A clinical approach to nausea and vomiting

By/ Dr. Hoda Mohamed Rabie Gabal

Agenda

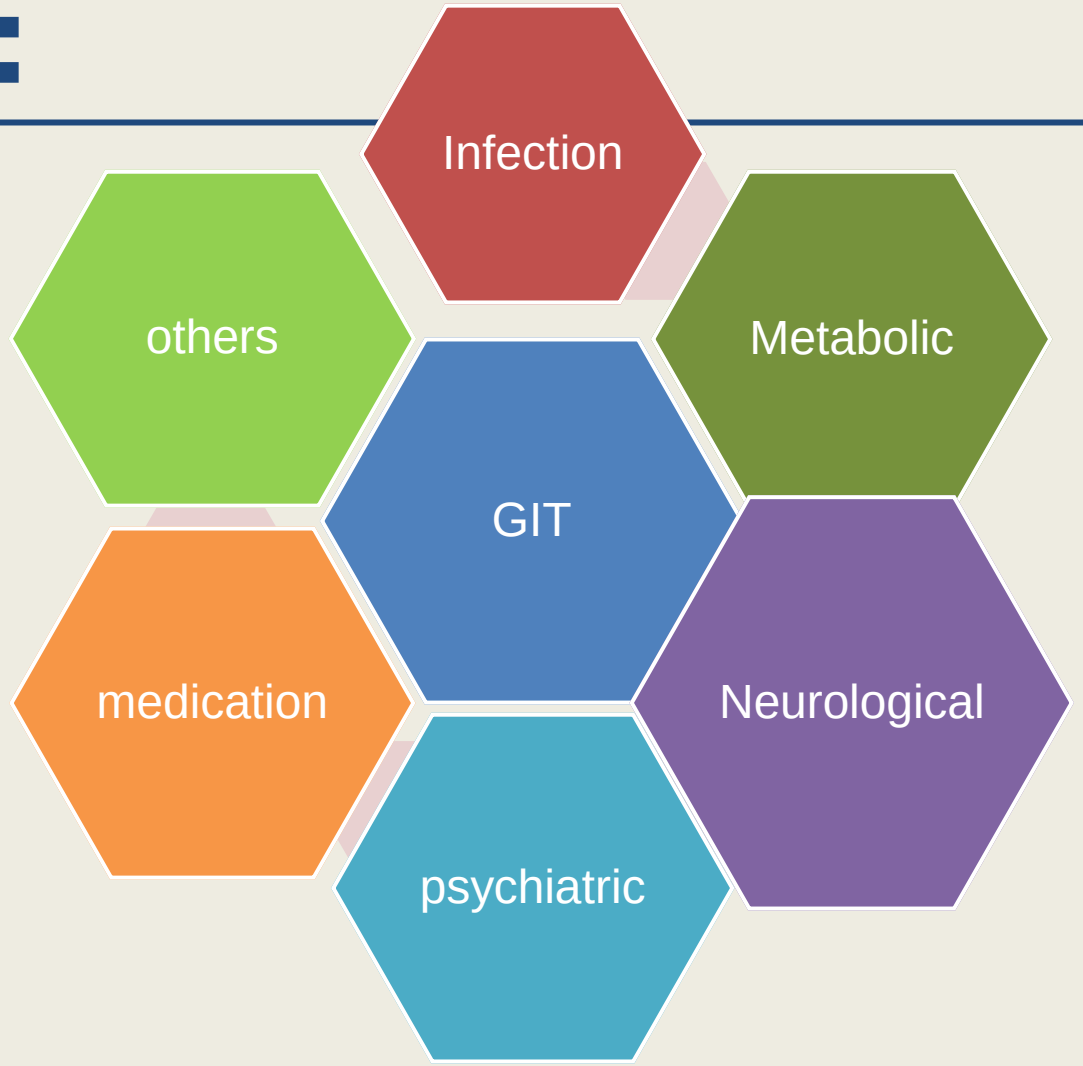
- Definitions.
- Etiology.
- Diagnosis (History, C/P, investigations)
- Treatment (Anti-emetic, specific thepies, Alternative therapy).

Definitions

- Vomiting: an organized, autonomic response that ultimately results in the forceful expulsion of gastric contents through the mouth via involuntary muscular contractions.
- Regurgitation: food is returned to the mouth without forceful contractions.
- Rumination food is returned to the mouth through voluntary contractions.

- Acute vomiting: persisting one month or less.
- Chronic vomiting: persisting for longer than one month.

Aetiology:


Infection
others
Metabolic
GIT
medication
Neurological
psychiatric

Gastrointestinal

Functional

- Chronic intestinal pseudo-obstruction
- Gastroparesis
- Irritable bowel syndrome
- Nonulcer dyspepsia

Obstruction

- Adhesions
- Esophageal disorders/achalasia
- Intussusception
- Malignancy
- Pyloric stenosis
- Strangulated hernia
- Volvulus

Organic disorders

- Appendicitis
- Cholecystitis/cholangitis
- Hepatitis
- Inflammatory bowel disease
- Mesenteric ischemia
- Pancreatitis
- Peptic ulcer disease
- Peritonitis

Infectious

- Acute otitis media
- Bacteria
- Bacterial toxins
- Food-borne toxins
- Pneumonia
- Spontaneous bacterial peritonitis
- Urinary tract infection/pyelonephritis
- Viruses (Adenovirus, Norwalk,)Rotavirus

Metabolic

- Adrenal disorders
- Diabetic ketoacidosis
- Paraneoplastic syndromes
- Parathyroid disorders
- Pregnancy
- Thyroid disorders
- Uremia

Neurological

- Closed head injury
- Increased intracranial pressure
- Cerebrovascular accident (infarction/hemorrhage)
- Hydrocephalus
- Mass lesion
- Meningitis/encephalitis/abscess
- Pseudotumor cerebri
- Migraine
- Seizure disorders

- Vestibular
  - Labyrinthitis
  - Ménière’s disease
  - Motion sickness

Psychiatric disorders

- Anorexia nervosa
- Anxiety
- Bulimia nervosa
- Conversion disorder
- Depression
- Psychogenic/emotional

Medications/Toxins

Medications

- Antiarrhythmics
- Antibiotics
- Anticonvulsants
- Chemotherapeutics
- Digoxin
- Hormonal preparations
- NSAIDs
- Radiation therapy

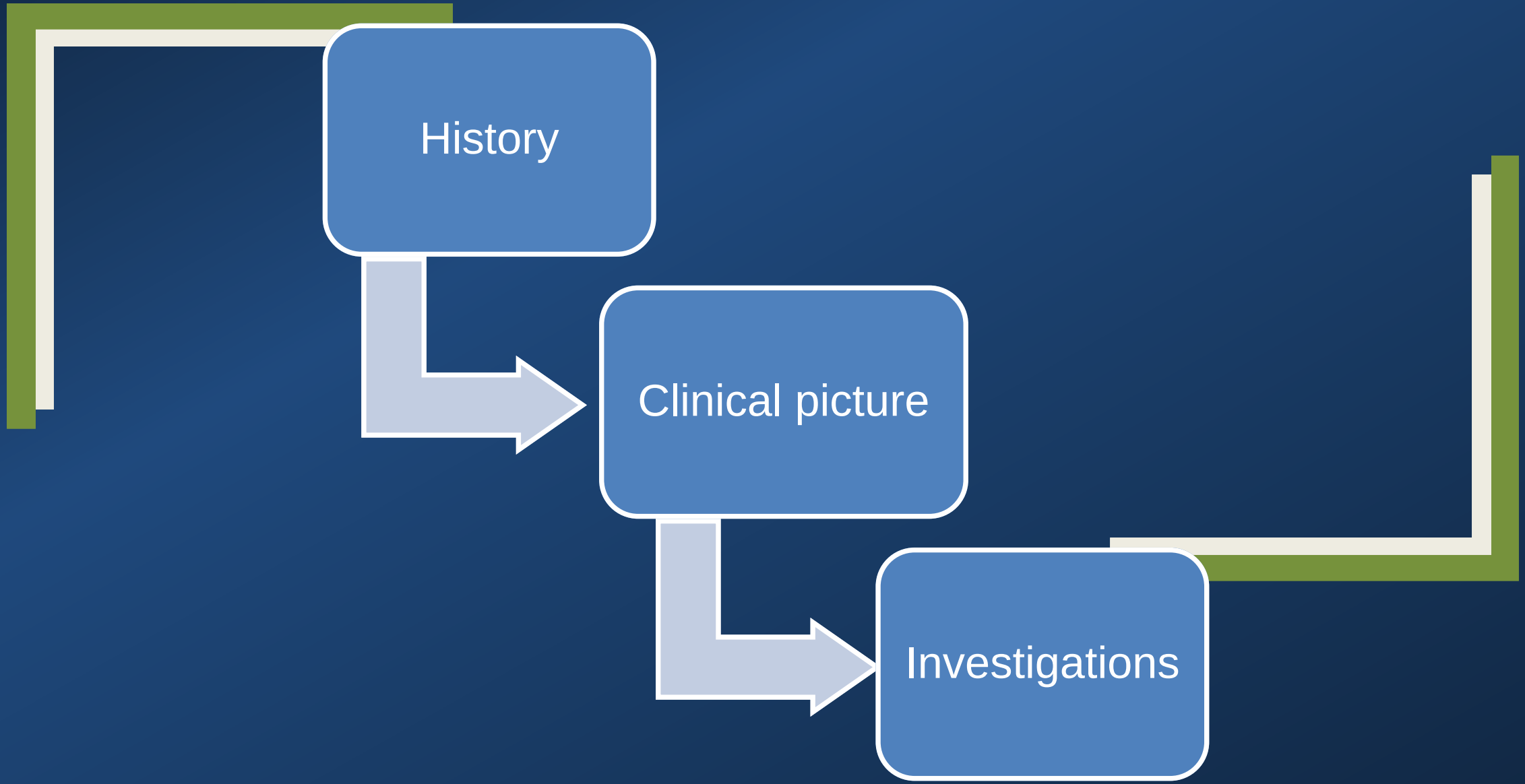
Toxins

- Arsenic
- Organophosphates/pesticides8
- Ricin
- Opiates (Overdoses/withdrawal)
- Ethanol overdose
- Illicit substances

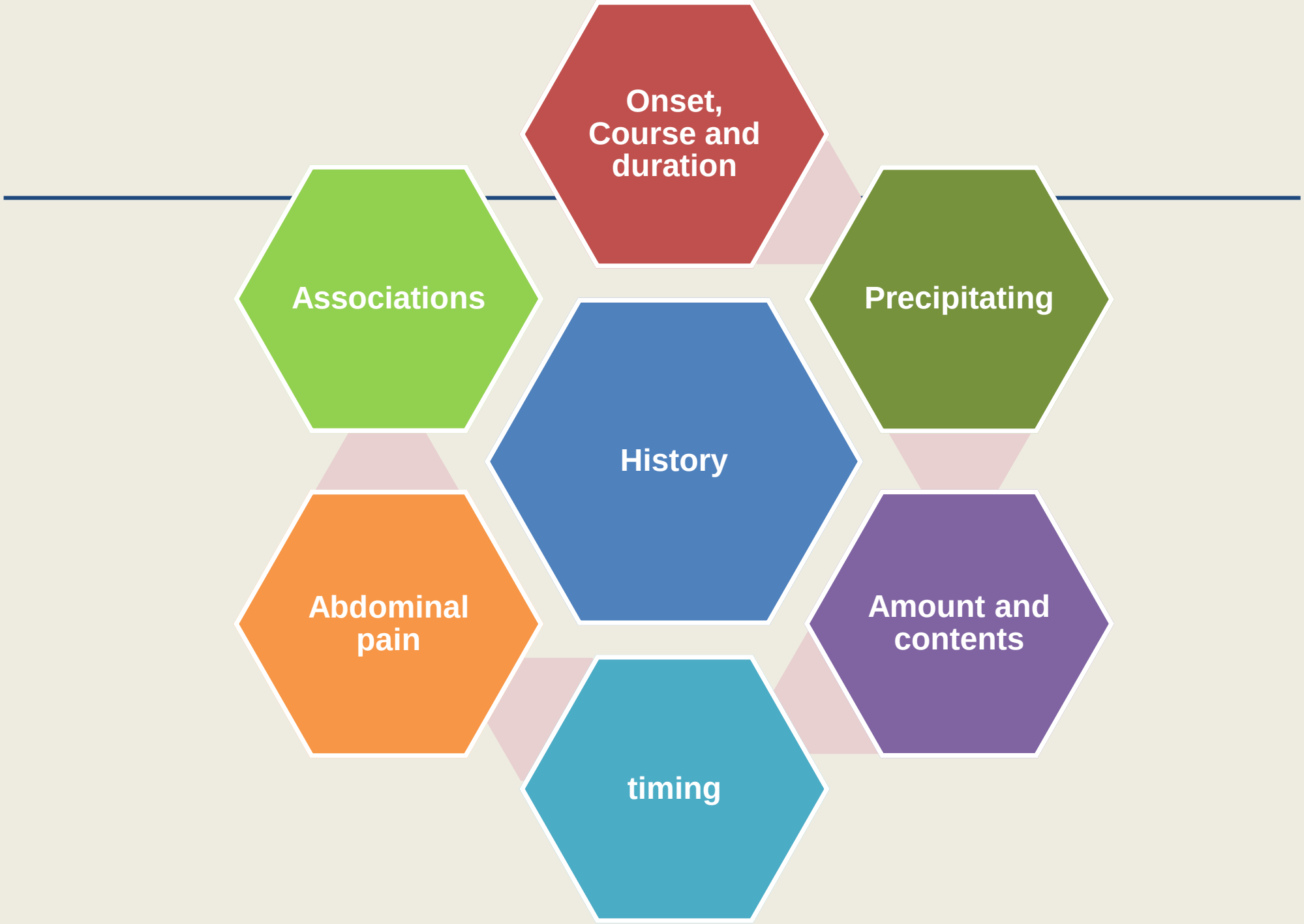
Miscellaneous

- Acute glaucoma
- Acute myocardial infarction
- Nephrolithiasis
- Pain

Diagnosis


History
Clinical picture
Investigations

History taking


Onset, Course and duration
Associations
Precipitating
History
Abdominal pain
Amount and contents
timing

A- History taking:

- **Define the patient symptom:** Vomiting is distinguished from regurgitation and rumination.
- **Onset**:
  - *Abrupt: Cholecystitis, food poisoning, gastroenteritis, illicit drugs, medications, pancreatitis*
  - *Insidious: GERD, gastroparesis, medications, metabolic disorders, pregnancy.*
- **Course and Duration:** continuous or irregular

- **Precipitating factors:**
  - *Spontaneous or self induced (PUD, psychiatric disease e.g bulimia).*
- **Amount:**
  - *Large volume (> 1,500 mL per 24 hours): Suggests organic rather than psychiatric causes.*

- **Nature or contents of vomited matter:**
  - *Undigested food:* Achalasia, esophageal disorders (e.g., diverticulum, strictures).
  - *Partially digested food:* Gastric outlet obstruction, gastroparesis
  - *Bile:* Proximal small bowel obstruction.
  - *Feculent or odorous:* Fistula, obstruction with bacterial degradation of contents.

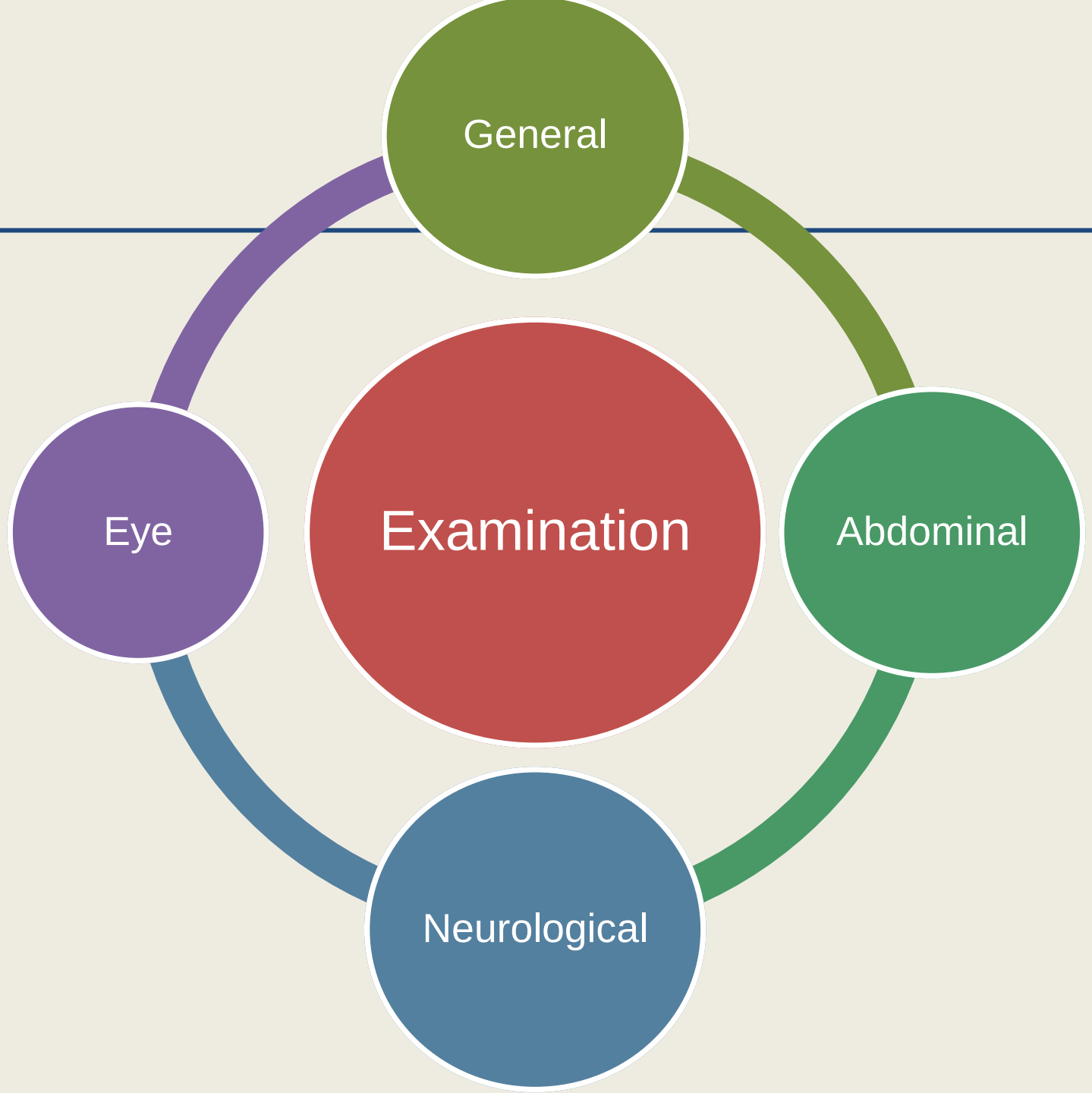
- **Timing of vomiting:**
  - *Before breakfast:* Ethyl alcohol, increased intracranial pressure, pregnancy, uremia.
  - *During or directly after eating:* Psychiatric causes, Less likely: peptic ulcer disease or pyloric stenosis.
  - *One to four hours after a meal:* Gastric outlet obstructions (e.g., from PUD, neoplasms), gastroparesis.

- **Abdominal pain**
  - *Right upper quadrant:* Biliary tract disease, cholecystitis
  - *Epigastric:* Pancreatic disease, peptic ulcer disease.
  - *Severe pain:* Biliary disease, pancreatic disease, peritoneal irritation, small bowel obstruction.
  - *Severe pain that precedes vomiting:* Small bowel obstruction.

- **Associated symptoms/findings:**
  - *Weight loss:* Malignancy (significant weight loss may also occur secondary to sitophobia in gastric outlet obstructions and peptic ulcer disease)
  - *FAHM, Diarrhea, contact with ill persons:* Viral etiologies
  - *Early satiety, postprandial bloating, abdominal discomfort:* Gastroparesis.

- *Headache, stiff neck, vertigo, focal neurologic deficits:* Central neurologic causes (e.g., encephalitis/meningitis, head injury, mass lesion or other cause of increased intracranial pressure, migraine).
- *Repetitive migraine headaches or symptoms of IBS:* Cyclic vomiting syndrome.

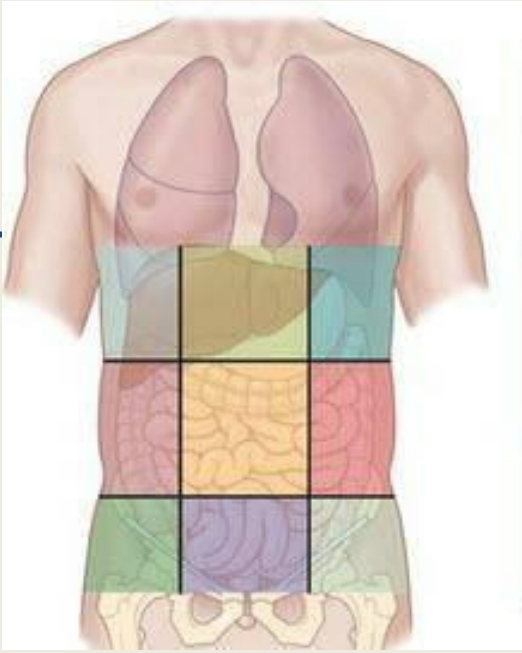
B-Physical examination


General
Eye
Examination
Abdominal
Neurological

General examination

- Observing for hypotension or orthostatic changes.
- Signs of dehydration: evaluating skin turgor and mucous membranes.
- Look for jaundice, lymphadenopathy, parotid gland enlargement and signs of thyrotoxicosis.
- Fingers should be observed for calluses on the dorsal surfaces suggesting self-induced vomiting.
- Loss of tooth enamel: may be a consequence of long-standing GERD.
- Signs of depression or anxiety: may suggest psychiatric etiologies.

Abdominal examination: Inspection+palpation



- Look for visible peristalsis, abdominal or inguinal hernias and surgical scars.
- Tendeness:
  - ***In the right upper quadrant*** *is more consistent with cholecystitis or biliary tract disease.*
  - ***Epigastric*** *may suggest an ulcer or pancreatitis.*
  - ***Diffuse tenderness*** *with abdominal distention is suggestive of a bowel obstruction, although bloating may occur with gastroparesis.*

Percussion and auscultation

- Auscultation:
  - *Increased bowel sounds in obstruction*
  - *Decreased bowel sounds with an ileus.*
- A succussion splash (heard at the epigastrium while rapidly palpating the epigastrium or shaking the abdomen and pelvis) suggests gastric outlet obstruction or gastroparesis.

Neurologic examination

- Orthostatic changes may be the result of persistent vomiting; however, a decrease in blood pressure without a change in heart rate may suggest an autonomic neuropathy with coexisting motility disorders.
- Any deficit on examination of cranial nerves or a patient’s gait suggests brainstem lesions, which may result in gastroparesis.

Eye examination

- **Ophthalmoscopy** should be performed to evaluate for increased intracranial pressure, because any cause of increased intracranial pressure can stimulate brainstem emesis centers. Abnormal findings should prompt immediate neuroimaging.
- Finally, observation for **nystagmus** may suggest a disorder of the labyrinthine system.

C-Investigations

Laboratory tests

- CBC: Leukocytosis in an inflammatory process, microcytic anemia from a mucosal process
- Electrolytes and ABG: Consequences of nausea and vomiting (e.g., acidosis, alkalosis, azotemia, hypokalemia)
- ESR: Inflammatory process.
- Pancreatic/liver enzymes: For patients with upper abdominal pain or jaundice

- Pregnancy test: For any female of childbearing age
- Protein/albumin: Chronic organic illness or malnutrition
- Specific toxins: Ingestion or use of potentially toxic medications
- TSH: For patients with signs of thyroid toxicity or unexplained nausea and vomiting

Imaging

1. **Abdominal ultrasonography:**
   - *Right upper quadrant pain associated with gallbladder, hepatic, or pancreatic dysfunction.*
   - *Sluggish peristalsis*
   - *Intraperitoneal fluid collection*
   - *Doppler US*

2. X-ray

- **Upright abdominal plain X-ray radiography**: Mechanical obstruction, although false-negative results occur in as many as 22% of patients with a partial obstruction.
- **Upper gastrointestinal radiography with barium contrast media**: Mucosal lesions and higher-grade obstructions; evaluates for proximal lesions
- **Small bowel follow-through**: Mucosal lesions and higher-grade obstructions; evaluates the small bowel to the terminal ileum

- **Enteroclysis**: Small mucosal lesions, small bowel obstructions, small bowel cancer, it is extremely sensitive but requires placement of an oral/nasal tube directly into the small bowel.

3. Computed tomography (CT)

- CT with oral and IV contrast media: Obstruction, optimal technique to localize other abdominal pathology, it may soon become the study of choice for detecting intestinal obstructions and also allows evaluation of the surrounding abdominal structures.

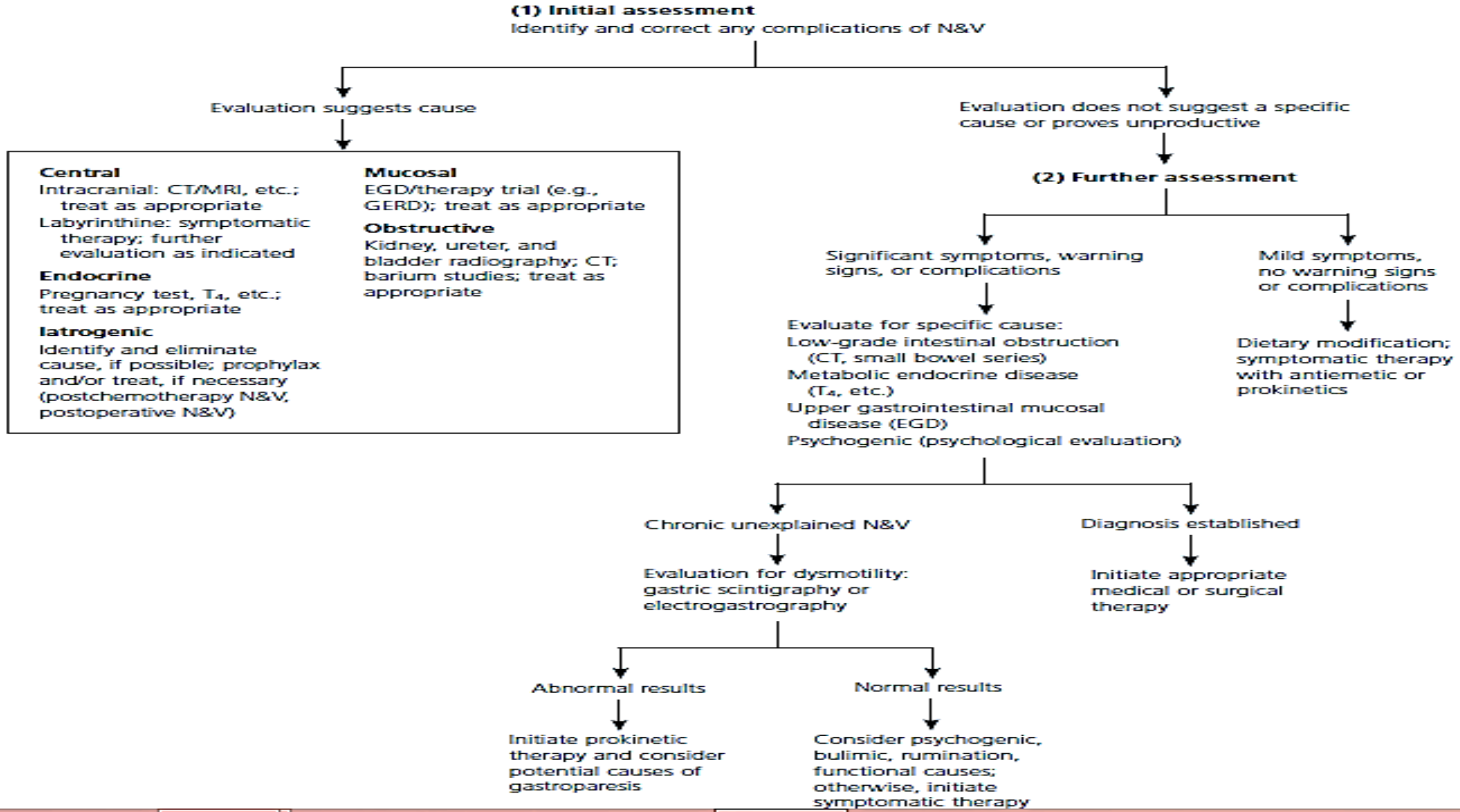
4. MRI of the brain: Intracranial mass or lesion.

5. Esophagogastroduodenoscopy: Mucosal lesions (ulcers), proximal mechanical obstruction

6. Other tests

- Gastric emptying scintigraphy Gastroparesis (suggestive)
- Cutaneous electrogastrography: Gastric dysrhythmias
- Antroduodenal manometry: Primary or diffuse motor disorders

Evaluation of Nausea and Vomiting



References

- Scorza K, Williams A, Phillips D and Shaw J (2007): Evaluation Of Nausea and Vomiting. American Family Physician,76(1):76-84.

Thank you