PEPTIC ULCER

Introduction

- An ulcer is any discontinuity or breakdown in a bodily membrane that impedes the organ of which that membrane is a part from continuing its normal functions.

PEPTIC ULCER

- Also known as “peptic ulcer disease”(PUD)
- Peptic ulcer is a break in the lining of the stomach, small stomach, first part of the small intestine or occasionally the lower esophagus.

Sites of Peptic ulcer

- Duodenum 80%
- Stomach 19%
- Duodenum & Stomach 4%

- Other sites (1%)

  Ex. GE junction, Meckel's diverticulum

Symptoms

- Abdominal pain : located in epigastric area, burning sensation, occurs in empty stomach 2-4 hours after meal or at night(nocturnal pain)
- Nausea and vomiting
- Heartburn
- Abdominal fullness
- Loss of appetite
- Melena

Types of Peptic Ulcer

- Acute Ulcer : Arises generally after any injuries, trauma or operations of GI parts.
- Chronic ulcer

  Duodenal ulcer (on upper part of SI)

  Gastric ulcer (inside the stomach)

  Esophageal ulcer (lining of stomach)

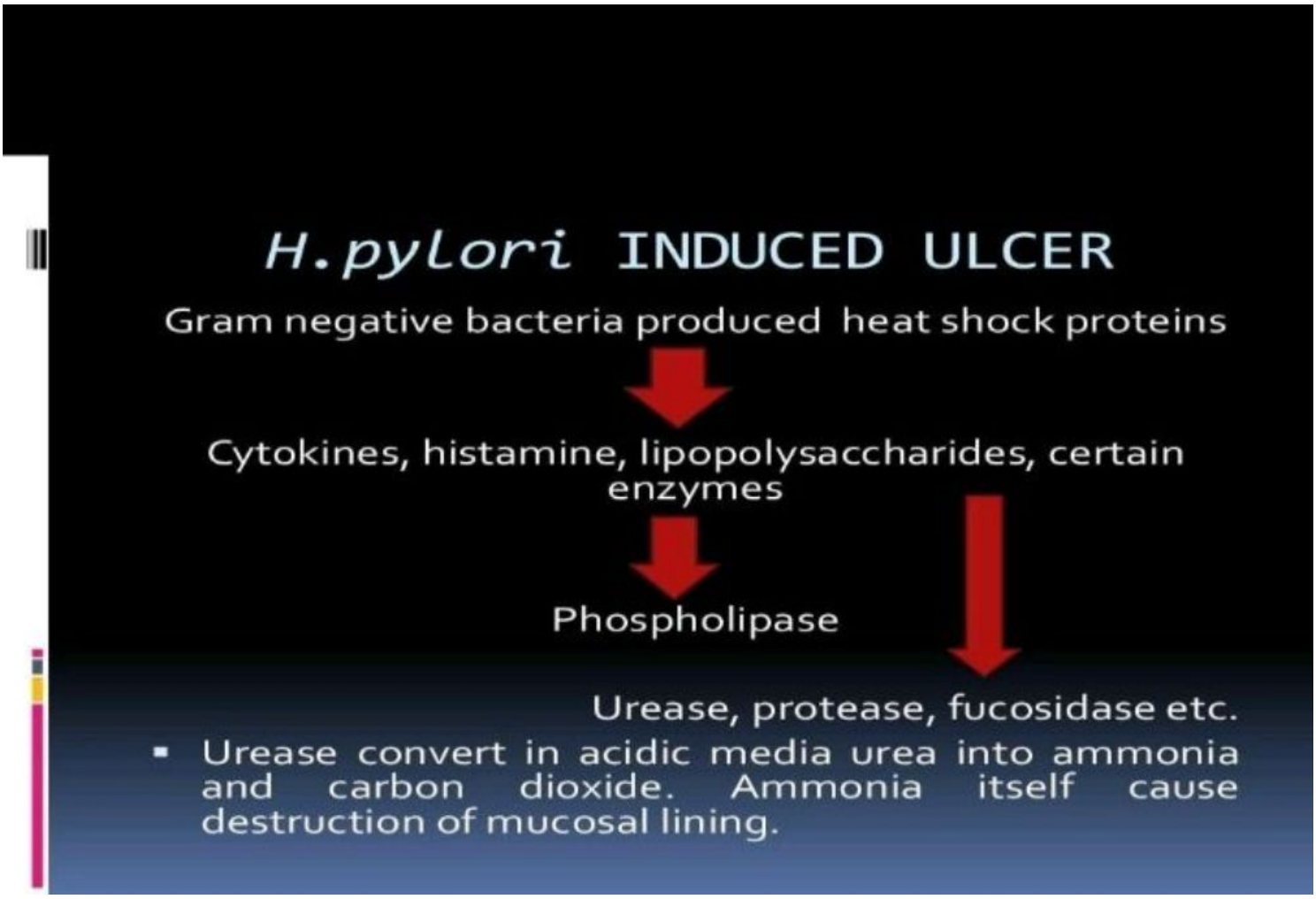
  Bleeding Ulcer

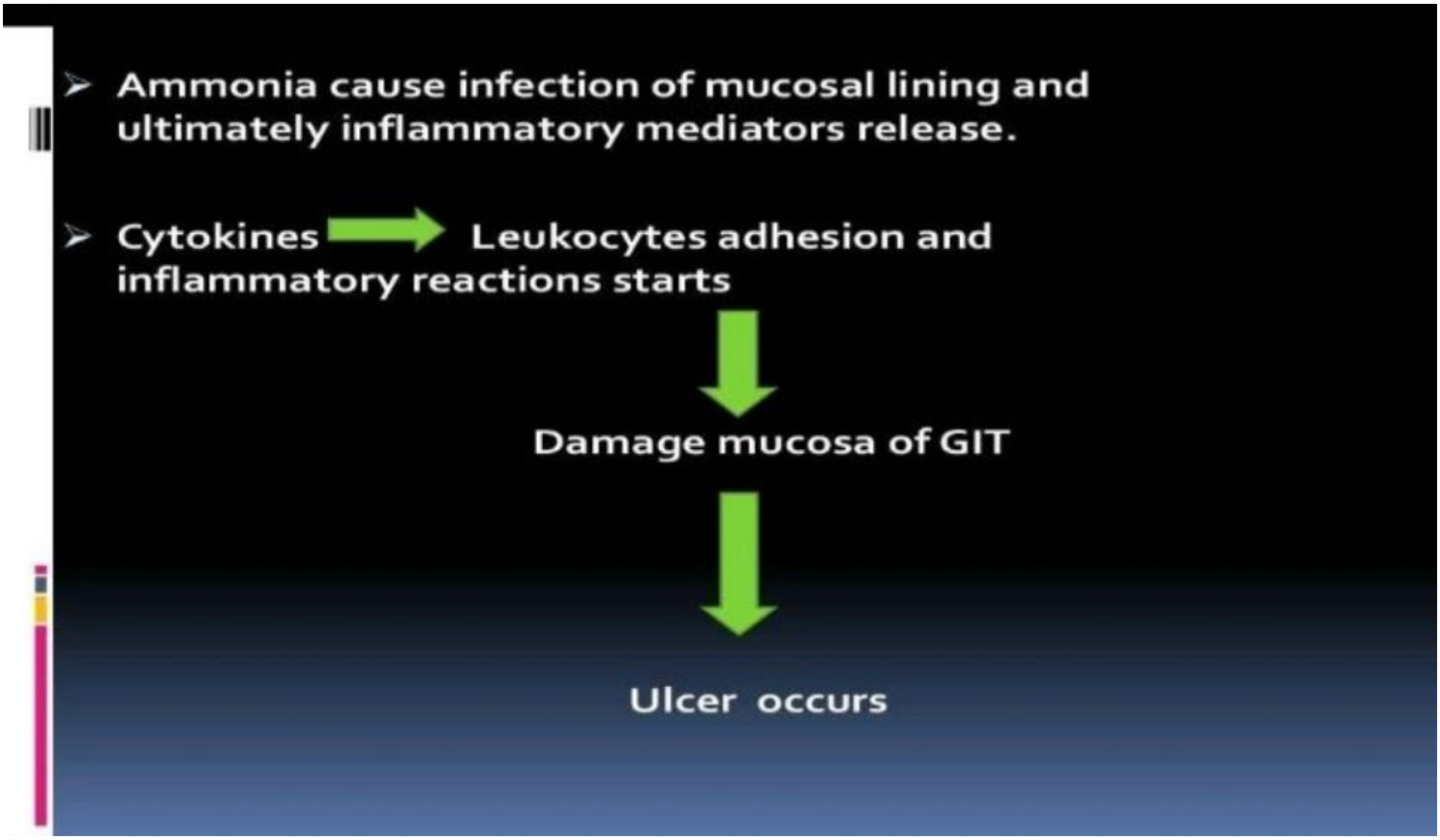
  Refractory Ulcer

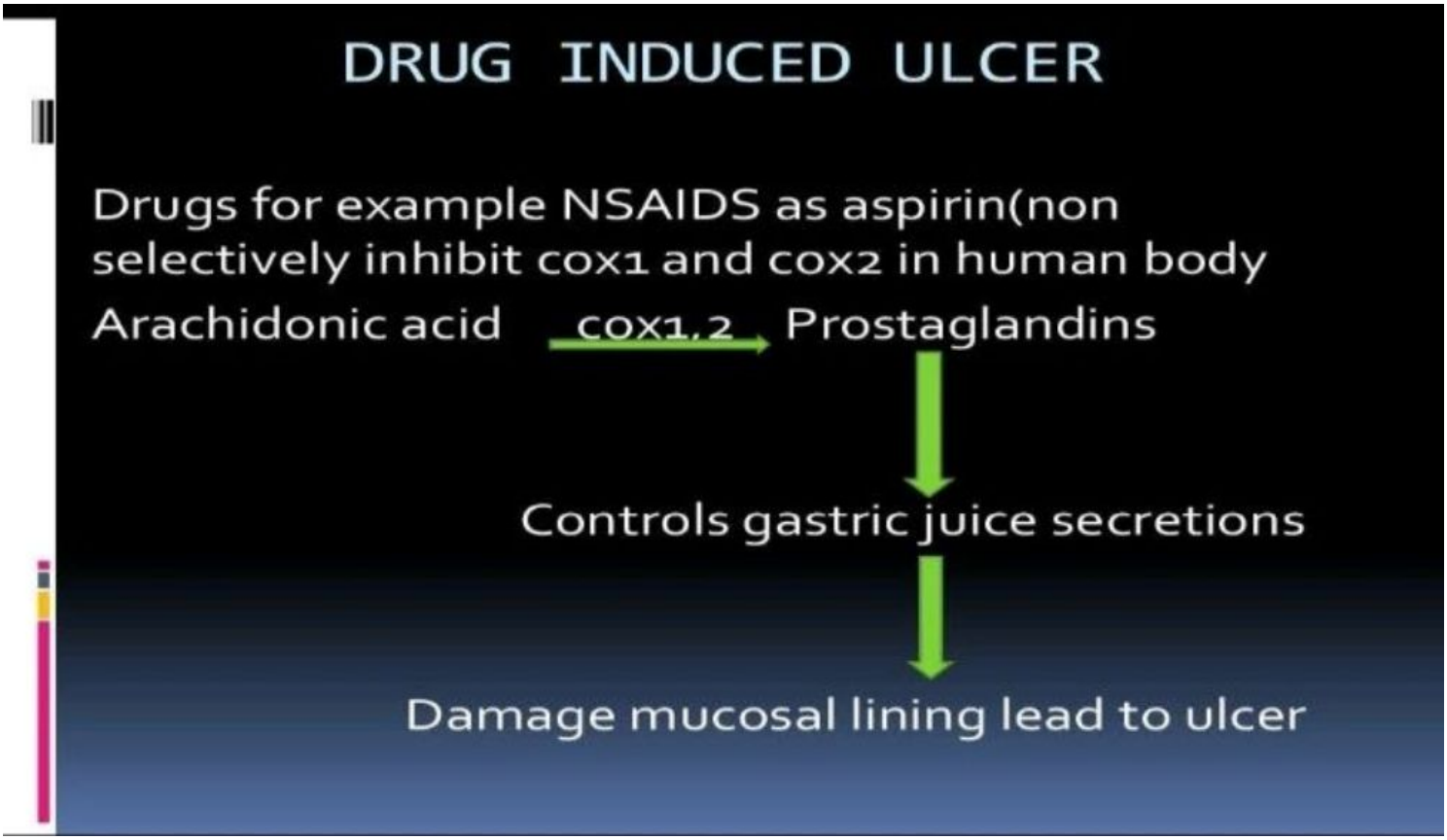
Etiology

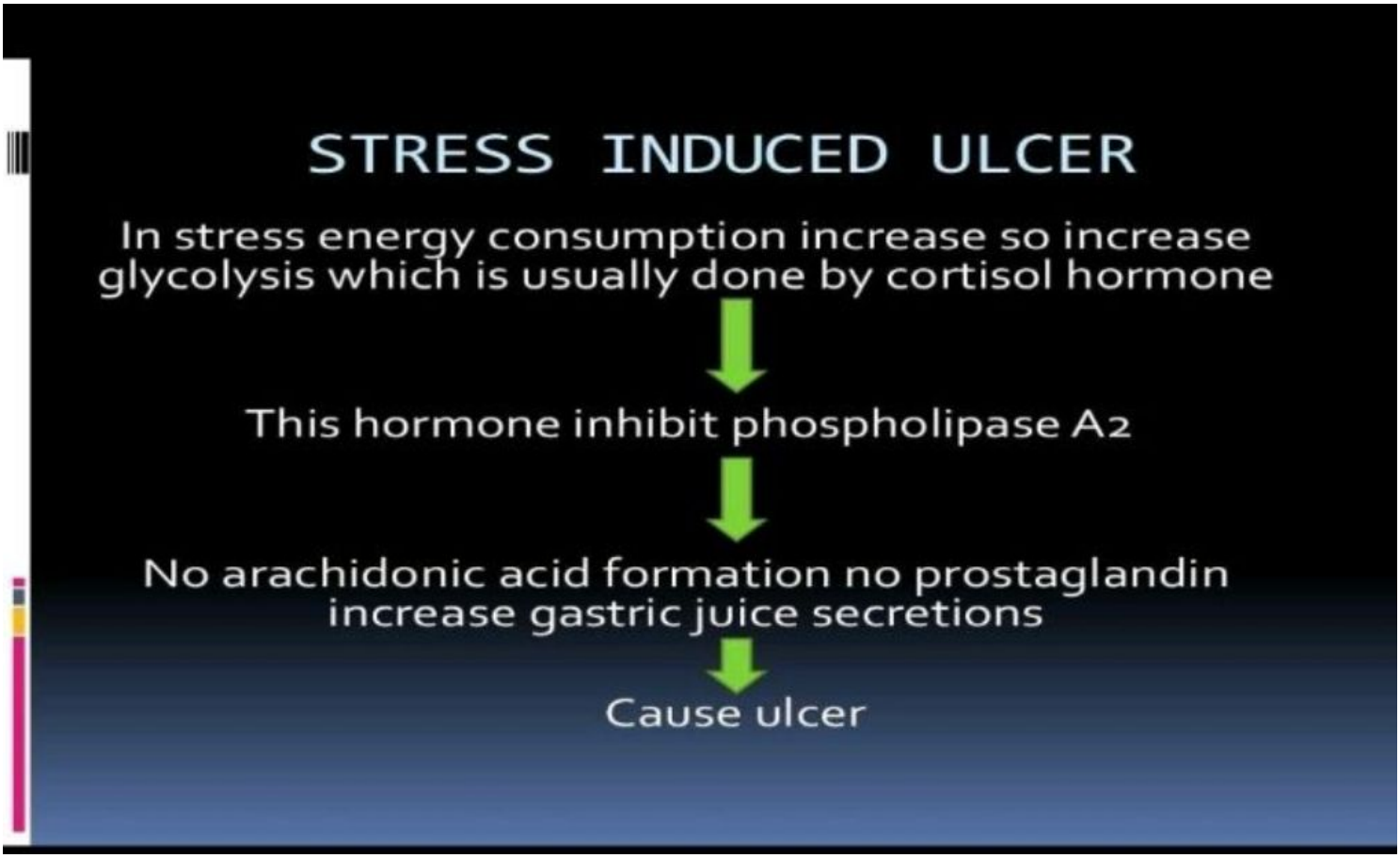
- No single cause
- Most common is due *Helicobacter pylori* infection.
- Use of NSAIDs drugs like aspirin, naproxen, ibuprofen
- Excess acid production
- Alcoholism, Smoking and Tobaccos
- Serious illness and stress conditions

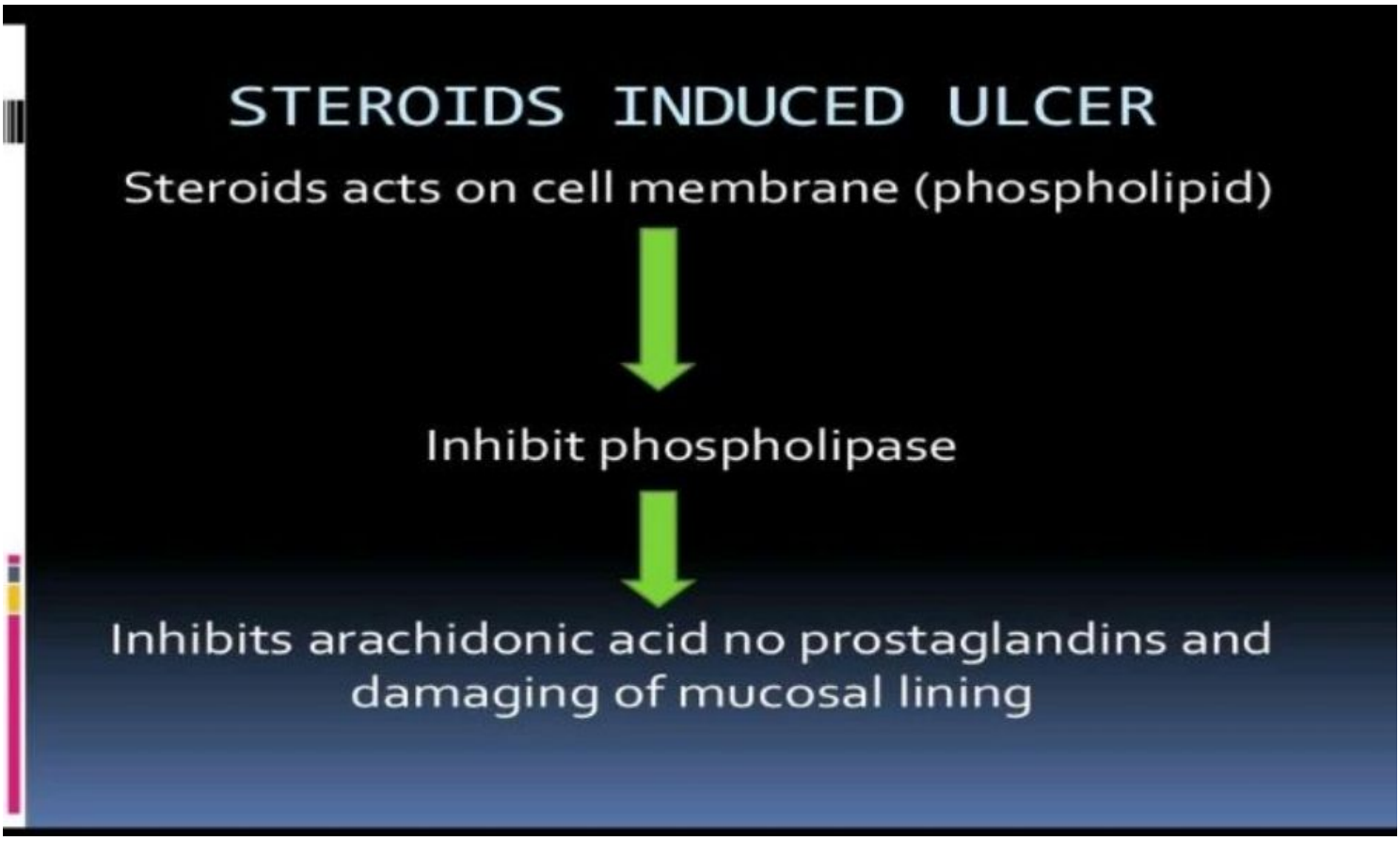
PATHOGENESIS OF PEPTIC ULCER

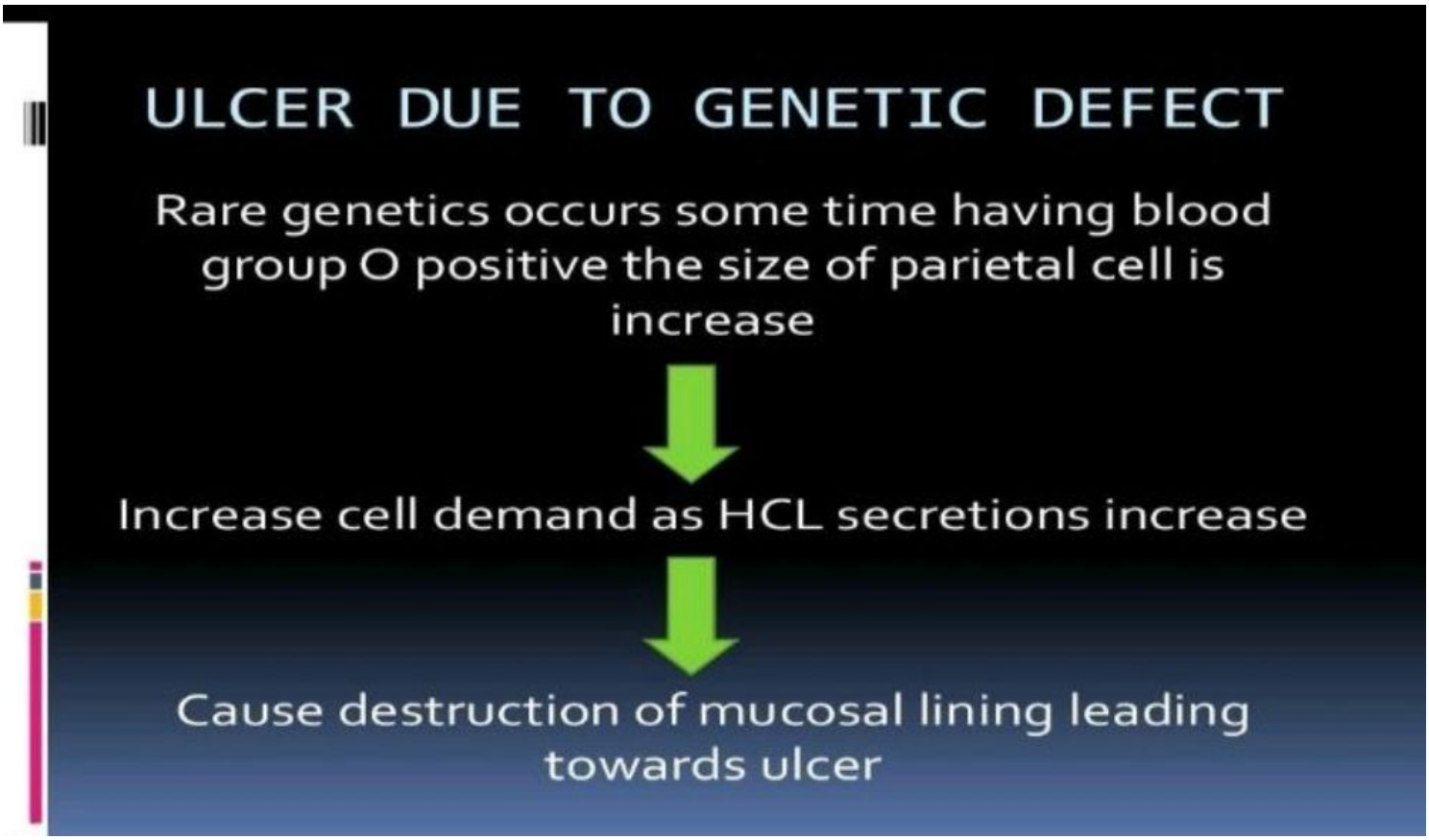

H.pylori INDUCED ULCER
Gram negative bacteria produced heat shock proteins
Cytokines, histamine, lipopolysaccharides, certain enzymes
Phospholipase
Urease, protease, fucosidase etc.
Urease convert in acidic media urea into ammonia and carbon dioxide. Ammonia itself cause destruction of mucosal lining.


Ammonia cause infection of mucosal lining and ultimately inflammatory mediators release.
Cytokines
Leukocytes adhesion and inflammatory reactions starts
Damage mucosa of GIT
Ulcer occurs


DRUG INDUCED ULCER
Drugs for example NSAIDS as aspirin(non selectively inhibit cox1 and cox2 in human body
Arachidonic acid
cox1,2
Prostaglandins
Controls gastric juice secretions
Damage mucosal lining lead to ulcer


STRESS INDUCED ULCER
In stress energy consumption increase so increase glycolysis which is usually done by cortisol hormone
This hormone inhibit phospholipase A2
No arachidonic acid formation no prostaglandin increase gastric juice secretions
Cause ulcer


STEROIDS INDUCED ULCER
Steroids acts on cell membrane (phospholipid)
Inhibit phospholipase
Inhibits arachidonic acid no prostaglandins and damaging of mucosal lining


ULCER DUE TO GENETIC DEFECT
Rare genetics occurs some time having blood group O positive the size of parietal cell is increase
Increase cell demand as HCL secretions increase
Cause destruction of mucosal lining leading towards ulcer

TREATMENT AND PREVENTION

- Medications
  - PPIs - Omeprazole, Rabeprazole, Pantoprazole etc .
  - Antibiotics - For H. pylori induced ulcers
  - Histamine receptor blockers : eg. ranitidine
- Changing lifestyle
- Surgery (if needed)
- Minimizing use of NSAIDs
- Focus on balanced diet and healthy foods