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Review Article

A REVIEW: TRADITIONAL ANTIULCER COMPOUNDS**Pattewar S.G.¹, Sakhare R. S.¹, Nagoba Shivappa N.¹, Sugave B. K.¹, Moholkar Aparark V¹**
¹Channabasweshwar Pharmacy College, Kava Road, Latur, Maharashtra**Abstract:**

Peptic ulcer is a break in the lining of the stomach, first part of the small intestine, or duodenum. The duodenum is the first part of the small intestine. Incompatible to popular belief, ulcers are not caused by spicy food or stress but other factors causes' peptic ulcer main cause of peptic ulcer called *H. pylori* bacterial infection and long term use of NSAIDs medication. The main goals for treating a peptic ulcer include eliminating the underlying cause (particularly *H. pylori* infection or use of NSAIDs), NSAIDs inhibit the cyclooxygenase enzyme, Cyclooxygenase stop the secretion of prostaglandin. Prostaglandin responsible for the protection of gastric mucosa from *H. pylori* infection & other factor causing peptic ulcer. The most serious complications of peptic ulcer disease include hemorrhage, perforation, penetration, and gastric outlet obstruction. A number of drugs including proton pump inhibitors and H₂ receptor antagonists are available for the treatment of peptic ulcer, but clinical evaluation of these drugs has shown incidence of relapses, side effects, and drug interactions. So an urgent need to evolve new herbal drug Bermuda grass for treating ulcer and easily available word wide, low cost, and effective with chronic condition. Botanical compounds with anti-ulcer activity include flavonoids (Apigenin, orientin, Luteoline & vitexine). Flavonoids responsible for the showing Anti-ulcer activity.

Keywords: *H. pylori* infection, Bermuda herb, gastric mucosal erosion, peptic ulcer.**Corresponding author:****Dr. Nagoba Shivappa N.***M. Pharm, Ph.D., Associate Professor and Head,**Department of Pharmaceutics, Channabasweshwar Pharmacy College,**Kava Road, Latur-413512, Dist. Latur. (MS)**Tel: (+91)-2382-641008 (O), (+91)-2382-240008(O) Fax: +91-2382-243855**Mobile: +919637908901, +919021067644**E-mail: nagobashivraj@gmail.com, nshivraj11@rediffmail.com*

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INTRODUCTION:

Peptic ulcer is a gastro intestinal disorder due to an imbalance between the aggressive factors like acid, pepsin, *Helicobacter pylori* and defensive factors like bicarbonate secretion, prostaglandins, gastric mucus, and innate resistance of the mucosal cell factors. Normally peptic ulcer develops when aggressive factors overcome the defensive factors. Medicines associated with peptic ulcer include NSAIDs (non-steroid anti-inflammatory drugs) that inhibit cyclooxygenase, and most glucocorticoids (e.g. dexamethasone and prednisolone). A major causative factor (60% of gastric and up to 50-75% of duodenal ulcers) is chronic inflammation due to *Helicobacter pylori* that colonizes the antral mucosa. In Western countries the percentage of people with *Helicobacter*

pylori infections causes in age (i.e., 20% at age 20, 30% at age 30, 80% at age 80 etc.) Prevalence is higher in third world countries where it is estimated at about 70% of the population, whereas developed countries show a maximum of 40% ratio. Peptic ulcer disease is an illness that affects a considerable number of people worldwide. It develops when there is an imbalance between the “aggressive” and “protective” factors at the luminal surface of the epithelial cells. Aggressive factors include *Helicobacter pylori*, HCl, pepsins, nonsteroidal anti-inflammatory drugs (NSAIDs), bile acids, ischemia, hypoxia, smoking and alcohol. While defensive factors include bicarbonate, mucus layer, mucosal blood flow, PGs and growth factors.

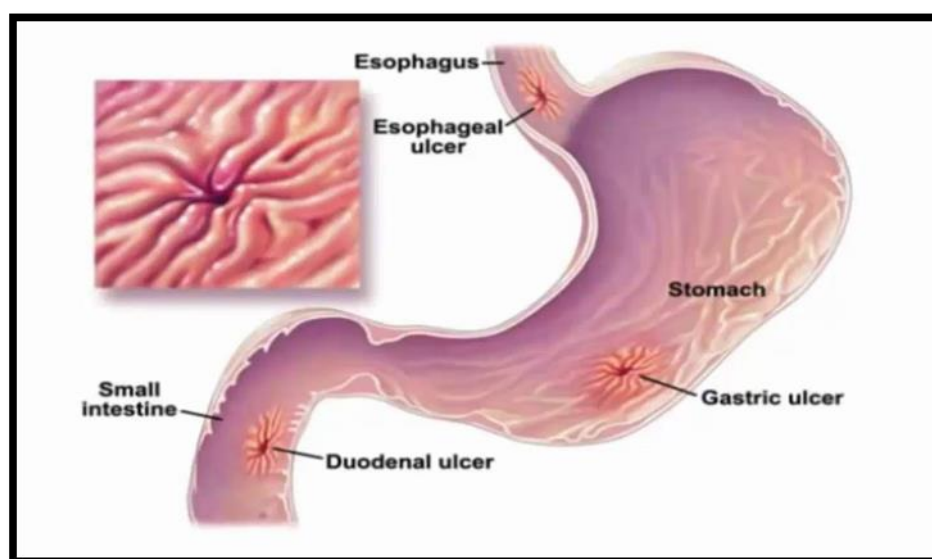


Fig:1 Causes peptic ulcer

TYPES OF ULCER:

Different types of ulcers have been separated by medical scientists and are known by the origin or place of occurrence in human body. Ulcer types known till now are Pressure ulcers, Genital ulcers, Ulcerative dermatitis (*it is* means inflammation), Anal fissure, Diabetic foot ulcer, Corneal ulcer (based on specific region of occurrence), Mouth ulcer also known as Aphthous ulcer (Canker sores), Peptic ulcer, Venous ulcer, Stress ulcer, Ulcerative sarcoidosis, Ulcerative lichen planus, Ulcerative colitis, Ulcerative disposition. However, the most common types of ulcers are:

This ulcer arises from three regions of gastric mucosa.

1. **Peptic Ulcer:** This type of ulcer is related to pepsin and can occur at different regions.

2. **Gastric Ulcer:** Ulcer happens in the stomach region and is often known as Stomach ulcer.

3. **Duodenal Ulcers:** This type of Ulcer occurs in the duodenal region of the GIT tract or Gastro-intestinal tract.

Common causes of peptic ulcer**H. pylori infection**

The gram negative bacterium *Helicobacter pylori*, remains present between the mucus layer and the gastric epithelium, and is strategically designed to live within the aggressive environment of the stomach. The first step of infection by *h. pylori* is dependent on the bacteria's motility and its ability to produce urease. Urease produces ammonia & carbondioxide from urea which is secreted from the stomach. This CO_2 interact with environmental water and produce

Hco₃ which present carbonic anhydrase, an essential step in alkalinezing the surrounding pH. This H₂co₃ converts into the H⁺ and HCO₃⁻ and resulting H⁺ ion react with NH₃ to form NH₄⁺ which can damage epithelial cells.

Regular use of certain pain relievers.

Taking aspirin, as well as certain over-the-counter and prescription pain medications called nonsteroidal anti-inflammatory drugs (NSAIDs) can irritate or inflame the lining of your stomach and small intestine. These medications include ibuprofen (Advil, Motrin IB, others), naproxen sodium (Aleve,

Anaprox, others), ketoprofen and others. They do not include acetaminophen (Tylenol).

Smoke

Smoking may increase the risk of peptic ulcers in people who are infected with H. pylori.

Drink alcohol

Alcohol can irritate and erode the mucous lining of your stomach, and it increases the amount of stomach acid that's produced.

Have untreated stress

Eat spicy foods

MECHANISM TO CONTROL ACIDITY:

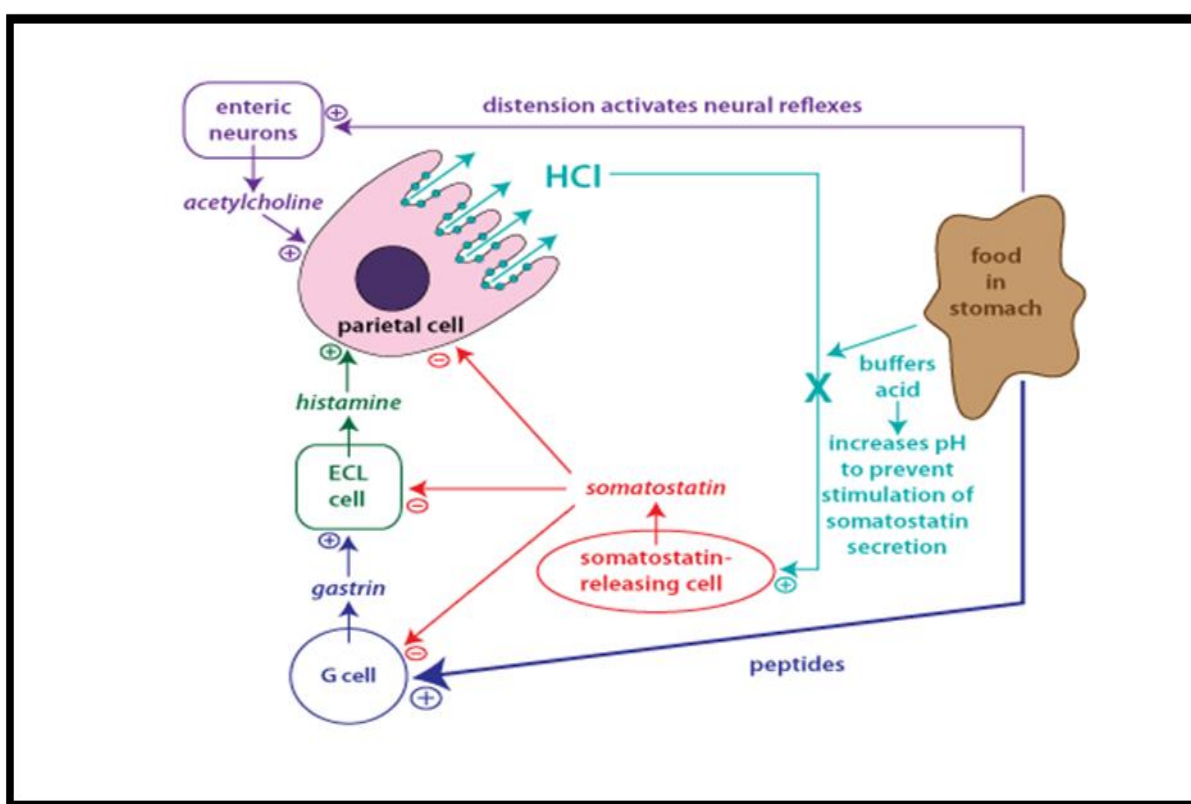


Fig: 2 Mechanism to control acidity

COMPLICATIONS:

- **Internal bleeding.** Bleeding can occur as slow blood loss that leads to anemia or as severe blood loss that may require hospitalization or a blood transfusion. Severe blood loss may cause black or bloody vomit or black or bloody stools.
- **Infection.** Peptic ulcers can eat a hole through (perforate) the wall of your stomach or small intestine, putting you at risk of serious

infection of your abdominal cavity (peritonitis).

- **Obstruction.** Peptic ulcers can block passage of food through the digestive tract, causing you to become full easily, to vomit and to lose weight through either swelling from inflammation or scarring.

Sign and symptoms of peptic ulcer

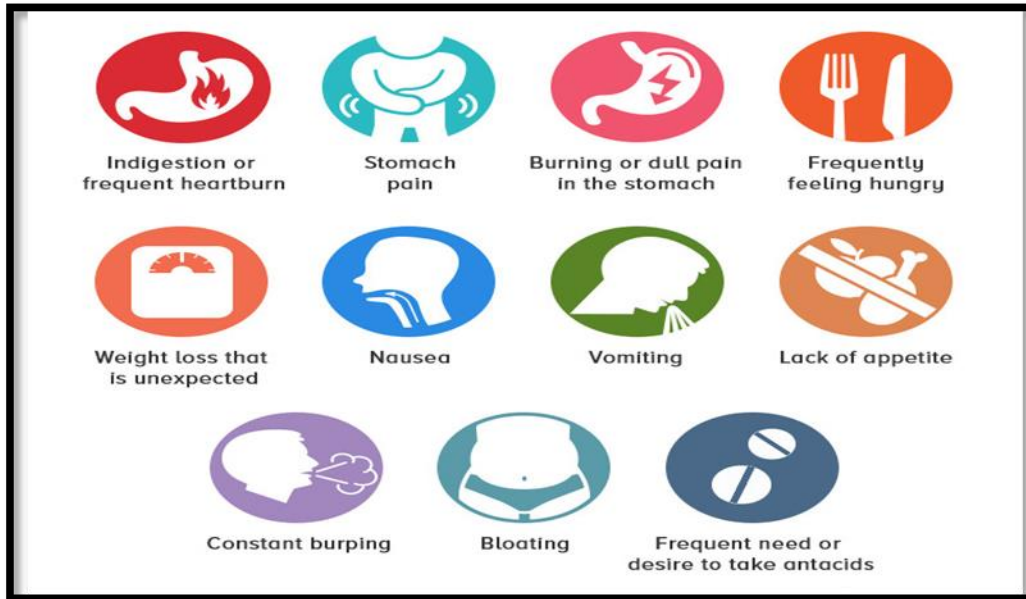


Fig:3sing and symptoms

PATHOGENESIS OF PEPTIC ULCER

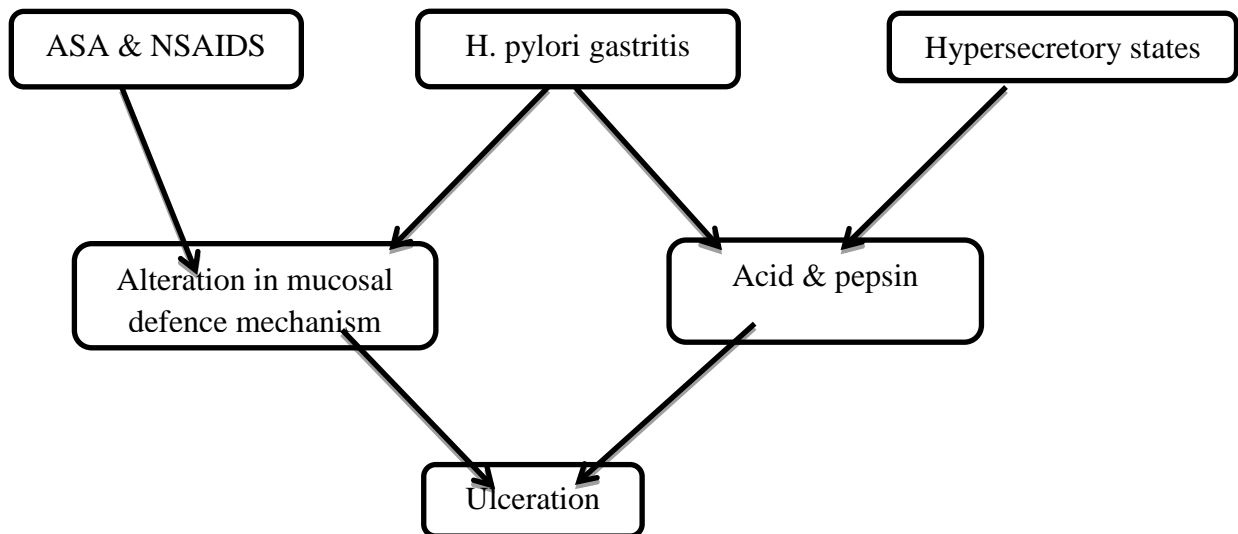


Fig: 4 Pathogenesis of peptic ulcer

DIAGNOSIS OF PEPTIC ULCER:

Urea Breath Tests

Urea breath tests require the ingestion of urea labeled with the nonradioactive isotope carbon 13 or carbon 14. Specificity and sensitivity approach 100%. Urea breath testing is one option for test of cure and should be performed four to six weeks after completion of eradication therapy. Proton pump

inhibitors (PPIs) must be stopped for at least two weeks before the test, and accuracy is lower in patients who have had distal gastrectomy. Cost and inconvenience are disadvantages of this test. [8]

Stool Monoclonal Antigen Tests

Stool antigen tests using monoclonal antibodies are as accurate as urea breath tests if a validated

laboratorybased monoclonal test is used. They are cheaper and require less equipment than urea breath tests. Like urea breath tests, stool antigen tests detect only active infection and can be used as a test of cure. PPIs should be stopped for two weeks before testing, but stool antigen tests are not as affected by PPI use as are urea breath tests [9,10].

Serologic Tests

Serologic antibody testing detects immunoglobulin G specific to *H. pylori* in serum and cannot distinguish between an active infection and a past infection. Serologic tests may be most useful in mass population surveys and in patients who cannot stop taking PPIs (e.g., those with gastrointestinal bleeding or continuous NSAID use) because the tests are not affected by PPI or antibiotic use. [9-11]

Endoscopy with Biopsy

is recommended to rule out cancer and other serious causes in patients 55 years or older, or with one or more alarm symptoms. In patients who have not been taking a PPI within one to two weeks of endoscopy, or bismuth or an antibiotic within four weeks, the rapid urease test performed on the biopsy specimen provides an accurate, inexpensive means of diagnosing *H. pylori* infection. Patients who have been on these medications will require histology, with or without rapid urease testing. Culture and polymerase chain reaction allow for susceptibility testing but are not readily available for clinical use in the United States. [12]

HERBAL DRUGS USED IN TREATMENT OF ULCER:

Ocimum sanctum

Ocimum sanctum (Lamiaceae) is commonly known as “holy basil.” It is locally called “tulsi.” It grows throughout India. The name Tulsi means “the incomparable one.” It is one of the sacred herbs for Hindus in the Indian subcontinent. Chemical constituents in this plant are alkaloids, tannins, saponins, flavonoids, and sterols [13]. In Ayurveda Indian materia medica describes the use of the plant in a variety of ailments. The fresh leaves are taken as Prasad by millions of Indian for many years. A tea prepared with the leaves of Tulsi is commonly used for intestinal disorders [14]. In Recent Studies. The fixed oil of *O. sanctum* was administered in the doses of 1, 2, and 3 mL/kg intraperitoneally, in the rats in which ulcer is induced by aspirin, indomethacin, alcohol, and stress induced ulceration. It reduces the ulcer index in dose-dependent manner. [15]

Zingiber officinalis

It is commonly known as Ginger which is consumed as a flavoring agent, spice belongs to the family Zingiberaceae. Powdered rhizome of ginger root has been used as a traditional remedy for gastrointestinal complaints including in treating peptic ulceration.

Glycyrrhizalabra L

It is a sweet, moist, soothing, flavoring herb commonly known as Liquorice belonging to the family Fabaceae. The plant is widely used as a medicine from the ancient medical history of ayurveda. The glycyrrhetic acid of Liquorice showed potent in vitro activity against *H. pylori* indicating its antiulcer effect on peptic ulcers.

Asparagus racemosus

Asparagus racemosus (AR), belonging to the family Liliaceae, is a well-known ayurvedi crasayana. AR is reported to be antidiarrheal, antibacterial and antiulcer. The plant did not show any significant effect on acid and peptic activity, but it increased mucin secretion tremendously, suggesting cytoprotective property as the possible mechanism. The plant did not show any effect on acid secretion.

E. clipta alba

E. clipta alba Linn. (Asteraceae) is used traditionally in Indian system of medicine as anti-inflammatory, hepatoprotective, hypoglycemic, immune modulator, in wound healing. It shows significant attenuation in lipid peroxidation, superoxide dismutase activity, whereas, elevate catalase enzyme levels. Antisecretory activity of *Eclipta alba* was evidenced by significant reduction in gastric volume, acid output and increase in gastric pH.

Adhatodavasicia

It's (*Acantheceae*), commonly known as *Vasaka*, is a well-known plant in indigenous systems of medicine and is used for its beneficial effects, particularly in bronchitis. *Adhatoda vasica* was studied for its anti-ulcerogenic activity against ulcers induced by ethanol, pylorus, and aspirin. *Adhatoda* leaf powder showed a considerable degree of anti-ulcer activity in experimental rats when compared with controls. The highest degree of activity was observed in the ethanol-induced ulceration model. These results suggest that in addition to its classically established pharmacological activities, *Adhatoda vasica* has immense potential as an anti-ulcer agent. Further research showed that a syrup of *Adhatoda* improved symptoms of dyspepsia.

Cynodon dactylon

It is commonly known as Durva grass or Doobgrass, belonging to family Poaceae. Doobgrass has been proved for antiulcer activity in albino rats at a dose level of 200, 400 and 600 mg per kg. Doobgrass herb contains flavonoids. The alcoholic extract healing activity of the plant extract may be due to antisecretory property associated with an enhancement of the local healing process, which was

Excess Secretion of Gastric Acid

An imbalance between acid-secretory mechanisms and mucosal-protective factors results in peptic ulcers. Peptic ulcers are classified as Type I and Type II ulcers based on their underlying causes. Gastric acid hypersecretion is not a usual characteristic in Type I ulcers which result from impairment in mucosal protective factors. In comparison, gastric

showed the presence of flavonoids, which is supposed to be responsible for antiulcer property [16,17,18]. The alcoholic extract inhibited ulceration by inhibiting output volume and total acidity. The ulcer

comparable with the standard drug ranitidine (H₂-antagonist). Flavonoids are reported to have antiulcer activity [19,20].

and duodenal ulcers are Type II ulcers which result from excess secretion of gastric acid or due to impaired negative feedback effects of acidification. Several causative factors of these ulcers are documented including H. pylori infection, drug therapy with non-steroidal anti-inflammatory drugs (NSAIDs) [21, 22].

SYNTHETIC DRUGS USED IN PEPTIC ULCER:

Antibiotics	Miscellaneous
Metronidazole	Bismuth
Amoxicillin	Sucralfate
Clarithromycin	Misoprostol

SIDE EFFECT OF THESE DRUGS:

Nizatidine	Diarrhea, Headache, nausea, and vomiting, sore throat
Sucralfate	Constipation, insomnia, upset stomach, vomiting
Misoprostol	Cramps, diarrhea, nausea, gas, headache, menstrual disorder,
Famotidine	Constipation, diarrhea, dizziness, fatigue, fever
Omeprazole	Nausea and vomiting, headache, diarrhea, abdominal pain
Cimetidine	Headache, breast development in men, depression and disorientation
Ranitidine	Headache, constipation or diarrhea, joint pain

CONCLUSION:

This article provides herbal drug for the treatment of peptic ulcer with their mode of action. Many synthetic drugs present in the market for treating ulcer but causing some side effects so in this article provide isolated compound used in peptic ulcer with

minimizing side effects. An understanding of the mechanism and control of gastric acid secretion. In this review present some traditional compounds separated active constituents and there showing the antiulcer activity.

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