

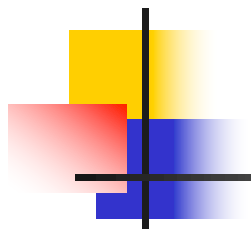
G.I.T CANCERS - ONCOLOGIST VIEW



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MADURAI





ONCO PRINCIPLE



COMMONEST CANCER

INDIA



- **STOMACH**

GLOBAL



- **COLORECTAL**



ONCOLOGICAL NORMS

**Adequate Surgery + Adjuvant therapy
is the Standard treatment**

**Adjuvant treatment is not an answer to
incomplete surgery**



WHAT IS ADEQUATE SURGERY?

- Achieving R₀ Resection –

Excision of tumor with wide clearance & lymphadenectomy

- With - restoration of function

ADEQUATE SURGERY-HOW MUCH CLEARANCE?



- Esophagus - 10 cm
- Stomach - 5 cm
- Hepatobiliary - 1 cm
- Pancreas - 1 cm
- Colon - 5 cm

Clearance in Colon resection is based on vascular anatomy



ADEQUATE LYMPHADENECTOMY

HOW MANY NODES?

- Esophagus - 25 nodes
- Stomach - 15 nodes
- Hepatobiliary - 3 nodes
- Pancreas - 10 nodes
- Colon - 12-15 nodes



RESECTABILITY RATE

- Esophagus - 20%
- Stomach
 - Proximal - 20%
 - Distal - 35%
- Hepatobiliary - 15%
- Pancreas - 20%
- Colon - 95%

GOALS OF SURGICAL THERAPY

- Reasonable opportunity for cure
- Risk of death should not outweigh the prospects for cure

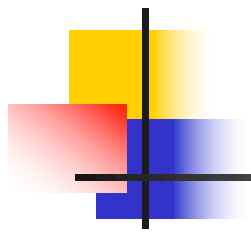




PRINCIPLE

- Resectability should be determined preoperatively by CT Scan & Laproscopy
- Laparotomy should be therapeutic not diagnostic
- Palliative Laparotomy should be avoided

**LAPARATOMY AND PROCEED
TO BE CONDOMNED**



APPROCH

ORDER OF INVESTIGATION



■ CONFIRMATION OF DIAGNOSIS

- Biopsy

■ METASTATIC WORKUP

- X-ray chest
- US abdomen
- CT scan

IS BIOPSY MANDATORY BEFORE TREATMENT ?



- In general it is recommended before treatment
- Biopsy should not be done in operable **liver** and **pancreatic** cancer
- Biopsy is a must ,before starting chemo and RT (Neoadjuvant therapy)

THE NEED OF THIS ERA



Multidisciplinary Tumor Board

Finalize Tumor staging

Formulates treatment plan



Radical Surgery

+

Adjuvant therapy

**Adjuvant treatment is based on
Post op HPE**



T 1 2 3

N 1 2

T 4

operable

N 3 M

inoperable

DATA EXPECTED FROM PATHOLOGIST

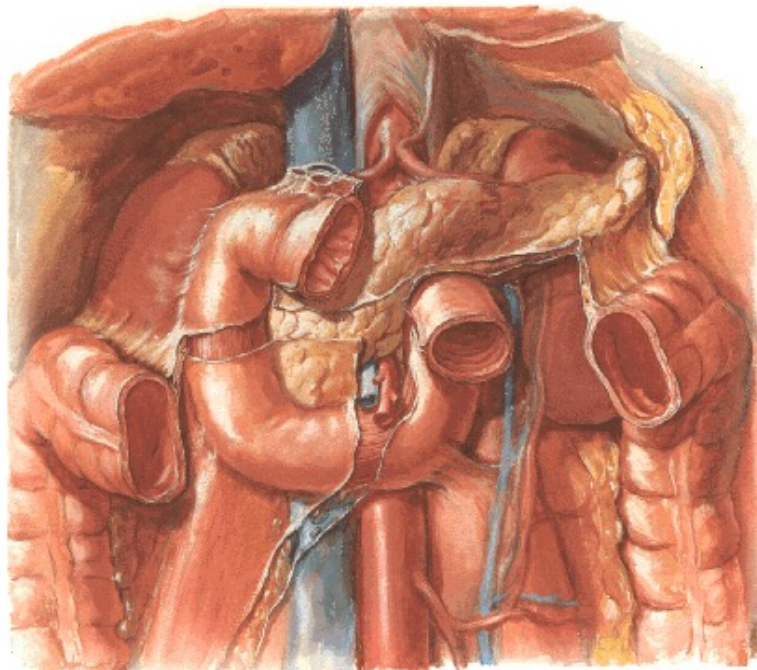


- Grade
- Histological type
- Margin status
- Lymphovascular invasion
- No. of nodes in specimen
- No. of nodes involved
- Extracapsular disease

RECURRENCE - APPROCH

**CA STOMACH
ORDER OF RECURRENCE**

**Stomach bed
Lymph node
Anastomosis**



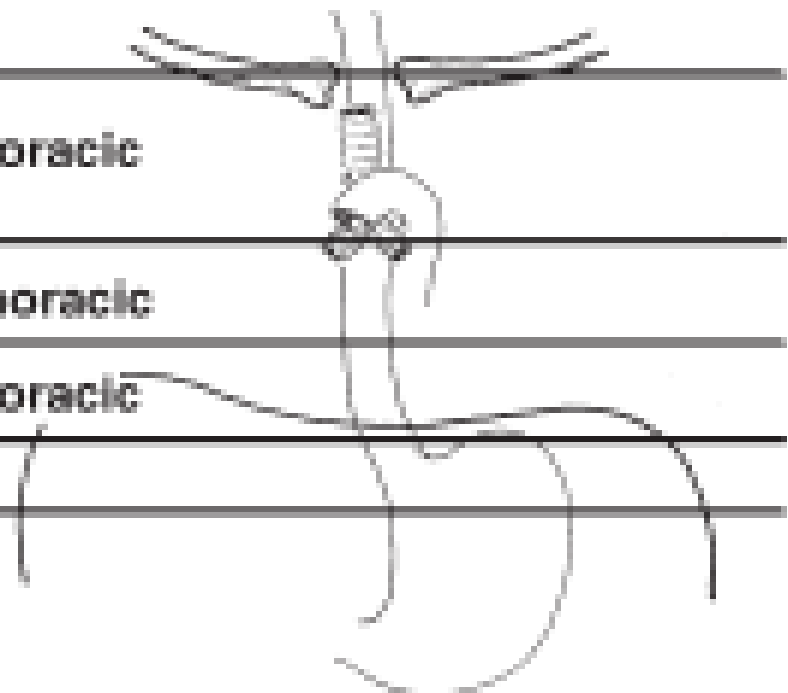
Ideal investigation – CT combined with endoscopy

SURGICAL PRINCIPLE

T N M - T stage

Type and Location of Tumours of Oesophagus

	Squamous carcinoma	Adeno-carcinoma	Total
Cervical	5%	0%	5%
Upper thoracic	15%	1%	16%
Middle thoracic	9%	2%	11%
Lower thoracic	2%	28%	30%
Cardia	0%	38%	38%
	<u>31%</u>	<u>69%</u>	<u>100%</u>



- Location

- Lower third - Adenocarcinoma
- Middle third , Upper third - Squamous,



Types of oesophageal resections

- Orringer procedure
- Ivor Lewis procedure
- McKeown procedure
- Left thoracotomy approach
- Thoracoabdominal approach
- Minimally invasive procedure

Factors determining the type of operation



- Location of the tumor
- Extent
- Concurrent pathology
- Available conduits for reconstruction
- Surgeon preference



Oesophagus

- Overall survival still poor in patients with esophageal cancer
- Surgery remains mainstay of treatment
- There is no ideal approach to esophagectomy
- Outcomes are best when performed in high volume centers



MR. BASKAR 38 / M

CA LOWER $\frac{1}{3}$ ESOPHAGUS

TRANS-HIATAL ESOPHAGECTOMY
DONE



28.12.2013



OG JN TUMOUR - HOW TO PROCEED ?

- **SIWERT CLASSIFICATION:**
 - **Type i: esophageal cancer involving OG junction**
 - **Type ii: primary OG junction growth**
 - **Type iii: stomach lesion involving OG junction**
- **Type I needs esophageal resection**

stomach



EXTENT OF GASTRIC RESECTION ? TOTAL VS SUBTOTAL GASTRECTOMY

- Proximal gastric cancer
Total gastrectomy
- Distal gastric cancer
Distal Subtotal gastrectomy

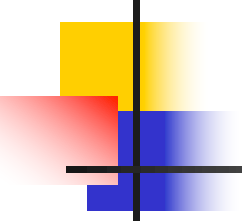
Morbidity & location of the primary tumor
dictates the extent of gastric resection

EXTENT OF GASTRIC RESECTION

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

50% mortality is due to anastomotic leak

ADJACENT ORGAN INVOLVEMENT HOW TO PROCEED?

- 
-
- DUODENUM : 2 cm clearance
 - ESOPHAGUS : 10 cm clearance
 - COLON : segmental resection
 - MESOCOLON : trace SMA node
(if + unresectable)
 - OMENTUM :
 - direct invasion, T3 – resectable
 - Nodules – metastasis
 - PANCREAS :
 - Distal : distal pancreatectomy
 - Proximal : unresectable

After completion of total radical gastrectomy

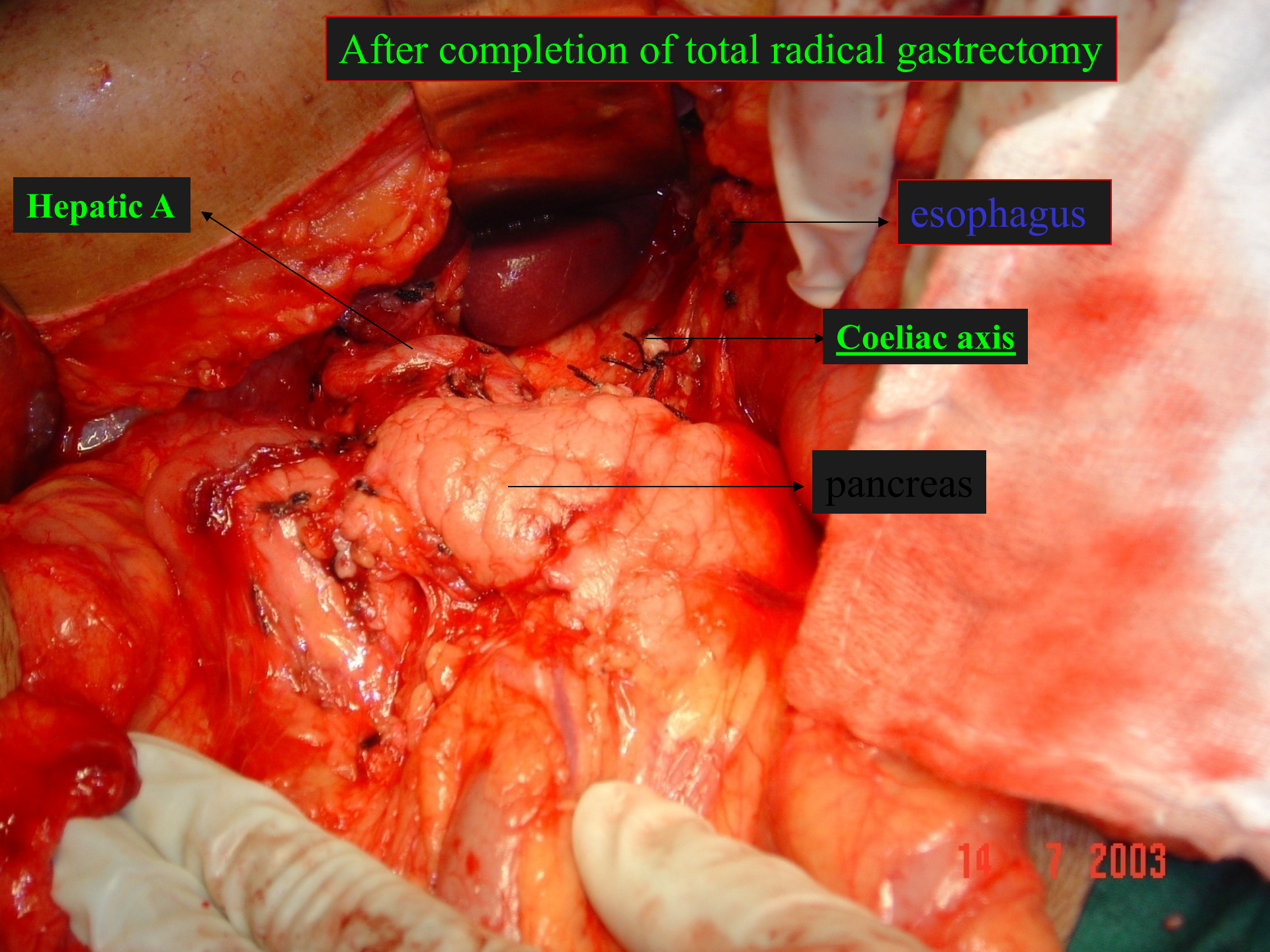
Hepatic A

esophagus

Coeliac axis

pancreas

14 7 2003



pancreas



LAPAROTOMY SHOULD BE THERAPEUTIC

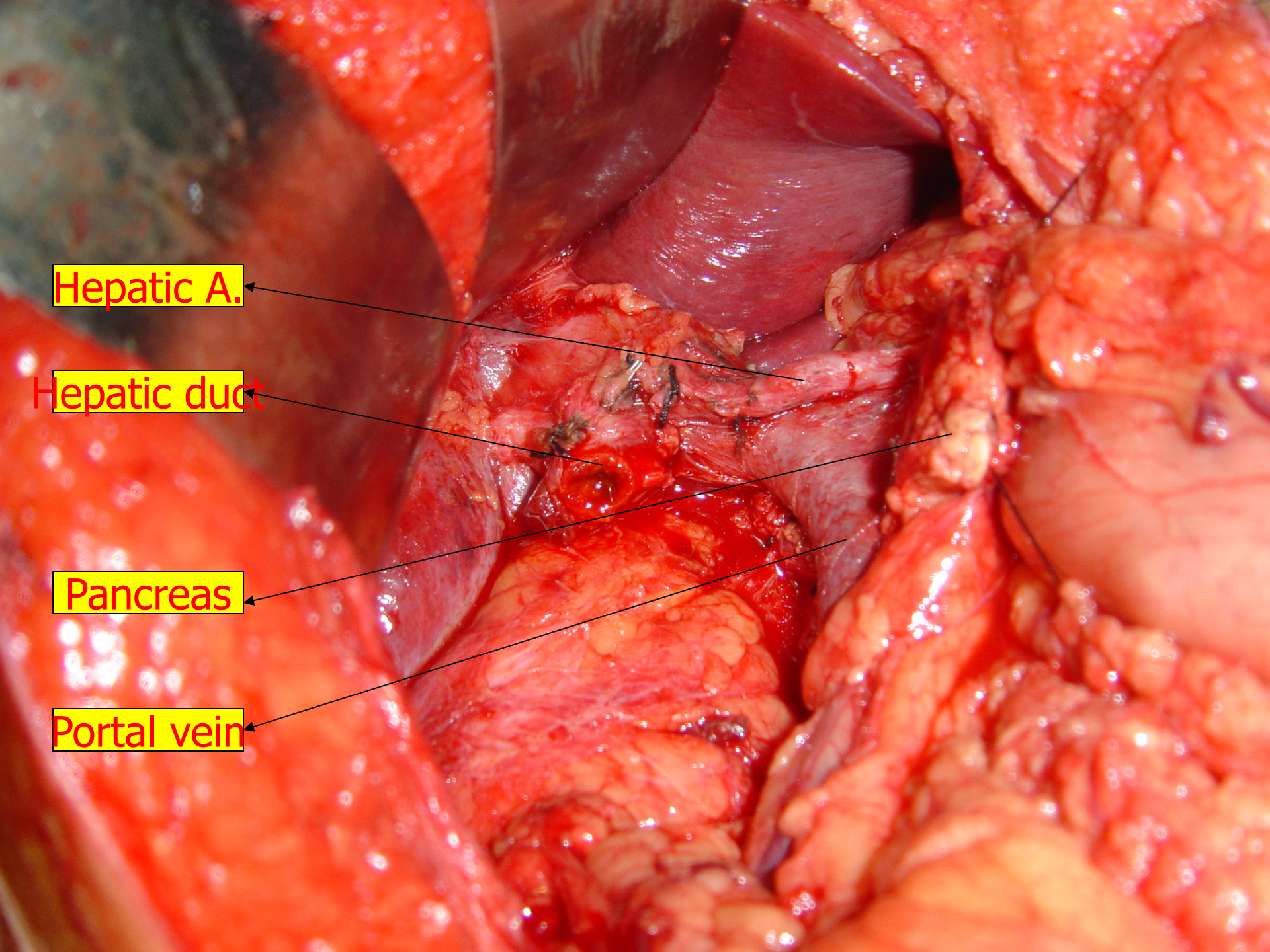
Incidence & mortality rates are equal

Complete pancreaticoduodenectomy (margin negative) only has survival advantage

Only 30 - 50% of patients who undergo surgery with curative intent have their tumor successfully removed

Majority who undergo surgical exploration had no survival advantage but had morbidity, Median survival 6 months

(no difference without surgery)



Hepatic A.

Hepatic duct

Pancreas

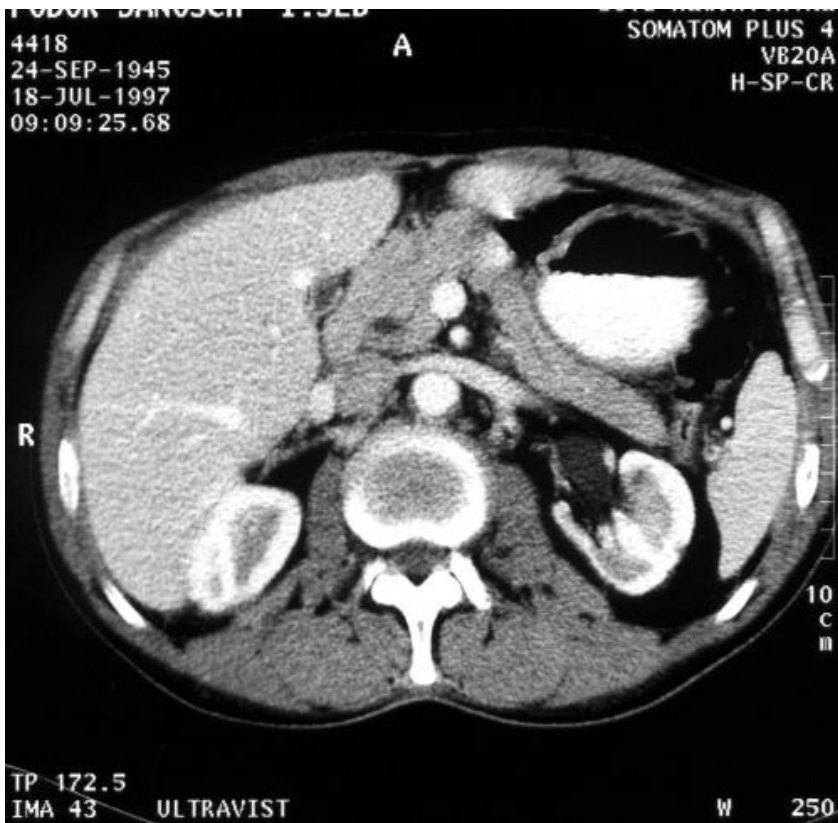
Portal vein



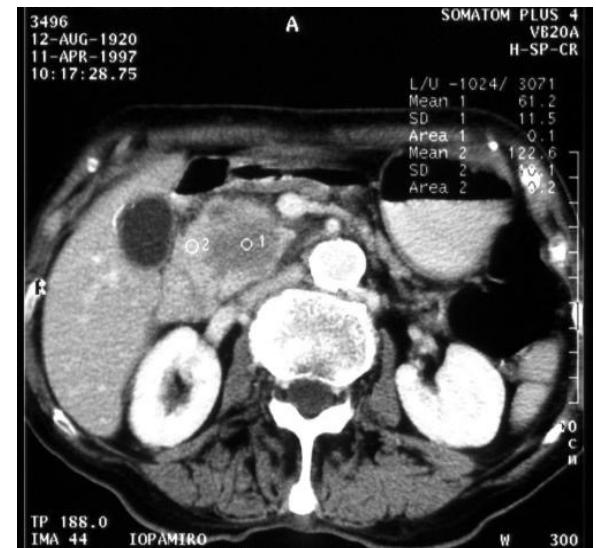
C.T CRITERIA FOR RESECTABILITY

1. Absence of extra pancreatic disease
2. A patent superior mesenteric –portal vein (SMPV) confluence
3. No direct tumor extension to the celiac axis or SMA

inoperable



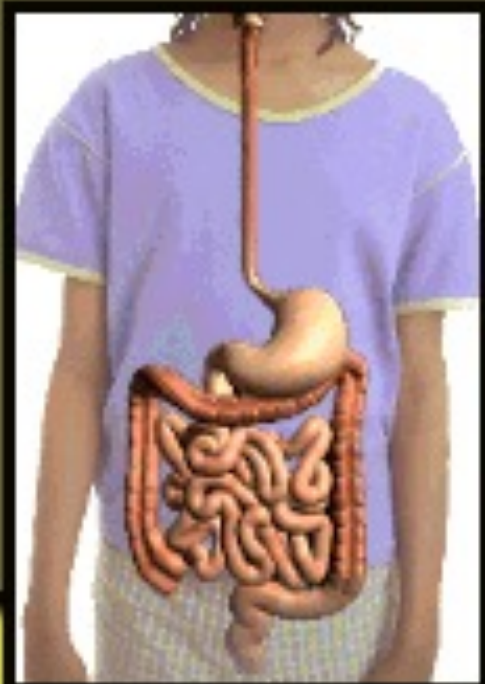
operable



SMA involvement is a C/I for surgery whereas SMV involvement is not-Why ?

- The autonomic nerve plexus and lymphatic channel passes only around the artery & not vein
- If artery is involved this neurolymphatics is also involved. So tumor clearance is not possible

COLO RECTAL CANCER

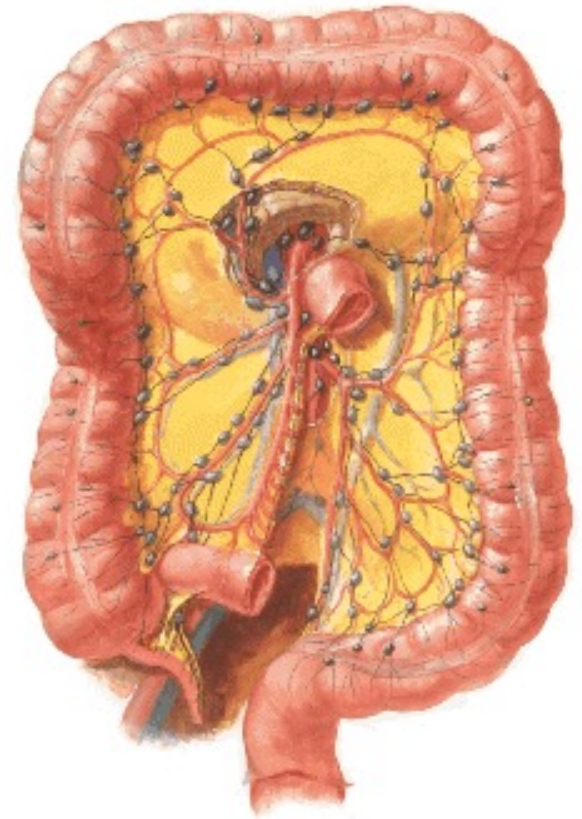


GOOD PROGNOSIS among the G I T
cancers

70% of cancers are in the rectum and
recto sigmoid junction

COLON EXTENT OF RESECTION

- 5cm. of normal bowel proximal and distal to the tumor
- Determined by the blood vessels that must be divided to remove the lymphatic drainage of the tumor bearing portion of the colon with tumor free margins



RECTUM APR VS AR

SPHINCTER SAVING PROCEDURE

In rectal cancer try to preserve sphincter without compromising clearance



- Neo adjuvant chemoradiation
- Stapler
- Colo – anal anastamosis



DISTAL MARGIN - EMERGING CONCEPT

- Previously held belief – 5 cm required.
- Studies have shown that the Distal extent of cancer **rarely exceeds 2 cm.(only 2.5 %)**
- Chances of local recurrence are not decreased by increasing Distal margins to > 2 cm.

ABSOLUTE INDICATIONS FOR APR



- Involvement of Sphincter Complex.
- T3, T4 lesions of the Lower Third Rectum.
- Extension of the tumor below the Dentate line.



TOTAL MESORECTAL EXCISION

- **Commonest cause of local recurrence in rectal cancer is incomplete excision of mesorectum**
- **So total mesorectal excision [TME] with circumferential clearance of rectal cancer is the procedure of choice**
- **TME is mandatory in lower and middle third rectal cancer**
- **In upper third cancer, 5cm clearance of mesorectum from lower margin of the cancer is enough**



TOTAL MESORECTAL EXCISION

In rectal surgery, posterior plane of dissection is in-between the mesorectum and presacral fascia. It is an avascular plane and contains hypogastric nerve

Hypogastric nerve should be dissected off from mesorectum by sharp dissection

NERVE TO BE PRESERVED

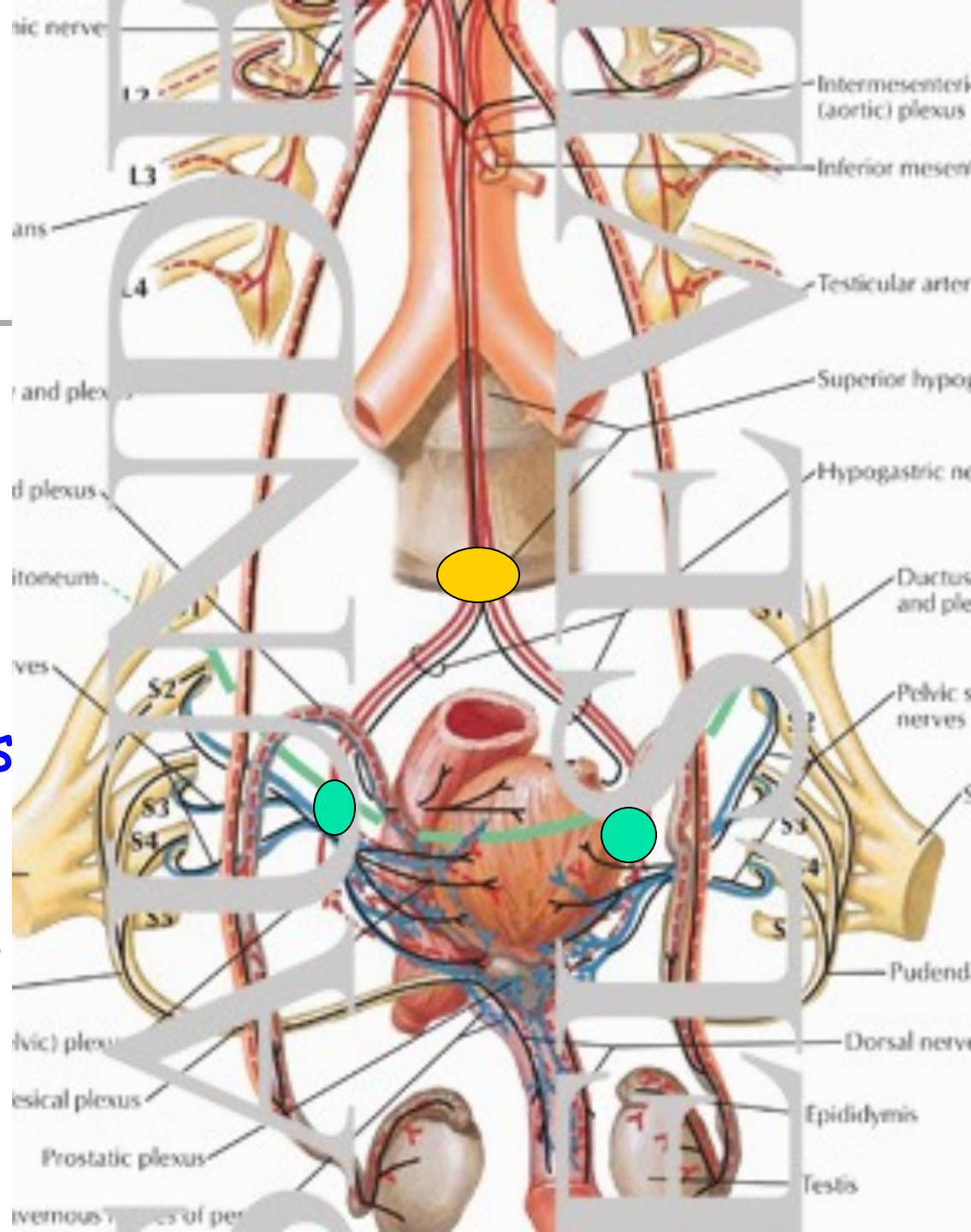
Sympathetic – Hypogastric nerve

superior pelvic plexus

- at sacral promontory
single midline

Inferior pelvic plexus

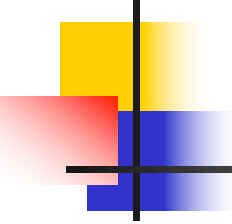
- At lateral wall of the rectum with
Para sympathetic – Nervi erigentis
lateral two



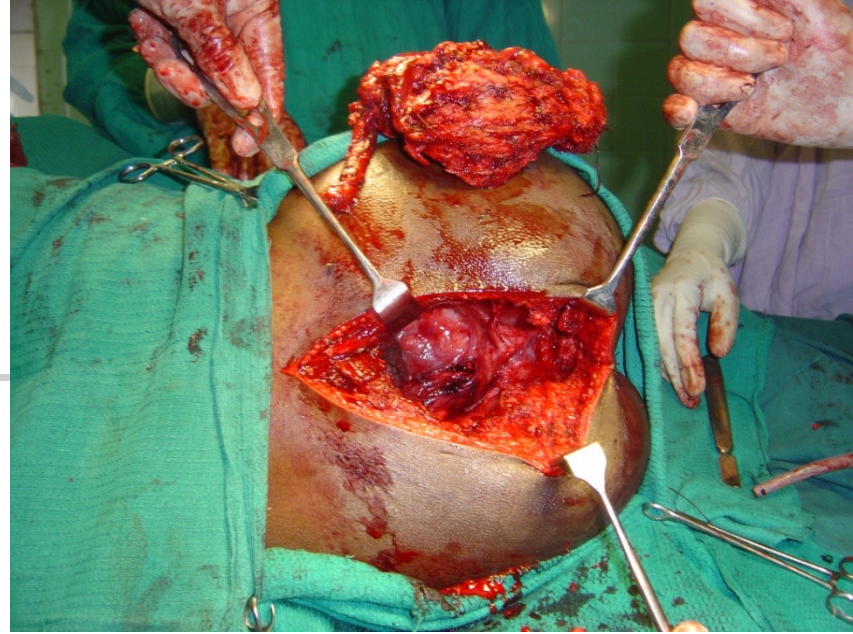
Adjacent organ involvement is it a advanced stage ?

NO

- Extraperitoneal adjacent organ involvement is T4 and is still staged as IIB(T4 N0M0). Not a advanced stage.
- Ultra Radical procedures with curative intent is a worthwhile option



After APR if post operative RT is planned, pelvic cavity has to be filled with omentum or any material like implants in order to prevent small intestine to enter into pelvic cavity to avoid radiation enteritis



Rectal cancer en bloc sacral resection



SURGICAL PRINCIPLE

T N M - N stage

LYMPHADENECTOMY



Radical surgery for cancer

- G I T Cancer fails more at **Radial** margins.
- Chance of cure is only possible in loco regional treatment than local treatment in non metastatic cancer

**CRM
vs
linear margin**



LYMPHNODES - METASTASIS?

- Esophagus -
celiac nodes/supraclavicular node
- Stomach - N3 nodes
- Pancreas - celiac nodes
- Colon - S.M.A / I.M.A nodes
- Rectum - Common iliac nodes



THREE FIELD LYMPHADENECTOMY

BASIS – skip metastases

- **40 % of middle third and 20 % of lower third cancers have metastases** in neck nodes
- 20 % of upper third cancers have metastases in celiac nodes

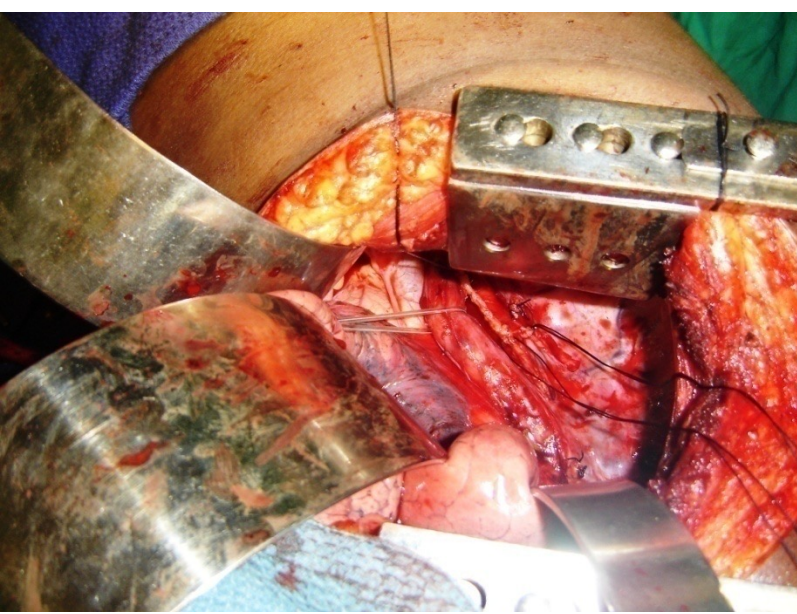
-Isonomy et al.



THREE FIELD LYMPHADENECTOMY

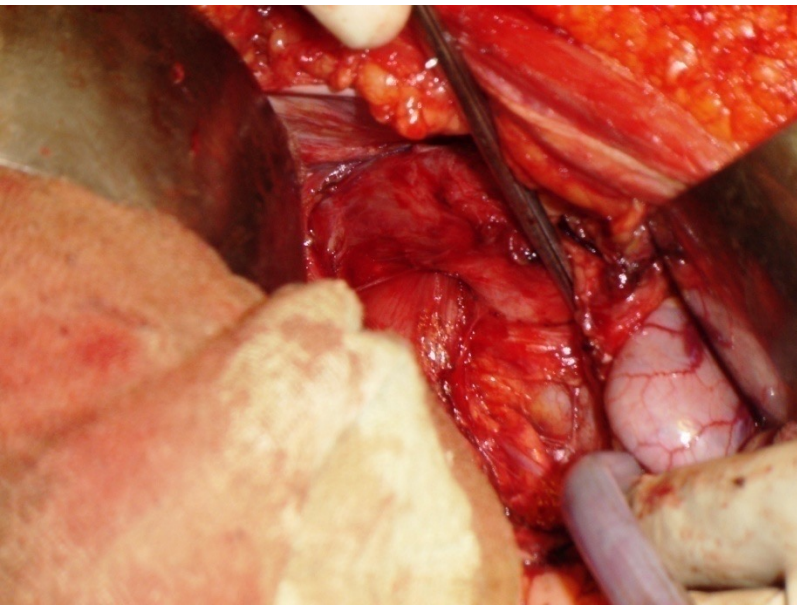
Extirpation of tumor bearing oesophagus with a wide envelope of adjoining tissues including pleura, pericardium, thoracic duct etc., to maximize loco regional control

LYMPHADENECTOMY – Mediastinum
Abdomen
Neck

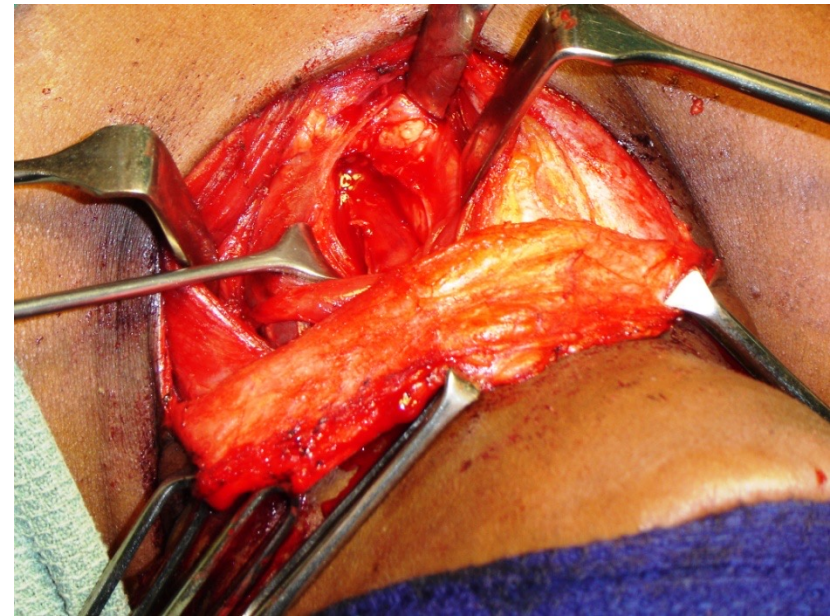


First field mediastinum

Second field abdomen



third field neck

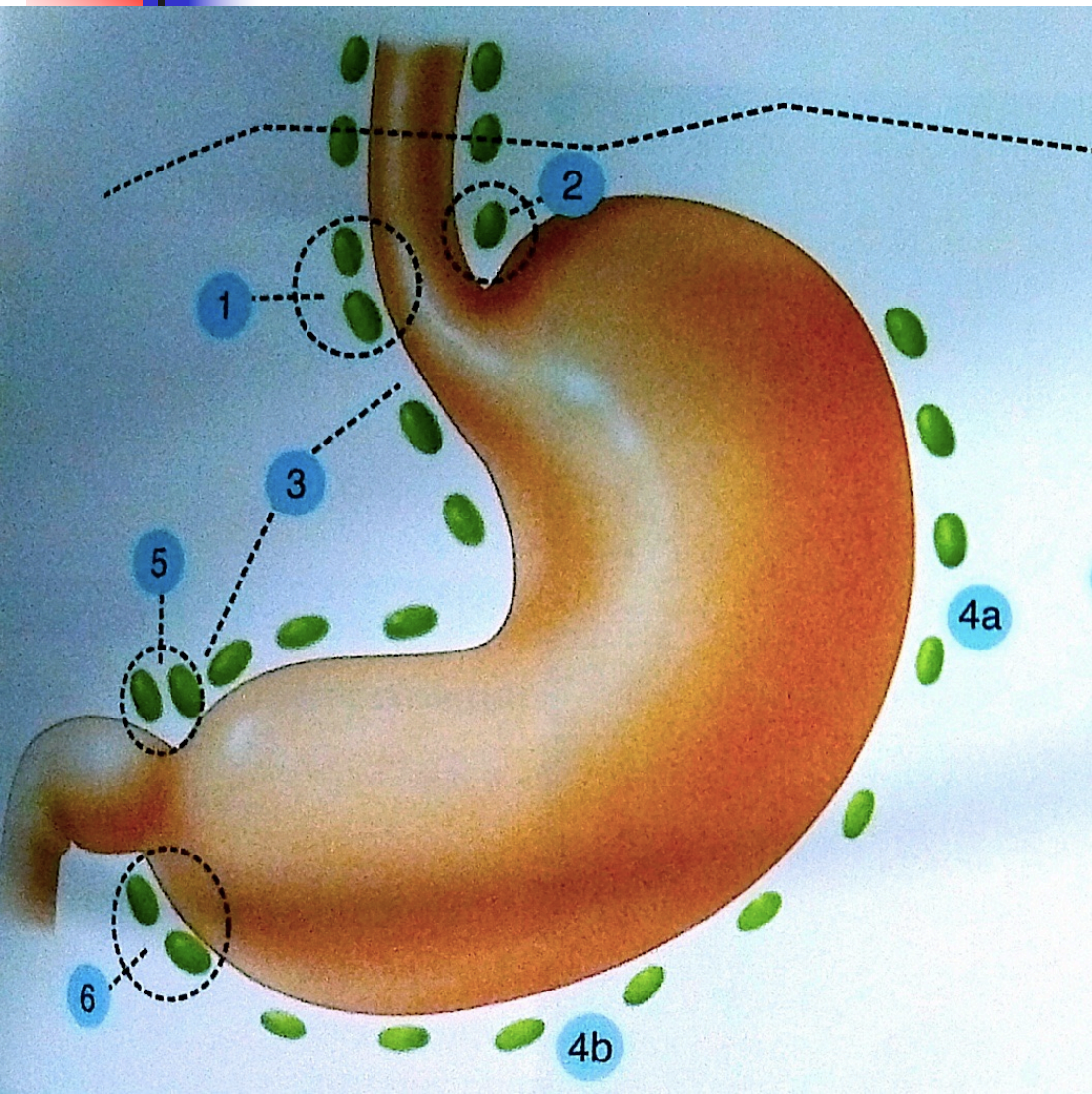




T.H.E VS 3 FIELD ESOPHAGECTOMY

	THE (Orringer et al.,)	3 FIELD (Akiyama et al.,)
5 Yr Survival	27%	41%
Local recurrence	60%	10%

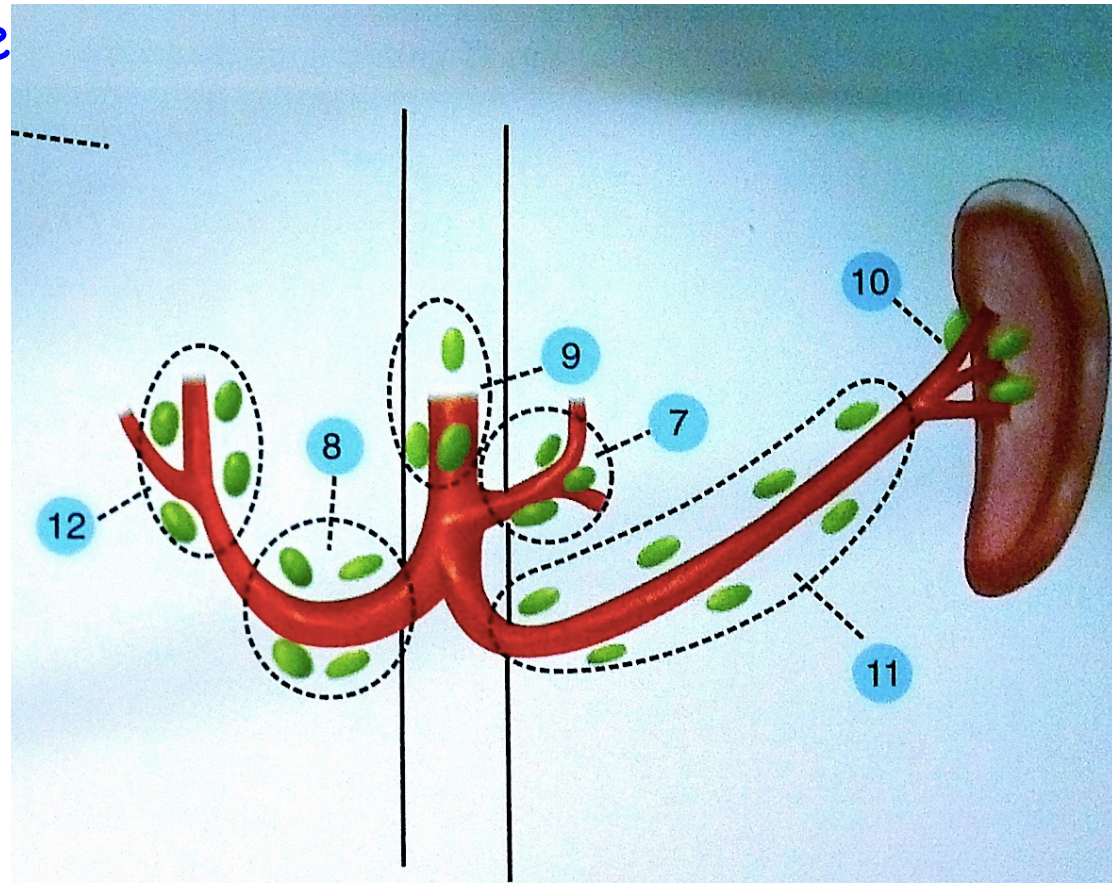
N1 NODES Along the Curvatures



1. Rt. cardiac node
2. Lt. cardiac node
3. Lesser curvature node
4. Greater curvature node
5. Supra pyloric node
6. Infra pyloric node

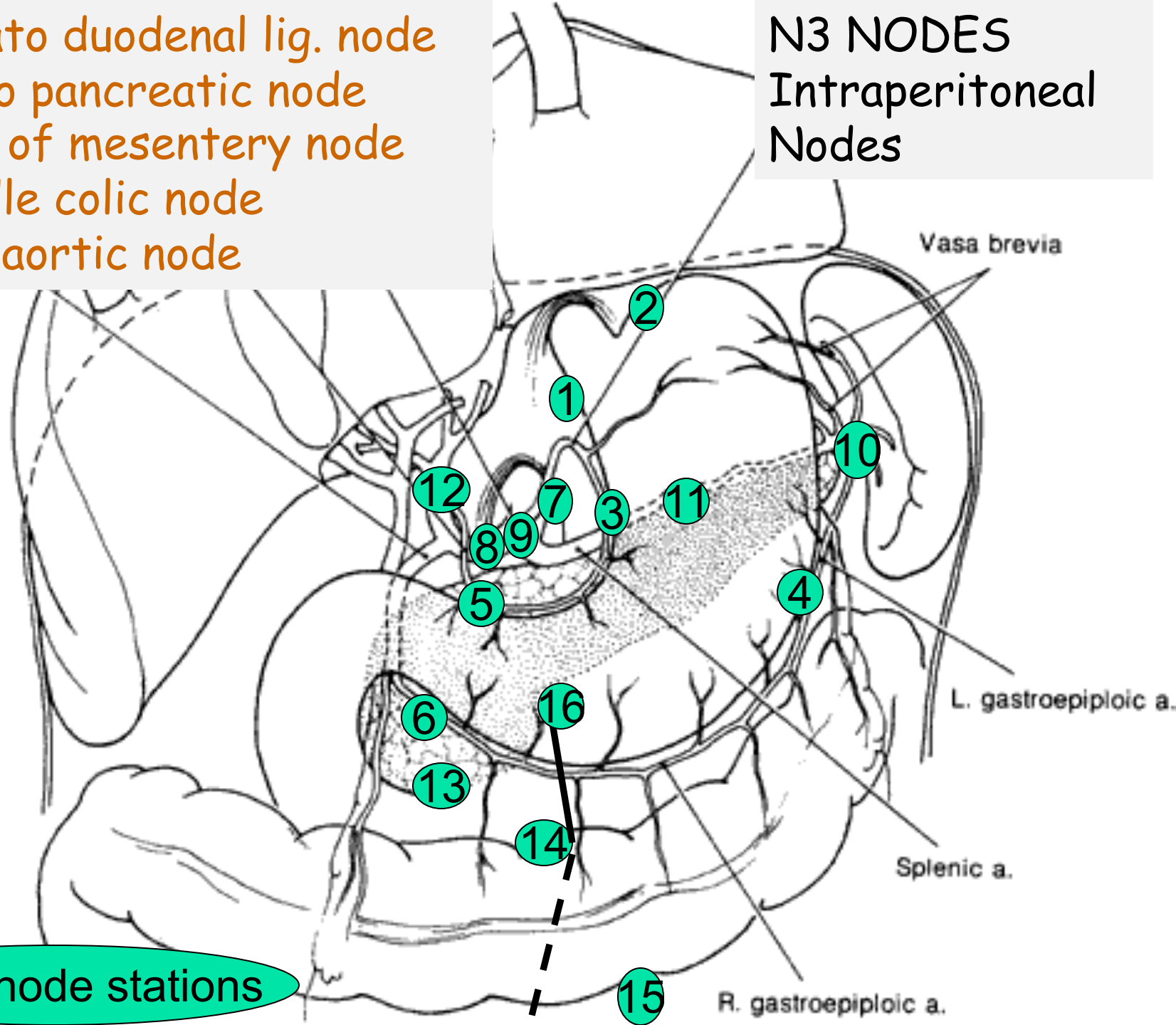
N2 NODES Along the Named vessels

- 7. Lt. Gastric node
- 8. Common hepatic node
- 9. Celiac node
- 10. Splenic hilar node
- 11. Splenic A. node
- 12. Splenic V. node



- 12. Hepato duodenal lig. node
- 13. Retro pancreatic node
- 14. Root of mesentery node
- 15. Middle colic node
- 16. Para aortic node

N3 NODES
 Intraperitoneal
 Nodes



Lymph node stations



LYMPHATIC DRINAGE

- N1, N2 nodes are Regional nodes and N3 nodes are Metastasis

Involvement of N3 nodes is a contraindication for radical surgery

- In D2 lymphadenectomy the minimum number of nodes to be resected is 15
- RML – Ratio of metastatic to uninvolved lymph nodes, is now emerging as a significant prognostic factor



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

EXTENT OF LYMPH NODE DISSECTION

	MORTALITY	MORBIDITY
D2 Gastrectomy	10%	43%
D1 Gastrectomy	4%	25%

Increased mortality in D2 gastrectomy is association with splenectomy and distal pancreatectomy

REGIONAL VS METASTASIS

REGIONAL

First tier -Epicolic nodes
adjacent to colon

Second tier – Para colic
along the marginal vessels

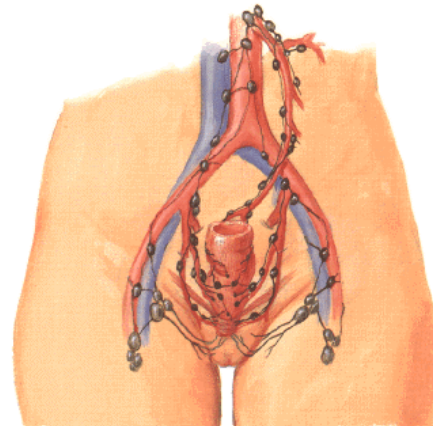
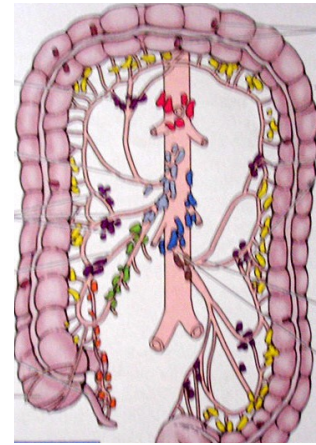
Third tier – intermediate nodes
along the named branch

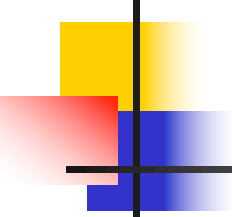
METASTASIS

Fourth tier – Principle node
along the S.M.A, I.M.A

▪ Colon -
S.M.A / I.M.A nodes

▪ Rectum -
Common iliac nodes





In colo-rectal cancer ,chance of cure is high after radical surgery when nodal disease is limited to intermediate nodes

But if principle nodes are involved it is incurable

In anterior resection – Clearance of the nodes below the left colic artery is enough

Clearance of I.M.A nodes is optional



*Sharp dissection of mesorectum
preserves these structures*



Radical treatment of rectal cancer results in high rate of impotence in male

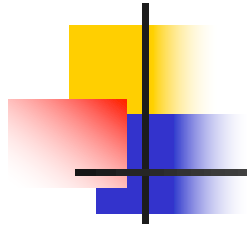
In rectal surgery, posterior plane of dissection is in-between the mesorectum and presacral fascia. It is an avascular plane and contains hypogastric nerve

Hypogastric nerve should be dissected off from mesorectum by sharp dissection

➤ Proximal lymph node dissection



- Follow the arterial supply
 - Predominant spread along the great vessels
 - Proximal extent :
 - left colic
 - inferior mesenteric



A.P.R done for ant. placed lower rectal cancer,
post. Vaginal wall to be removed enblock with
rectum for clearance

RATIONAL:

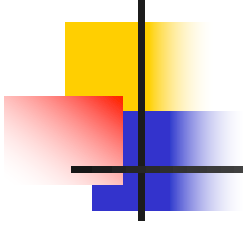
Common lymphatics in rectovaginal septum

SURGICAL PRINCIPLE

T N M - M stage

METASTATIC CANCER

COMMENEST SITE OF METS

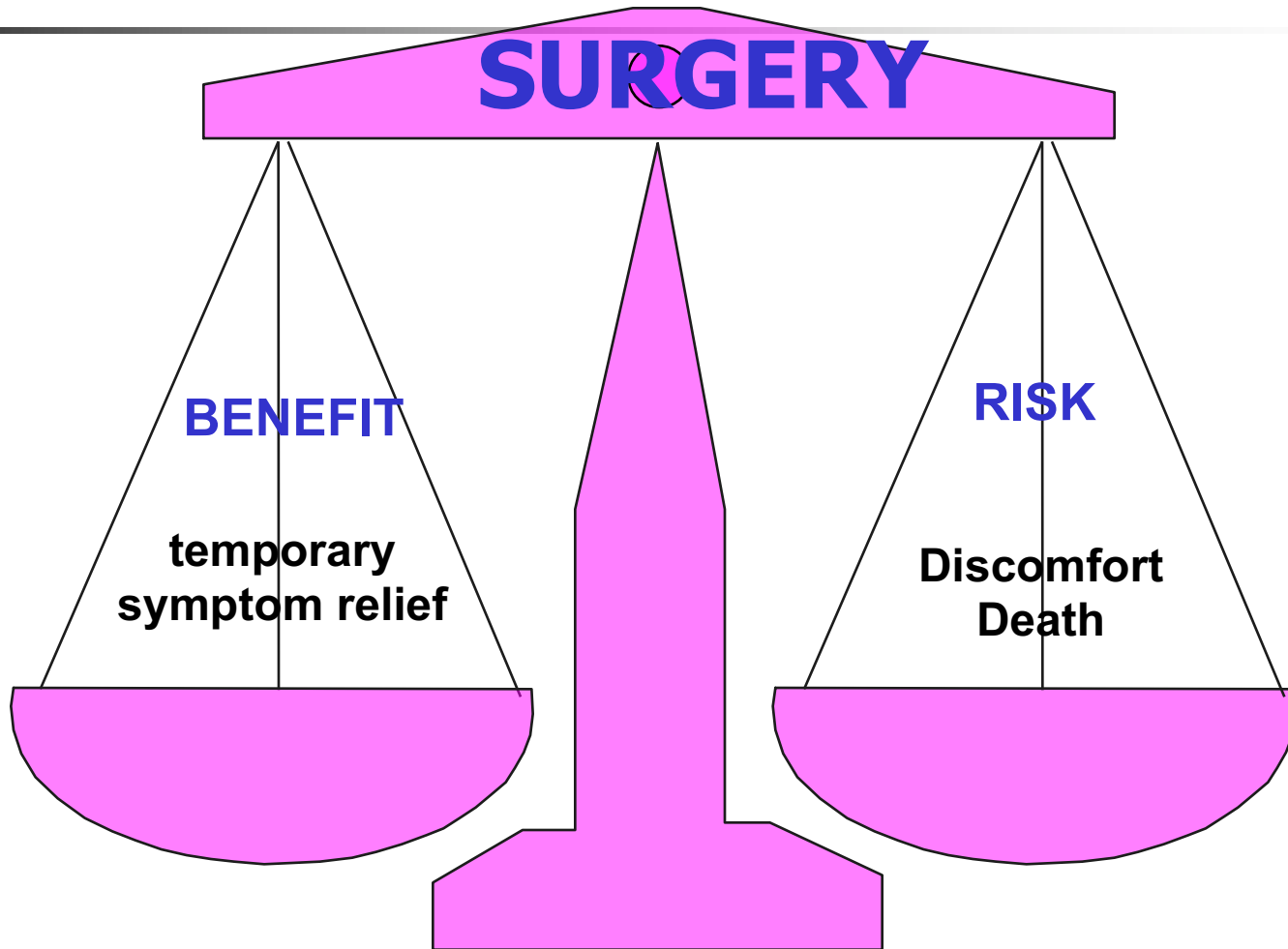




- Generally incurable

- In Colorectal cancer upto 3 Liver metastasis and single Pulmonary metastasis is curable (single site metastasis)

ADVANCED INCURABLE DISEASE





TREATMENT - PALLIATIVE SURGERY

- STOMACH : only with complication
- COLORECTAL: All pts. to prevent complications
- .

PALLIATIVE GASTRECTOMY FOR METASTATIC CANCER IS IT WORTHWHILE?



NO

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

SURVIVAL



ESOPHAGUS : 4 mths

■ LIVER : 4 mths

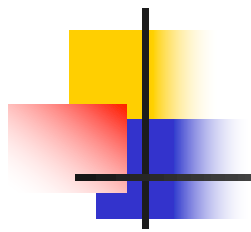
■ PANCREAS & : 4 mths (without chemo)
STOMACH : 8 mths (with chemo)

■ COLON : 9 mths (with hepatomegaly)
2 Yrs (with out hepatomegaly)
chemotherapy adds 6 mths

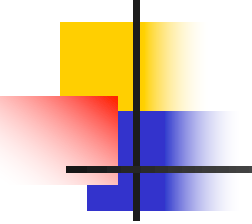
MANAGEMENT OF TERMINALLY ILL PATIENT



- Treatment should not cause more harm than the disease itself
- In oncology at some circumstances ***NO*** treatment is the best treatment



MULTIMODAL - PRINCIPLE

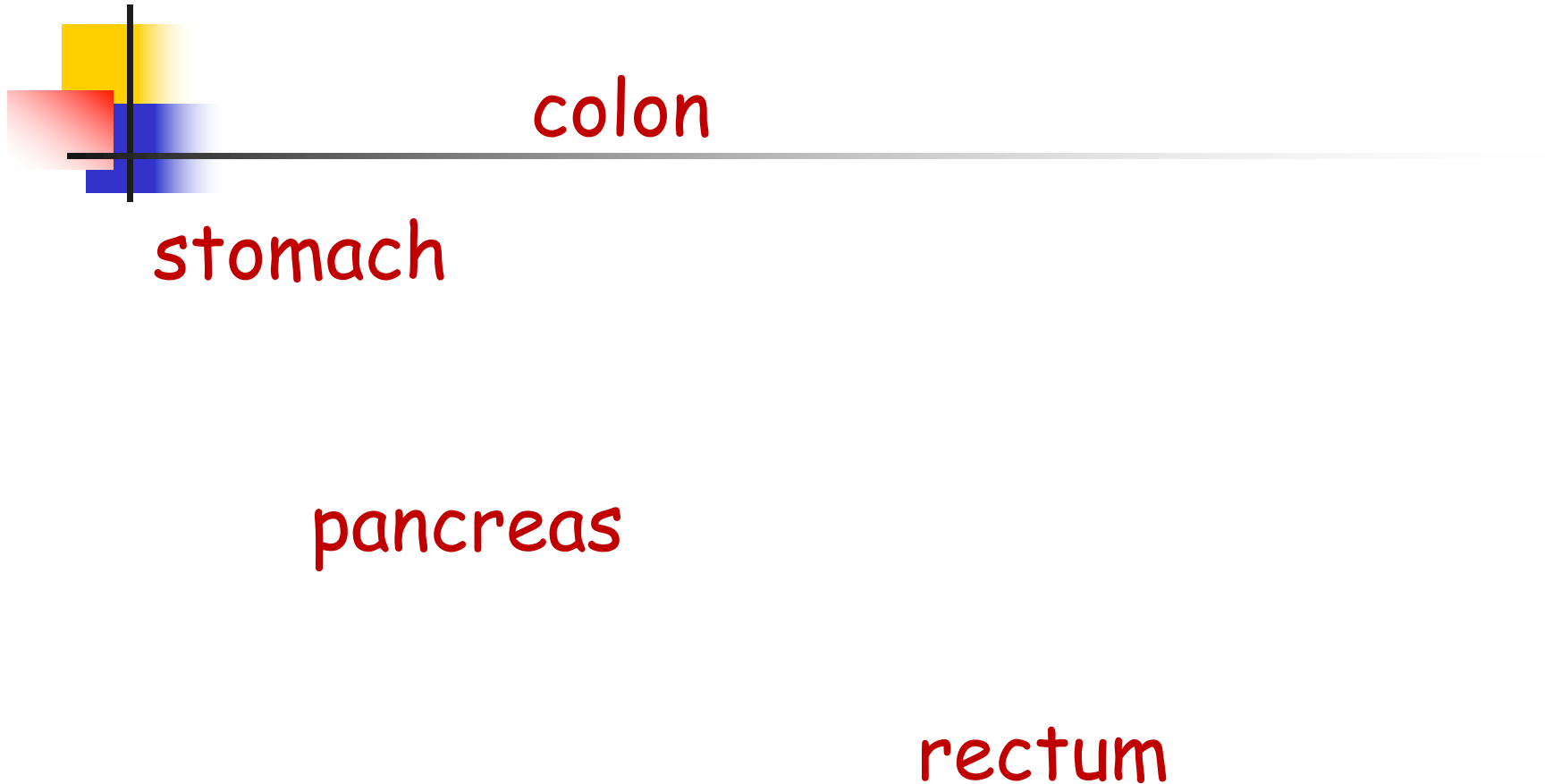


'successful treatment depends on three main factors: a sound knowledge of the disease, a wise selection of the method of treatment and accurate and skillful technique'

'The choice of the best method of treatment requires complete freedom from bias for any particular form of treatment'

Stanford Cade 1940

Oesophagus



■ Location

- Lower third - Adenocarcinoma
- Middle third , Upper third - Squamous,

Oesophagus



TREATMENT OPTION

■ **OPERABLE CANCER:**

- **Esophagectomy remains the standard of care for resectable esophageal cancers**
- **Extend of esophagectomy - THE to Three Field esophagectomy based on circumstances**

■ **INOPERABLE CANCER:**

- **External beam RT & stent**

stomach



TREATMENT OPTION

- **OPERABLE**

D2 Gastrectomy + Chemoradiation

- **INOPERABLE**

- **Without complication : Chemotherapy**

- **With complication :**

Palliative surgery + Chemotherapy



pancreas

TREATMENT OPTION

- **OPERABLE**

- **SURGERY - Pancreaticoduodenectomy**

- **INOPERABLE**

- **Palliative Bypass & Chemotherapy (Gemcitabine)**

COLORECTAL - TREATMENT OPTION



■ OPERABLE

- COLON – Surgery & Chemotherapy
- RECTUM – Surgery & Chemoirradiation

■ INOPERABLE

- Palliative surgery & Chemotherapy



ADJUVANT TREATMENT

- CHEMOIRRADIATION:

- Stomach
- Pancreas (> 3 cm, node +)
- Hepatobiliary (node +, margin +)
- Rectum (T3, T4 , node +)

3 doses of bolus 5 FU during

1st & last week of RT (**RT dose – 4500 rads**)

- CHEMOTHERAPY:

- Colon cancer



Ca. Colon – Adjuvant Chemo. Indications

- T3, T4 lesions - selected cases
- Any T with N1 or N2 – all cases



- Regimens:

- 6 cycles of 5FU + Leucovorin is standard
- Oxaliplatin & Irinotecan in combination with others tried

Indications -

chemoirradiation in rectal cancer

- 1 T3 , T4 , Node positive
- 2 after conservative surgery
- 3 before exenteration
- 4 lower rectal cancer

Except T1 ,T2 lesion in upper and middle rectum

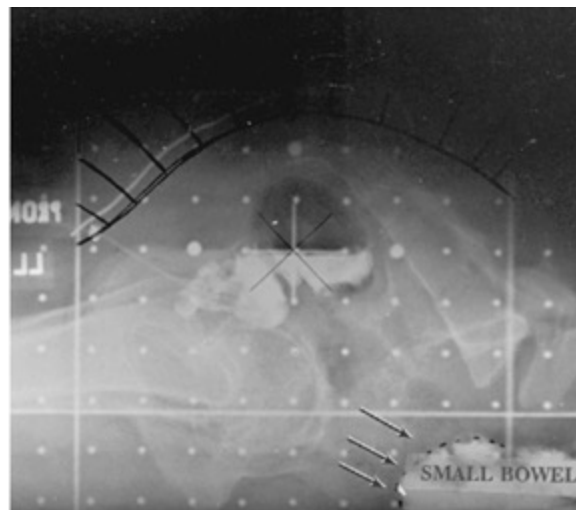
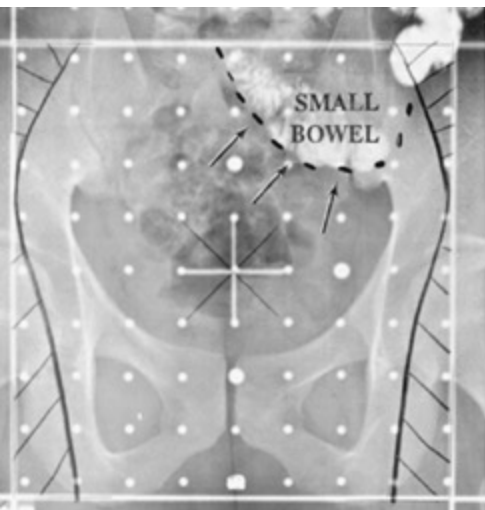


CHEMOIRRADIATION

- PREOPERATIVE Vs POSTOPERATIVE

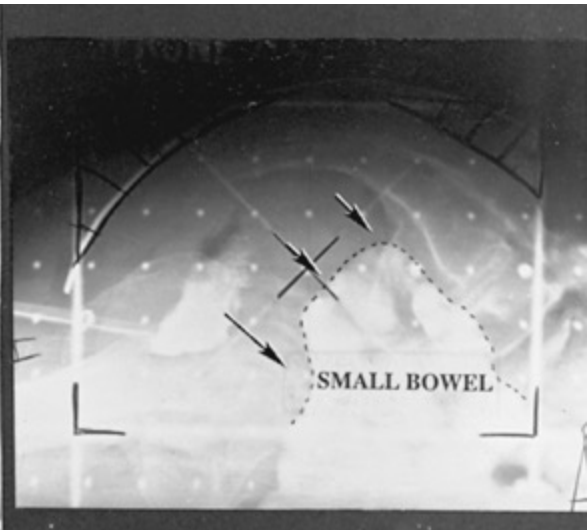
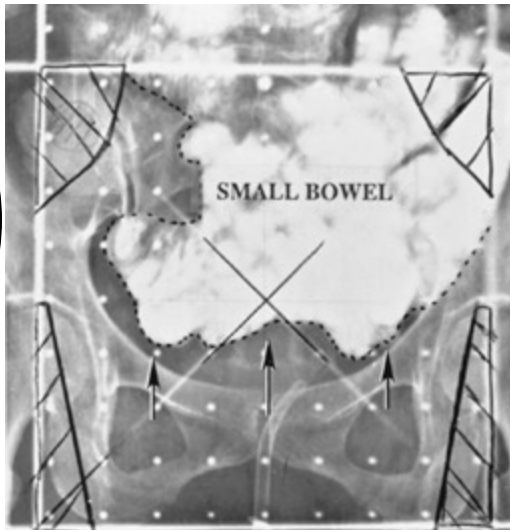
- Ideal preoperative
 - Increases the survival
 - Less complication
 - RT field is small

All T3, T4 & N1 lesion warrants preoperative RT followed by surgery



Pre operative RT
Patient in full bladder, prone
Position
Mobile small bowel
shifted up

Post operative RT
Patient in full bladder, prone
Position
Fixed small bowel
not shifted up



Advantages of Neoadjuvant therapy:



- Regression has made Sphincter preservation possible.
- Better Radial margins Decreases the chances of **Local recurrence**.

Target volume less

Less risk of tumor implantation.

- Decreased tumor bulk allows easier dissection in narrow pelvis.

Radiation in rectal cancer

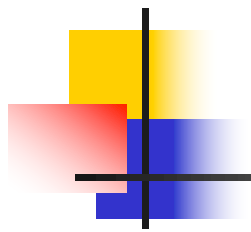
long course vs short course

long course 50 gy in 5 weeks

Locally advanced lesions and for sphincter preserving surgery

short course 25 gy in 1 week

as a protocol for field sterilisation in T3 and N1 lesion

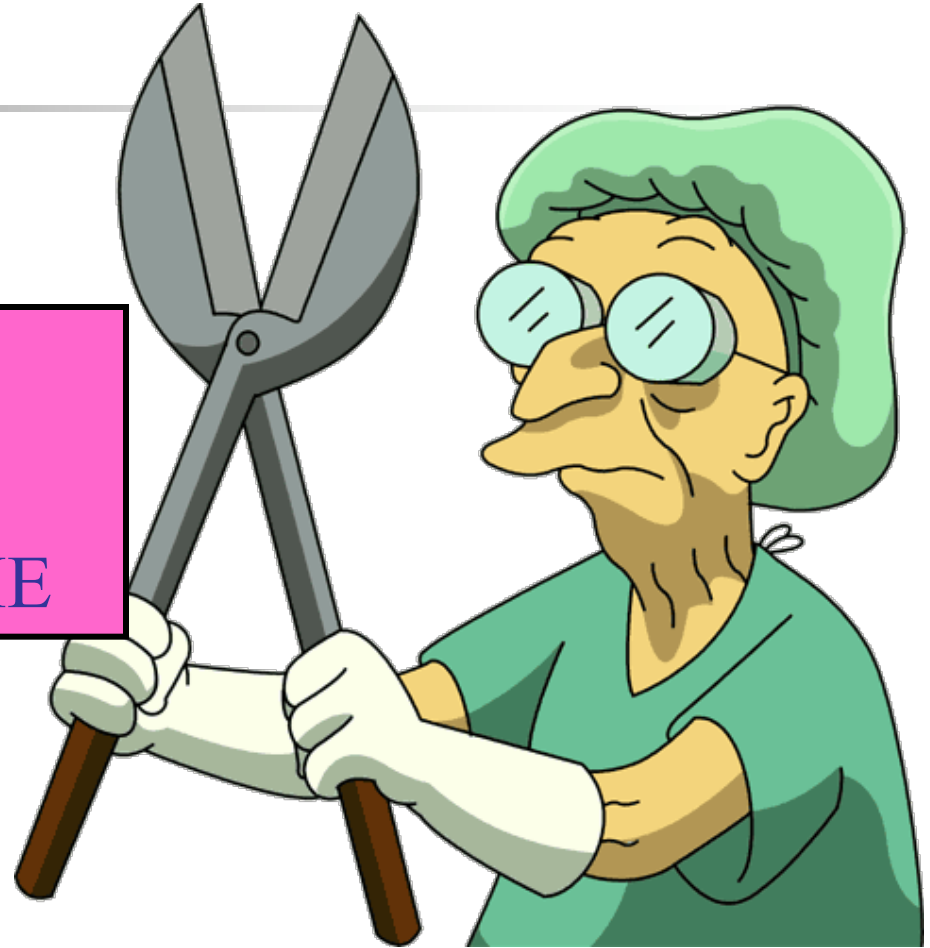


**OPERATING SURGEON-
PROGNOSTIC FACTOR?**

IS OPERATING SURGEON REALLY A PROGNOSTIC FACTOR?

there is a difference....

ONCOLOGICAL OUTCOME



**Fact, always known but scientifically
and statistically accepted only recently**



PANCREATIC CANCER

Surgeon as a prognostic factor in the management of pancreatic cancer

Surgeon's skill and expertise matters not hospital volume

**Elizabeth Saettler *et al*/Surg. Oncol. Clin. N. Am. 2003
Jan. 9(1) 133-142**



COLORECTAL CANCER

REVIEW OF 13 STUDIES BY ALAN P. MEAGHER

specialist surgeon achieved significantly better results in all outcome measures including choice of surgery (TME and sphincter preservation), adjuvant treatment (preop radiation), local recurrence rate and overall survival

Med. J. Aust. 1999 Sept 20; 171(6) 308-10



COLORECTAL CANCER

- **centre is a prognostic factor for local recurrence and survival and sphincter preservation for mid rectal cancer**

	Local recurrence	5 year survival
Cancer centre	9.5%	63%
General hospital	50%	54%
	(<i>p</i> 0.0001)	(<i>p</i> 0.04)

Luma – Perez *et al*/Rev. Invest. Clin. 1999 July – August; 51(4) 205-13



WHY FAILURE ?

TUMOR BIOLOGY ?

OR

INADEQUATE TREATMENT ?



WORD FOR A SURGEON

In all the moments of a surgeon there should be neither haste nor waste. It matters less how quickly an operation is done than how accurately it is done. Speed should result from the method and practical facility of the operation and should not be his first and formal intention.



WORD FOR A SURGEON

It should be an accomplishment and not an aim and every movement should tell and every action should achieve something.

A manipulation if it requires to be carried out should not be half done and hesitatingly done. It should be deliberate, firm, intentional and final.



WORD FOR A SURGEON

Infinite gentleness, scrupulous care, light handling and purposeful, effective and quest movement which are not more than a caress are all necessary if an operation is to be the work of an artist and not merely a hewer of flesh.

Lord Moynihan



Dr. S.G. Balamurugan M.S., M.Ch.
Consultant Laproscopist & Surgical Oncologist

THANK YOU



REACHING THE UNREACHED

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MR. BASKAR 38 / M

CA LOWER $\frac{1}{3}$ ESOPHAGUS

TRANS-HIATAL ESOPHAGECTOMY
DONE



28.12.2013