

# Hyperacidity and Peptic ulcer (a review of Ayurvedic drugs)

Dr. Shrikant Y. Wagh

THE MODERN THERAPY OF HYPERACIDITY AND ESPECIALLY PEPTIC ULCER IS MAINLY SYMPTOMATIC. It rarely leads to proper healing of ulcer without much of scarring which should be the main criterion of cure. I have seen a few cases of duodenal ulcers that have healed completely without much of scarring with Ayurvedic therapy after a period of 1 - 2 months. It would be interesting for the practitioners to go through the available literature on Ayurvedic drugs that have been or are being screened either clinically or experimentally for their actions against hyperacidity and peptic ulcer.

## **Ayurvedic aspect of Pathogenesis of Hyperacidity and Peptic Ulcer :**

Hyperacidity is comparable with Amlapitta<sup>1</sup> of the Ayurvedic literature. In Amlapitta, out of 3 doshas Pittadosha gets deranged (quantitative and/or qualitative increase) and becomes Vidagdha (partially digested, hyperacid). The Udeeran (secretion) of Pitta (mainly hydrochloric acid) is due to Vatadosha. The Vatadosha can be compared with Cholinergic activity i. e. increasing the motility and secretion of the stomach, in this particular respect. The Manda nature of Kaphadosha has an antagonistic action with the Teekshna nature of Pitta and thus it protects the mucosa from the acid. The Kaphadosha in stomach is comparable with the mucus secretions. Due to decreased mucosal resistance and an increased action of acid-pepsin, the mucosa gets eroded and a peptic ulcer is formed. The symptom-complex of a peptic ulcer is comparable with that of Parinamshool<sup>2</sup> described in classical Ayurvedic texts. Shoola (pain) occurs because of deranged Vatadosha. Sensory nerve endings in an active ulcer crater are exposed and their sensitivity may be enhanced by inflammatory products or changes in local blood supply. The pain of peptic ulcer is probably due mainly to the action of acid or other irritants on these hypersensitive regions of the mucous membrane.<sup>3</sup> The sensory nerves are covered under the term 'Vatadosha'.

The central equation of a peptic ulcer<sup>4</sup> is :

## **Acid-Pepsin versus Mucosal resistance (mucin)**

Hence the therapy of a peptic ulcer can be of two forms :

Dr. Shrikant Y. Wagh, B. A. M. S., L. C.P. S., Postgraduate Student and Research Fellow, Dept. of Kayachikitsa, Podar Medical College (Ayu.) and Podar Hospital, Bombay 400 018. Address : 6/39 Government Officers' Quarters, Hajiali Park, Bombay 400 034.

- (1) Left hand side of the equation ( acting against Pitta and Vata ) :
  - (a) Antacids—neutralising the acid.
  - (b) Anticholinergics — decreasing the secretion of gastric acid and reducing gastric motility.
- (2) Right hand side of the equation ( increasing Kapha ) : Increasing the the mucosal resistance. This can be achieved by enhancing mucin secretion.

#### Ayurvedic preparations acting against Hyperacidity and Peptic ulcer :

The Ayurvedic drugs used in hyperacidity and peptic ulcer are briefly outlined below along with the methods of study.

##### (1) Haridra ( Curcuma longa ) Halad<sup>5</sup> :

The effects of Curcuma longa were studied on aspirin-induced hyperacidity. Three groups of male guinea-pigs ( each of 6 animals ) were used as follows : ( i ) control ( ii ) receiving suspension of aspirin in 0.5 % pulv, tragacanth through a polythene tube, ( iii ) receiving aspirin in a similar fashion after a prior therapy of curcumin, 50 mgms/kgm orally for 7 days; half an hour after the last dose of curcumin, aspirin was administered. 3½ hours after aspirin, the animal was killed, stomach was opened and examined for ( i ) mucin, ( ii ) blood, ( iii ) acidity, ( iv ) ulcers, erosions or haemorrhages on the internal surface of stomach. The results are :

Group	pH	Occult blood	Mucin mgm %	External or internal lesions
Control	2 - 2.5	Nil	7.4	Nil
Aspirin	4.5 - 5	Present	4.7	++
Curcumin plus Aspirin	2.5 - 3	Nil	12.7	Nil

Similar results have been obtain with Curcumin on Phenylbutazone and 5-HT induced gastric lesions in guinea pigs. The action of Curcumin seems to be dose—dependent. The degree of protection against 5—HT induced gastric lesions increases with an increase in the dose of Curcumin from 5 mgm/kg to 20 mgm/kg body weight.

The action of Curcuma longa has been postulated as being 'double as follows : ( i ) Increasing the mucin content of stomach, ( ii ) Decreasing the gastric motility by way of an anticholinergic action. These actions have been shown by other workers also by using curcumin in phenylbutazone or 5 - HT induced gastric ulcers.

##### (2) Tulasi ( Ocimum sanctum ) Tulasi<sup>6</sup> :

The effects of Ocimum sanctum were studied in 125 patients. They were given powdered leaves in a dosage of 5 to 27 gms/day. The assessment was made on the basis of three criteria as follows : ( i ) Clinical

features, (ii) radiology and (iii) gastric analysis. The communication gives its results as follows :

- |                             |            |
|-----------------------------|------------|
| (i) Symptomatic improvement | 66 % cases |
| (ii) Objective improvement  | 20 % cases |
| (iii) Complete healing      | 18 % cases |

(3) **Sootashekhar** <sup>7</sup> :

This Ayurvedic preparation containing as many as 18 ingredients of various nature has been described as being an effective remedy in Amlapitta <sup>8</sup>. Studies on lines similar to those for *Ocimum sanctum* at M. A. Podar Hospital, Bombay indicate that the drug is effective in hyperacidity and also helps in healing of duodenal ulcers. The work is still in progress and final reports are awaited. It is observed that Sootshekhar has got no neutralising action on the natural gastric juice drawn out for the purpose of routine gastric analysis.

(4) **Godugdha (Cow's milk)** :

Ayurveda has advised cow's milk to be taken as Pathya (effective accessory measure) during the treatment of Amlapitta. Although on an empirical basis, which has a little experimental evidence to support, the modern physicians are using milk to relieve symptoms such as heart burn when they are severe. There is much of controversy regarding the exact nature of action of milk. It has been said that the protein and lipid content of milk exhibits a protective action against the gastric acid acting on the mucosa. On the other hand it has also been shown that frequent milk feedings actually provoke more acid secretion <sup>4</sup>.

(5) **Yashtimadhu (Glycyrrhiza glabra)** Jeshthamadha <sup>9</sup> :

Carbenoxolone sodium (Biogastrone) is described in the text books of Pharmacology and Medicine in the treatment of peptic ulcer. It is a derivative of liquorice (*Glycyrrhiza glabra*) and is a constituent of crude liquorice. Oral administration of biogastrone has been shown to be beneficial in promotion of healing of gastric ulcers in patients on usual diet and at usual work. The exact mode of action is not known, but it probably acts by stimulating mucus secretion and thus providing protection to the base of the ulcer against acid and pepsin. It is possible that biogastrone stimulates the collagen activity in the base of the ulcer and/or stimulates epithelialization. It has little effect on gastric acid production or motility of stomach. Another liquorice derivative, *Caved-S* (deglycyrrhizinized liquorice), has got similar healing properties without the undesirable side effects of biogastrone, such as sodium and water retention. The results of an endoscopic survey of 32 patients of duodenal ulcer taking *Caved-S* are as follows <sup>10</sup> :

- (i) The degree of healing varied from normal mucosa (59 %) to mild duodenitis (41 %). (ii) In addition, residual scarring was noted in



44 % but there was no evidence of duodenal stenosis. (iii) After 16 weeks' treatment, 78 % had endoscopic evidence that ulceration had healed. (6) **Shatawari** (*Asparagus racemosus*) Shatawari<sup>11</sup> :

Seven out of 21 patients (33 %) of Amlapitta taking 6 gms/day of root powder of *Asparagus racemosus* showed good response. Fair and poor responses were seen in 12 and 2 patients respectively. Even though it seems that the patients are not critically evaluated on scientific basis in this particular work *Asparagus racemosus* is being used in Amlapitta by Ayurvedic physicians<sup>12</sup> with sufficiently good results.

(7) **Praval (Coral) Bhasma and other Calcium containing Bhasmas** :

Praval, Shankha, Shouktik, Mouktik, Kapardik, etc. are being used in Ayurveda against hyperacidity and peptic ulcers. They are all combined in Pravalpanchamrit which is an effective remedy in hyperacidity. Their Bhasmas contain about 95 - 100 % of calcium carbonate<sup>13</sup>. Calcium carbonate is an accepted nonbuffer, nonsystemic antacid which forms a chloride with the acid in the stomach. In addition to 83 % of calcium carbonate, Coral contains 8 % of organic matter<sup>14</sup>. The rate of neutralization of artificial gastric juice (prepared with 0.05 N HCl) was studied for calcium carbonate and Pravalbhasma (Coral ash). The study revealed a slower reaction in the case of coral ash as compared with calcium carbonate. The difference reduced or even abolished with the elimination of organic matter in the coral ash. The study suggests that the 'unknown organic matter' is an asset in the usefulness of the Coral ash<sup>15</sup>. Praval, Shankha and Jaharmohra are observed to have better antacid properties as compared with aluminium hydroxide when they are allowed to react with natural gastric juice collected for the purpose of routine gastric analysis<sup>7</sup>.

It is now understood that Coral contains prostaglandins. Human gastric mucosa consists of PGE<sub>2</sub>. Given intravenously it inhibits gastric acid secretion in man, but its exact physiological role is uncertain. It is not effective orally. One of the synthetic analogues 15-methyl-PGE<sub>2</sub>, when given orally inhibits basal and pentagastrin stimulated gastric acid and pepsin secretion. It has also been shown to stimulate the mucus secreting cells of gastric mucosa. In rats, the drug could prevent gastric and oesophageal ulcers<sup>9</sup>. It is not only the calcium carbonate of coral which relieves hyperacidity but it is the organic matter that is of the greatest importance.

(8) **Amalaki** (*Phyllanthus emblica*) Avala :

This has been advised in Ayurveda as a drug to be used in the treatment of Amlapitta. *Phyllanthus emblica* is the richest natural source of vitamin C. Its fruit pulp consists of 72 % of vitamin C<sup>16</sup>. Vitamin C is known to be essential for healing of wounds. The utility of vitamin C in healing of peptic ulcers has not been proved as yet.

It is recently being postulated that there are two types of Histamine-receptors, H<sub>1</sub> and H<sub>2</sub>, in the gastric cells. The conventional antihistaminics act only on H<sub>1</sub> receptors and have no action against gastric secretion.

Metiamide and Burimamide are the very much speculated  $H_2$  receptor antagonists which block gastric acid secretion stimulated by histamin, pentagastrin, 2-deoxyglucose and food<sup>9</sup>. It requires to be carefully studied whether any of the above preparations or other Ayurvedic drugs such as Draksha (Vitis vinifera-Drakshe), Kooshmanda (Beninacasa hispida-Kohala) Patola (Trichosanthes dioica-Kadu Padval), Hareetakee (Terminalia chebula-Hirda), Roupayabhasma (Silver ash) etc. contain any of the prostaglandins, especially  $PGE_2$  and/or any  $H_2$  receptor antagonist.

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