General:

- 1% Risk
- Mean Age 72
- 0.6% Risk of Dying
- Stage at diagnosis
  - 24% Localized
  - 32% Regionalized
  - 32% Metastatic

Shift distal to proximal location

Staging

Lauren Histologic Type

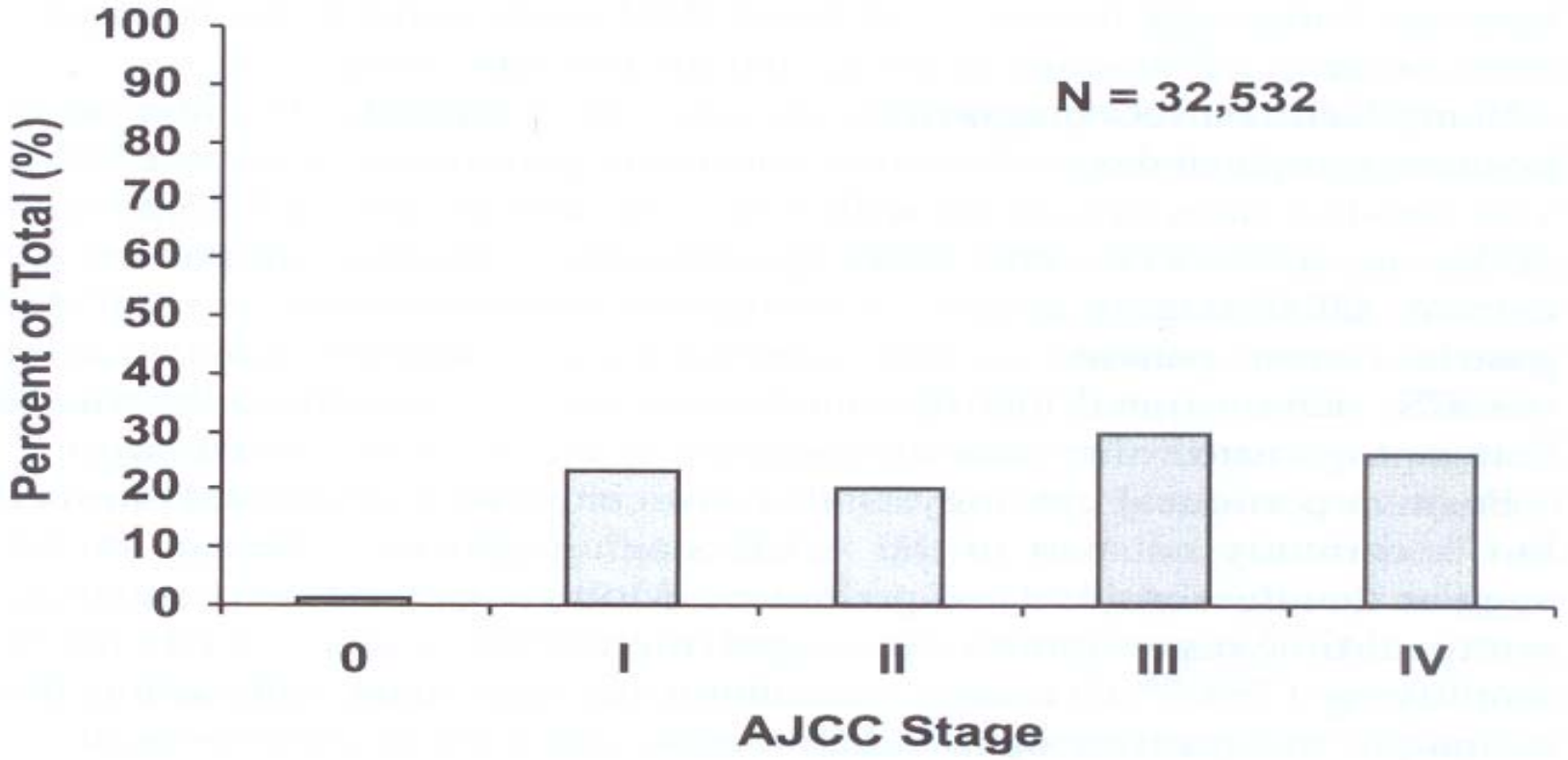
- Diffuse 70%
- Intestinal 30%

TNM Stage

TNM classification and staging of stomach cancer

Category	Criteria		
Primary tumor (T)			
TX	Primary tumor cannot be assessed.		
T0	No evidence of primary tumor.		
Tis	Carcinoma in situ: intraepithelial tumor without invasion of the lamina propria		
T1	Tumor invades lamina propria or submucosa		
T2a	Tumor invades muscularis propria		
T2b	Tumor invades subserosa		
T3	Tumor penetrates serosa (visceral peritoneum) without invasion of adjacent structures		
T4	Tumor invades adjacent structures		
Regional lymph nodes (N)			
NX	Regional lymph node(s) cannot be assessed		
N0	No regional lymph node metastasis		
N1	Metastasis in 1 to 6 regional lymph nodes		
N2	Metastasis in 7 to 15 regional lymph nodes		
N3	Metastasis in more than 15 regional lymph nodes		
Distant metastasis (M)			
MX	Distant metastasis cannot be assessed		
M0	No distant metastasis		
M1	Distant metastasis		
Stage grouping			
Stage 0	Tis	N0	M0
Stage 1A	T1	N0	M0
Stage 1B	T1	N1	M0
	T2a/b	N0	M0
Stage II	T1	N2	M0
	T2a/b	N1	M0
	T3	N0	M0
Stage IIIA	T2a/b	N2	M0
	T3	N1	M0
	T4	N0	M0
Stage IIIB	T3	N2	M0
Stage IV	T4	N1-3	M0
	T1-3	N3	M0
	Any T	Any N	M1

Reproduced with permission from Greene et al. American Joint Committee on Cancer Staging Handbook. 6th Edition. New York: Springer; 2001.



AJCC stage of U.S. patients presenting with gastric cancer. Based on American Joint Committee on Cancer data. Reproduced with permission from Balch CM, et al: Cancer Staging for Stomach. In: Greene FL, Page DL, Fleming ID, et al, editors. AJCC Cancer Staging Manual, 6th Edition. New York: Springer-Verlag, 2002: 100.

Gastric Cancer
Clancy Clark, M.D.
Current Problems in Surgery
Vol. 43, Number 8/9, Aug/Sept 2006, 568-622

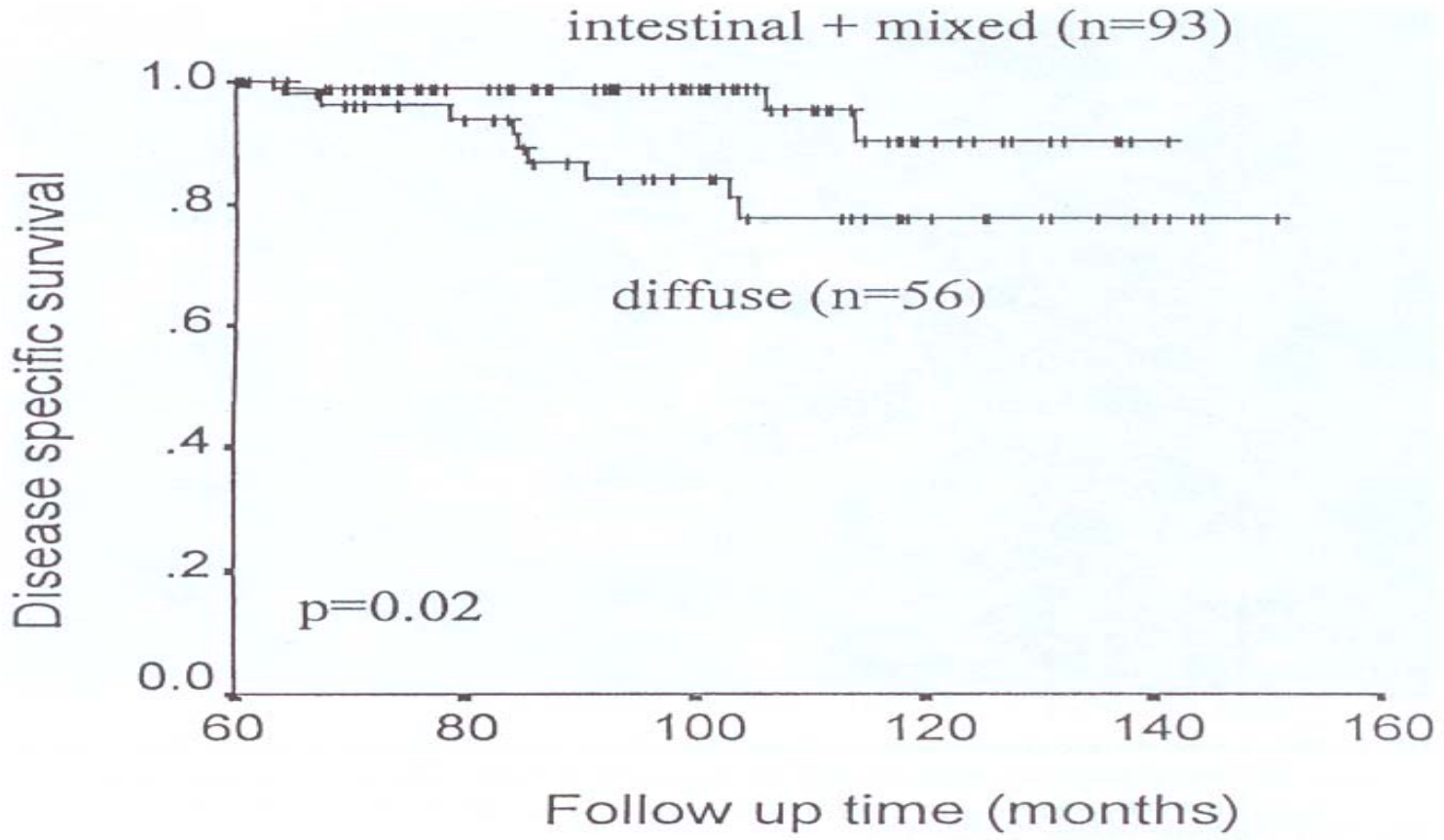
Lauren Staging

Intestinal

- Progression similar to colorectal
- Superficial gastritis (Diet / H pylori)
- Progression Metaplasia / Dysplasia / Cancer
- Adenomatosis Polyposis Coli
- Atrophic gastritis
- Older/Males

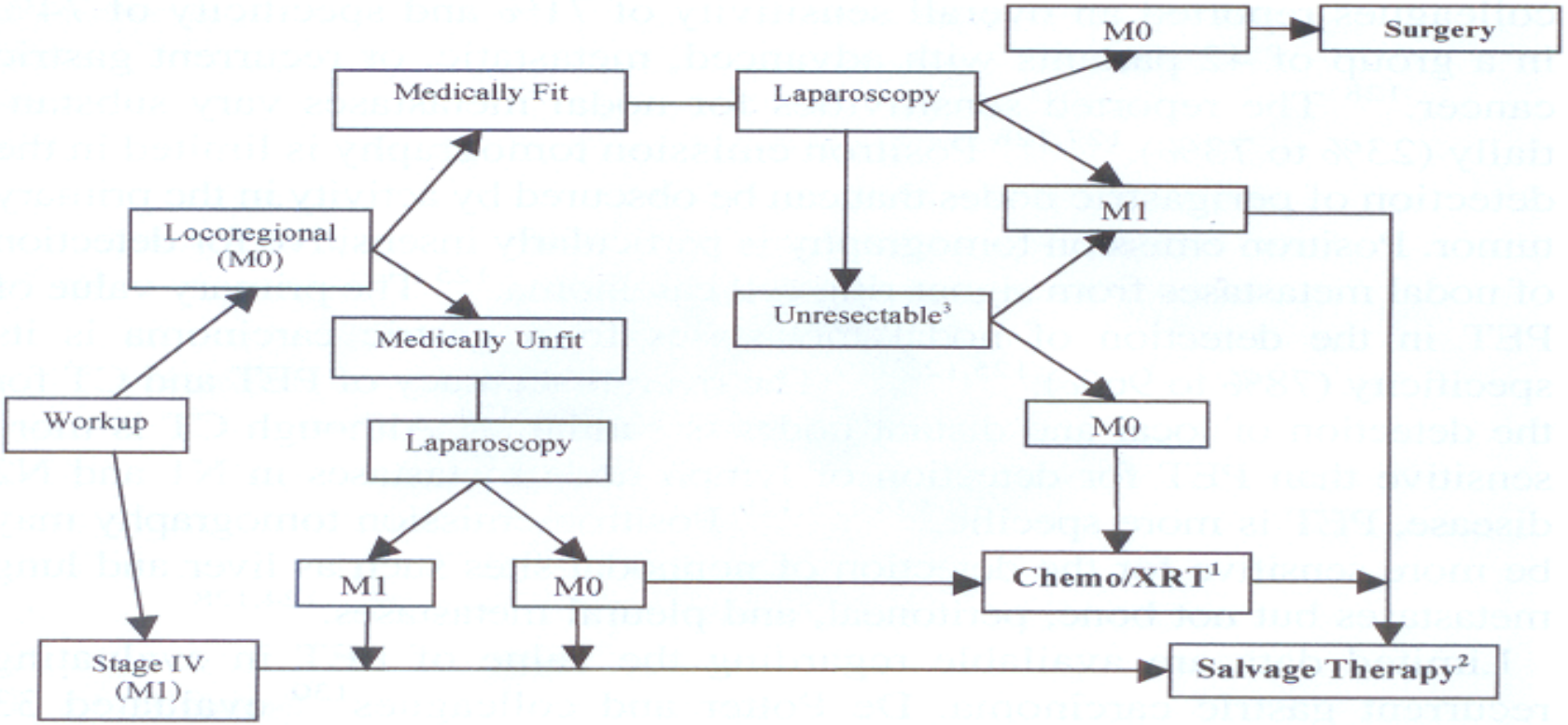
Diffuse

- Younger/females
- Type A blood
- Poorly differentiated
- Signet cells
- Early transmural and lymphatic spread
- Familial forms
- E-cadherin mutation (Cell-Cell adhesion)



Importance of Lauren classification. T stage and N stage determine the prognosis within the first 5 years after resection. Shown above is the survival of the subset of patients who survived 5 years. On multivariate analysis, Lauren classification becomes the strongest predictor of long-term survival. (From Hochwald SN, Kim S, Klimstra DS, Brennan MF, Karpeh MS. Analysis of 154 actual five-year survivors of gastric cancer. J Gastrointest Surg 4:520, 2000. Reproduced with permission.)

Gastric Cancer
Clancy Clark, M.D.
Current Problems in Surgery
Vol. 43, Number 8/9, Aug/Sept 2006, 568-622

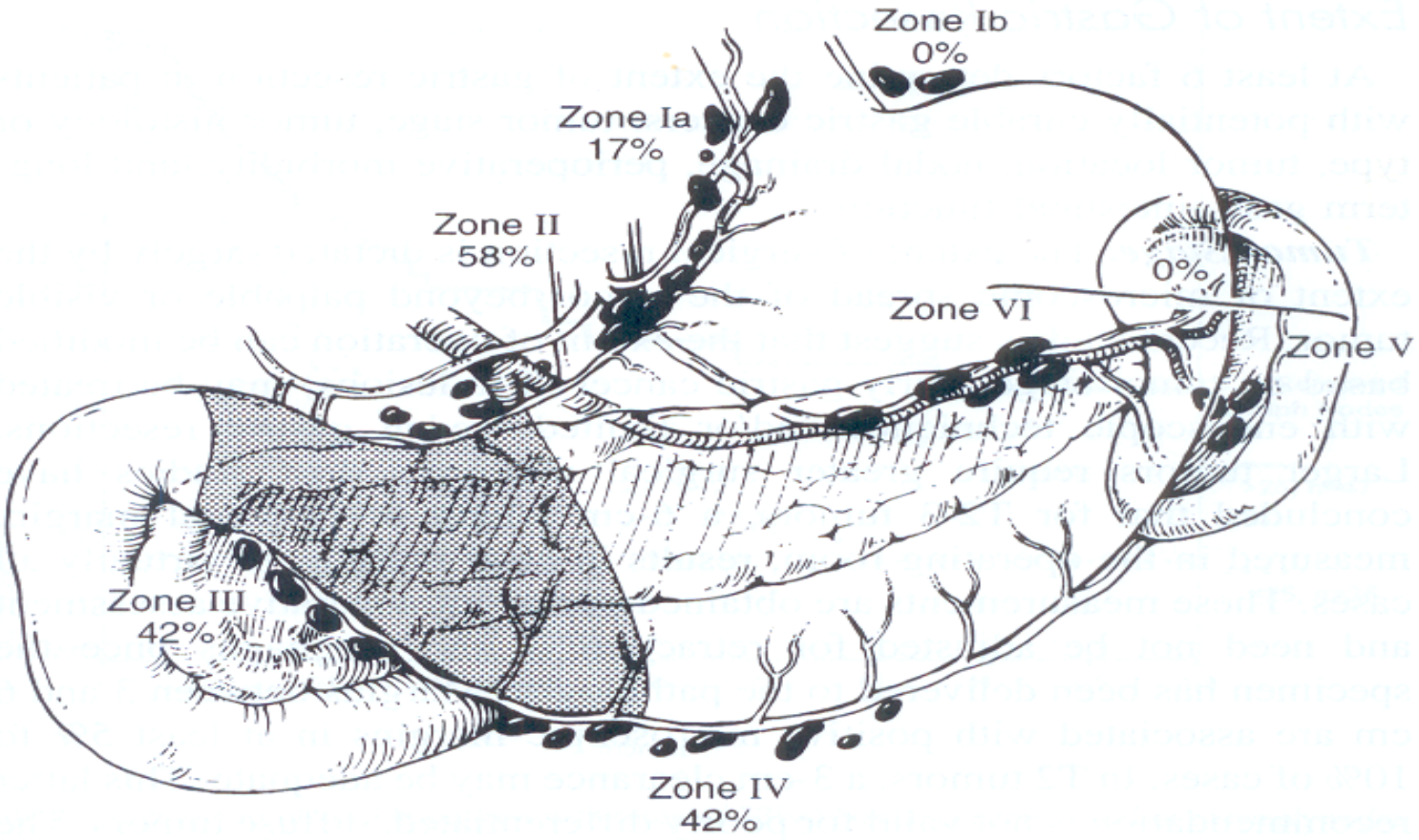


Clinical management of gastric cancer. Adapted with permission from National Comprehensive Cancer Network Clinical Practice Guidelines in Oncology, 2005. [1]Radiation Therapy, 45-50 Gy + 5-FU-based radiosensitization. [2]Salvage therapy guided by Karnofsky performance score and ECOG performance score and includes chemotherapy, clinical trial participation, or supportive care. [3]Peritoneal seeding, distant metastases, inability to perform complete resection, or invasion/encasement of major vascular structure(s). Available at http://www.nccn.org/professionals/physician_gls/PDF/gastric.pdf

Gastric Cancer
Clancy Clark, M.D.
Current Problems in Surgery
Vol. 43, Number 8/9, Aug/Sept 2006, 568-622

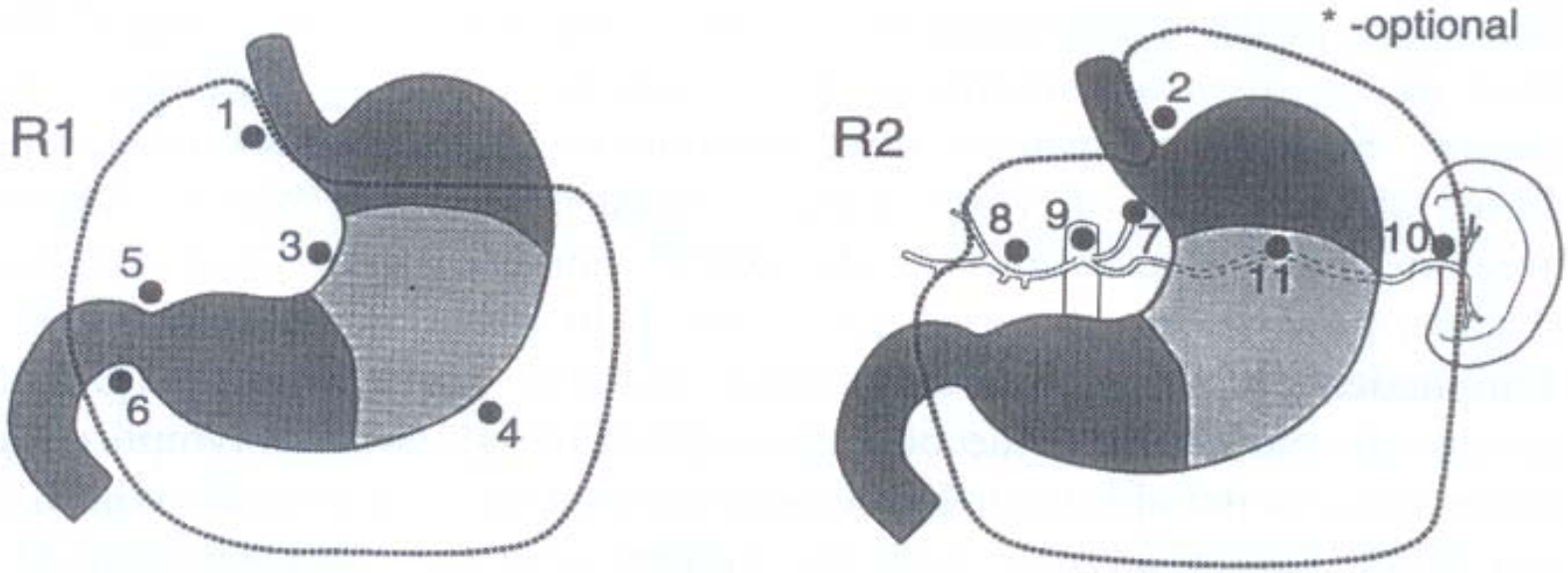
Treatment

- **Surgery**
  - Extent resection
  - Nodal resection
  - Naso/Jejunal tubes
  - Jejunostomy
  - Cholecystectomy
  - Hunt-Lawrence pouch
- **Neoadjuvant / Adjuvant Chemotherapy/Radiation Therapy**



Frequency of node-positive zones for distal gastric cancers. (From Sutherland DA. The Lymphatic Spread of Gastric Cancer. In: McNeer G, Pack GT, editors. Neoplasms of the Stomach. Philadelphia: Lippincott; 1967:408-15. Reproduced with permission.)

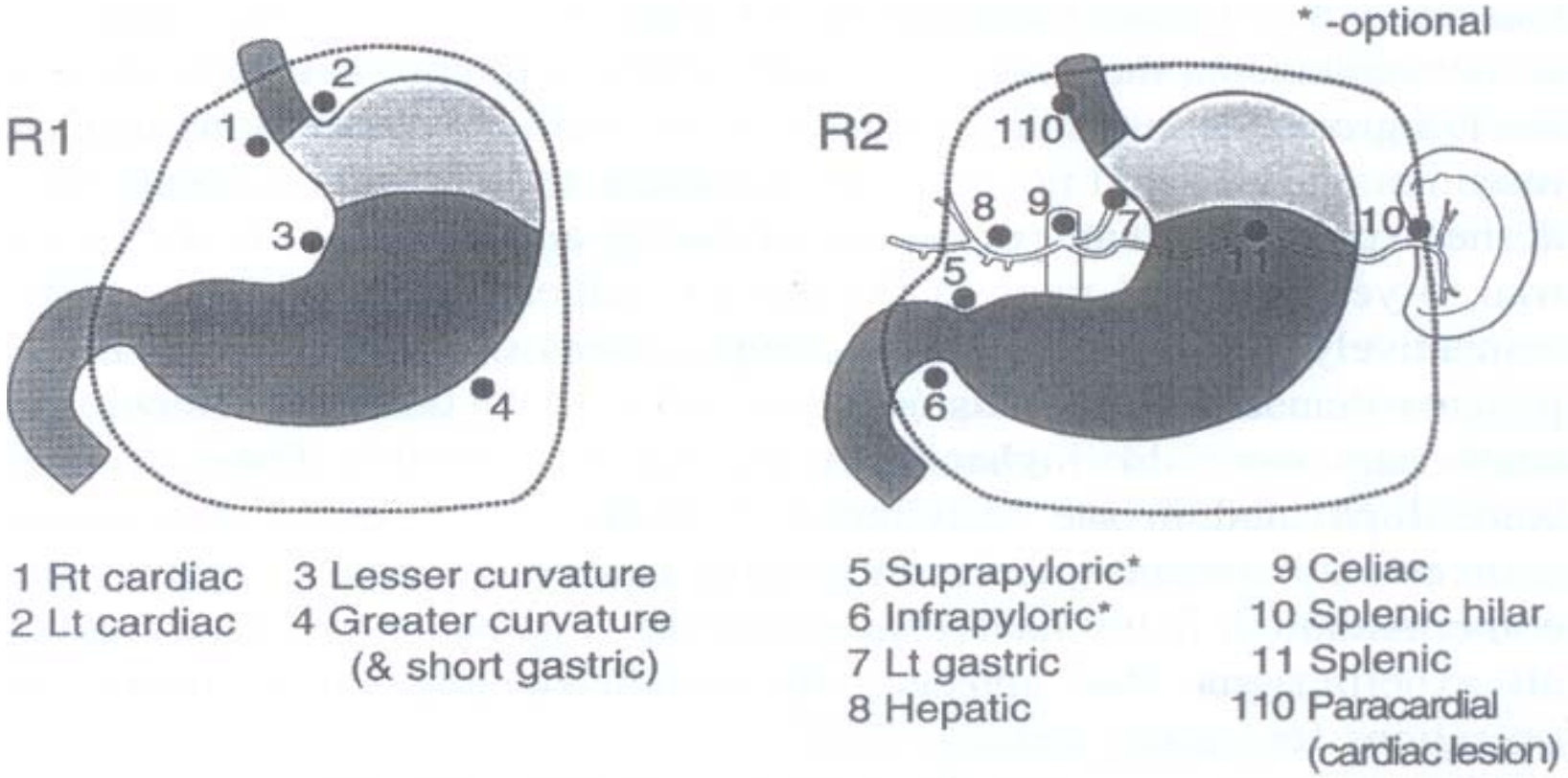
Gastric Cancer
Clancy Clark, M.D.
Current Problems in Surgery
Vol. 43, Number 8/9, Aug/Sept 2006, 568-622



1 Rt paracardial	5 Suprapyloric	2 Lt paracardial*	9 Celiac
3 Lesser curvature	6 Infrapyloric	7 Lt gastric	10 Splenic hilar*
4 Greater curvature		8 Hepatic	11 Splenic

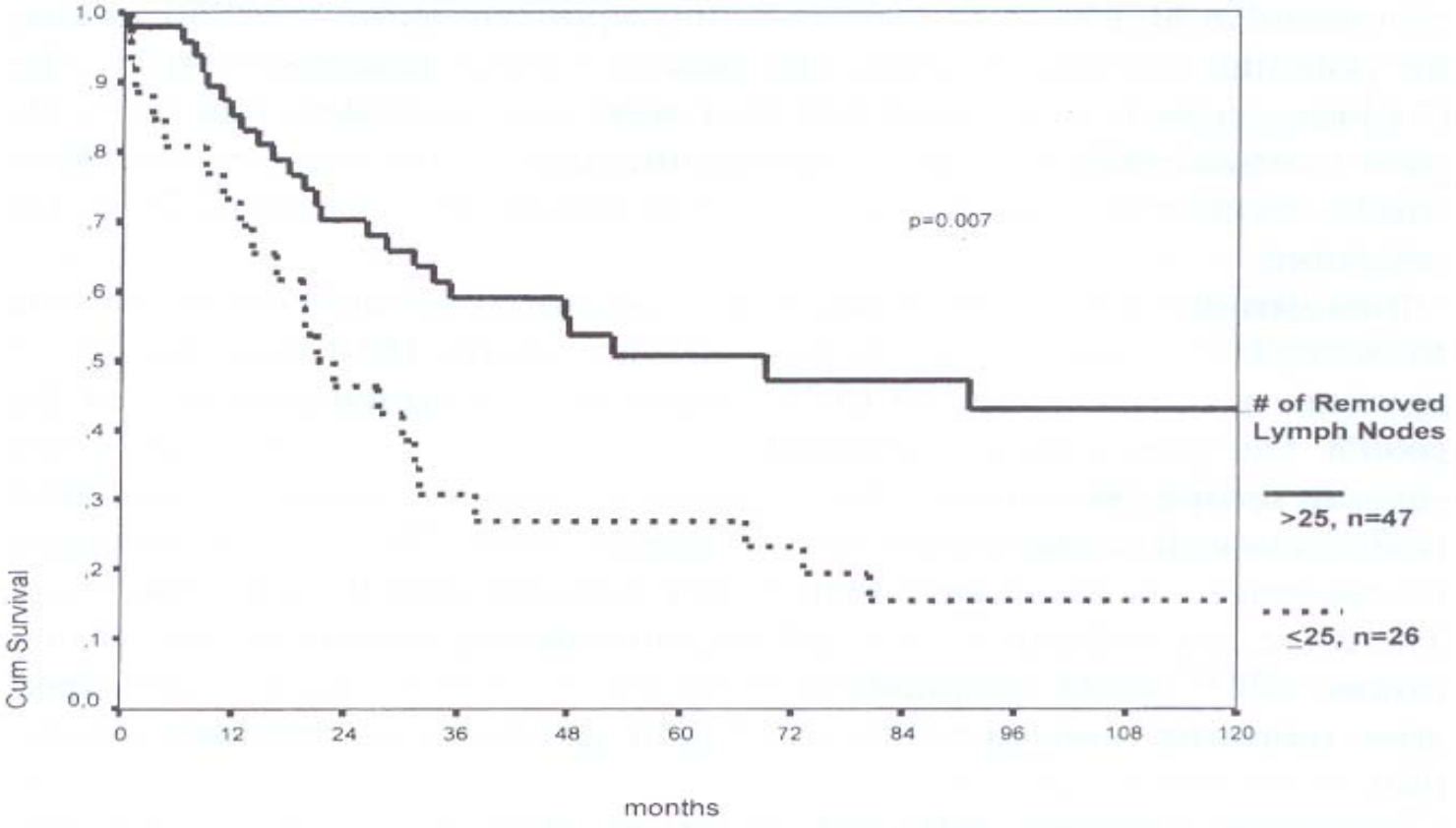
Extent of lymph node dissection for D1 (= R1) or D2 (= R2) resections for mid-gastric cancers. (From Smith JW, Shiu MH, Kelsey L, Brennan MF. Morbidity of radical lymphadenectomy in the curative resection of gastric carcinoma. Arch Surg 1991;126:1469. Reproduced with permission.)

Gastric Cancer
Clancy Clark, M.D.
Current Problems in Surgery
Vol. 43, Number 8/9, Aug/Sept 2006, 568-622



Extent of lymph node dissection for D1 (= R1) or D2 (= R2) resections for proximal gastric cancers. (From Smith JW, Shiu MH, Kelsey L, Brennan MF. Morbidity of radical lymphadenectomy in the curative resection of gastric carcinoma. Arch Surg 1991;126:1469. Reproduced with permission.)

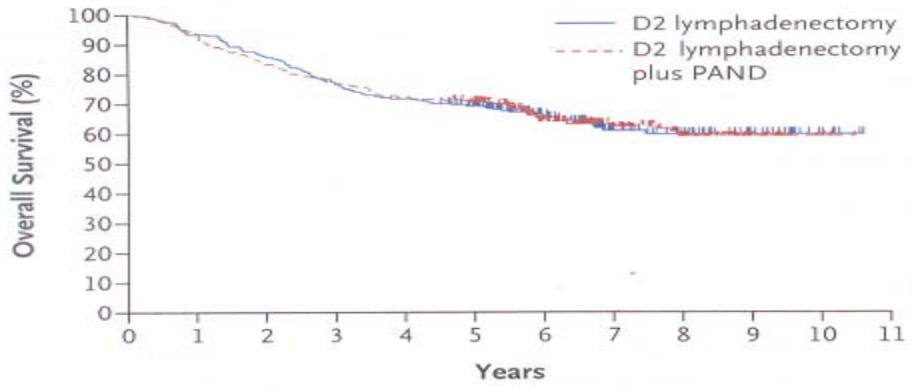
Gastric Cancer
Clancy Clark, M.D.
Current Problems in Surgery
Vol. 43, Number 8/9, Aug/Sept 2006, 568-622



Cumulative survival in patients with resected T3N0 gastric cancers. Number of lymph nodes removed (and by inference D2 versus D1 resection) strongly correlates with survival. (From Siewert JR and the German Gastric Carcinoma Study Group. Relevant prognostic factor in gastric cancer. Ann Surg 1998;228:457. Reproduced with permission.)

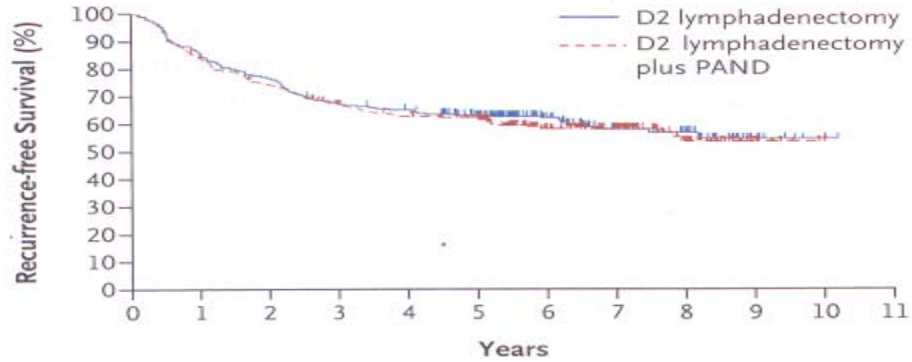
Gastric Cancer
Clancy Clark, M.D.
Current Problems in Surgery
Vol. 43, Number 8/9, Aug/Sept 2006, 568-622

A



No. at Risk											
D2 group	263	246	226	201	188	173	115	64	44	21	6
D2 plus PAND group	259	241	215	198	186	176	112	71	43	16	5

B



No. at Risk											
D2 group	263	225	202	176	168	146	88	55	36	9	2
D2 plus PAND group	259	215	189	166	154	142	85	59	30	8	1

Kaplan–Meier Estimates of Overall Survival (Panel A) and Recurrence-free Survival (Panel B).

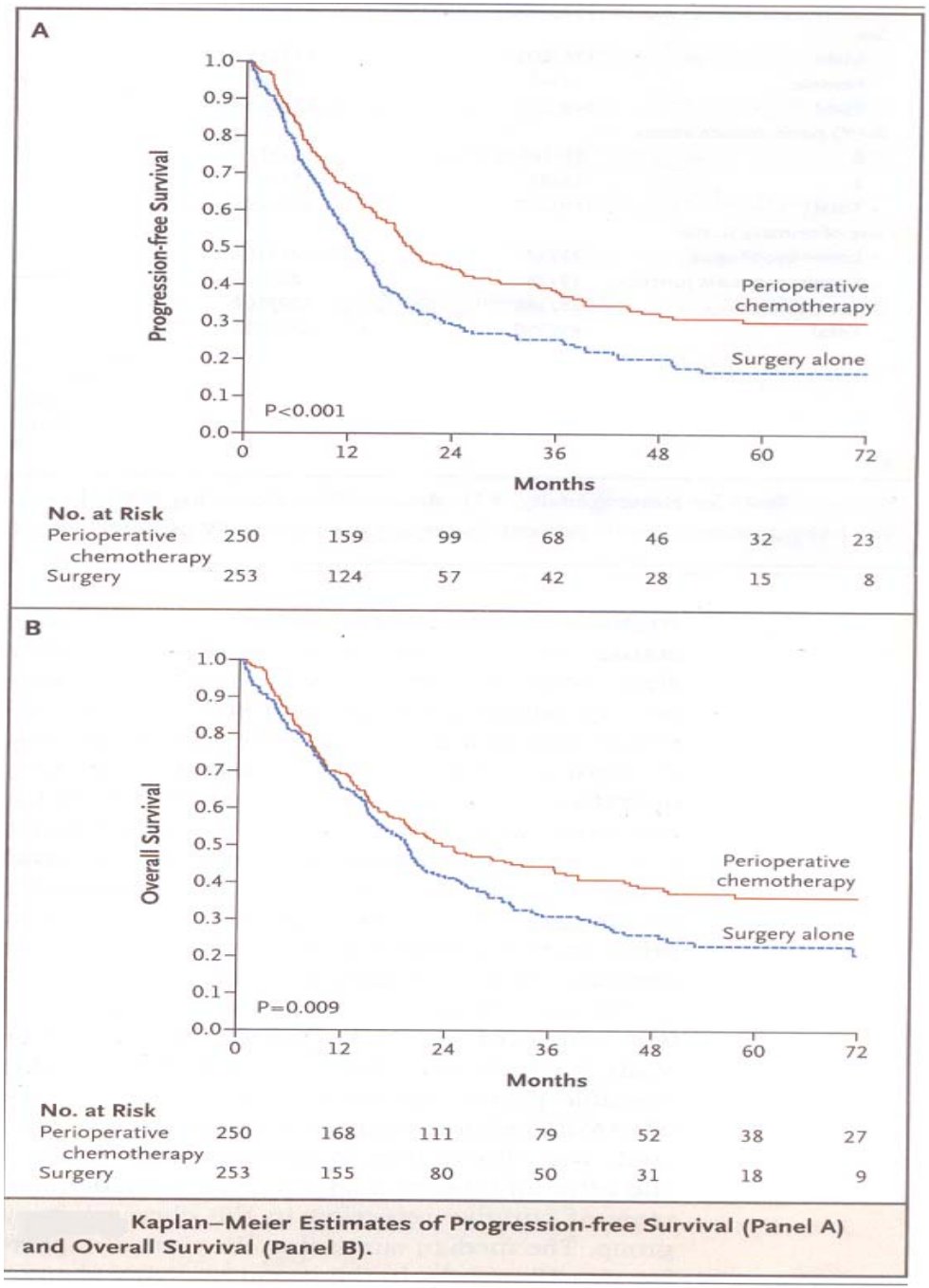
PAND denotes para-aortic nodal dissection.

D2 Lymphadenectomy Alone or with Para-aortic Nodal Dissection for Gastric Cancer

Sasako, Mitsuru, M.D.

New England Journal of Medicine

Vol. 359, No 5, 460



Kaplan–Meier Estimates of Progression-free Survival (Panel A) and Overall Survival (Panel B).

Perioperative Chemotherapy versus Surgery Alone for Resectable Gastroesophageal Cancer

David Cunningham, M.D.

New England Journal of Medicine

Vol. 355 No. 1, 17

Esophageal Cancer

Initial Diagnosis

EGD with bx

Abd / Chest CT

r/o distant metatasis

r/o unresectable disease

↓

EUS

local staging

Follow-up

Evaluate response

Evaluate for recurrence

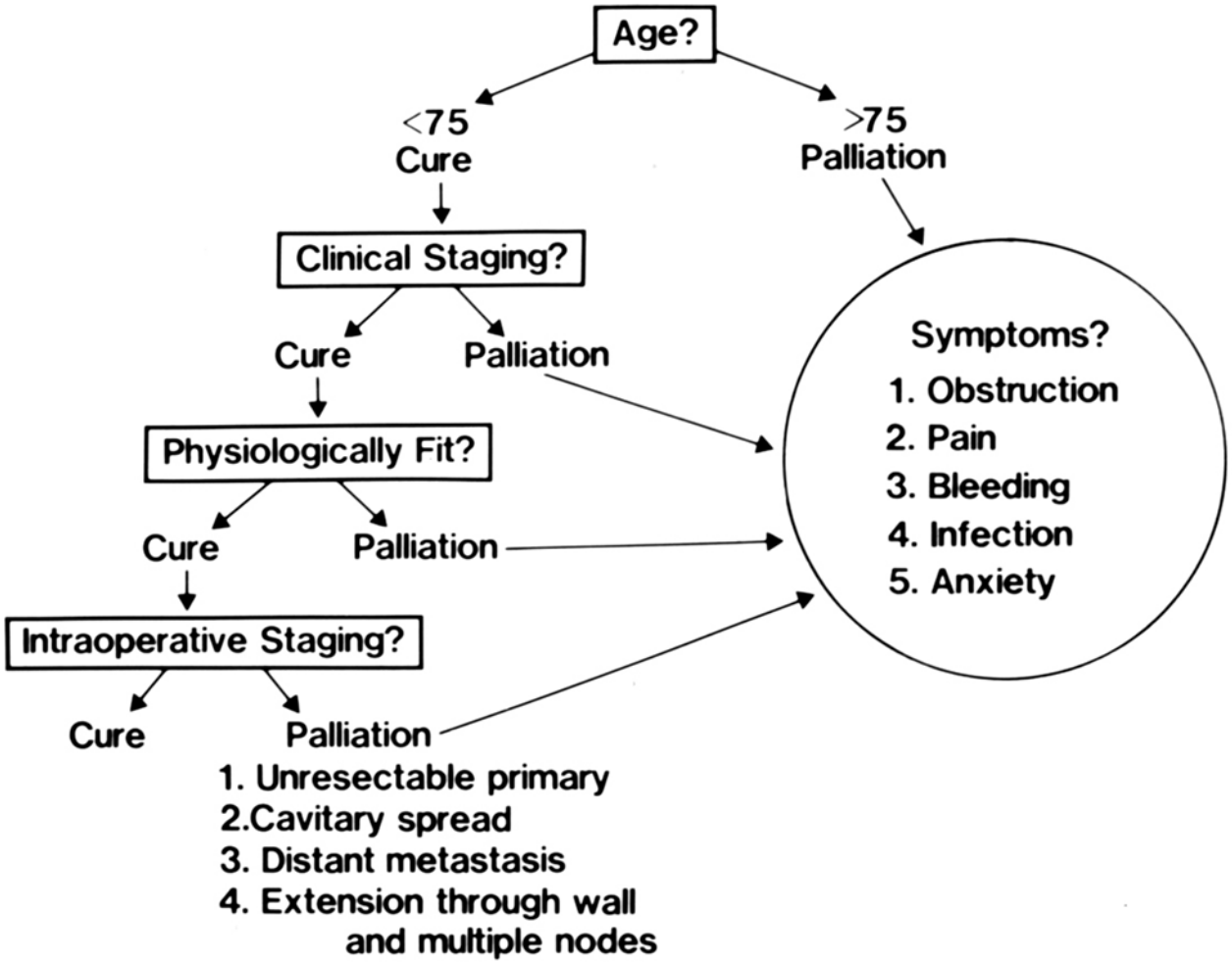


FIG 8.
Algorithm of surgical oncology decisions in the management of the patient with carcinoma of the esophagus and cardia.

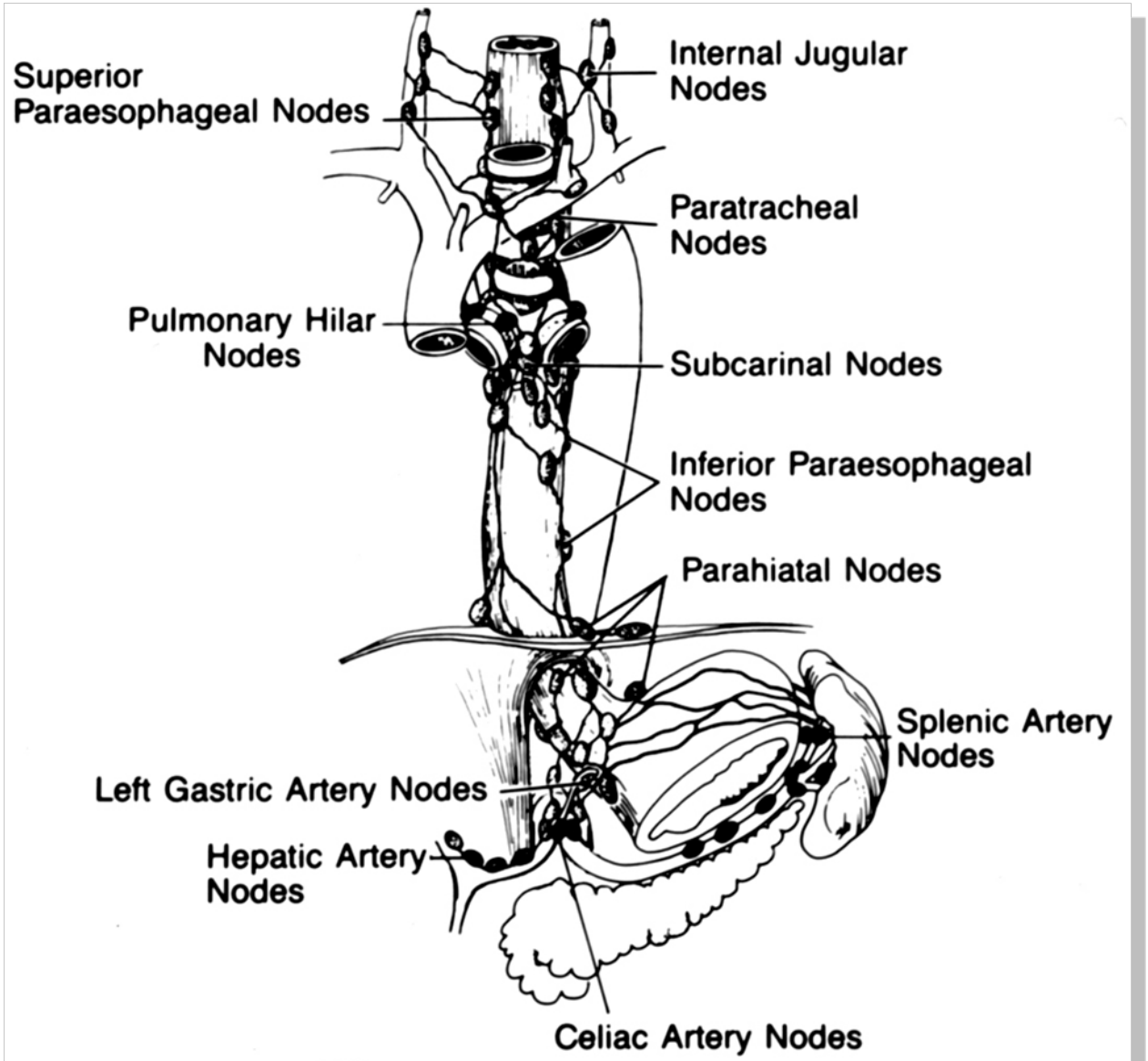


FIG 5.
Lymphatic drainage of the esophagus.

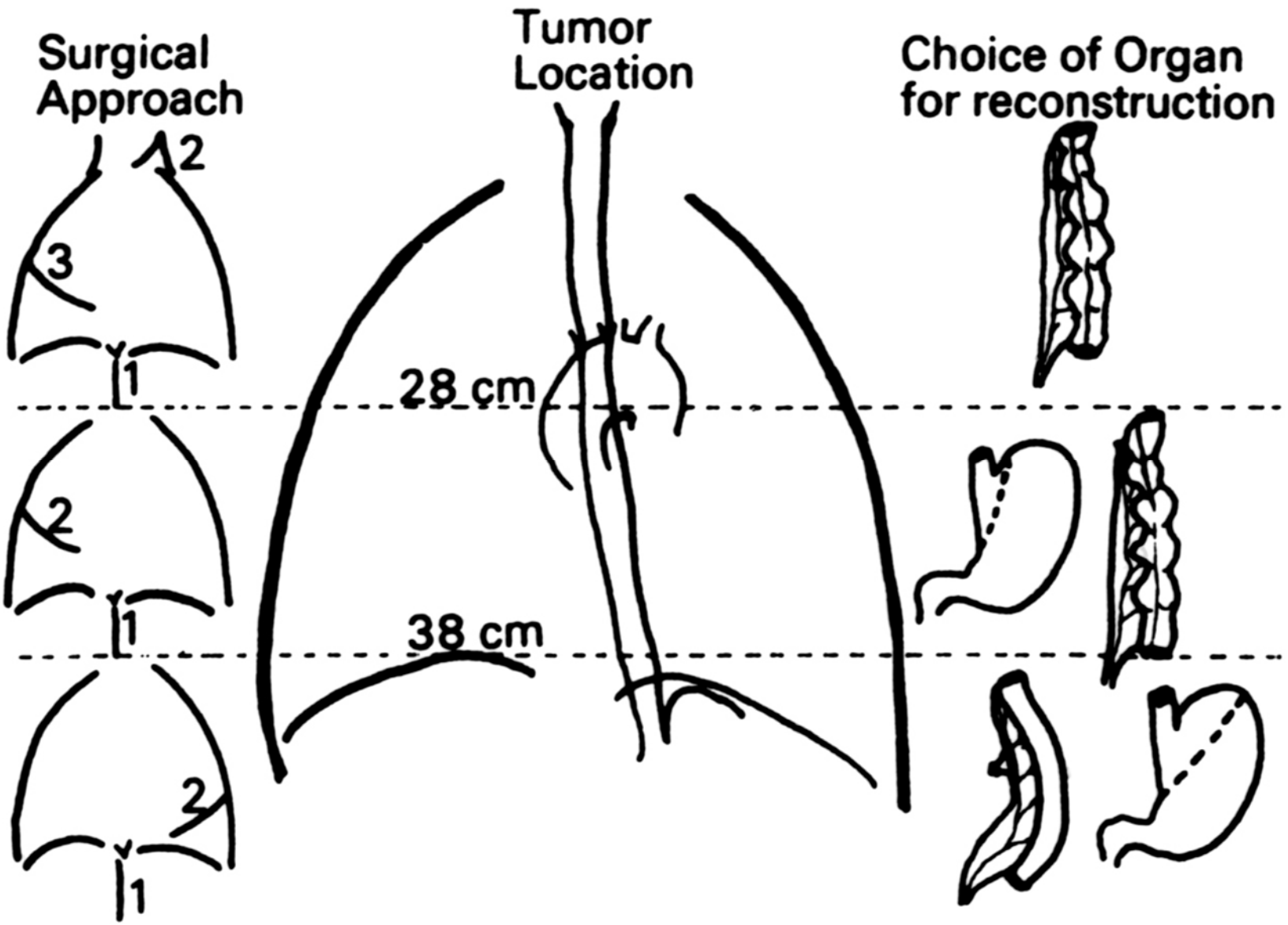

Surgical Approach
Tumor Location
Choice of Organ for reconstruction
3
2
1
28 cm
2
1
38 cm
2
1

TABLE 19.

Incidence of Complete Responses to Combination Therapy

Author	Chemotherapy*	Radiaton (Gy)	No.	Complete Response (%)
Leichman et al.[184]	5-FU + cisplatin	30	23	26
	5-FU + mitomycin-C	30	19	26
Austin et al.[182]	5-FU + cisplatin	30	11	36
Wolfe et al.[183]	VP-16 + cisplatin	45	29	34
Hilgenberg et al.[185]	5-FU + cisplatin	—	27	4

*5-FU = 5-fluorouracil; VP-16 = etoposide.

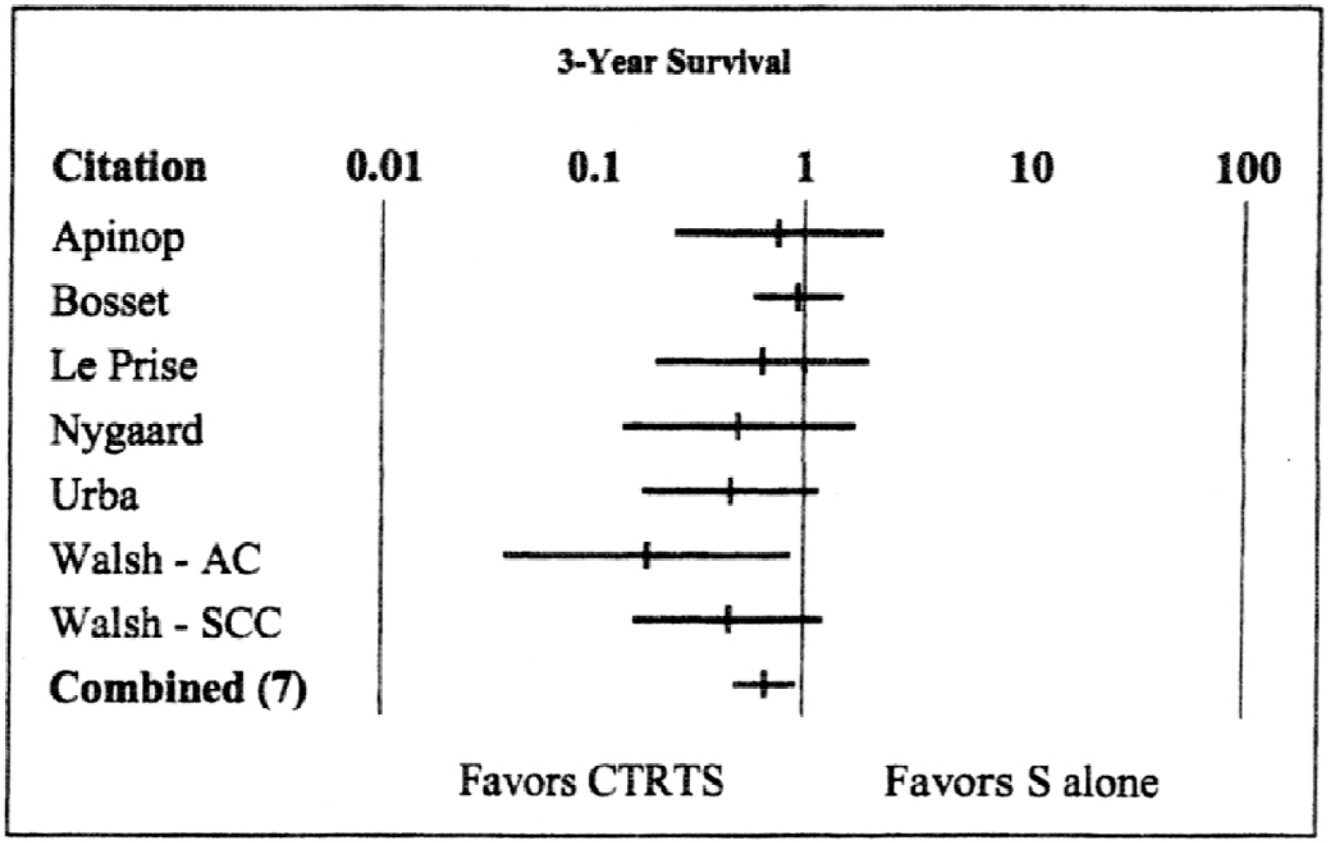


Fig. 1. Three-year survival (odds ratio 0.66, 95% confidence interval 0.47 to 0.92; $P = 0.016$). (AC = adenocarcinoma; SCC = squamous cell carcinoma; CTRTS = chemotherapy, radiation therapy, surgery; S = surgery.)

Urschel et al., *The American Journal of Surgery*, 2003