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ONE Touch Surgery

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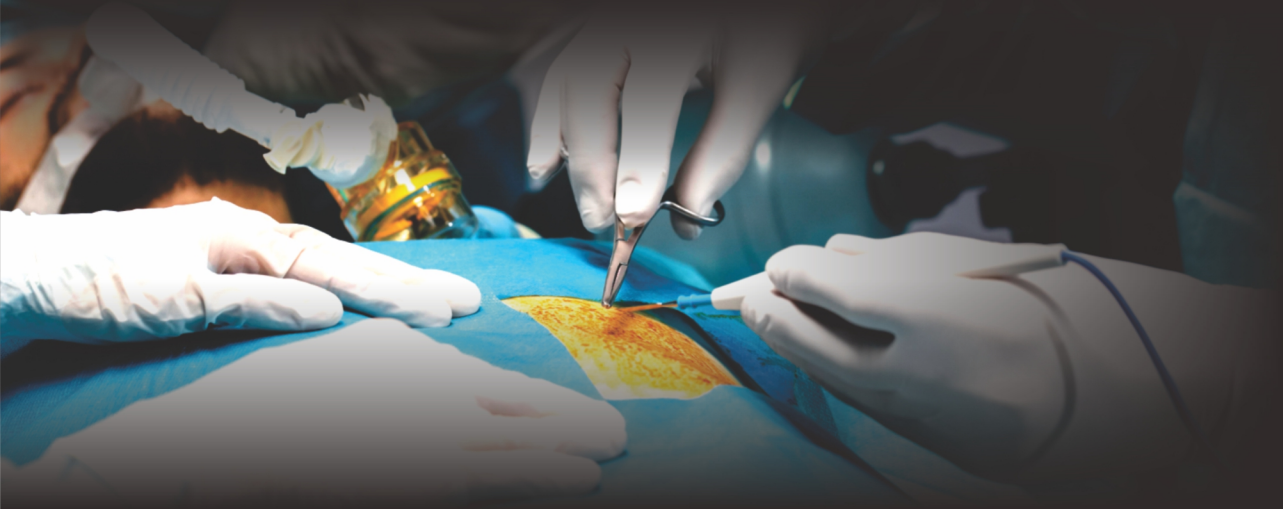

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R Rajamahendran

ONE Touch Surgery

For NEET/NEXT/FMGE/INI-CET

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Preface

I am ecstatic to write the preface of this book. It's not so tough to write books when you have complete freedom regarding the pages and contents, but when you are supposed to do a book in a concise form suitable for the students who are about to face their exams, you have to take lots of factors into consideration. Some of the difficulties I confronted with while compiling and making the book concise are to add all essential features without missing any important point. I tried my level best to include all the essential images needed for exam while updating the book to the latest editions of Bailey and Love, and Sabiston.

After completing the task of finalizing and making a concise and compact book like this, I can say with surety that the readers will love and appreciate it because of its beautiful color scheme and presentation, extremely useful content and stylist formatting.

I thank the entire team of CBS Publishers and Distributors for their tireless efforts and I am waiting eagerly to hear the response from the readers.

R Rajamahendran

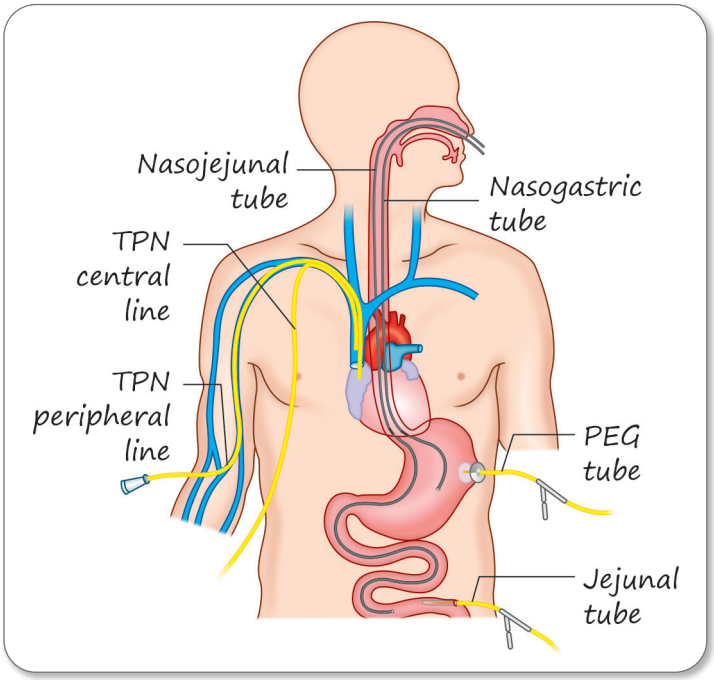
Contents

NUTRITION

- The best method to assess the nutrition in a surgical patient is serum albumin.
- Malnutrition universal screening tool (MUST) is a clinical tool to assess nutrition based on:
  - BMI
  - Weight loss in 3–6 months
  - Acute disease effect

Differences Between Enteral and Parenteral Nutrition

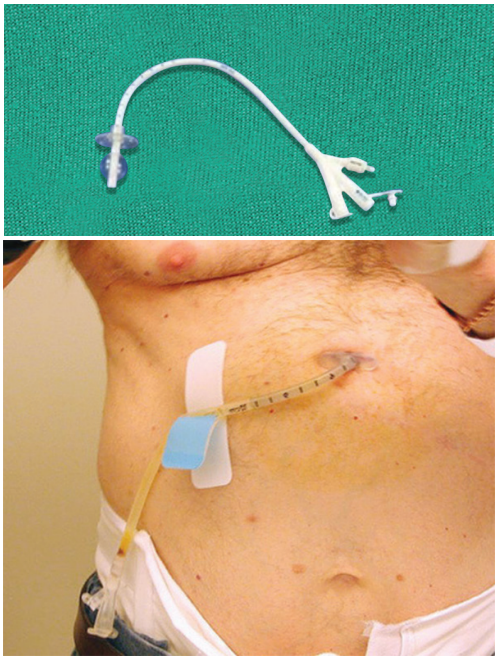
Enteral nutrition	Parenteral nutrition
Nutrition given via GI tract	**Nutrition given via veins**
Tube feeding • Nasogastric tube (Ryle's tube) • Nasojejunal tube • Percutaneous endoscopic gastrostomy tube • Feeding gastrostomy • Feeding jejunostomy	• Peripheral parenteral • Central parenteral



PEG tube

Nasogastric Tube: (Ryle's Tube)

- Ideal length of tube used is calculated by NEX rule (nose to ear to xiphoid process measured).
- Ryles tube is inserted by making the patient sit and keeping the neck flexed.
- Position of Ryles tube in stomach is confirmed by testing the aspirate for pH using litmus paper.



Parenteral Nutrition Types

- **Peripheral PN (<2 weeks)**
  - Peripherally inserted central catheter
  - Hickman lines
- **Central PN (>2 weeks)**
  - IJV, SCV, FV are used

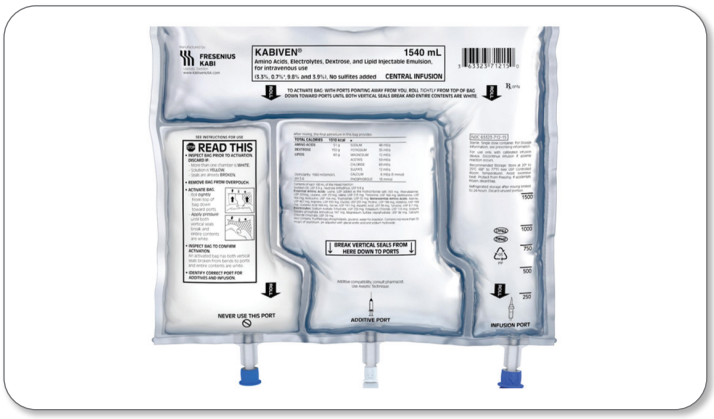
Best Vein to Give Nutrition by Central Vein

- For Elective cases—Subclavian Vein
- For Trauma cases—IJV
- Highest chance of Pneumothorax—SCV
- Most commonly used vein—IJV
- For long-term nutrition—SCV is best
- Risk of thrombosis is highest with Femoral vein route
- Risk of infection is highest with Femoral vein > IJV > SCV > Hickman line

Total Parenteral Nutrition

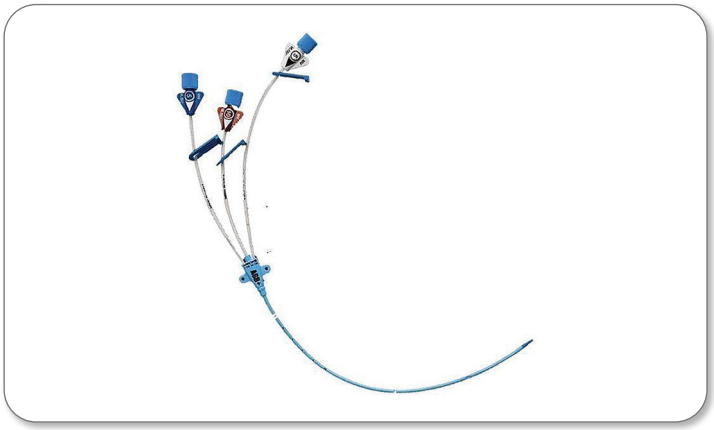
Components of TPN

- 60% carbohydrates (dextran), 20% protein (amino acids), 20% lipids (fat)
- Fat free TPN—3:1 ratio of only dextrans and amino acids



Complications of TPN

- **Catheter related complications are more common:**
  - MC procedure related complication—arterial puncture
  - MC overall complication—catheter related infection
  - Most dangerous complication—tension pneumothorax
- **Refeeding syndrome:**
  - Characterized by severe fluid and electrolyte shifts in malnourished patients undergoing refeeding*
  - It can occur with enteral and parenteral nutrition (MC with TPN)
  - Lab values: **Hypophosphatemia, hypocalcemia, Hypomagnesemia*** and also hypokalemia (Mnemonic—PCM*)
  - Hypokalemia can induce cardiac arrhythmias and congestive cardiac failure and death.



Central vein catheter

SHOCK AND BLOOD TRANSFUSION

Differences between Hypovolemic and Distributive Shock

Features	Hypovolemic shock (hemorrhagic shock)	Distributive shock (septic shock)
Cardiac output	Decreased	Increased
Peripheral vascular resistance	Increased (cold peripheries)	Decreased (warm peripheries)
Oxygen consumption	Increased	Decreased
Venous resistance	Low	Low
Mixed venous oxygen saturation (MVOS) Normal—50–70%	MVOS <50%**	MVOS >70%**

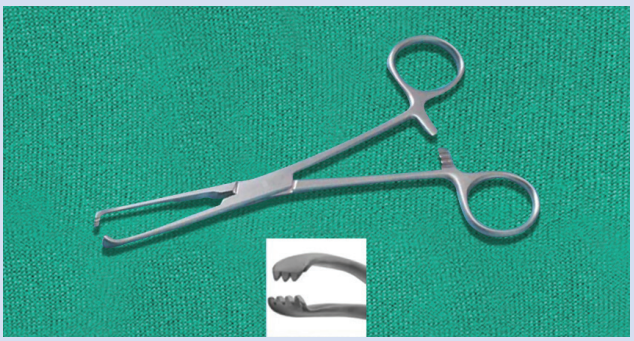
Change in Parameters

Parameters	Hypovolemic shock	Cardiogenic shock	Neurogenic shock	Anaphylactic shock	Septic shock
Pulse rate	↑↑	↑/↓	↓	↑↑	↑
Systolic Blood pressure	↓↓	↓	↓	↓	↑
Cardiac Output	↓↓	↓	↓	↓	↑
Peripheral vascular resistance	↑	↑	↓	↓	↓

Note: *Repeated question
**Multiple times repeated question

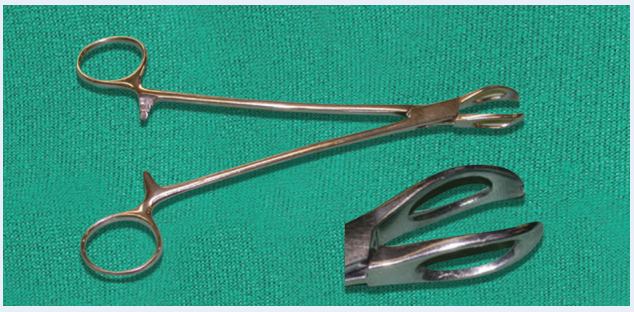
Instruments used in operation theater

Allis Tissue Forceps



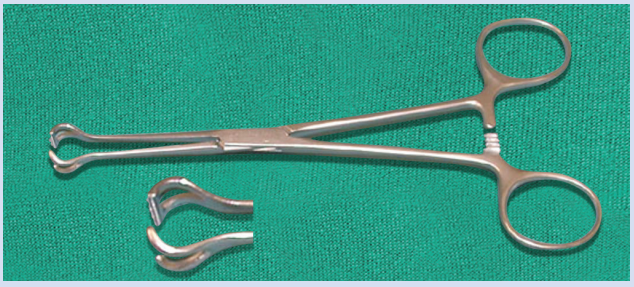
- Allis forceps for holding the tissues firmly*
- Used during laparotomy to hold the skin margins.
- Used to hold skin flaps during excision of Lipoma, Sebaceous cyst.
- It is helpful in creating flaps during thyroid surgeries*

Lane's Tissue Forceps



- Used to hold structures very tight.
- It is used to hold submandibular gland and Parotid gland during dissection from adjacent structures.
- Helps in holding breast during mastectomy.
- Also helpful like a towel clip to hold the suction tubes, draping sheet.

Babcock's Forceps



- Used to hold tissues very softly.
- The ideal instrument to hold and grasp the bowel and appendix during surgery*
- Hold the margins of stomach or small intestine during anastomosis*

Contd...

Instruments used in operation theater

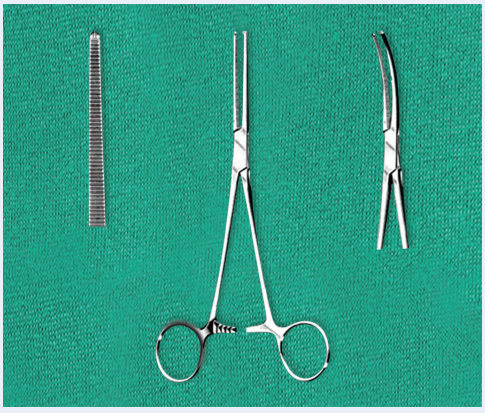
Instruments used in Skin Suturing:

- Needle Holder
- Toothed forceps
- Straight scissors

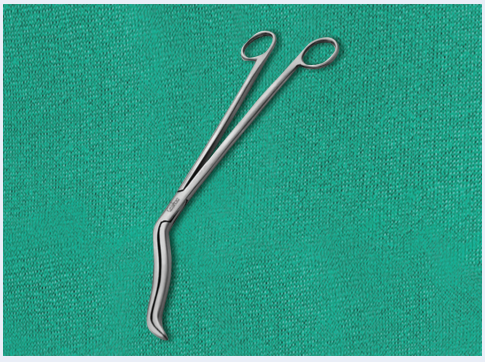
Curved Scissors not used to cut sutures, only used to cut tissues.

Curved artery forceps—To catch the bleeding vessels

Straight artery Forceps—To hold tissues

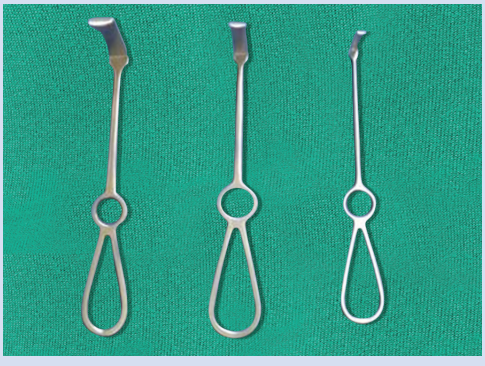


Cheatle Forceps



- It is used to pick instruments and mopping pads/gauzes from bin in a sterile way.
- It is kept in a sterile bottle container.

Langenbeck Retractor



- Used to retract tissues during hernia surgery, appendectomy, etc.
- Available in various sizes.

Contd...

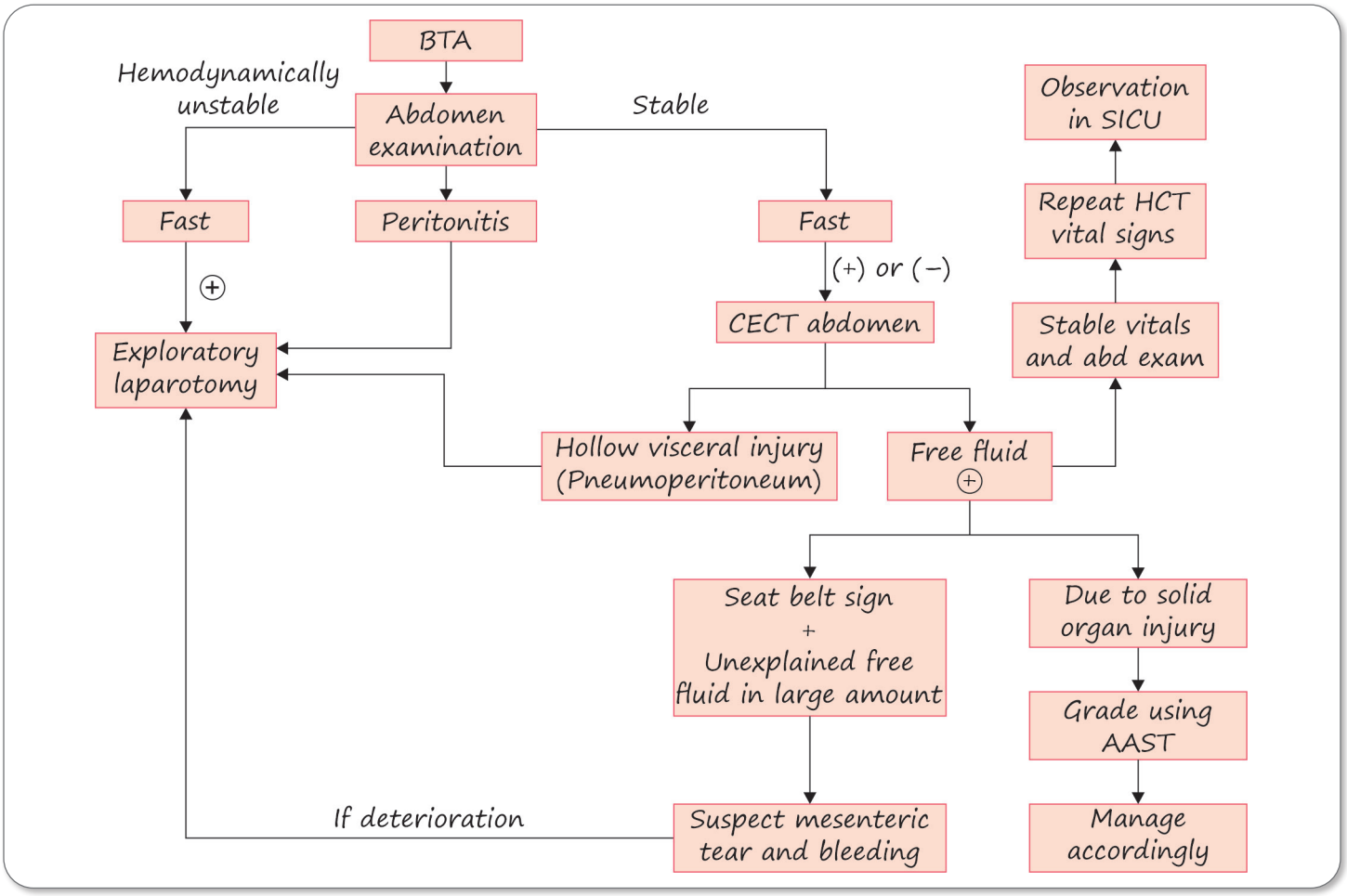
IOC for unstable patients: eFAST
IOC for stable patients: CECT abdomen

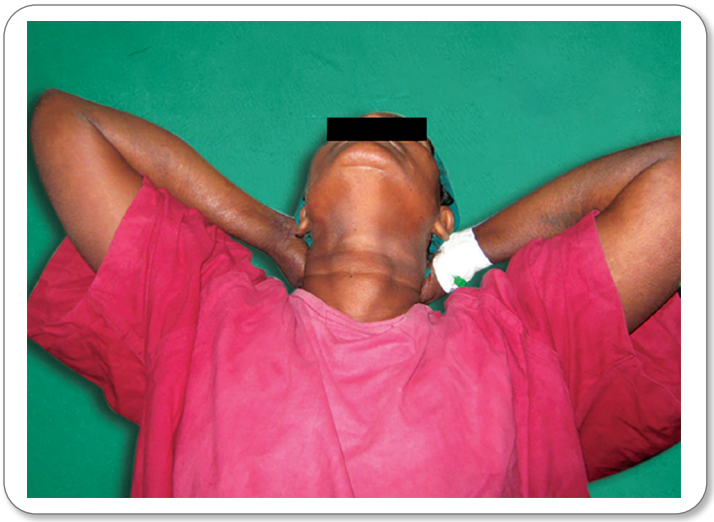
Sequence Order Question

Blunt trauma	Penetrating trauma	Gun shot	Seat belt injuries
• Spleen • Liver • Small Intestine	• Liver • Stomach • Small bowel • Diaphragm • Colon	• Small bowel • Colon	• MC injury is mesenteric tear • In GIT—DJ flexure is injured

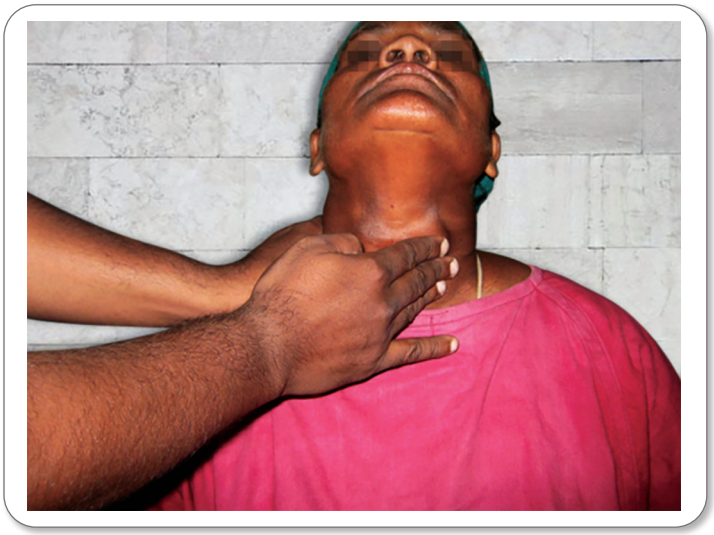
- Urban bomb blast—Ear drum > Lungs
- Underwater bomb blast—GIT (MC in terminal Ileum)

BLUNT TRAUMA PROTOCOL

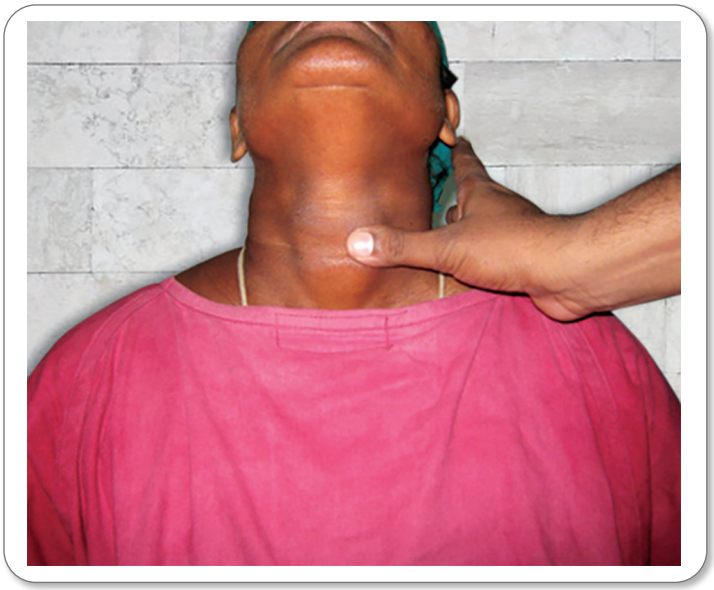




Pizzillo's test



Lahey's test



Crile's test

Eye signs in Graves' disease:

Mild exophthalmos – due to only sympathetic activity

- Von Graefe's lid lag sign - ask patient to follow vertical movement - lid lags behind
- Dalrymple's sign/lid retraction sign - visible upper sclera
- Stellwag's sign - starring look

Moderate – due to retro-orbital accumulation of glycosaminoglycans

- Joffroy's sign- absence of forehead wrinkle on looking up
- Ask patient to look at the ceiling of the room – as patient has eyes protruded, no wrinkle happens to see up

Severe – due to intraocular accumulation and paralysis of muscle

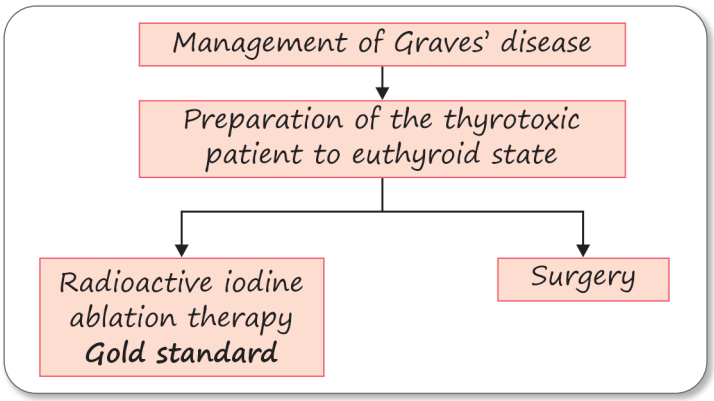
Mobius sign - Inability to converge (paralysis of intraocular muscle)

Other signs:

Naffziger's sign - Eyes seen through supraorbital ridge – normally eyes not seen.

Diagnosis

- T3, T4 increased, TSH decreased
- RAIU increased
- Autoimmune antibodies increased: Anti TG, Anti TPO – 75% cases
- **LATS - Long-Acting Thyroid Stimulator** is elevated in 90% cases. Also Known as Thyroid stimulating Antibody or TSH-R stimulating Ab
- FNAC is **not beneficial**.
  - Hemorrhagic aspirate.
  - Therefore, not advised in Graves' disease.



Preparation of the thyrotoxic patient to euthyroid state

If not done properly—thyroid storm can happen (MC cause is inadequate preparation for Surgery)

Conduits for Surgery

- Best conduit for esophageal replacement–Stomach as it is highly vascular and has less chances of necrosis.
- Best conduit in cases of corrosive injury to stomach and esophagus and for LONG SEGMENT replacement—Colon
- Best conduit for short segment replacement of esophagus—Jejunum, especially in peptic stricture cases.
- Gastric conduit is based on right gastroepiploic artery and right gastric artery.

STOMACH

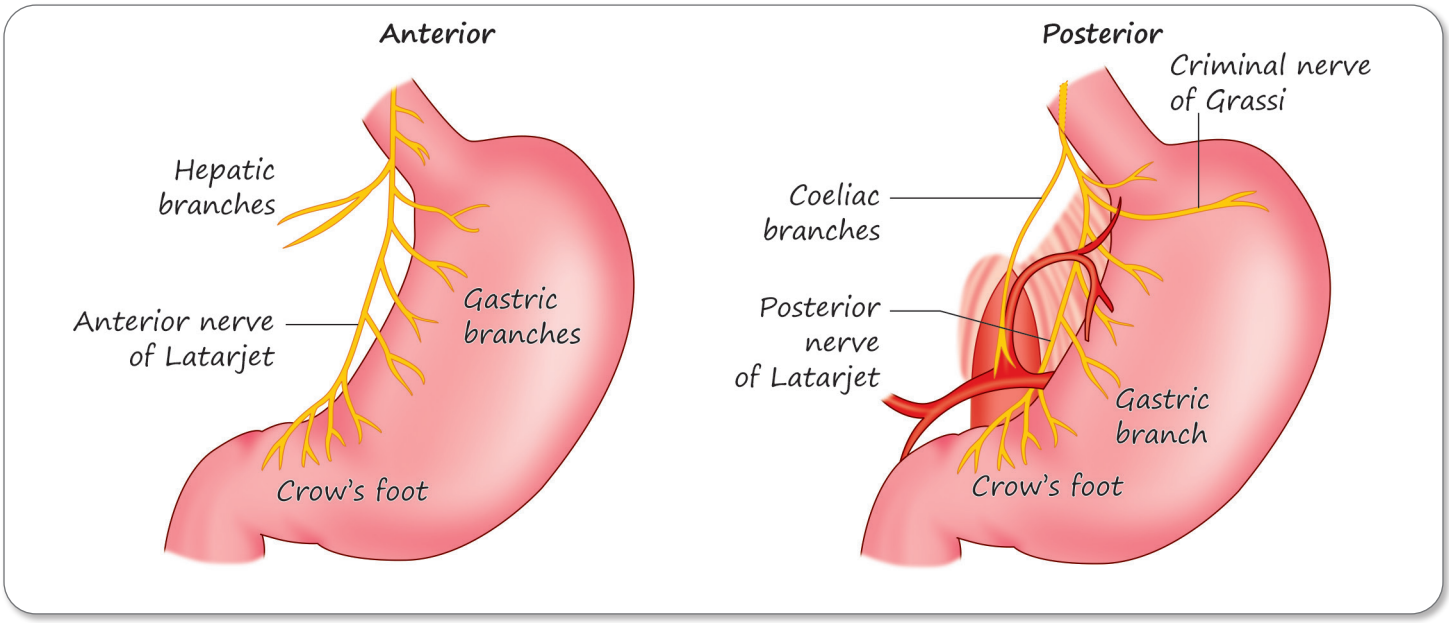
Vagus Nerve Branches

Anterior Gastric Nerve (Left)

- Hepatic branch
- Gastric branches
- Crow's foot (Nerve of Latarjet)*

Posterior Gastric Nerve (Right)**

- Criminal nerve of Grassi
- Crow's foot
- Coeliac branch



Anatomy of the anterior and posterior vagus nerves in relation to the stomach

Truncal Vagotomy

- Cutting the vagus nerve at the trunk at lower end of esophagus.
- Hepatic branch is lost—Bile stasis and Gallstones.
- Since pyloric Branches—Crow's Foot function is lost and hence, there will be pylorospasm (Function of Nerve of Latarjet is to do Pylorus relaxation)
- Coeliac branch is lost—Postvagotomy diarrhea
- Gastric branches lost—Loss of gastric tone

Complications of Truncal Vagotomy

- Bile stasis + Gallstones
- Pylorospasm
- Post-vagotomy diarrhea

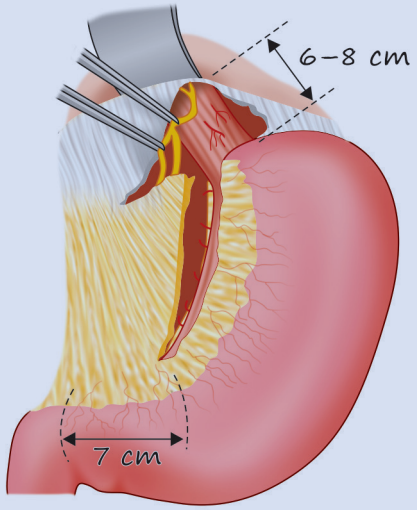
Since there is pylorospasm, we must do drainage procedures:

- Posterior Gastrojejunostomy
- Heineke-Mikulicz Pyloroplasty

These drainage procedures have their own list of complications.

High Selective Vagotomy (Parietal Cell Vagotomy)

- Only the gastric branches are selectively cut.
- No need of drainage procedure in this operation.
- But the problem is we may miss a few branches during surgery and hence, risk of recurrence is more (5%–10%)



HSV—The gastric branches are cut 7 cm proximal to pyloric orifice

Complications of TV with GJ

- Complications of losing the Vagus nerve—discussed in previous page
- **Problems due to GJ:**
  - Malabsorption syndromes
  - Afferent and efferent Loop syndromes
  - Dumping syndrome

Malabsorption

- Iron Deficiency Anemia (MC deficiency in Gastric surgeries)
- Calcium Deficiency—Osteoporosis
- Vitamin B12 deficiency

Dumping Syndrome/Postcibal Syndrome

Early dumping syndrome	Late dumping syndrome
• Happens in half an hour after meal • Massive fluid shift toward hypertonic food particles	• Happens in 2–3 hours after meal • This happens due to reactive hypoglycemia**
C/F—Dehydration, Thirsty and Giddiness	C/F—Palpitation, Tremors and sweating
Diagnosis by PCV—there will be hemoconcentration	Diagnosis by PPBS value—Hypoglycemia

Dietary advice to prevent Dumping Syndrome

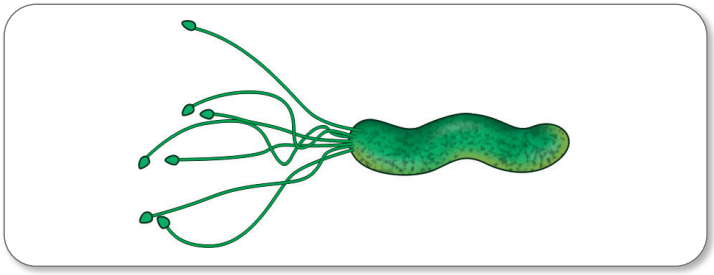
- Low carbohydrate diet
- High fat diet and protein diet
- Frequent small meals.
- Never drink too much water during eating.

Treatment of Dumping Syndrome

- Conservative treatment
- DOC—Octreotide**
- Revisional surgeries—Reverse Roux limb interposition.

Helicobacter Pylori

Two toxins produced: Cag A toxin and Vac A toxin**



Investigations

- IOC (If endoscopy done)—Invasive test—Rapid Urease Test**
- IOC—noninvasive test—ELISA for Serology
- IOC to look for eradication—C13/C14 Urea Breath Test
- New investigation for Eradication—Stool for *H. Pylori* Antigen
- GOLD STANDARD to diagnose *H. pylori*—Staining and Culture
- Stains used for *H. pylori*—**Silver Starry Stain, Giemsa Stain, Warthin Starry stain****

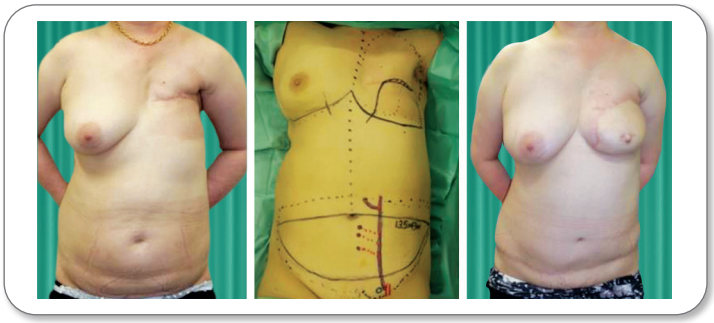
RUT positive

MESHING: SPLIT SKIN GRAFT

- Size of the graft can be increased
- It helps to drain any fluid

Partial thickness split skin graft

- Delto pectoral (DP) flap based on Internal Mammary artery
- TRAM flap based on superior epigastric artery or Inferior epigastric artery
- DIEP flap (Deep inferior epigastric artery free flap) based on inferior epigastric artery
- PMMC and DP flap used in Oral cavity reconstruction
- TRAM and DIEP flap is used in breast reconstruction



DIEP flap (Free flap)

Indications of Flap

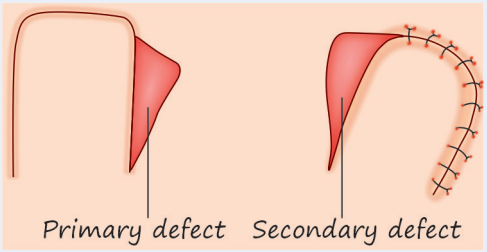
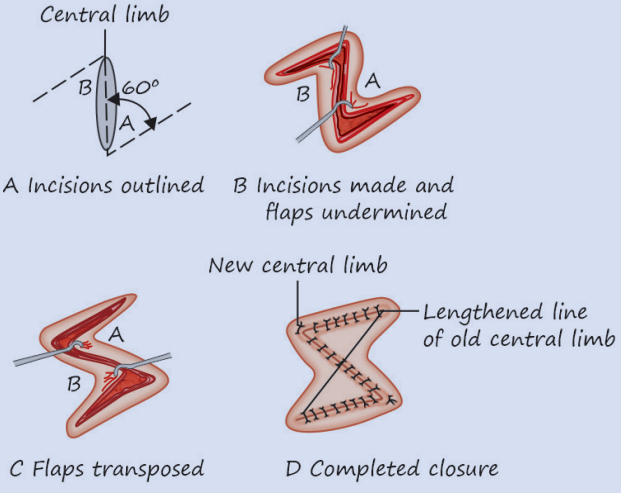
Axial pattern flap (Based on a named blood vessel)

- PMMC flap based on Thoraco acromian artery

Random Pattern Flap

- It is based on dermal and subdermal plexus
- Accepted length: Width ratio = 3:1

Types

Types of random pattern flaps	Figures corresponding
Transposition flap: Flap rotated about a pivot point into adjacent defect	
Z plasty: A type of transposition flap, 1.7 times elongation of wound happens in 60° angulation. Used mainly for burns contracture.	 A Incisions outlined B Incisions made and flaps undermined C Flaps transposed D Completed closure

Contd...

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NEET PG 2023

1. qSOFA score includes:

a. Respiratory rate >22/min, SBP <100 mm Hg, GCS <14
b. Temperature >100°C, SBP <100 mm Hg, GCS <14
c. Respiratory rate >22/minute, WBC count >12,000, GCS <14
d. Confused mental status, high temperature and low BP

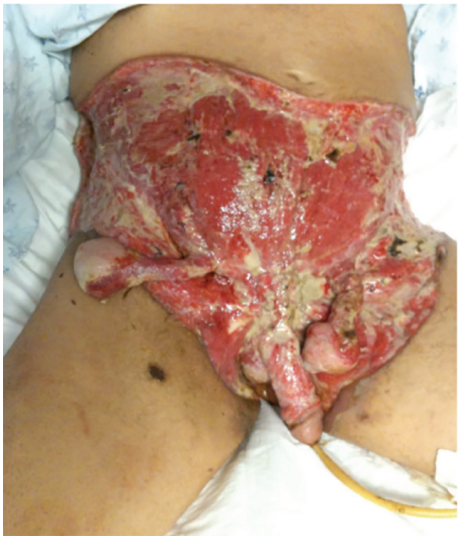
Ans. a. Respiratory rate >22/min, SBP <100 mm Hg, GCS <14

(Ref. Surgery Sixer 6th Edition page 9)

Quick Sequential Organ Failure Assessment score includes:

- RR >22/min
- SBP <100 mm Hg
- Confused mental status (GCS measured)

2. Which is the true statement regarding the image shown:



a. Bladder diversion done
b. Caused by mixed organisms
c. B/L orchidectomy done
d. Anti-gas gangrene serum used

Ans. b. Caused by mixed organisms

(Ref. Bailey 28th Edition page 58)

- This is a case of necrotizing fasciitis, in which there is a rapidly spreading gangrene via deep fascia.
- Multiple organisms are involved (MC being beta-hemolytic streptococci).
- Abdominal wall infection like this is known as Meleney gangrene.
- Fournier gangrene involves scrotum.
- This is usually spared testis and testis is not removed.

3. Calculate the GCS of a patient—opening eyes to pain, speaks inappropriate words and withdrawal seen on motor testing:

a. E2 V3 M4
b. E3 V3 M3
c. E4 V4 M2
d. E2 V4 M4

Ans. a. E2 V3 M4

(Ref. Bailey 28th Edition page 363)

- Eye opening to pain: 2
- Inappropriate words: 3
- Withdrawal response: 4

4. A patient developed acute chest pain radiating to back, widened mediastinum. Right and left arms—different BP. What is your diagnosis?

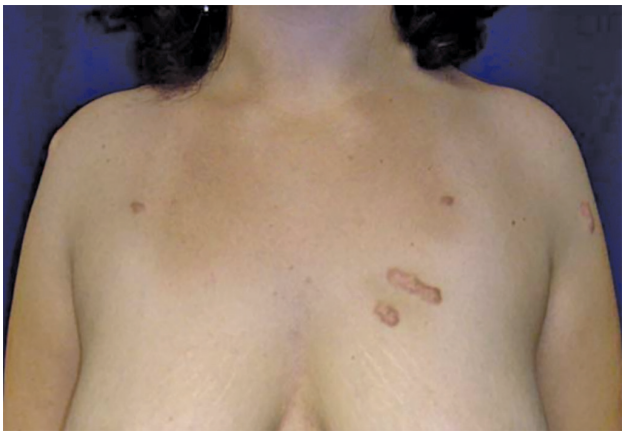
a. Aortic dissection
b. Acute coronary syndrome
c. Esophageal rupture
d. Myocardial contusion

Ans. a. Aortic dissection

(Ref. Bailey 28th Edition page 376)

Disproportionate BP between the limbs is a classical finding in Aortic dissection aneurysm.

5. Past H/o surgery, patient presents with scar in chest:

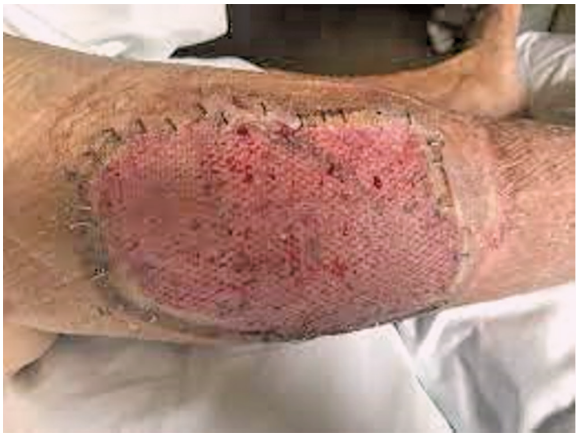


a. Keloid
b. Hemangioma
c. Thrombosis
d. Necrosis

Ans. a. Keloid

(Ref. Surgery Sixer 6th Edition page 37)

206. A patient is done with the following procedure with his own skin graft. What is the type of skin graft?



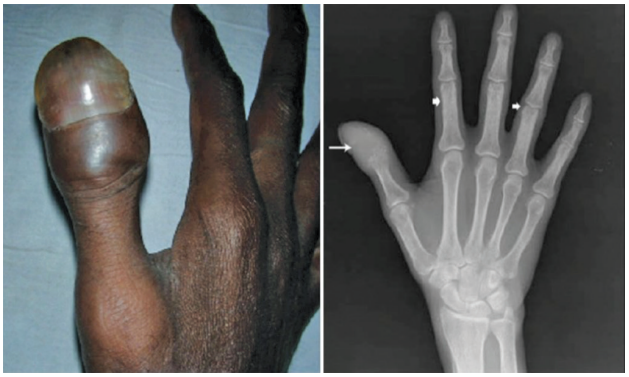
a. Autograft
b. Allograft
c. Xenograft
d. Homograft

Ans. a. Autograft

(Ref. Bailey 28th Edition page 687)

- Transfer of tissues in same individual is AUTOGRAFT
- Transfer of tissues in same species is ALLOGRAFT
- Xenograft—Different species

207. In a patient with history of kidney stones, painful bones, abdominal groans, psychic moans, fatigue overtones, which of the following investigation is used for diagnosis?



a. Tc 99m Sestamibi scan
b. USG Neck
c. CT scan
d. MRI

Ans. a. Tc 99m Sestamibi scan

(Ref. Bailey 28th Edition page 877)

Image shows Brown tumor and history is suggestive of hyperparathyroidism—Tc 99m Sestamibi scan is the IOC.

208. A patient is having severe thunderclap headache, which he has never felt in lifetime. There is no history of fever. Patient is on Antihypertensive medicines. Nuchal rigidity+. What is the diagnosis?

a. Encephalitis
b. SAH
c. Meningitis
d. Chronic Migraine

Ans. b. SAH

(Ref. Surgery Sixer 6th Edition page 61)

Thunderclap headache is suggestive of rupture of berry aneurysm causing Subarachnoid hemorrhage

209. A 35-year-old patient was having diaphoresis+ High BP and Palpitations. What is the diagnosis?

a. Pheochromocytoma
b. Adrenal cortical cancer
c. Episodic long term headache
d. Chronic migraine

Ans. a. Pheochromocytoma

(Ref. Bailey 28th Edition page 900)

Pheochromocytoma Triad—headache + palpitation + Sweating seen in 90%

FMGE JUNE 2022

210. What advice will you give to the female patient before laparoscopic surgery?

a. Eat full before surgery
b. Drink plenty of water before surgery
c. Enema in the night before surgery
d. NPO for specific hours before surgery

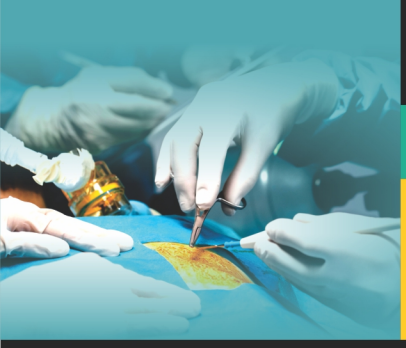
Ans. d. NPO for specific hours before surgery

(Ref. Bailey and Love 27th Edition page 259)

- Patients are advised not to take any solids within 6 hours and clear fluids (isotonic drinks and water) within 2 hours before General anesthesia to avoid risk of acid aspiration syndrome.
- Remember 6 Solid and 2 Water.

211. Patient's relative wants to donate the blood. Before transfusion, the blood is tested for all of the following; except:

a. Hepatitis A
b. Hepatitis B
c. Hepatitis C
d. HIV-1 and HIV-2



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About the Author

R Rajamahendran, *MS, MRCS (Edinburgh), FMAS, MCh (Surgical Gastro)* is presently working as Senior Assistant Professor in Surgical gastroenterology Department in Government Medical College, Villupuram, Tamil Nādu. He has been contributing to a leading online APP platform—Doctutorials as the Surgery Faculty. Apart from this, he is also serving at many other coaching institutions including ARISE for FMGE and MED PG for PGMEE as faculty.

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Dr Rajamahendran's illustrative method of teaching and his exceptional surgical skills have made him renowned and most reputed surgery faculty across the country. His experiences and encounters of various patients in his practice and his future guidance for the PG aspirants have been an eye-opener for a number of medical college students and medical practitioners. He finishes entire surgery in 6-days class which makes students confident to approach surgery questions of INI-CET and NBE exams.

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He has been popular as an author since 2009. Some of his highly acclaimed books are *Long Cases in Surgery, Short Cases in Surgery, Clinical Cases in Pediatrics, Nutshell series for FMGE, 20 Author for TNPG, JIPMER 20 Author, AIPG 20 Author, Complete Review of Surgery, Tumors in 10 Days,* etc.

He is the pioneer to start MCh Entrance coaching in India–presently most Surgical postgraduates and Surgeons are trained at his RRM NExT NEET SS-Institute in Chennai and Delhi.

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