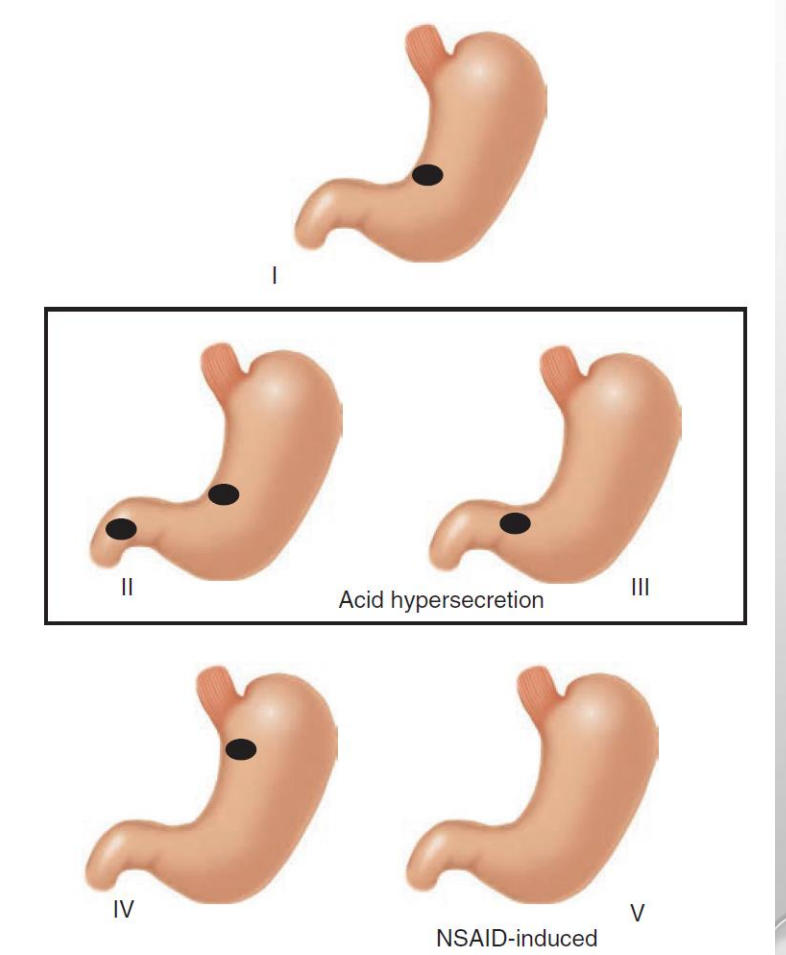
MANAGEMENT OF GASTRIC EMERGENCY

OUTLINE

- PEPTIC ULCER PERFORATE
- BLEEDING PEPTIC ULCER
- DIFFICULT DUODENAL STUMP

PEPTIC ULCER

- DUE TO ACID PEPTIC DAMAGE GASTRODUODENAL MUCOSAL
- PREVALENCE 5-10% IN LIFETIME
- INCIDENCE 0.1-0.3% PER YEAR
- COMPLICATION 10-20% => PERFORATION, BLEEDING, OBSTRUCTION
- INCREASE INCIDENCE => H. PYLORI, NSAID, ALCOHOL, SMOKING



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PU PERFORATE

DIAGNOSIS

- 2/3 LOCALIZE OR GENERALIZE PERITONITIS
- EQUIVOCAL PHYSICAL EXAM IN CONTAIN/SEALED LEAK
- RECOMMEND CT SCAN
- FILM ABDOMEN SERIES IN CT SCAN IS NOT AVAILABLE
- FILM NO FREE AIR => WATER SOLUBLE CONTRAST

CT is a gold standard
95-100% reliable for pneumoperitoneum
82-90% located perforate site

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TARGET PREOP RESUSCITATION

- RAPID ABC EVALUATION
- HEMODYNAMIC MONITORING (INVASIVE/NONINVASIVE)
- MAP >65
- URINE OUTPUT > 0.5 ML/KG/HR
- OPTIMIZE FLUID
- VASOPRESSOR
- LACTATE NORMALIZATION
- MICROBIOLOGICAL CULTURE
- STAT EMPIRICAL ANTIBIOTIC

Sepsis Survival Guidelines

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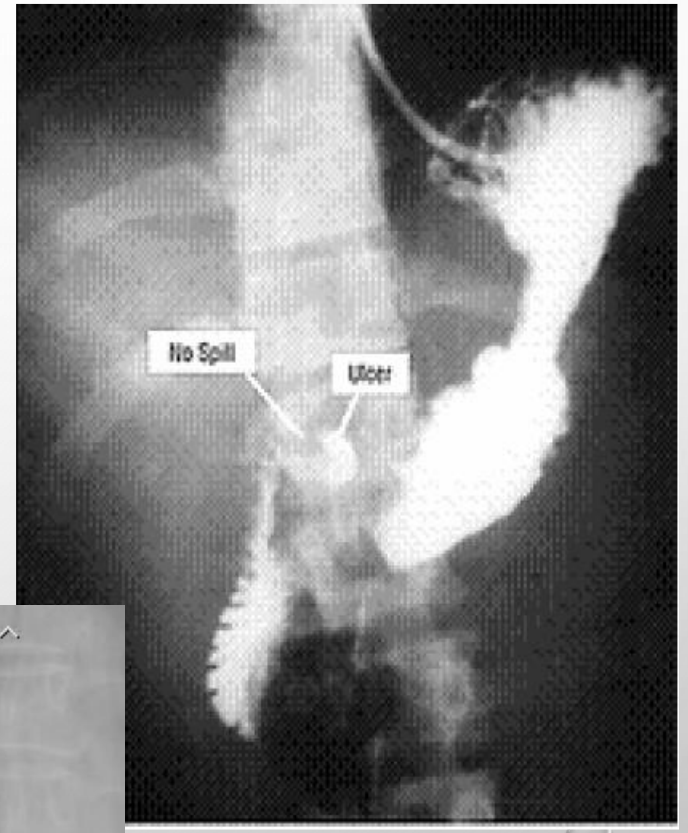
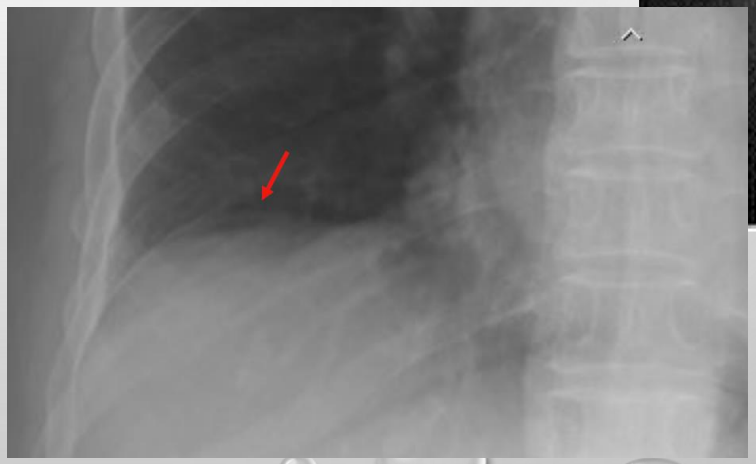
NON OPERATIVE MANAGEMENT

- NO ROUTINE USE WITH EXTREMELY SELECTION
- SEAL PERFORATE AS CONFIRM ON WATER SOLUBLE CONTRAST
- 28% FAIL AFTER 12 HRS
- PREDICTED NOM FAILURE
  - SIZE OF PNEUMOPERITONEUM
  - HEART RATE > 95/MIN
  - DISTEND BOWEL LOOP





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NON OPERATIVE MANAGEMENT

- RADIOLOGICAL UNDETECTED LEAK
- REPEATED CLINICAL EXAMINATION
- REPEATED BLOOD INVESTIGATIONS
- RESPIRATORY AND RENAL SUPPORT
- RESOURCES FOR MONITORING
- READINESS TO OPERATE

TREATMENT

- NPO
- IV HYDRATION
- NG DECOMPRESSION
- ANTI SECRETORY
- PPI
- IV ANTIBIOTIC
- FOLLOW ENDOSCOPE 4-6 WK

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ENDOSCOPIC TREATMENT

AVOID ENDOSCOPIC TREATMENT SUCH CLIPPING, FIBRIN GLUE SEALING, STENTING

=> FIBROTIC TISSUE WITH LOSS OF COMPLIANCE

- DUODENAL STENT

  => SURGICAL CLOSURE WILL BE DIFFICULT

  => PERFORM DURING LAPAROSCOPIC DRAINAGE (SEVERE COMORBID -> RADIOLOGIC GUIDE DRAIN)

- ENDOSCOPIC SNARING OF OMENTAL PULLING

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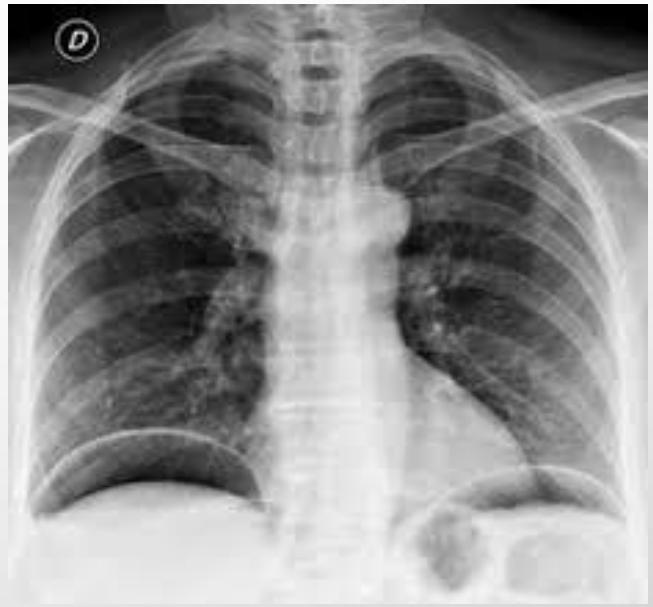
SURGICAL MANAGEMENT



- SIGNIFICANT PNEUMOPERITONEUM
- EXTRALUMINAL CONTRAST EXTRAVASATION
- PERITONITIS

- OPERATION AS SOON AS POSSIBLE ESPECIALLY IN
  - PATIENTS WITH DELAYED PRESENTATION
  - OLDER THAN 70 YEARS OLD

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SURGICAL APPROACH (OPEN VS LAP)

- STABLE HEMODYNAMIC = LAPAROSCOPIC SURGERY

(OPEN IN ABSENCE OF APPROPRIATE LAP SKILL OR EQUIPMENT)

- UNSTABLE HEMODYNAMIC = OPEN SURGERY

✓LAPAROSCOPIC LESS POSTOP PAIN IN FIRST 24 HR

✓LAPAROSCOPIC LESS POSTOP WOUND INFECTION

✓NO SIGNIFICANT DIFFERENCE MORTALITY, LEAK, INTRAABDOMINAL ABSCESS, REOPERATIVE RATE

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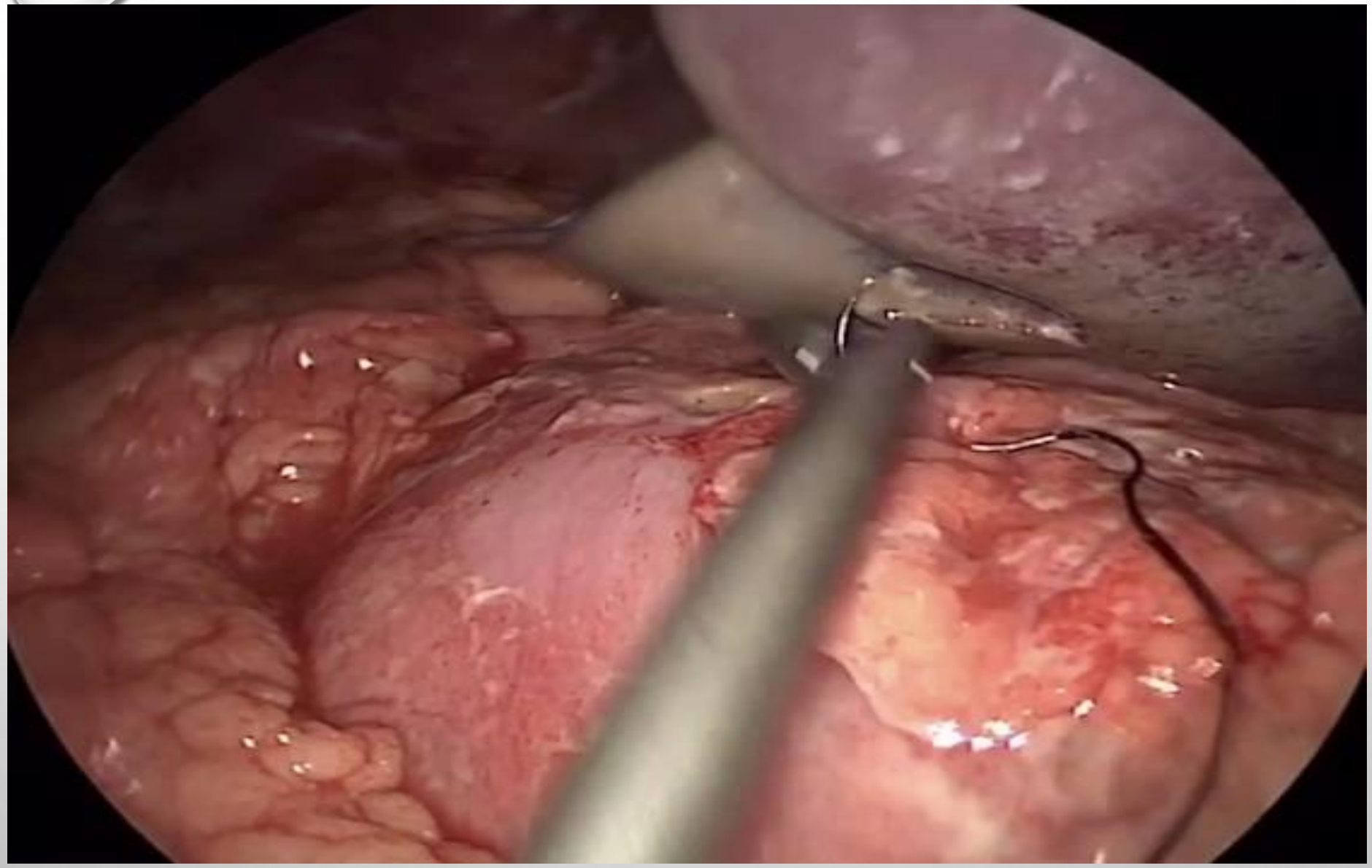
CLINICAL RISK SCREENING

Scoring systems	PULP score	Boey score	POMPP score	ASA score
Substances	Age ≥ 65 (3)	Medical illness (1)	Age > 65 (1)	Normal health (1)
	Comorbid active malignant disease or AIDS (1)	Preoperative shock (1)	BUN > 45 mg/dl (1)	Mild to moderate systemic disease (2)
	Comorbid liver cirrhosis (2)	Duration of peptic ulcer perforation > 24 h (1)	Albumin < 1.5 g/L (1)	Severe systemic disease (3)
	Concomitant use of steroids (1)			Severe systemic disease that is life threatening (4)
	Shock on admission (1)			Moribund patient, not expected survival without surgery (5)
	Time from perforation to admission> 24 h (1)			
	Serum creatinine > 1.47 mg/dl (2)			
	ASA score 2 (1)			
	ASA score 3 (3)			
	ASA score 4 (5)			
	ASA score 5 (7)			
High Score	> 6	> 1	> 1	> 3
Total Score	0–18	0–3	0–3	1–5
In present study				
AUC	0.980	0.960	0.964	0.906
Sensitivity	72.7%	72.7%	72.7%	-
Specificity	100%	88.7%	97.7%	-

PULP, peptic ulcer perforation; *POMPP*, predictive score of mortality in perforated peptic ulcer; *ASA*, American Society of Anesthesiologists; *BUN*, blood urea nitrogen; *AUC*, area under curve

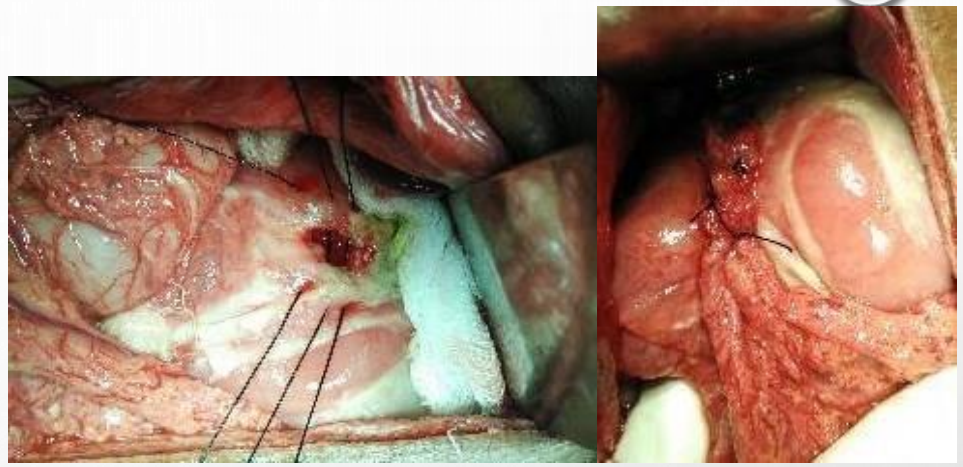
Damage control surgery if indication



Not recommendation **sutureless** repair (fibril glue)

SMALL PERFORATE < 2 CM

PRIMARY REPAIR +/- OMENTAL PATCH



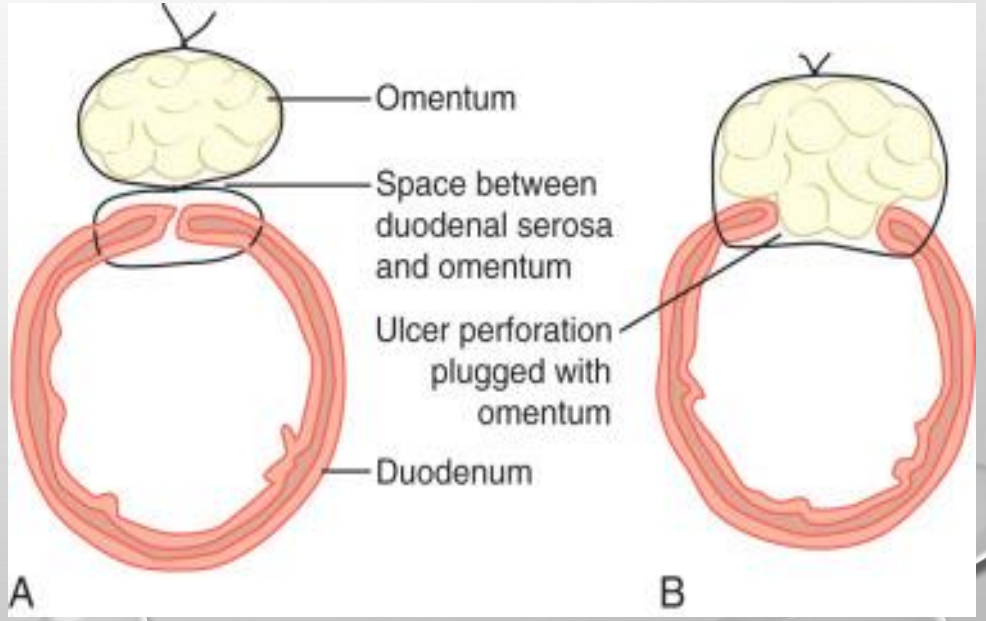
- OMENTAL PATCH

- LONGER OPERATIVE TIME

- NO SIGNIFICANT COMPLICATION (LEAKAGE, INTRAABDOMINAL ABSCESS)

- SUGGEST IN LARGE ULCER WITH FRIABLE EDGES

  => ↓ SUTURE CUTTING THROUGH EDGES



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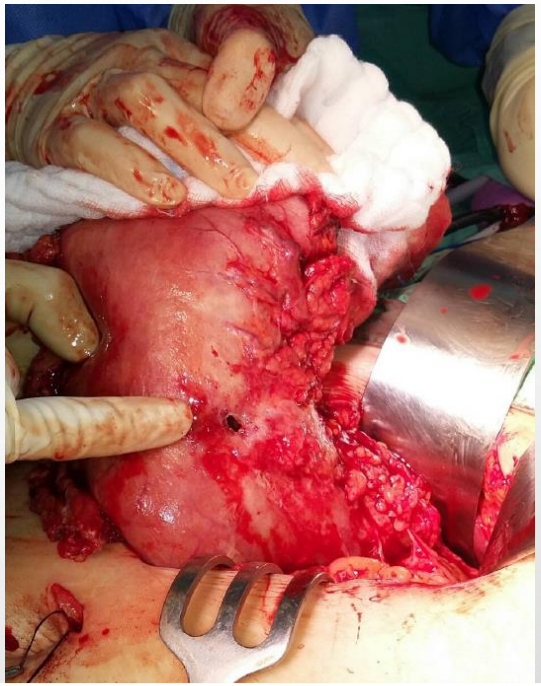
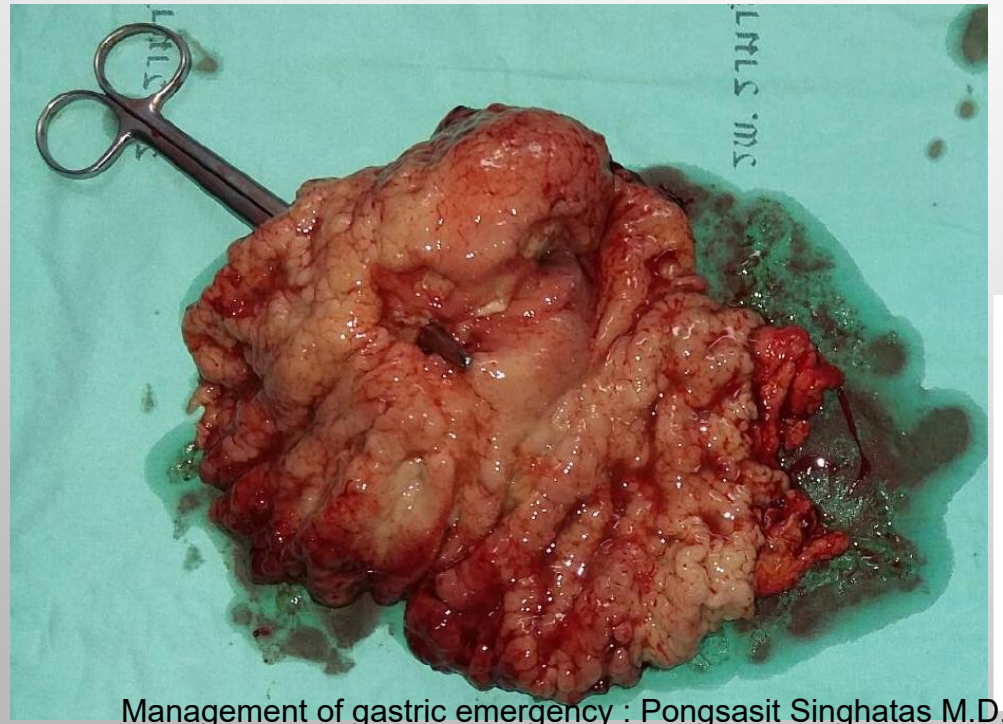
LARGE PERFORATE ≥ 2 CM

- LARGE GASTRIC ULCER

=> RESECTION WITH FROZEN SECTION





PATHOLOGICAL DIAGNOSIS :
Stomach, gastrectomy:
- Adenocarcinoma, poorly differentiated, diffuse type.
- Size: 15x14 cm.
- Location: Entire stomach.
- Tumor invades to subserosa with perforation.
- Metastasis in 2 of 9 regional lymph nodes.
- Free distal resection, lesser and greater omental resection margins.

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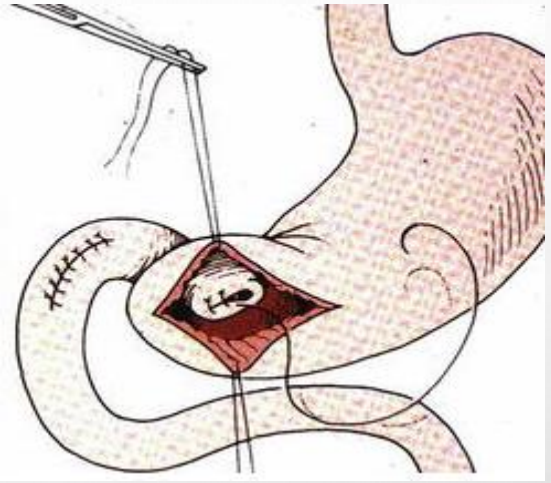
LARGE PERFORATE ≥ 2 CM

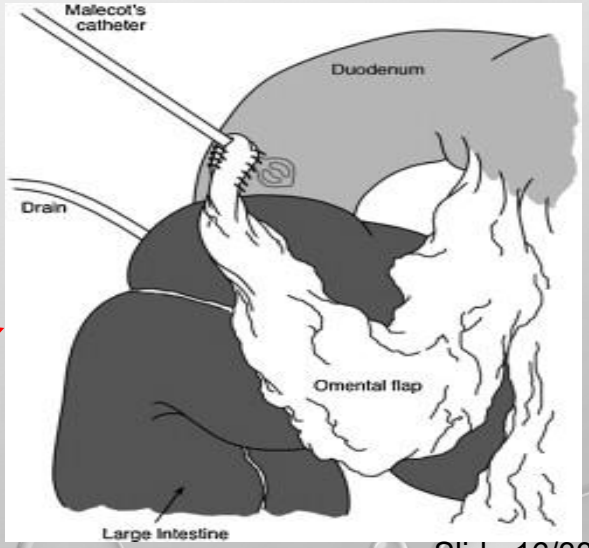
- LARGE DUODENAL ULCER

=> ANTRECTOMY (AMPULLAR NOT INVOLVE) - DIFFICULT DUODENAL STUMP



=> REPAIR + PYLORIC EXCLUSION WITH GASTRIC DECOMPRESSION (NG OR GASTROSTOMY) + EXTERNAL BILE DRAINAGE

=> DUODENOSTOMY ONLY IN EXTREME SITUATION



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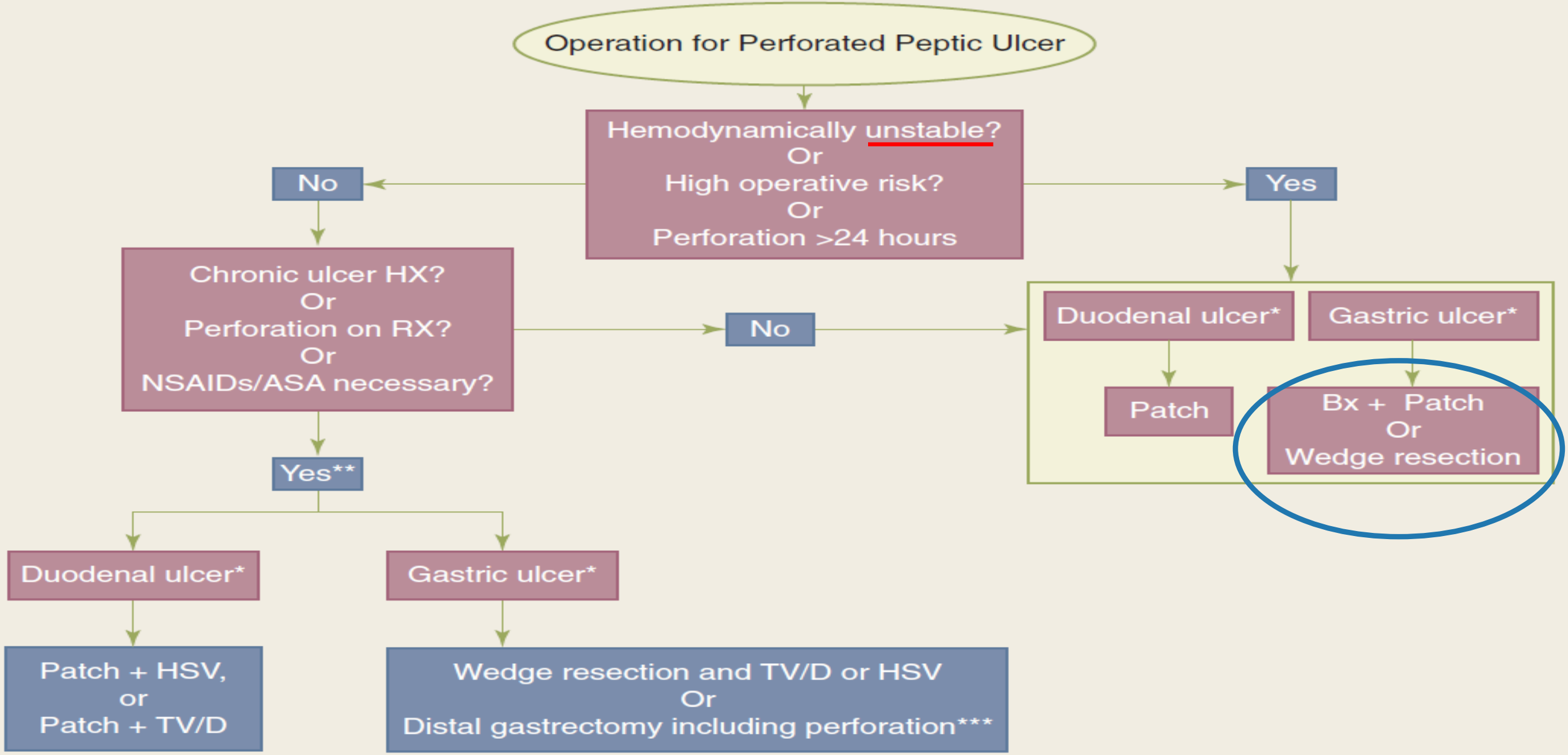

* In all patients, test and treat for *H pylori*, and if vagotomy not performed (most patients today) consider lifelong PPI.

** Avoid truncal vagotomy and avoid gastrectomy if BMI<21

*** Consider adding vagotomy for type II and type III gastric ulcer

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VAGOTOMY

TV with drainage

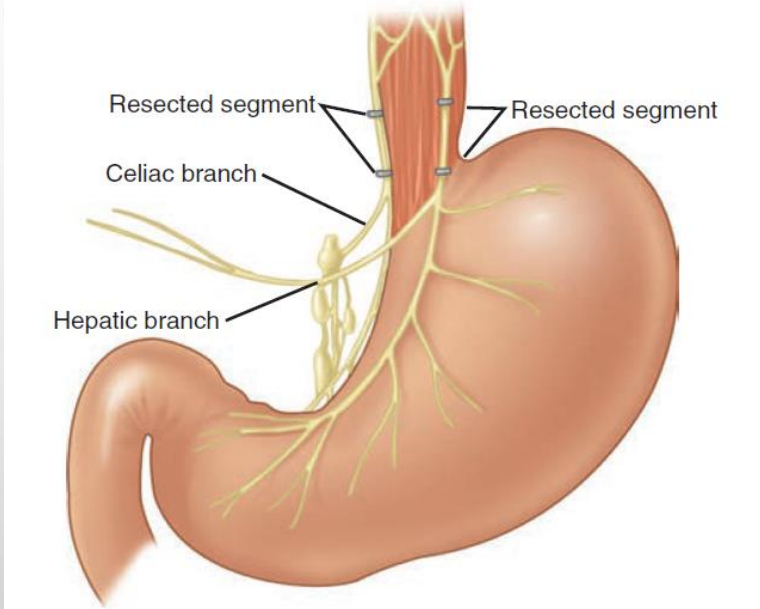
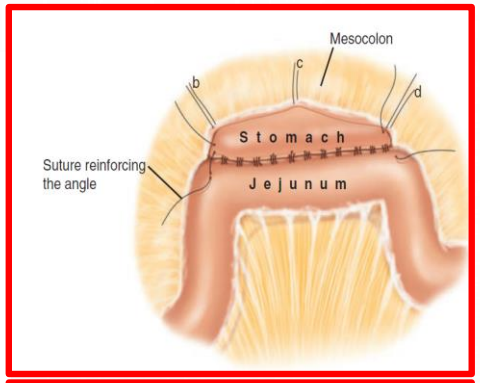
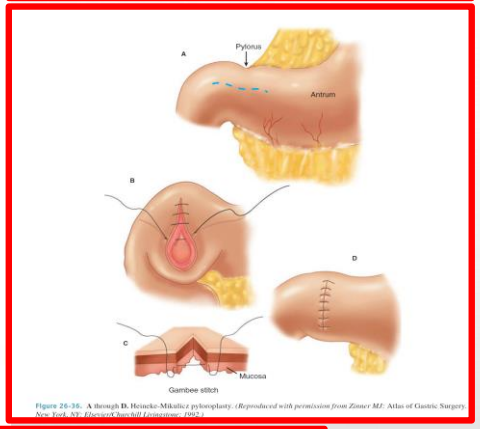
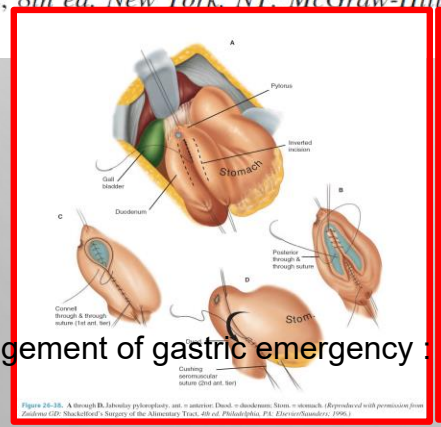
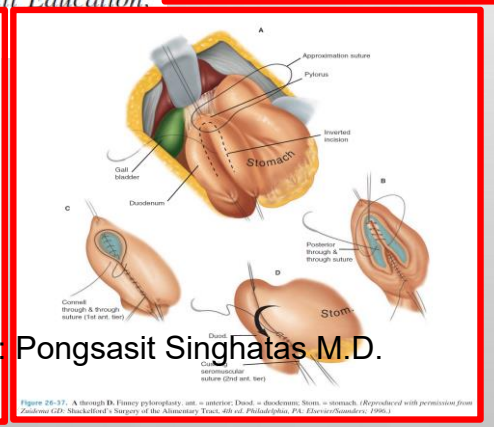


Figure 26-34. Truncal vagotomy. *(Reproduced with permission from Zollinger RM Jr, Zollinger RM Sr:* Zollinger's Atlas of Surgical Operations, *8th ed. New York, NY: McGraw-Hill Education; 2003.)*









Highly selective vagotomy

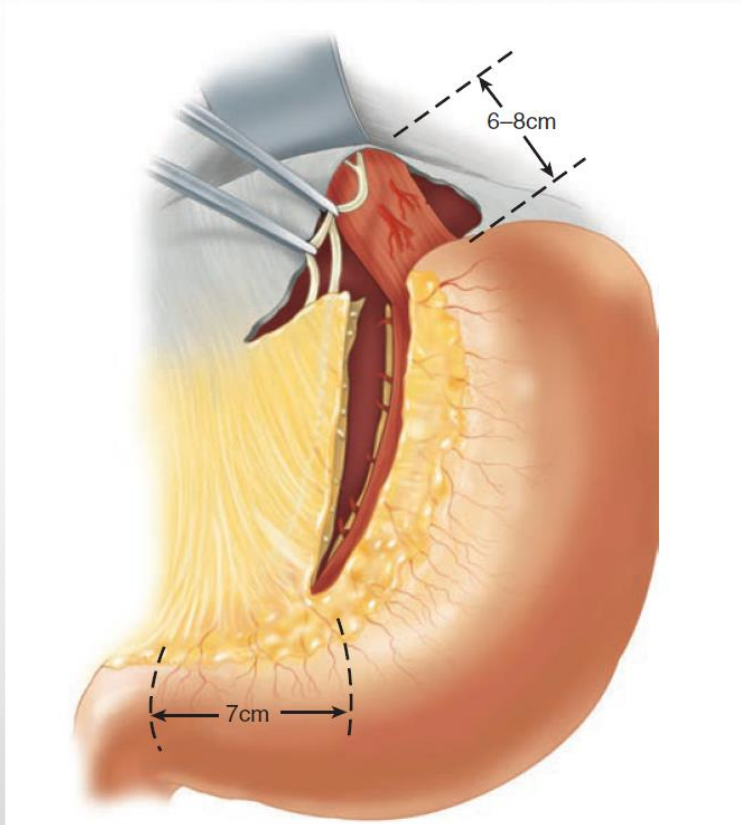


Figure 26-33. Highly selective vagotomy. *(Reproduced with permission from Zinner MJ Schwartz SI, Ellis H:* Maingot's Abdominal Operations, *10th ed. Vol. I. Stamford, CT: Appleton & Lange; 1997.)*

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VAGOTOMY

Chronic ulcer HX?
Or
Perforation on RX?
Or
NSAIDs/ASA necessary?

CONTRAINDICATIONS

- PRE-OPERATIVE SHOCK
- SEVERE GENERALIZE PERITONITIS
- INTRA-ABDOMINAL ABSCESS
- DELAY IN DIAGNOSIS AND OPERATIVE TREATMENT (USUALLY MORE THAN 24 HOURS)
- SEVERE CONCURRENT MEDICAL ILLNESS PRECLUDING A SAFE EXTENSION OF OPERATIVE TIME

Seeras K. Truncal Vagotomy. In:Statpearls 2020

BLEEDING PEPTIC ULCER

DIAGNOSIS

- BLOOD TYPING, HEMOGLOBIN, HEMATOCRIT, ELECTROLYTE AND COAGULATION
- GASTROSCOPE IS FIRST DIAGNOSIS STEP
- GASTROSCOPE IS NOT AVAILABLE => CONTRAST CT SCAN
- CONTRAST CT SCAN DETECT THE SITE AND DEGREE OF BLEEDING
- CTA FIRST LINE INVESTIGATE IN UNDIFFERENTIATED GI BLEEDING

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	Rockall score[a]			
	0	1	2	3
Age	<60 years	60–79 years	≥80 years	
Shock	"No shock": SBP >100 mm Hg and HR <100 bpm	"Tachycardia": SBP >100 mm Hg and HR >100 bpm	"Hypotension": SBP <100 mm Hg	
Comorbidity			IHD, CHF, any major comorbidity	Renal failure, liver failure, disseminated malignancy
Diagnosis[b]	Mallory-Weiss tear or no lesion observed	Peptic ulcer disease, erosive esophagitis	Malignancy of UGI tract	
Stigmata of recent hemorrhage[b]	Clean-based ulcer, flat pigmented spot		Blood in UGI tract, clot, visible vessel, bleeding	

	Glasgow-Blatchford score[c]					
	0	1	2	3	4	6
Blood urea nitrogen, mg/dL	<18.2		≥18.2 to <22.4	≥22.4 to <28	≥28 to <70	≥70
Hemoglobin, men, g/dL	≥13	≥12 to <13		≥10 to <12		<10
Hemoglobin, women, g/dL	≥12	≥10 to <12				<10
Systolic blood pressure, mm Hg	≥110	≥100 to <109	≥90 to <99	<90		
Other markers		Pulse rate ≥100 bpm; melena[d]	Syncope[d]; hepatic disease[d]; heart failure[d]			

	AIMS65 score[e]
Albumin <3.0 g/dL	1
INR >1.5	1
Altered mental status	1
Systolic blood pressure <90 mm Hg	1
Age >65 years	1

SBP, systolic blood pressure; HR, heart rate; bpm, beats per minute; IHD, ischemic heart disease; CHF, congestive heart failure; UGI, upper gastrointestinal; INR, international normalized ratio. [a] Maximum score in the postendoscopic Rockall score: 11 points; maximum score in the pre-endoscopic Rockall score: 7 points. [b] Variables not included in the pre-endoscopic Rockall Score. [c] Maximum score in the original Glasgow-Blatchford score: 23 points; maximum score in the modified Glasgow-Blatchford score: 16 points. [d] Variables not included in the simplified Glasgow-Blatchford score. [e] Maximum score: 5 points.

NON-OPERATIVE MANAGEMENT

NOM AS THE FIRST LINE OF MANAGEMENT

- AIRWAY CONTROL
- BREATHING – VENTILATION AND OXYGENATION
- CIRCULATION – FLUID RESUSCITATION AND CONTROL OF BLEEDING
- DRUGS – PHARMACOTHERAPY WITH PPI, PROKINETIC
- ENDOSCOPY (DIAGNOSIS AND THERAPEUTIC) OR EMBOLIZATION

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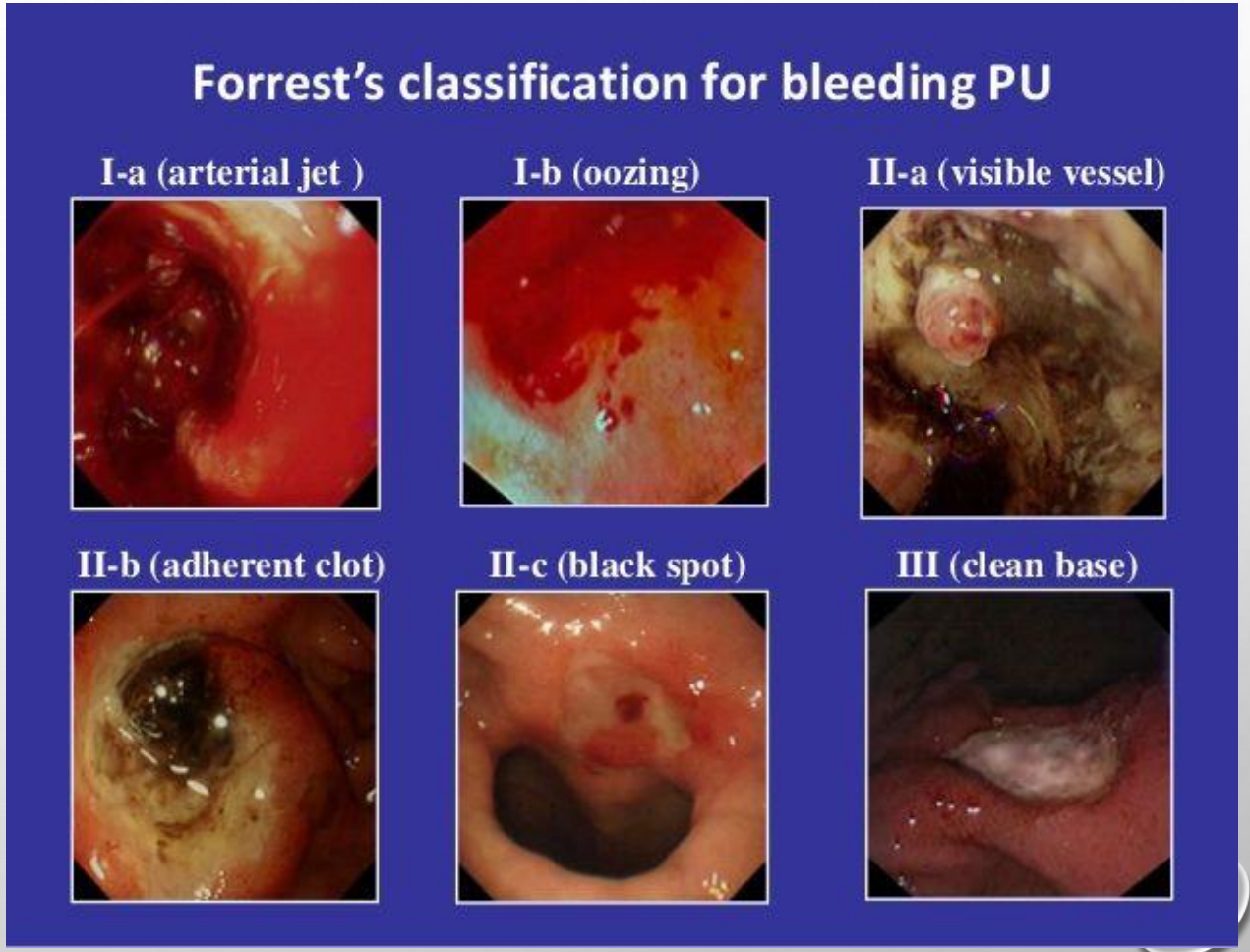
GASTROSCOPE

- GASTROSCOPE MUST TAKE AS SOON AS POSSIBLE (WITHIN 24 HR)
- **REDUCE** REBLEEDING, NEED FOR SURGERY, MORTALITY
- IDENTIFIED RISK STIGMATA (REBLEEDING, NEED INTERVENTION, MORTALITY)



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GASTROSCOPE

- BLATCHFORD SCORE 0-1

  - VERY LOW RISK GROUP => OUTPATIENT ENDOSCOPY

- BLATCHFORD SCORE 2-6

  - LOW RISK GROUP => EARLY INPATIENT ENDOSCOPY (<24 HR)

- BLATCHFORD SCORE ≥7

  - HIGH RISK GROUP => URGENT INPATIENT ENDOSCOPY (<12HR)

Recurrent bleeding from peptic ulcer -> Endoscope as a first line treatment

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ANGIOEMBOLIZATION

- ANGIOGRAPHY FOR DIAGNOSIS

=> SECOND LINE INVESTIGATION IF NEGATIVE ENDOSCOPY

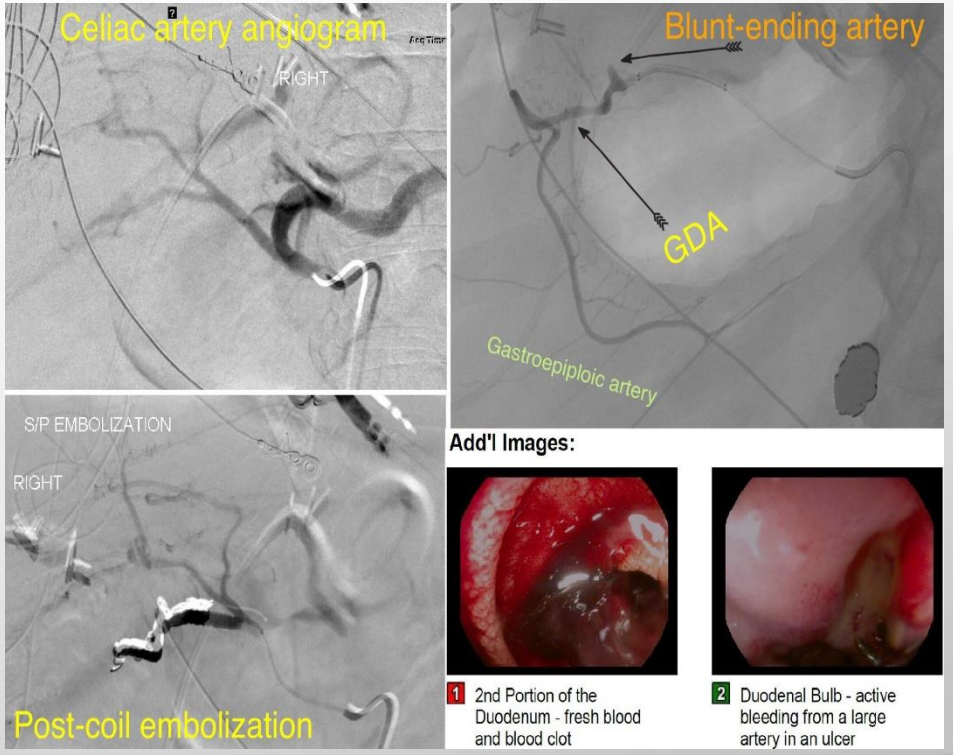
- HEMODYNAMIC STABLE WITH

=> FAIL TWICE ENDOSCOPIC HEMOSTASIS OR

=> ENDOSCOPIC IS NOT PASSIBLE/FEASIBLE

- REBLEEDING AS A FEASIBLE OPTION (COMPARE SURGERY)

- AGAINST A ROUTINE USE IN UNSTABLE PATIENTS (SELECT CASE AND FACILITY)



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SURGERY

- AFTER FAILURE OF REPEAT ENDOSCOPY
- SURGICAL INTERVENTION WITHOUT REPEAT ENDOSCOPY
  - HYPOTENSION/HEMODYNAMIC INSTABILITY
  - ULCER LARGE THAN 2 CM
- SUGGEST OPEN SURGERY (COMPARE LAPAROSCOPE)
- INTRAOPERATIVE ENDOSCOPY TO LOCALIZATION BLEEDING SITE

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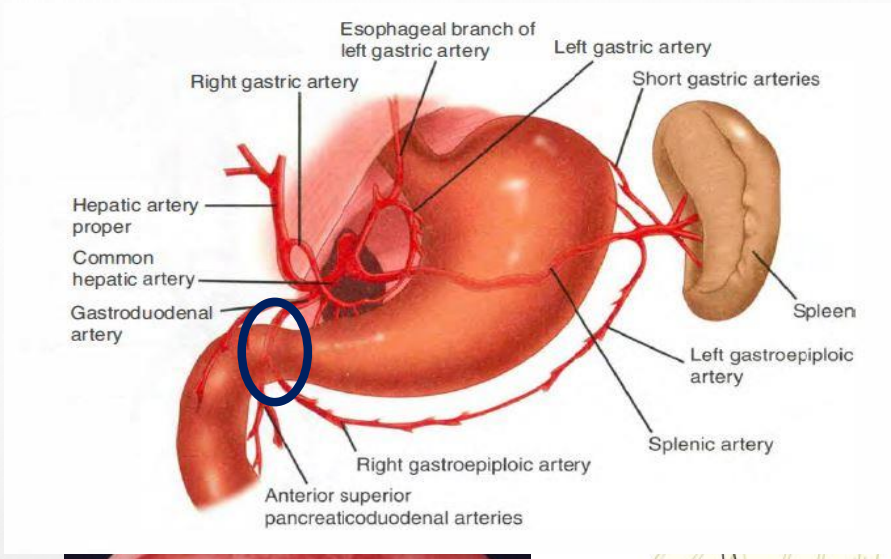
SURGERY

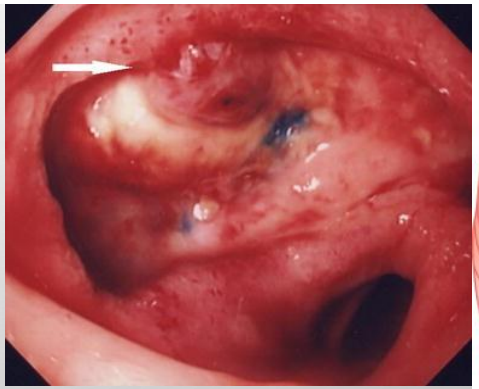
ULCER OVERSEW VS RESECTION

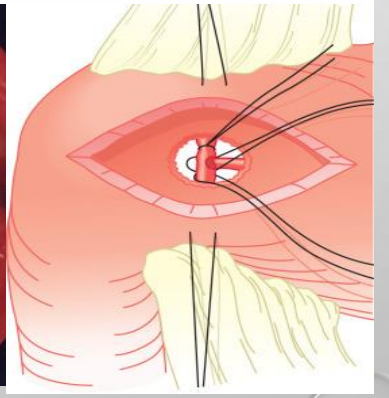
- BLEEDING GASTRIC ULCER => RESECTION OR AT LEAST BIOPSY

- BLEEDING DUODENAL ULCER
  - LARGE AND POSTERIOR LESION
  - BLEEDING FROM GDA
  - TRIPLE LOOP SUTURING
  - ANTRECTOMY (RARE) => DIFFICULT DUODENAL STUMP

- VAGOTOMY/DRAINAGE SIGNIFICANT LOWER MORTALITY THAN SIMPLE LOCAL ULCER OVERSEW







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Operation for bleeding peptic ulcer

Hemodynamically unstable?
Or
High operative risk?

No

BMI < 21? or difficult duodenum?

No

Duodenal ulcer

Oversew + TV/D

Oversew + TV/A

Rebleed

Yes

Rebleed

Gastric ulcer

Type 1,2,3

Distal gastrectomy**

Yes

Duodenal ulcer*

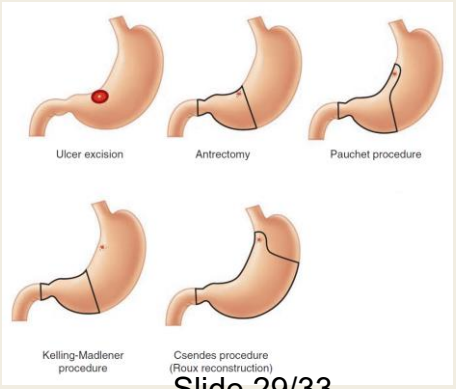
Oversew

Gastric ulcer*

1) Bx and oversew
2) Wedge resection

Type 4

Csendes proc
Pauchet proc
Kelling-Madlener proc
(see text)



*Add lifelong PPI
**Add TV for type 2 + 3

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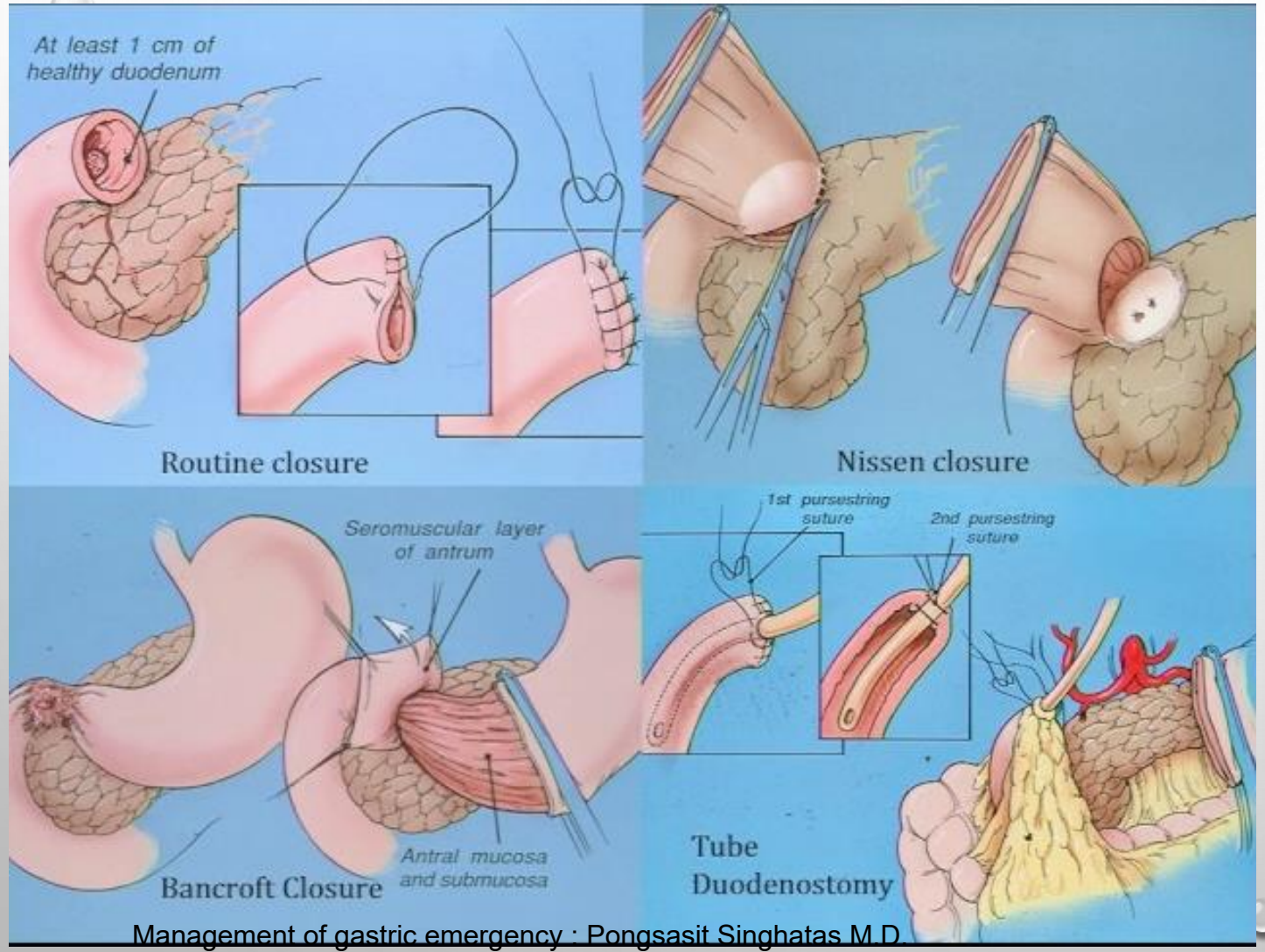
DIFFICULT DUODENAL STUMP

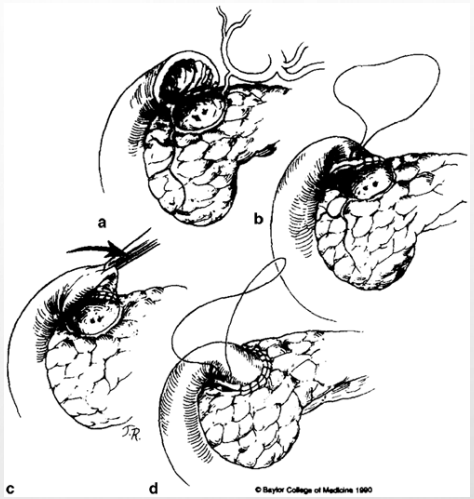
DUODENAL STUMP LEAKAGE

- DEEP ULCER AT POSTERIOR WALL OF DUODENUM
- EXCESSIVE USE OF SUTURING
- LOCALIZE INFECTION AND SEPSIS
- POSTOPERATIVE PANCREATITIS
- OBSTRUCTION OF AFFERENT LOOP

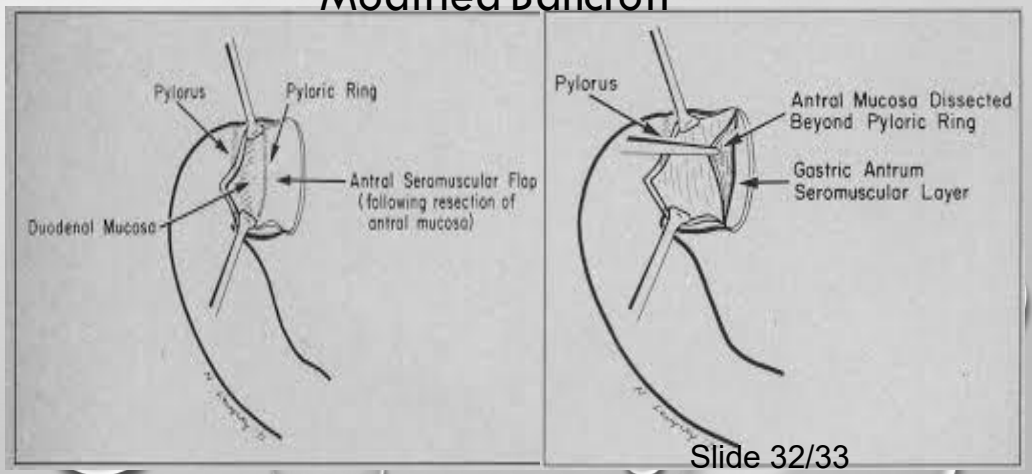
SURGICAL PREVENTION



Nissen



Modified Bancroft



THANK YOU