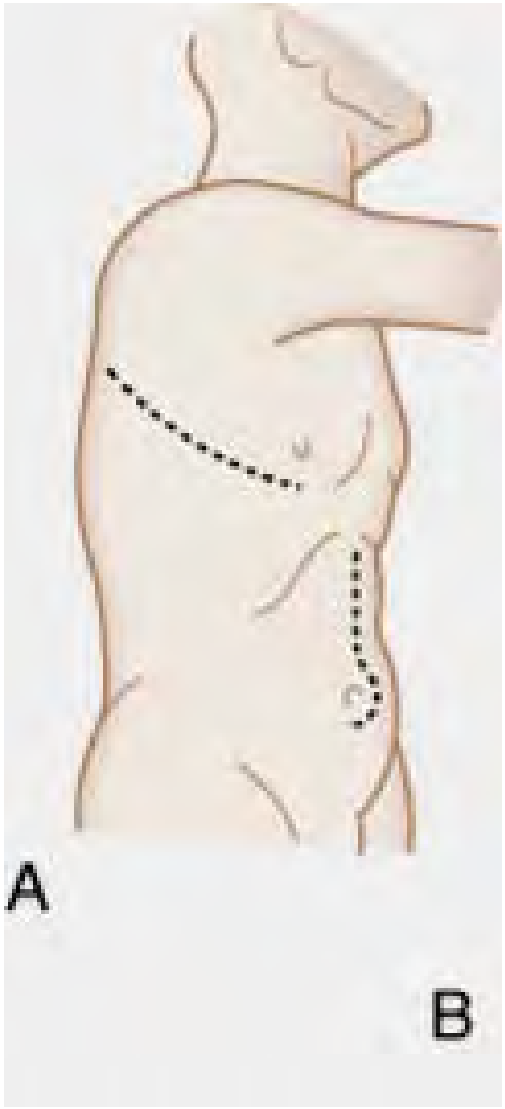
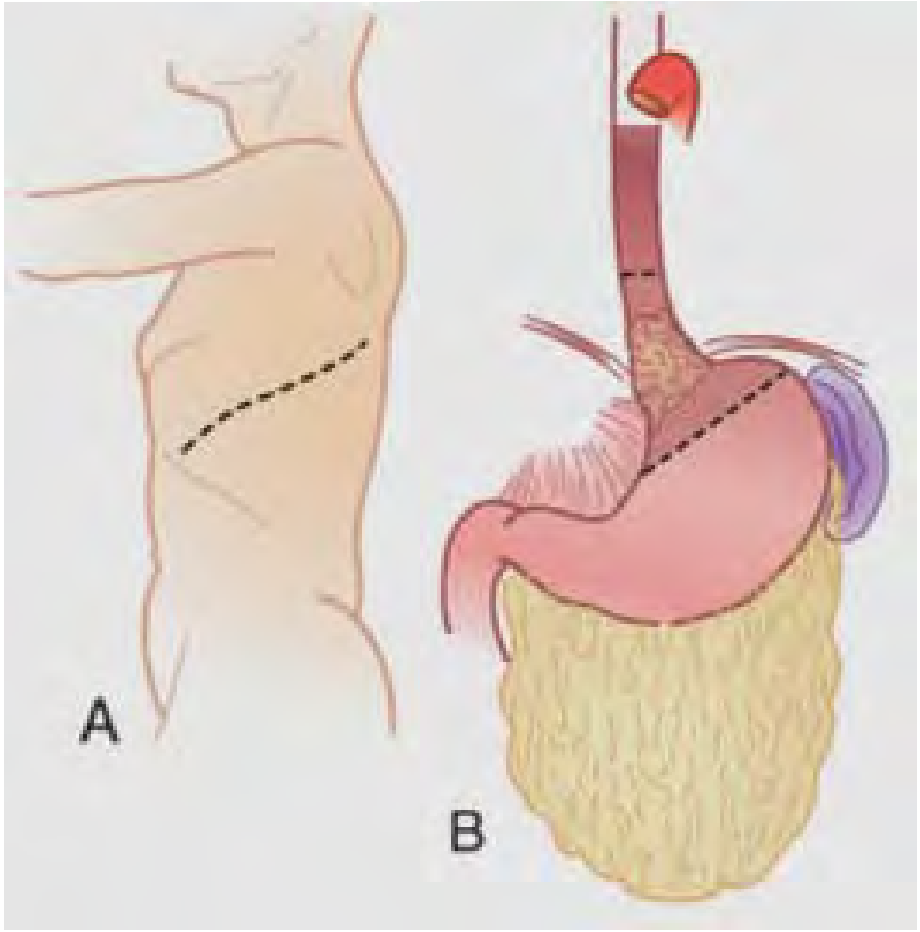


Ivor Lewis

- Abdominal/thoracic dissection
- Direct visualization
- Leak rate ~5%
  - Difficult to manage → empyema

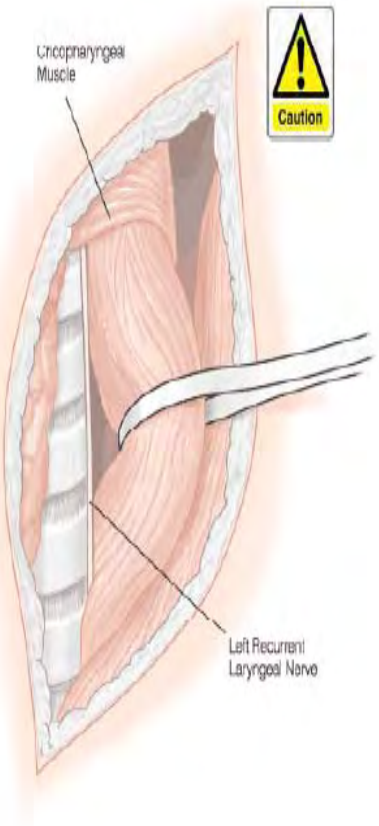
Left Thoracoabdominal

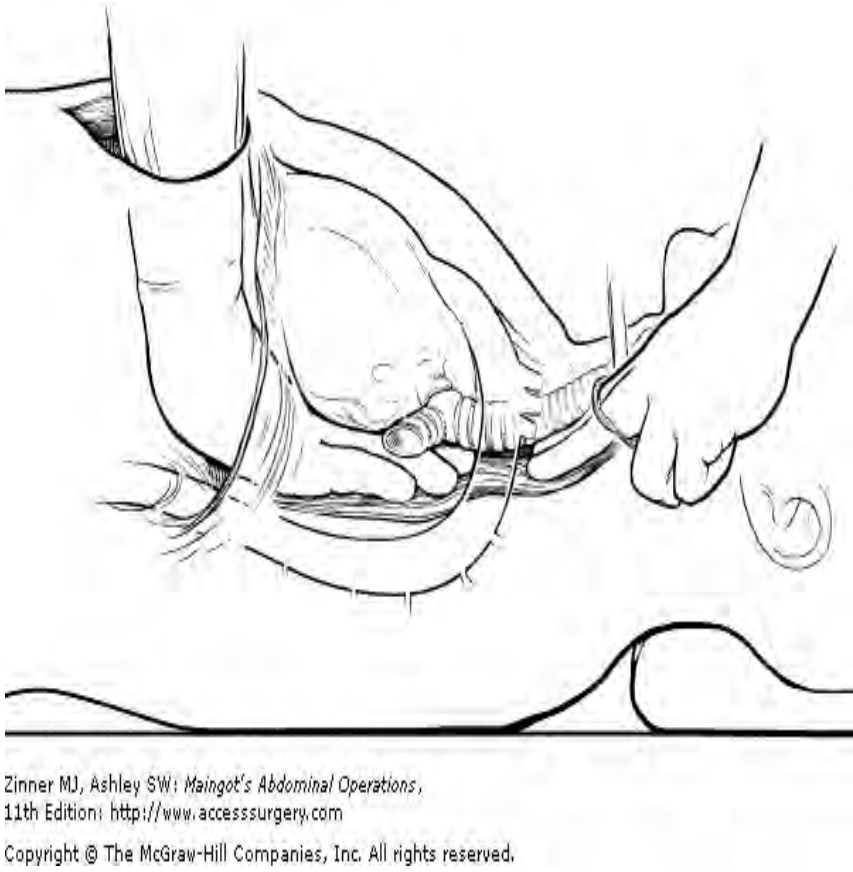


- Indicated for GEJ, distal esophageal, proximal stomach tumors
  - especially if using intestinal conduit
  - obese
- Thoracic esophagogastrostomy

ACS 2009

Transhiatal





Zinner MJ, Ashley SW: *Maingot's Abdominal Operations*, 11th Edition: http://www.accesssurgery.com

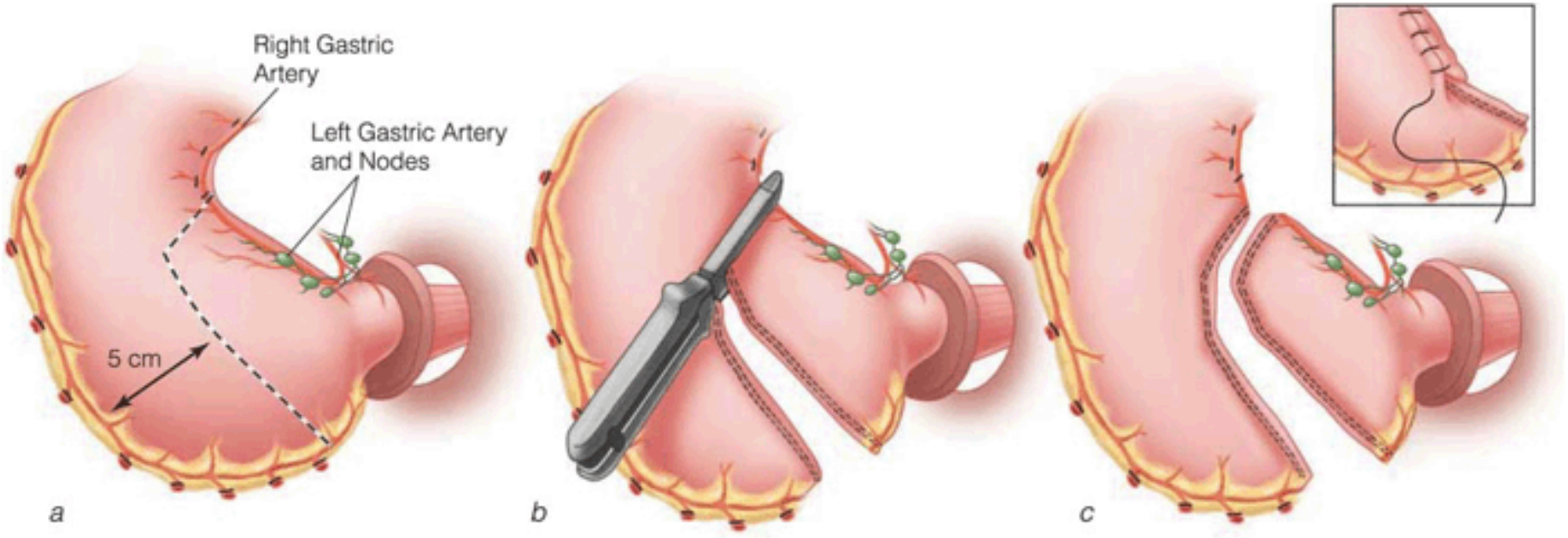
ACS 2009 & Maingot 2007

Reconstruction

- Tubularized or whole stomach
  - Preferred b/c blood supply
  - Proximity
  - Single anastomosis
- Colon
  - Stomach can't be used
    - Prior Sx, PUD scarring, tumor involvement
  - L colon preferred b/c
    - Diameter closer to that of esophagus, more length, less variation of blood supply
  - Problems w/ L. colon
    - most affected by diverticular Dz, IMA most affected by atherosclerosis
- Jejunum
  - Cannot replace entire esophagus
  - Free graft, pedicled graft, or Roux-en-Y

Maingot 2007

Creating the Gastric Tube



- Don't forget pyloromyotomy/pyloroplasty

ACS 2009

Pitfalls in Surgical Management

- Retrospective analysis of 117 pts w adenoCa of proximal 1/3 of the stomach 1961-1970
- Esophagitis, hiatal hernia, achalasia should not delay suspicion of Ca
- Avoid microscopic tumor extension at the esophageal margin (suture line dehiscence → 5/7 deaths) => frozen section? & 6cm esophageal margin

Alfonso et al 1977

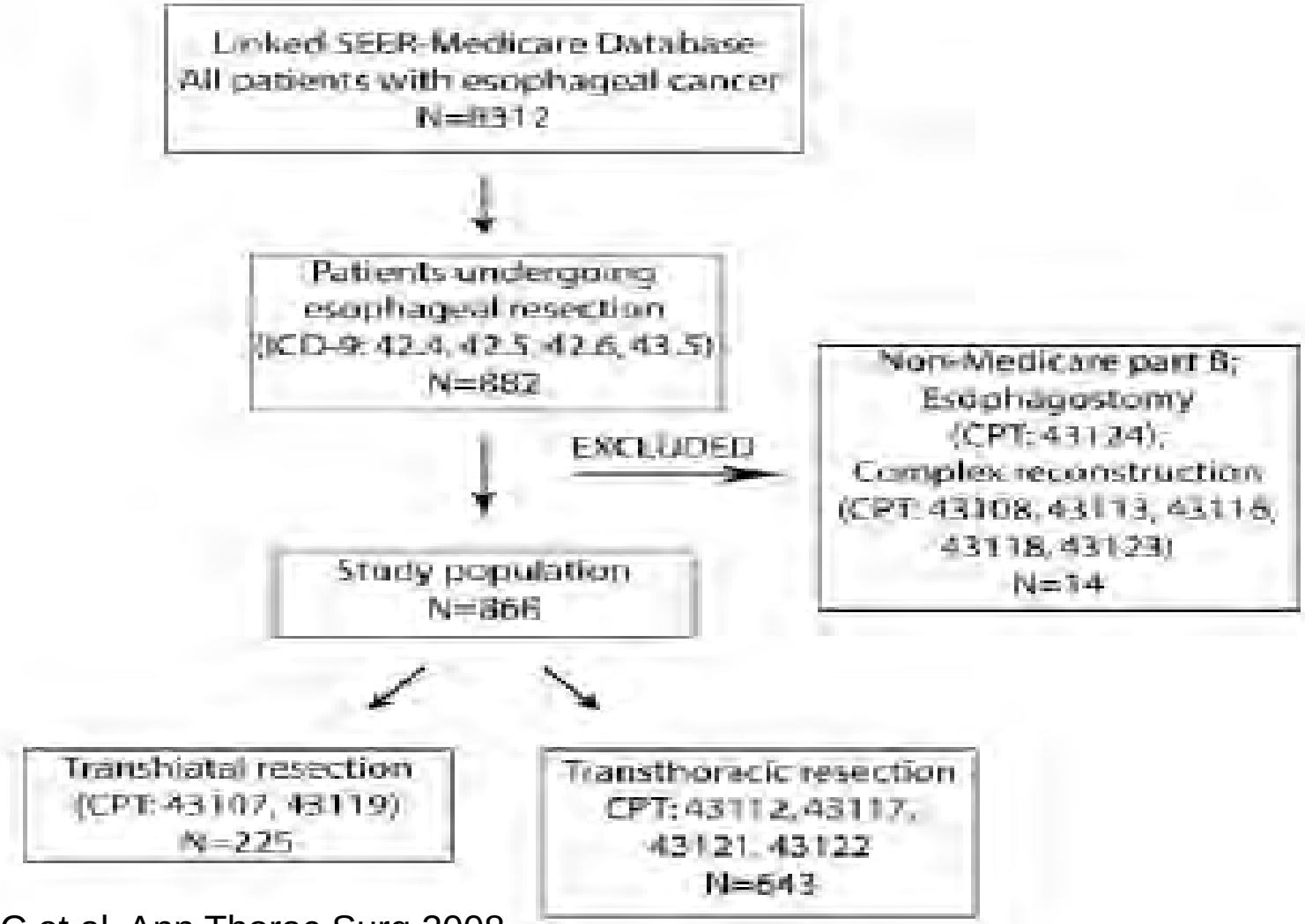
Surgical Approach – Which way do I go?

- Transhiatal esophagectomy (THE) is may be safer
  - One major incision instead of 2
  - Shorter OR time

- Transthoracic esophagectomy (TTE) may be a better oncological procedure
  - Extended lymph node dissection in the posterior mediastinum
  - Better for tumors close to tracheobronchial tree & after neoadjuvant Tx especially mid & upper esophagus

Maingot 2007

Outcomes after Transhiatal & Transthoracic Esophagectomy



Chang AC et al. Ann Thorac Surg 2008

Outcomes after Transhiatal & Transthoracic Esophagectomy

Pts s/p THE had:

- Lower operative mortality (30 days)
  - 6.7% vs 13.1%, p = 0.009
- Trend towards higher 5-yr survival
  - No statistically significant difference
- More likely to require endoscopic dilatation w/in 6months
  - 43.1% vs 34.5%, p = 0.02

Chang AC et al. Ann Thorac Surg 2008

Extended TTE vs Limited THE for AdenoCa of the mid/distal Esophagus

- 1994-2000; randomly assigned 220 pts w/ THE (n=95) or TTE (n=110); 15 pts excluded b/c unresectable
- 5-yr survival THE 34% vs TTE 36%, p = 0.71
- Survival benefit 14% in Type I tumor w/ TTE (51% vs 37%, p = 0.33)
  - Not seen in pts w/ Type II tumor, no positive nodes, or >8 + nodes
- TTE higher perioperative morbidity but no difference in mortality

Omloo et al. Ann Surg 2007.

Neoadjuvant Chemo or ChemoRT

- Potential benefit of downstaging
- Toxicity may → delay or cancellation of resection

Neoadjuvant Chemo or ChemoRT

- Kelsen et al '98
  - American multi-institutional trial
  - Randomized 440pts Sx alone vs neoadjuvant chemo followed by Sx
  - 3 cycles 5-FU and cisplatin; Sx 2-4 wks later; 2 cycles postop
  - No difference in morbidity, mortality, or survival

- Urba et al 2001
  - 100 patients randomized to preoperative chemoradiation or surgery alone
  - Median survival was about 18 months in both groups, although there was a trend toward improved survival at 3 years (30% versus 16%; not statistically significant).

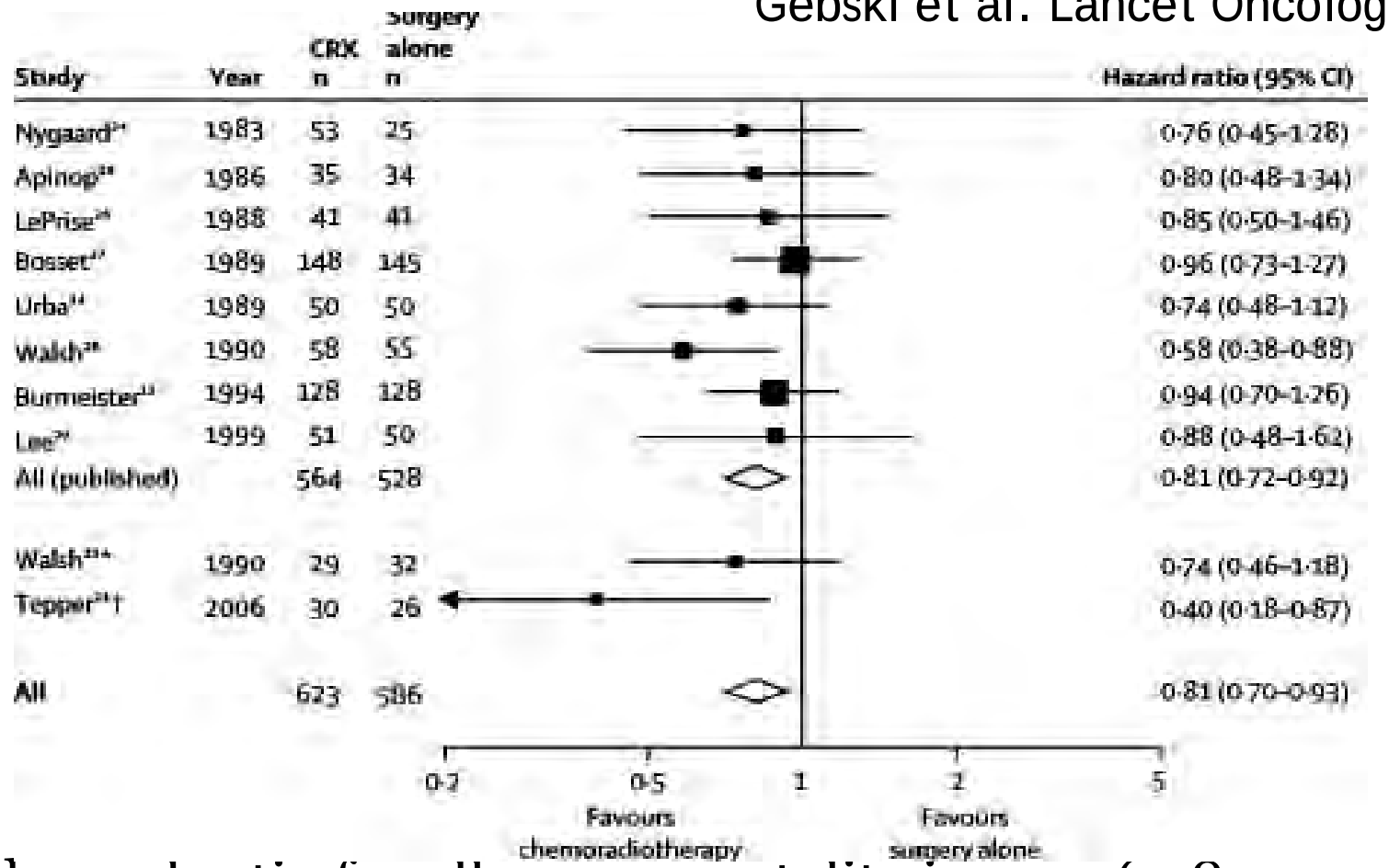
Neoadjuvant Chemo or ChemoRT

- 10 randomized trials 1983-2006
  - 1209 pts compared neoadjuvant chemoRT vs Sx alone
  - 6 studies SCC only, 1 adenoCa only, 3 both
- 8 randomized trials 1982-1992
  - 1724 pts neoadjuvant chemotherapy vs Sx alone
  - 7 SCC only, 2 SCC & adenoCa

Gebski et al. Lancet Oncology. 2007; 8:226-34

Neoadjuvant Chemo or ChemoRT

Gebski et al. Lancet Oncology. 2007



The hazard ratio for all-cause mortality is 0·90 (0·81–1·00) for patients receiving chemotherapy and 0·81 (0·70–0·93) for patients receiving neoadjuvant chemoradiotherapy

Adjuvant Chemo & ChemoRT

- Better local regional control
- Poorly studied
- No statistically significant change in 5-year survival

Maingot 2007

Follow-Up

- Look for locoregional recurrence and metastatic disease.
- First 3 years f/u every 3 months then subsequently every 4 to 6 months
- Each visit should include:
  - history and physical
  - complete blood count and liver panel
  - computed tomography of the chest and abdomen
  - Radiographic evidence of possible recurrence warrants biopsy to confirm diagnosis

Cameron 2008

SUMMARY

- Goal of surgery is R0 resection
- No proven significant difference in 5 yr survival with transthoracic vs transhiatal approach
- No proven significant difference in 5 yr survival with neoadjuvant or adjuvant therapy
  - But there may be some benefit?

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THANK YOU