



TASO MEET @ MADURAI



Realities in **CA STOMACH**
in the era of **EBM**



MANAGEMENT PROTOCOLS IN CA STOMACH
- BIRDS EYE VIEW





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Fact
should know **FIRST**



I am a Operating Surgeon

To provide the best outcome to my pts
What I should know regarding management of
CA STOMACH.

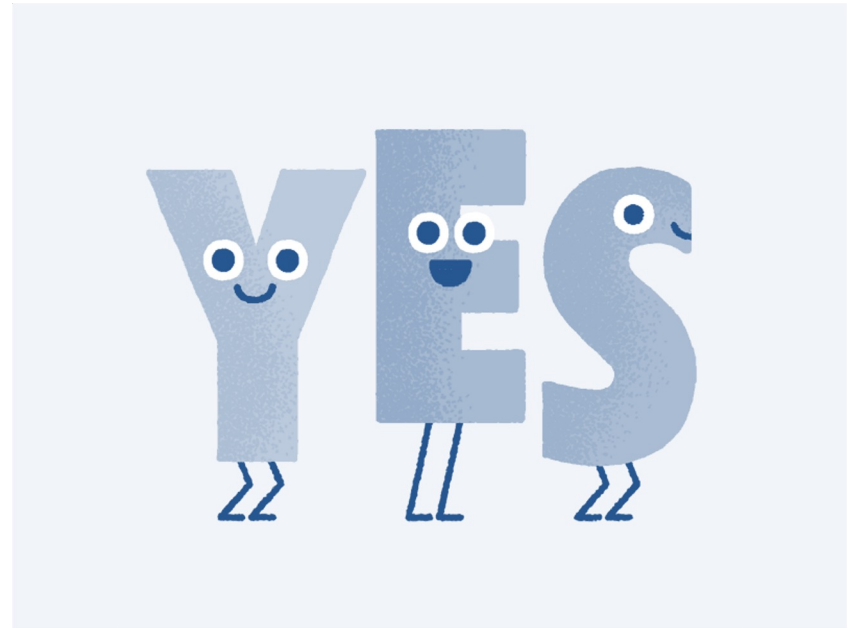
SUCCESSFUL RESULTS

- Sound knowledge of the disease
- Wise selection of the modality of treatment
- Accurate and skillful surgical technique

Stanford Cade



**Modality & its Sequence of the treatments
will affect the prognosis ?**



LESSONS LEARNED

BASED ON MODALITY OF TREATMENTS

- Surgery only
- Surgery + adjuvant chemo
- Neoadjuvant chemo + Surgery
- Neoadjuvant chemo radiation + Surgery



Reduction in
Recurrence

YOUR RESPONSIBILITY



AS A OPERATING SURGEON

SUCCESSFUL PLAYER



BEFORE FORMULATING TREATMENT

Accurate **pre-op staging** and assessment of **Tumor Biology** is

ESSENTIAL

HOW TO TAILORED ?

**Pre-op imaging
and staging**



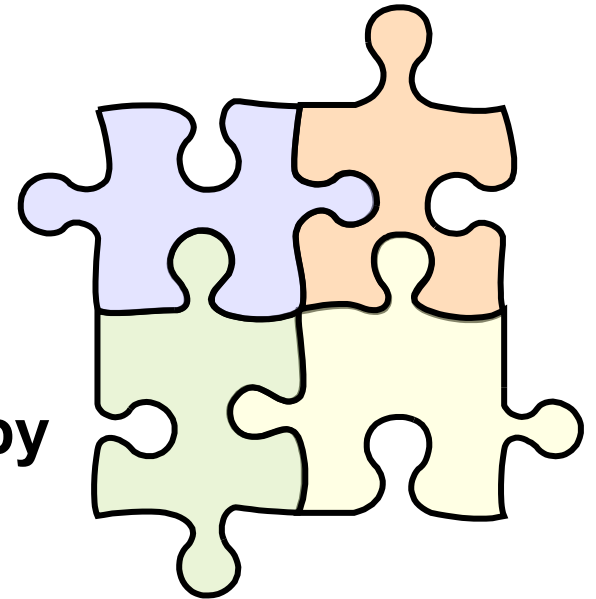
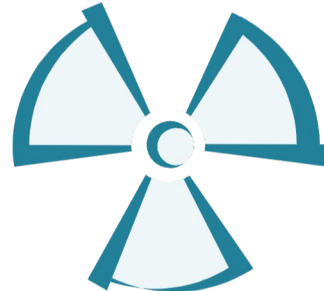
Surgery



Chemotherapy



Radiotherapy



ROADMAP TO **BEST OUTCOME?**





WORK UP

CONFIRMATION

ENDOSCOPY

- Size
 - Location
 - Morphology
 - Extent
 - Biopsy
-
- The location of the tumor in the stomach and relative to the oesophagogastric junction (OGJ) for proximal edge of the tumors should be carefully recorded,



BIOPSY

- 6 – 8 biopsies
- The biopsy must be taken **at the edge** of the lesion with the normal tissue
- One biopsy **from the base** of the ulcer.

CLINICAL STAGING

CLINICAL STAGING - WORK UP

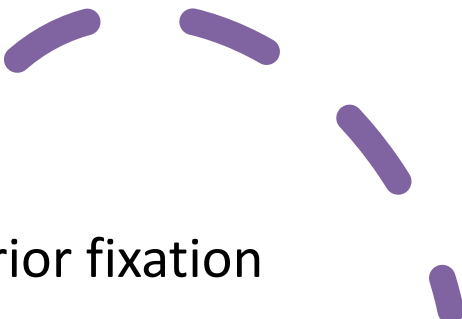
chest/abdominal/pelvic CT scan,

with or without EUS (if no metastatic disease is seen on CT),

Should be performed before surgery to assess the extent of
the disease and degree of nodal involvement



CT SCAN

- 
- Extent of Primary -
T Stage ,Posterior fixation
 - Nodal status
N1 ,N2 , N3 more than 1 cm
 - Metastases
Liver , Peritoneum – large lesions

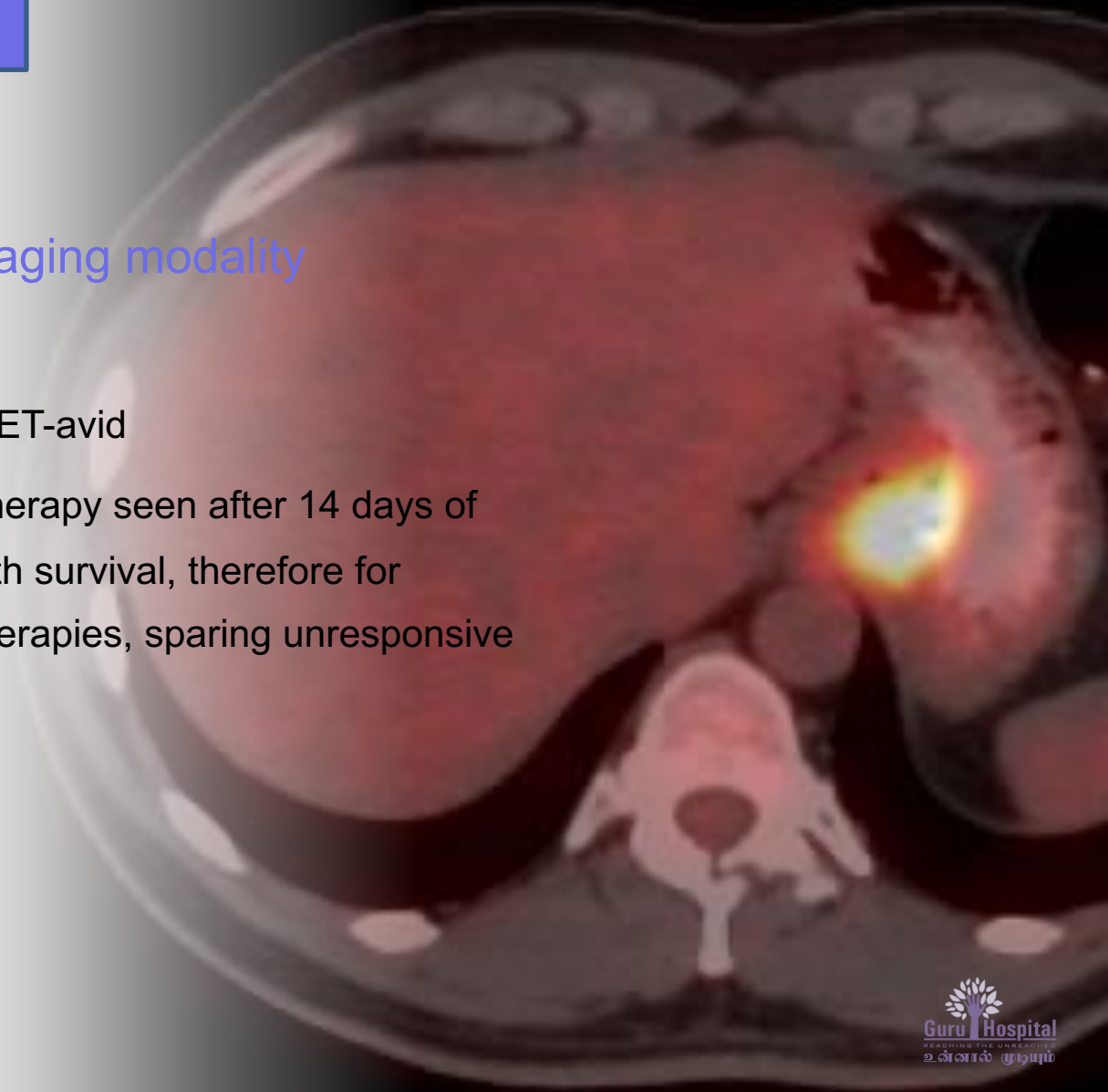
ENDOSCOPIC ULTRASOUND

- Determine the extent of the proximal gastric lesion into the gastro-oesophageal junction.
- Confirm early lesions.
- Examine invasion to the pancreas and other structures



PET CT

- Not currently a primary staging modality
- Only 50% gastric cancers are PET-avid
- PET response to neoadjuvant therapy seen after 14 days of treatment strongly correlates with survival, therefore for monitoring response to these therapies, sparing unresponsive patients further toxic treatment



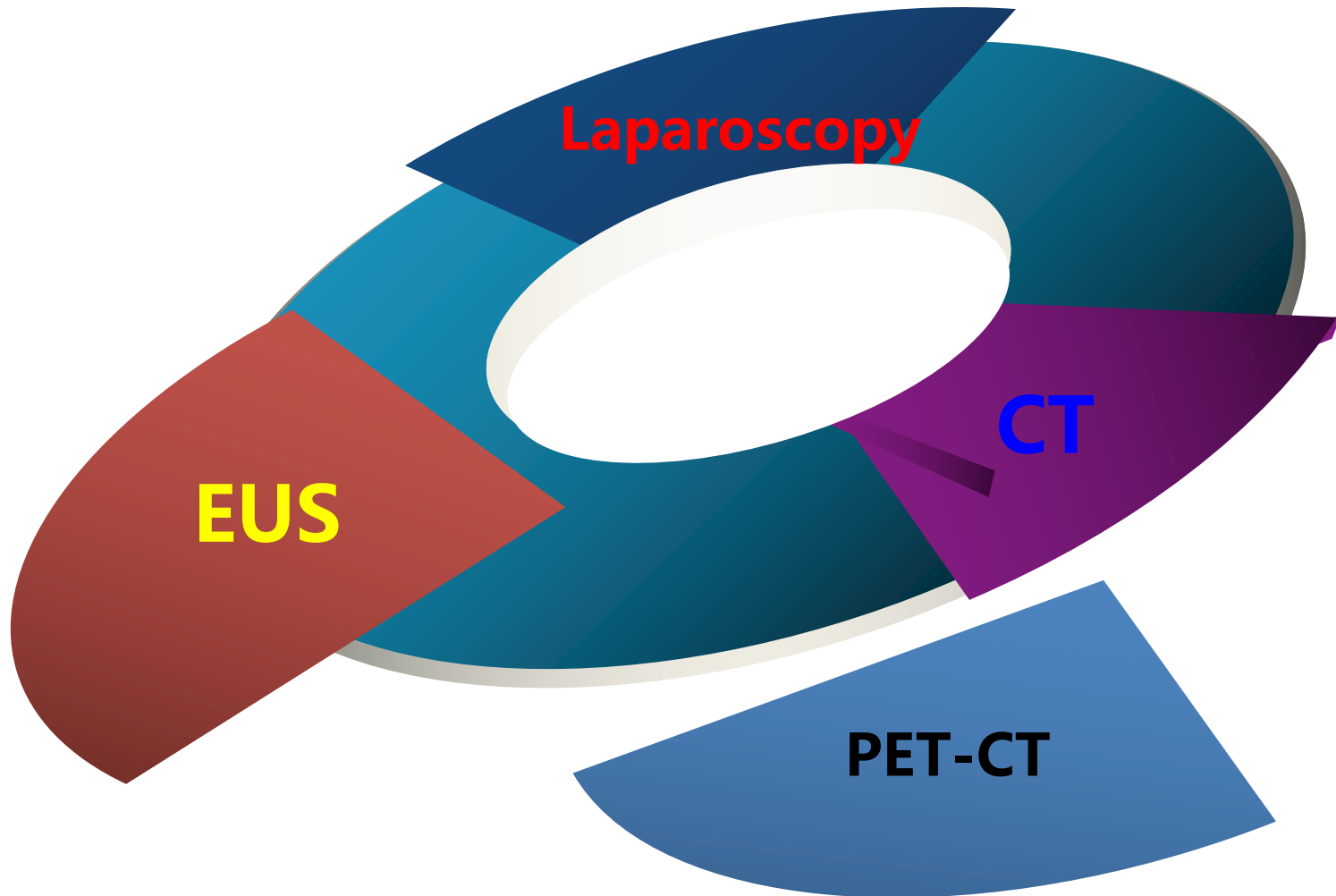
DIAGNOSTIC LAPAROSCOPY

- Diagnostic laparoscopy useful for the detection of radiographically occult metastatic disease in patients with T3 and/or N+ tumors
- Peritoneal washings and it's cytology.



DIAGNOSTIC
LAPAROSCOPY

CORE - INVESTIGATION



BIOMARKERS

BIOMARKERS

- IHC and/or molecular testing for HER2 status,
- MSI or MMR status,
- PD-L1 expression,
- Tumor mutational burden-high (TMB-H) status
- Neurotrophic tropomyosin-related kinase (*NTRK*) gene fusions



CURATIVE INTENT **VS** PALLIATIVE INTENT

**WHEN SURGERY
SHOULD NOT BE DONE?**

CONDITIONS- SURGERY SHOULD NOT BE DONE?

By doing Surgery - cure is not possible in extended disease

Locoregionally advanced

- Disease infiltration of the root of the mesentery or para-aortic lymph node
- Invasion or encasement of major vascular structures (excluding the splenic vessels)



Metastasis

- Distant metastasis or peritoneal seeding (including positive peritoneal cytology)

UNRESECTABILITY FOR CURE

HISTORY TAKING - INOPERABILITY

Back ache – inoperable

Tumor infiltration into celiac plexus

CLINICAL SIGNS - INOPERABILITY

Left supraclavicular node

Ascites

Fixed mass/posterior fixation

Liver metastases

Blumer's shelf deposit

Irish node

Sister Joseph nodule

Pleural effusion

CT SCAN - INOPERABILITY

- Extent of Primary - Posterior fixation
- Nodal status
N1 ,N2 more than 3 cm
N3 more than 1 cm
- Metastases
Liver
Peritoneum - large

LAPAROSCOPY - INOPERABILITY

- Peritoneal deposits

Visceral Peritoneum (Serosa) involvement – T3 Disease, Resectable

Parietal Peritoneum – Metastatic, Unresectable

Peritoneal wash – positive cytology Unresectable

- Posterior fixation

T 1 2 3

N 1 2

T4

N 3

M

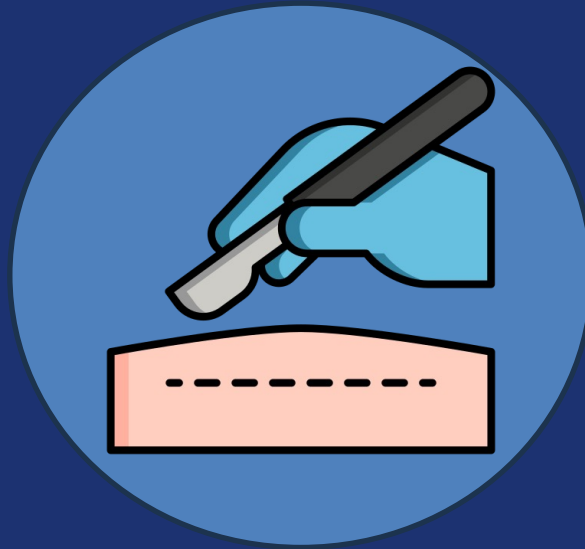
OPERABLE

INOPERABLE

RESECTABILITY RATE

Stomach

- Proximal - 20%
- Distal - 35%



SURGICAL PRINCIPLE

- **It does not compromise**

A white mannequin is shown from the side, pushing a large, textured, white ball. The ball is covered in a rough, fibrous texture and has the word "RADICALISM" printed on it in large, bold, blue capital letters. The mannequin is leaning forward, with its right arm extended to touch the side of the ball. The background is a solid, light blue color. A faint watermark "dreamstime" is visible across the middle of the image.

RADICALISM

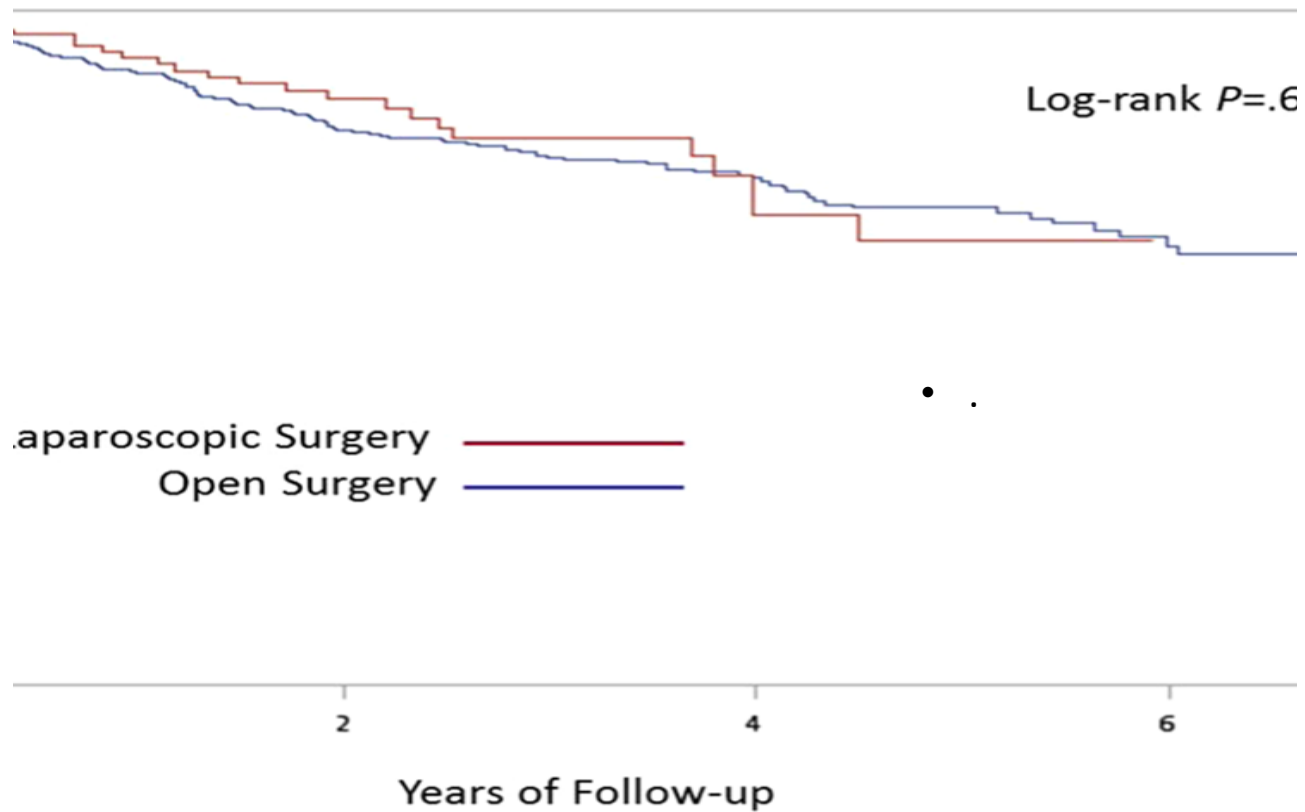
Radicality of resection



CONCEPT

- Complete resection with negative margins is considered as a **STANDARD GOAL**,
- whereas the type of resection (subtotal vs. total gastrectomy) and the extent of lymph node dissection remain **SUBJECTS OF DISCUSSION**

LAPROSCOPIC RESECTION



LAPROSCOPIC RESECTION

- Minimally invasive approaches are generally not recommended for T4b or N2 bulky gastric cancer.

HIPEC



HIPEC OR LAPAROSCOPIC HIPEC AS A
THERAPEUTIC ALTERNATIVE FOR
CAREFULLY SELECTED STAGE IV PATIENTS



IN THE SETTING OF ONGOING CLINICAL
TRIALS ONLY.

SURGICAL PRINCIPLE - MARGIN

ADEQUATE SURGERY

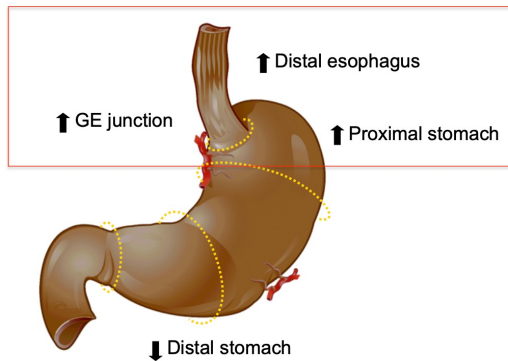
- CLEARANCE 5 cm
- HOW MANY NODES? 16 nodes

Although it is suggested that at least 16 regional lymph nodes be pathologically assessed, removal and assessment of over 30 lymph nodes is desirable

ANATOMICAL BARRIER

In gastrectomy 5 cm clearance should be given

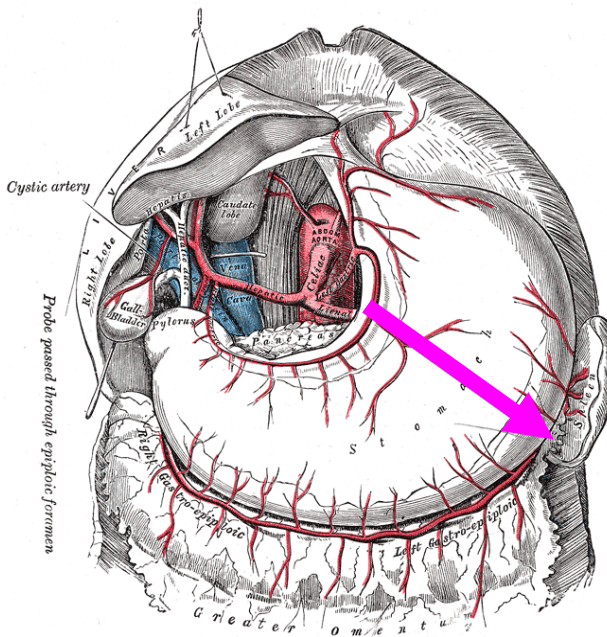
1 cm clearance is enough if anatomical barriers are met (NEGATIVE MARGIN)



1. Esophago-gastric jn

2. Gastroduodenal jn

OPTIONS –TO BE GIVEN FOR 5 CM CLEARANCE



PROXIMAL GASTRIC CANCER

Total gastrectomy and
Proximal gastrectomy

DISTAL GASTRIC CANCER

Total gastrectomy AND
Distal Subtotal gastrectomy

TOTAL VERSUS SUBTOTAL GASTRECTOMY

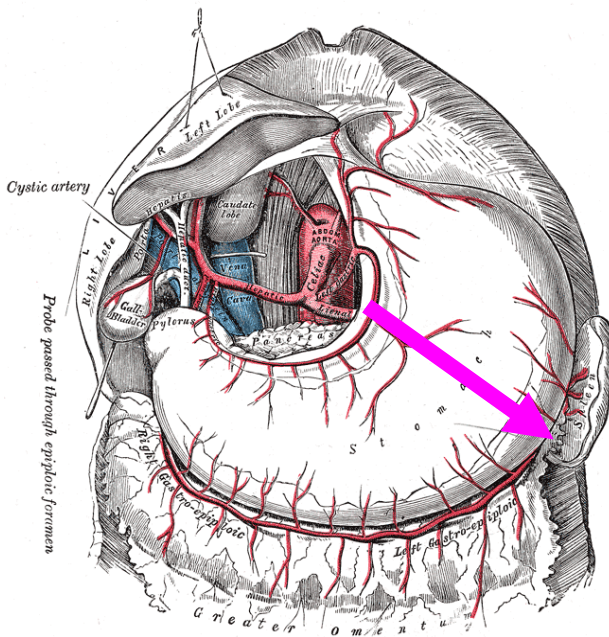
- **Survival advantage – same**
- but**
- **Complications - differ**

TOTAL VERSUS SUBTOTAL GASTRECTOMY

	MORTALITY	MORBIDITY
Proximal gastrectomy	6%	52%
Total gastrectomy	3%	38%
Distal gastrectomy	2%	28%



OPTIONS –TO BE GIVEN FOR 5 CM CLEARANCE



PROXIMAL GASTRIC CANCER

Total gastrectomy

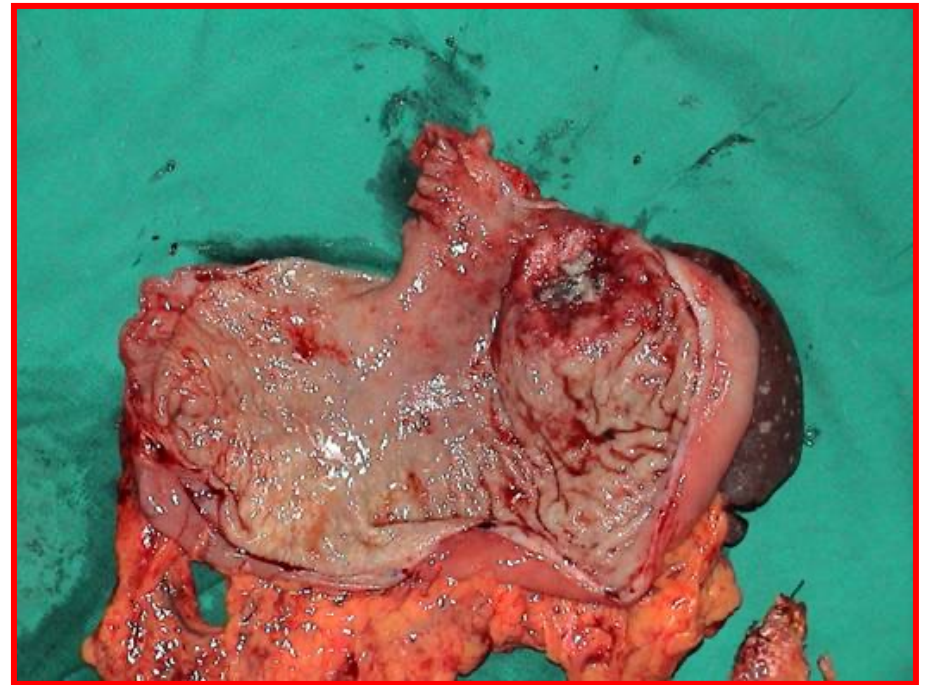
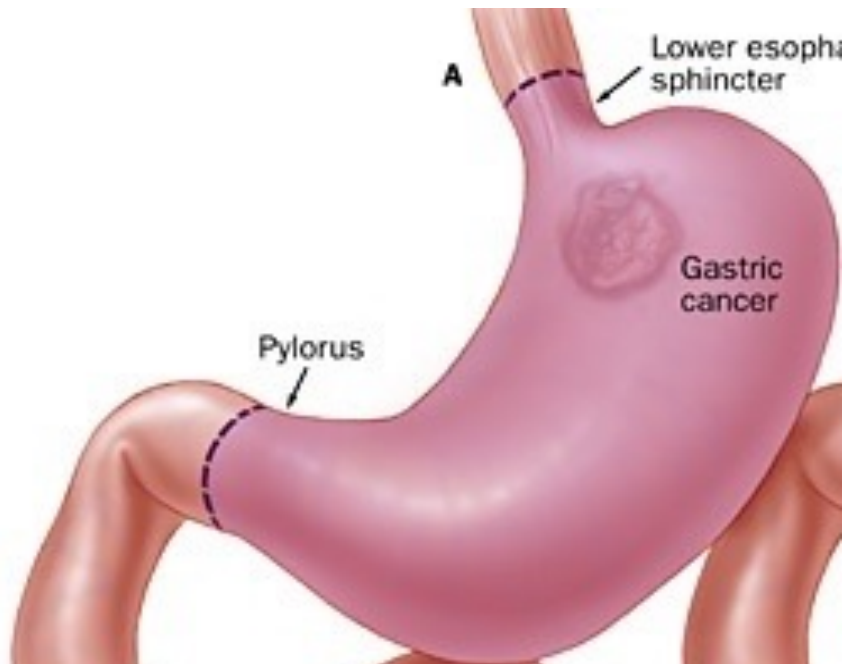
DISTAL GASTRIC CANCER

Distal Subtotal gastrectomy

Morbidity dictates the extent of gastric resection

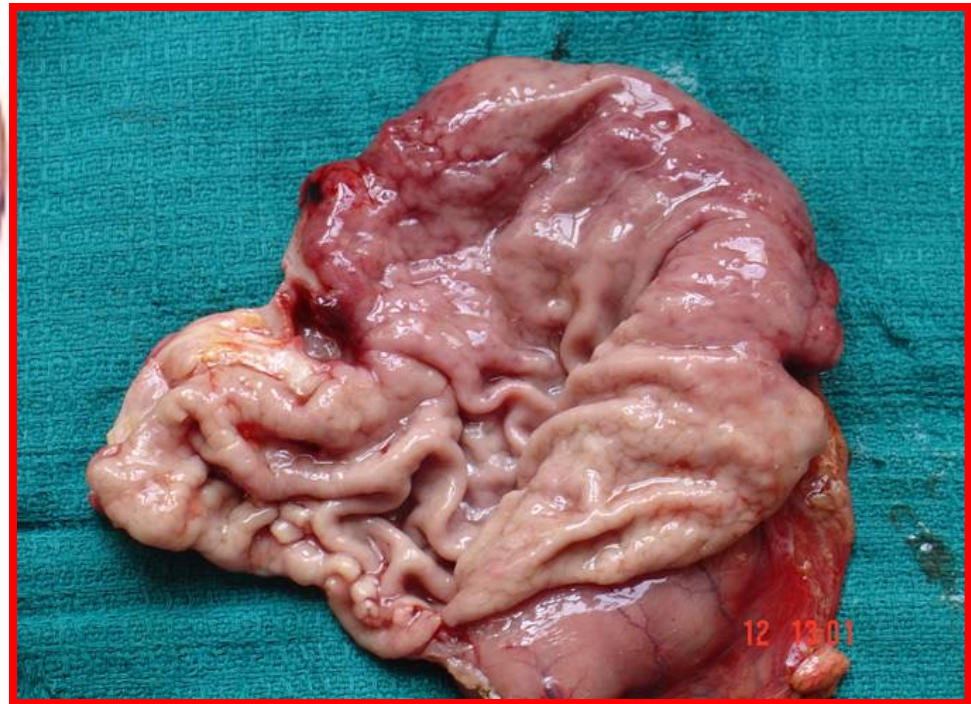
PROXIMAL GASTRIC CANCER

Total Gastrectomy



DISTAL GASTRIC CANCER


Distal gastrectomy



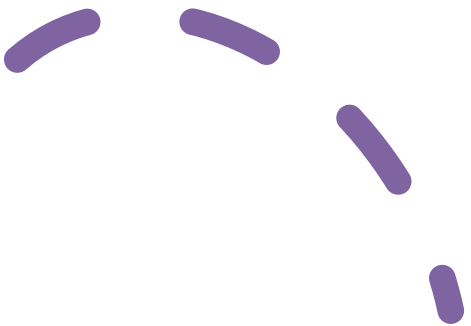
ADJACENT ORGAN INVOLVEMENT HOW TO PROCEED?

- DUODENUM : 2 cm clearance if possible (NEGATIVE MARGIN)
- OSOPHAGUS : 10 cm clearance if possible (NEGATIVE MARGIN)
- COLON : segmental resection
- OMENTUM :
 - Direct invasion, T3 – resectable
 - Nodules – metastasis
- PANCREAS :
 - Distal : distal pancreatectomy
 - Proximal : unresectable

SURGICAL PRINCIPLE - LYMPHADENECTOMY



RECURRENT GASTRIC CANCER

- 
- The rate of locoregional recurrence is 40 - 80% after gastric surgery

FAILED MARGIN LOCAL RECURRENCE - ORDER

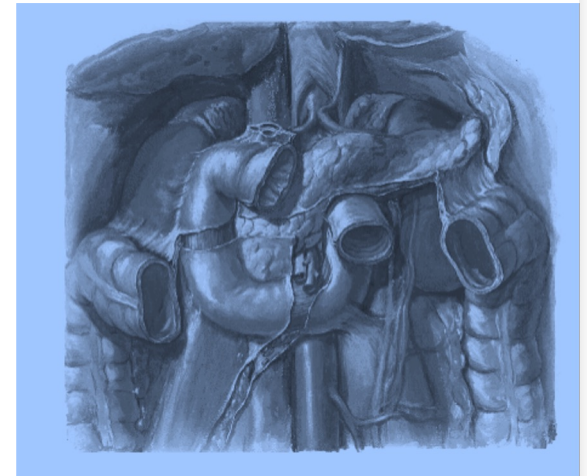
ORDER OF RECURRENCE

Tumor bed - RADIAL

Lymph node - RADIAL

Anastomosis - LINEAR

Ideal investigation – CT combined with endoscopy



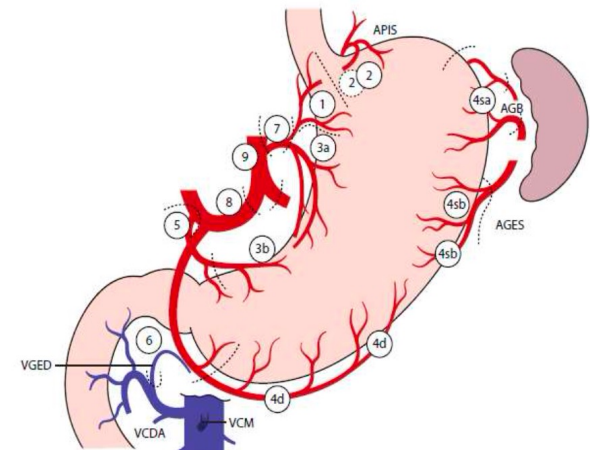
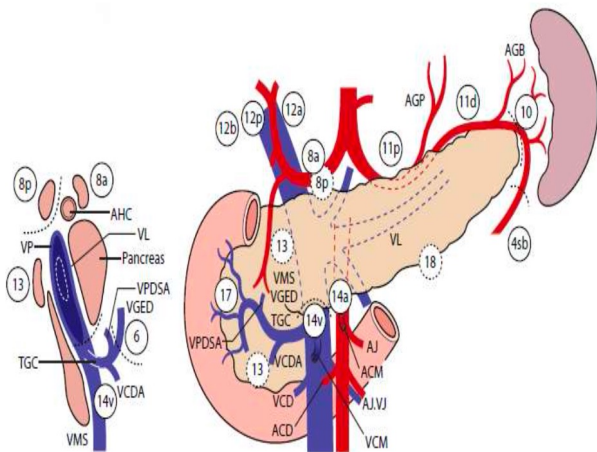
RADIAL MARGIN VS LINEAR MARGIN

G I T Cancer fails more at Radial margins.

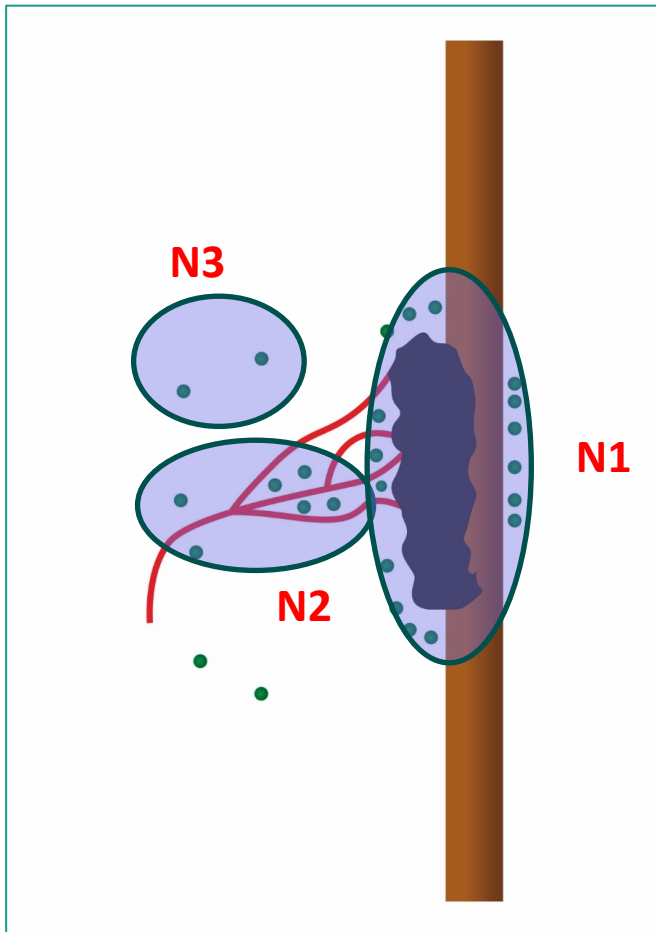
LYMPHNODES

REGIONAL VS DISTAL METASTASIS?

In stomach N1, N2 nodes are Regional nodes and N3 nodes are Metastasis
 Involvement of N3 nodes is a contraindication for radical surgery



N1, N2, N3 NODES



N1, Periluminal Nodes

N2, Nodes along the Vessels

N3 Nodes in the Peritoneum

D1 DISSECTION VS D2 DISSECTION

G I T Cancer fails more at Radial margins.

EAST ASIA VS WESTERN COUNTRIES

Extent of nodal dissection D1 v/s D2 most controversial area in gastric cancer management

Japanese literature

Increased survival in patients undergoing a D2 dissection, with no increased or minimal increase in morbidity.

Non japanese literature

D2 lymphadenectomy, when compared with a D1 dissection, has increased surgical morbidity, without a benefit in survival.

One criticism of the Western data is that although randomized, the D2 group did not differentiate between patients who had a splenectomy and those who did not. Subsequent subgroup analysis of the *D2 without splenectomy* group has shown results similar to the Japanese studies, with increased survival and no significant increase in morbidity.

EAST ASIA VS WESTERN COUNTRIES

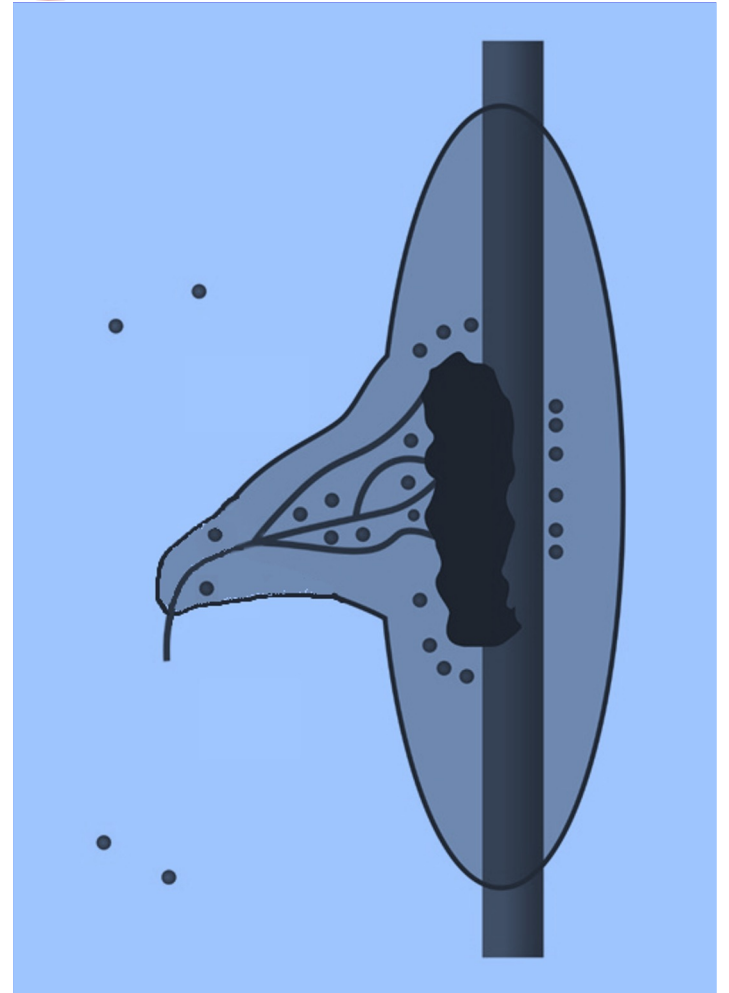
- Gastrectomy with D2 lymph node dissection is the standard treatment for curable gastric cancer in East Asia.

VS

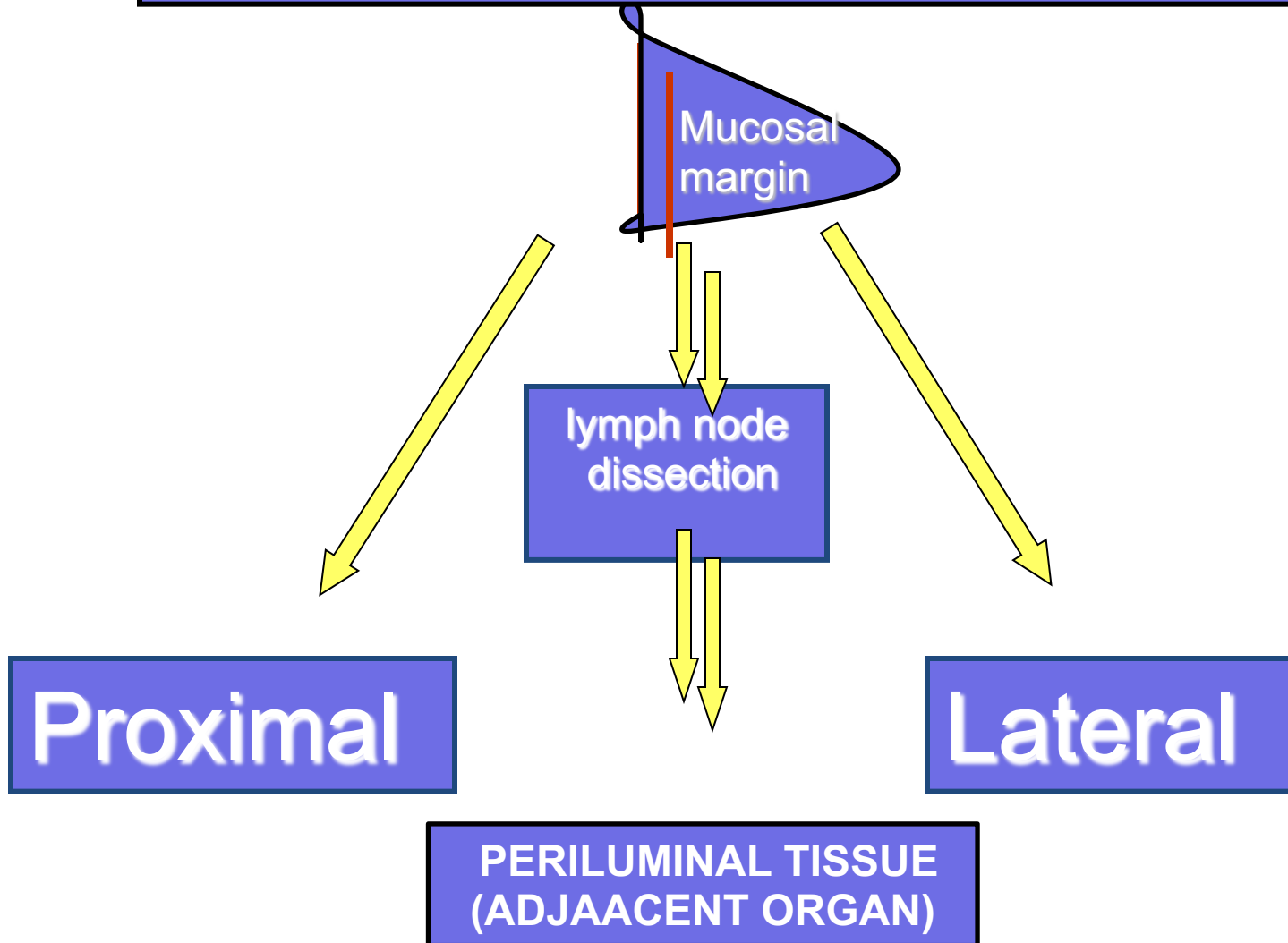
- In Western countries, extended dissection of distant lymph nodes contributes to accurate staging of the disease;
- Therefore, D2 lymph node dissection is considered a recommended but not required procedure in the West

D₂ RESECTION

WHAT IS ADEQUATE SURGERY ?



What follows is.....



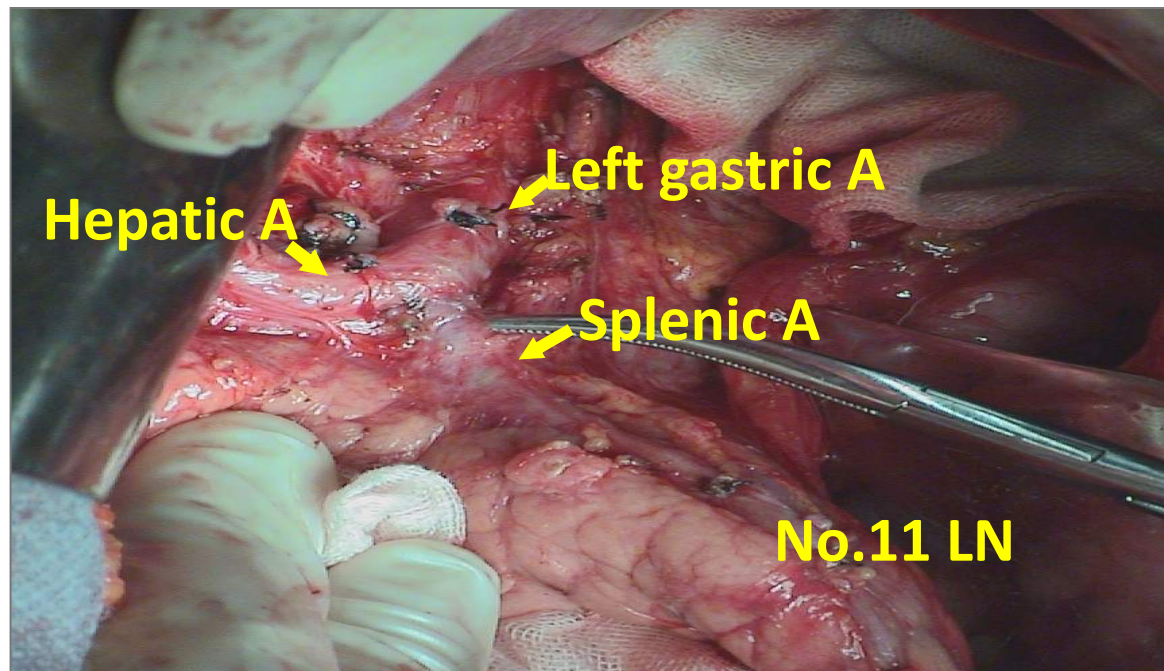
GASTRECTOMY WITH D2 LYMPHADENECTOMY IS THE STANDARD TREATMENT FOR CURABLE GASTRIC CANCER IN EASTERN ASIA - INDIA

Gastrectomy
with

Regional
lymphatics:
perigastric lymph
nodes(D1) and

Those along the
named vessels
of the celiac axis
(D2),

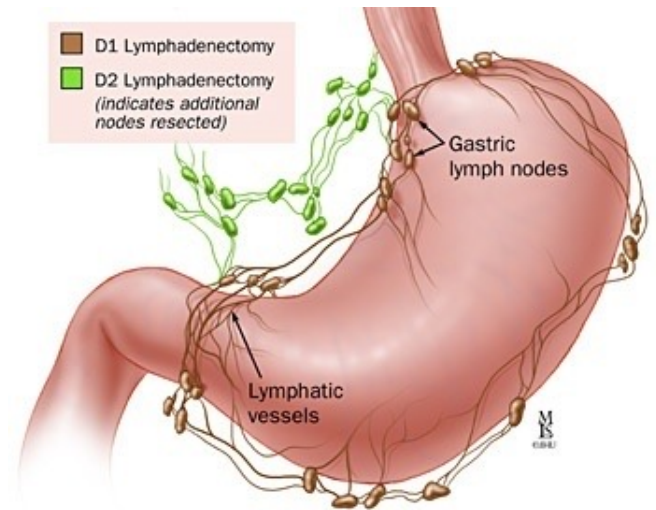
With a goal of
examining 16 or
greater lymph
nodes



D2 GASTRECTOMY

- Removal of the stomach along with omental bursa
 - Greater omentum
 - Lesser omentum
 - Anterior layer of mesocolon
 - Anterior pancreatic capsule

- **Lymphadenectomy upto D2 station**



SURGICAL STAGING

DATA EXPECTED FROM PATHOLOGIST

- Grade
- Histological type
- Margin status
- No. of nodes in specimen
- No. of nodes involved
- Extracapsular disease



ONCO PRINCIPLE

MANAGEMENT CLASSIFICATION

Localized cancer
(stages cTis or cT1a)

Locoregional
cancer
(stages cT1b–cT4a; cM0)

Adjacent Organ
Invasion
(stage cT4b;)

Metastatic
cancer
(stage cM1)

EXTENT OF SURGERY

- Localized cancer (stages cTis or cT1a)

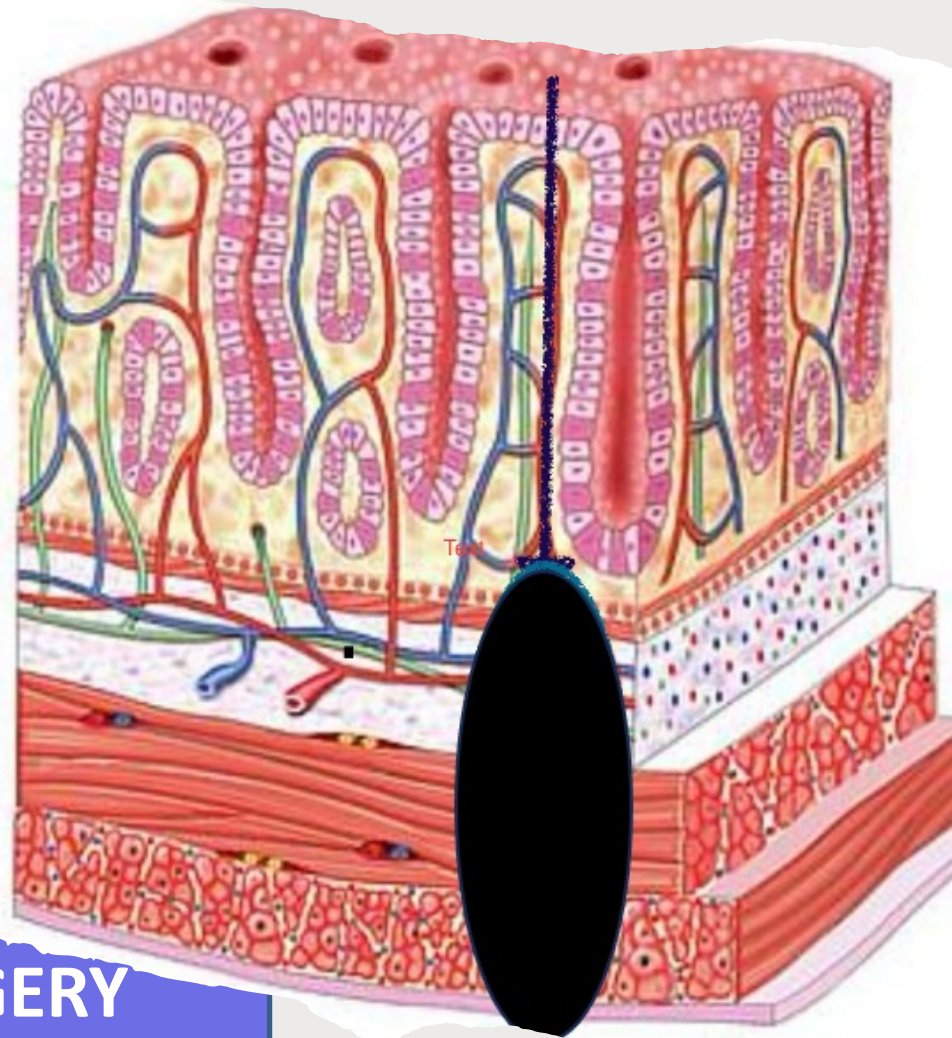
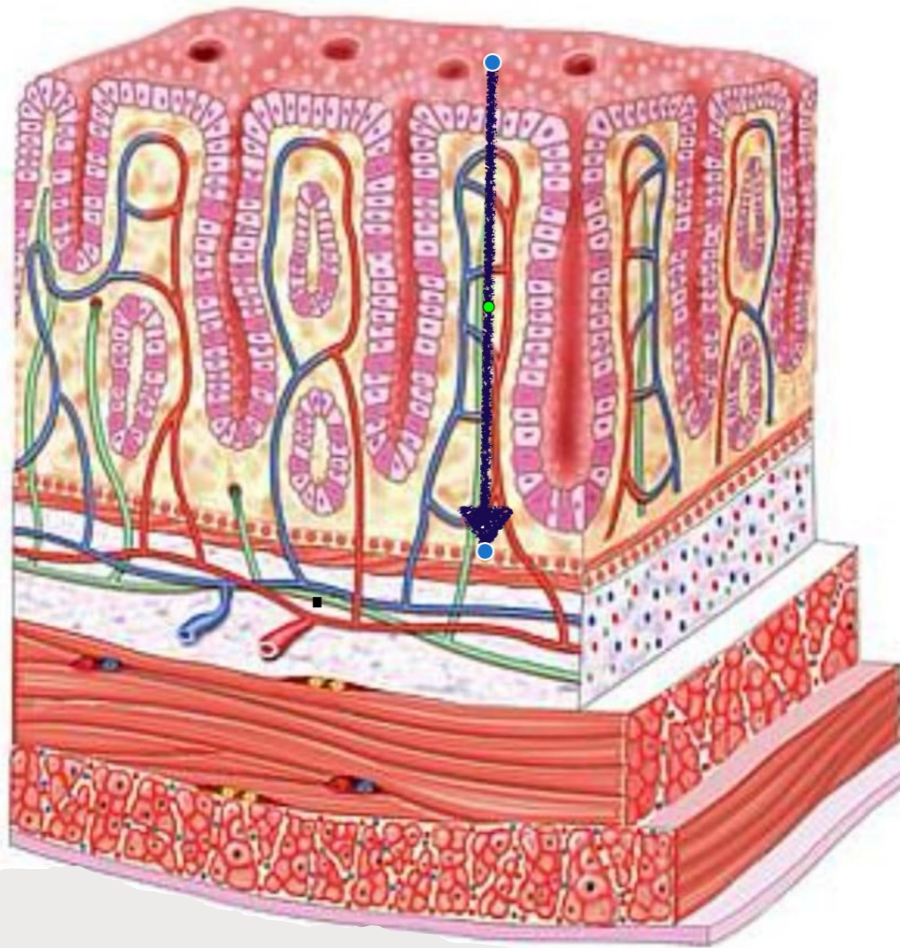
MaEMR or ESD if they meet appropriate criteria (in experienced center (Patients with tis or t1a tumors)

- Locoregional cancer (stages cT1b–cT4a; cM0)

Adequate gastric resection to achieve negative microscopic margins along with lymphadenectomy

- Adjacent Organ Invasion (stage cT4b;)

While T4b tumors require en-bloc resection of involved structures.



EMR VS RADICAL SURGERY

ONLY SURGERY WITHOUT ADDITIONAL MODALITY - EMR

1. Tis , T1a
2. Node Negative

ONLY SURGERY WITHOUT ADDITIONAL MODALITY – RADICAL SURGERY

1. T1 , T2 ,
2. Node Negative

SURGERY WITH ADDITIONAL MODALITY

1. T3 , T4 ,
2. Node positive

How should I plan

Additionnel Modality

Chemo Vs Chemoirradiation

THE DECIDING FACTOR



THE DECIDING FACTOR

COMPLETENESS OF SURGERY

Adequate margins

Adequate lymph node dissection

SURGERY AND CHEMO

- T3–T4, or any N+ tumours
- Who had received D2 lymph node dissection with R0 resection

SURGERY AND CHEMORADIATION

T2, N0 tumours with high-risk features

AND

T3–T4, or any N+ tumours

- Who had received less than a D2 lymph node dissection
- Residual disease at surgical margins (R1 & R2)

WHO HAVE RECEIVED PREOPERATIVE CHEMOTHERAPY OR CHEMORADIATION

- PREOPERATIVE CHEMORADIATION

R0 resection - observation until disease progression following

- PREOPERATIVE CHEMOTHERAPY

R0 resection - postoperative chemotherapy

R1 or R2 resection - In the absence of distant metastases, chemoradiation

PERIOPERATIVE CHEMOTHERAPY ?

Vs

UPFRONT SURGERY

NEOADJUVANT THERAPY

All trials suggest a down sizing and down staging of gastric cancers,

No risk of progression whilst on chemotherapy,

No increased complications and

Improved PFS and OS

WHY PERIOPERATIVE CHEMOTHERAPY ?

Achieving R0 Resection

Pre-operative CT: the EORTC 40954 trial

	Neoadjuvant Arm	Surgery arm	p
R0 resection	59 (81.9%)	48 (66.7%)	0.036
NO node	27 (38.6%)	13 (19.1%)	0.018

PREFERABLE REGIMEN – NEOADJUVANT CHEMO

FLUOROURACIL, LEUCOVORIN, OXALIPLATIN, AND DOCETAXEL (**FLOT**)

(4 cycles preoperative and 4 cycles postoperative)

- Fluorouracil 2600 mg/m² IV continuous infusion over 24 hours on Day 1
- Leucovorin 200 mg/m² IV on Day 1
- Oxaliplatin 85 mg/m² IV on Day 1
- Docetaxel 50 mg/m² IV on Day 1

Cycled every 14 days¹

PREFERABLE REGIMEN - CHEMOIRRADIATION

45–50.4 Gy (total 25–28 fractions)

Higher doses in positive margins

2 cycles before and 4 cycles after chemoradiation.

For cycles after chemoradiation, begin chemotherapy 1 month after chemoradiation.

Leucovorin 400 mg/m² IV on Day 1

Fluorouracil 400 mg/m² IV Push on Day 1

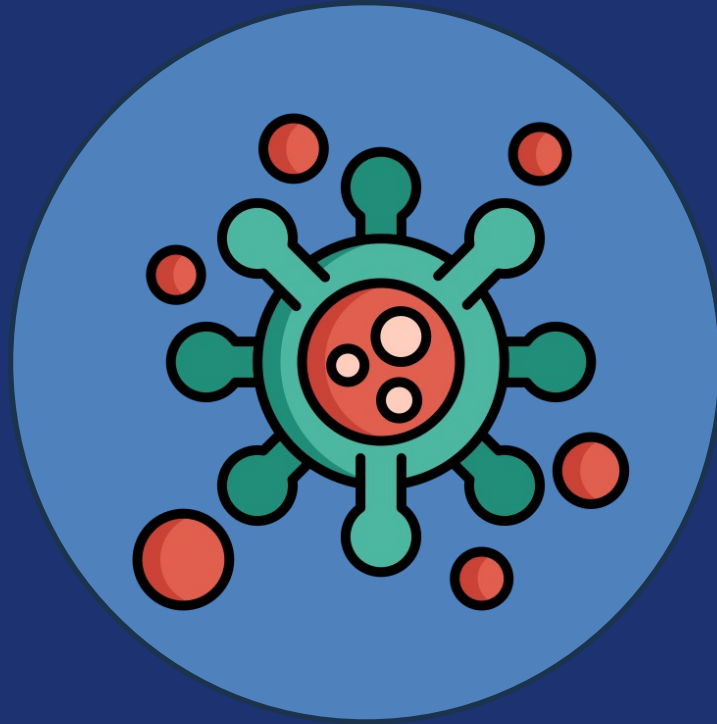
Fluorouracil 1200 mg/m² IV continuous infusion over 24 hours daily on Days 1 and 2

Cycled every 14 days

With radiation

Fluorouracil 200–250 mg/m² IV continuous infusion over 24 hours daily on Days 1–5

Weekly for 5 weeks



METASTATIC CANCER

TREATMENT PLAN

BEST SUPPORTIVE CARE AND PALLIATIVE MANAGEMENT

- with or without systemic therapy or
- with or without chemoradiation,

depending on performance status and prior treatment.

REGIMENS

Regimens should be chosen in the context of performance status (PS), medical comorbidities, and toxicity profile.

Two-drug cytotoxic regimens are preferred for patients with advanced disease because of lower toxicity.

The use of three cytotoxic drugs in a regimen should be reserved for patients who are medically fit with excellent PS a

TARGETED THERAPY

HER2 overexpression-positive

Trastuzumab

HER2 overexpression-negative

PD-L1 expression levels by CPS of greater than or equal to 5 -**Nivolumab**

Second-line drugs

Ramucirumab,

Pembrolizumab (for MSI-H/dMMR or TMB-H tumors)

Entrectinib and larotrectinib *NTRK* gene.

PALLIATIVE GASTRECTOMY

- Uncontrolled bleeding
- Presence of severe stenosis or obstruction
- Perforation

CRITERIA: MOBILE GROWTH

PALLIATIVE GASTRECTOMY FOR METASTATIC CANCER IS IT WORTHWHILE?



NO

- Doing palliative gastrectomy for metastatic cancer-
without complication, to be avoided



TAKE HOME MESSAGE

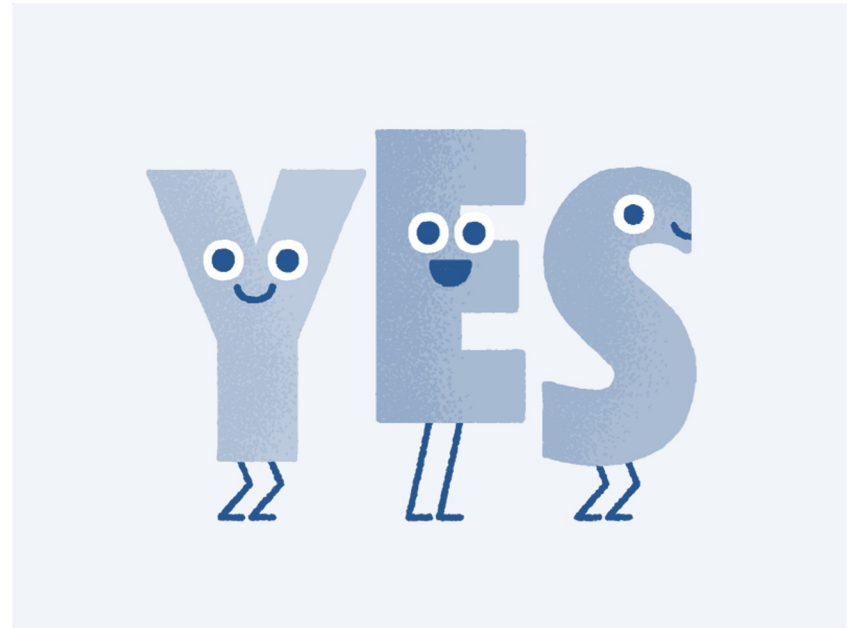
MILLION DOLLAR QUESTION



I AM OPERATING SURGEON

I don't have EUS?
we don't have facilities' for EMR?

Can we treat the CANCER STOMACH ?



MILLION DOLLAR QUESTION

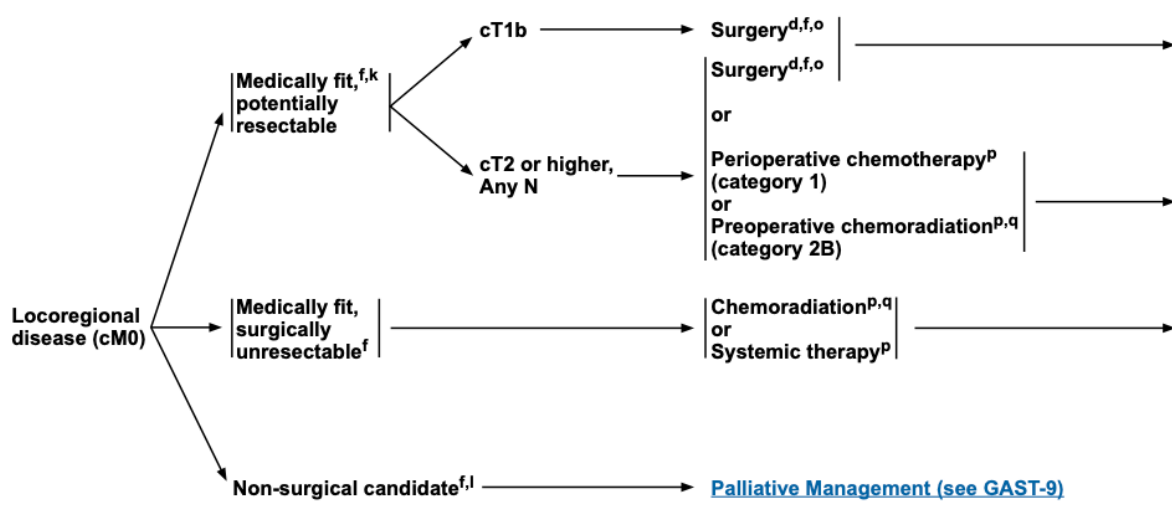


I AM OPERATING SURGEON

T3, T4a & N1 Lesion – Technically Operable

How Can I Proceed ?

CAN I DO PRIMARY SURGERY?

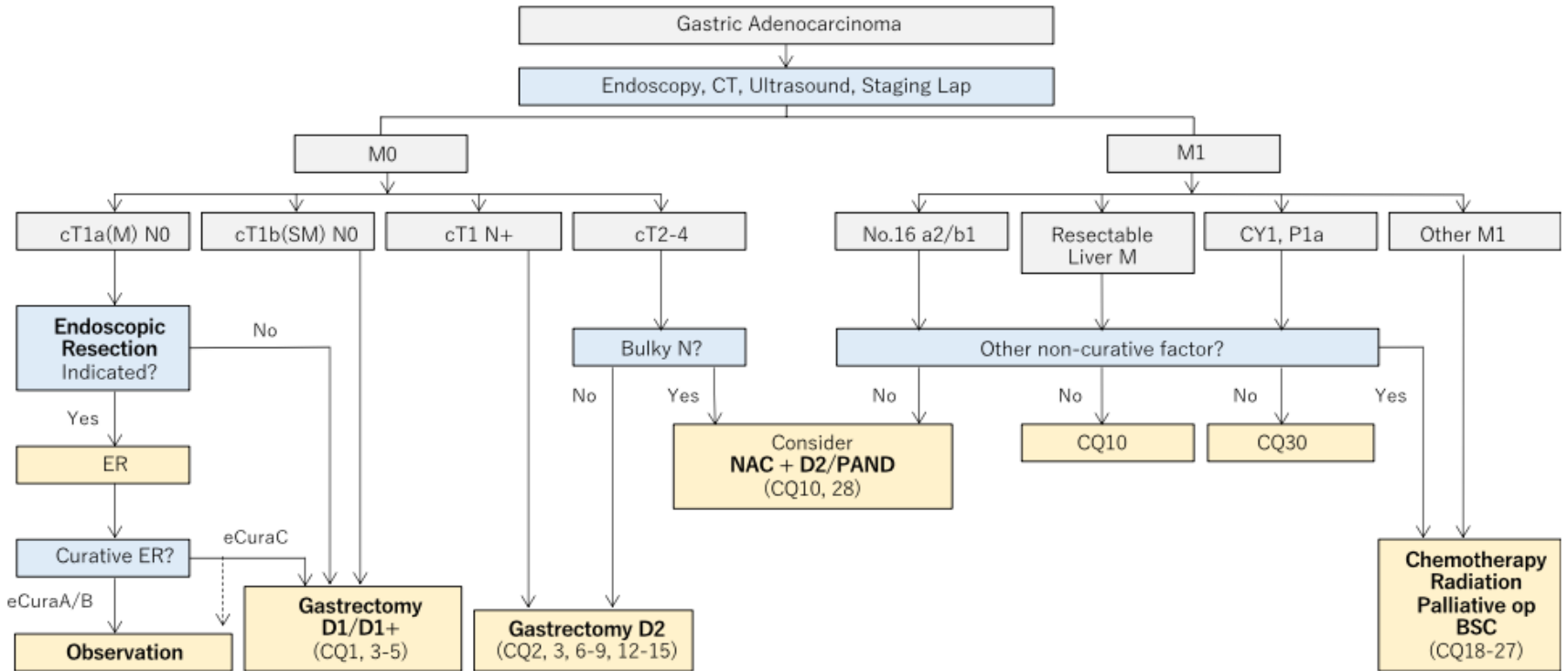


NCCN GUIDELINES

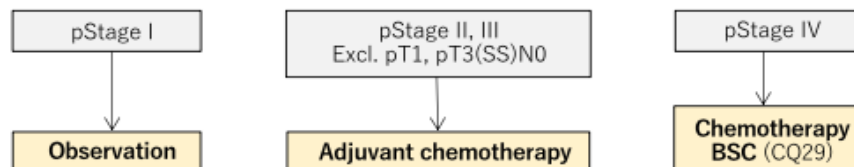
Japanese Gastric Cancer Treatment Guidelines 2021 (6th edition)

Japanese Gastric Cancer Association¹

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After gastrectomy



MILLION DOLLAR QUESTION

literature data
are not against
for primary surgery

MY WISHES TO ALL

