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SIDDHA MANAGEMENT OF CHRONIC ACID DYSPEPSIA CAUSED BY HELICOBACTER PYLORI INFECTION – A CASE REPORT.

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ABSTRACT

According to Siddha system of Medicine, *Eri Gunmam* is a disease which can be corelated with H. pylori induced Chronic acid dyspepsia based on its clinical presentations. A 43-year- old man with the complaints of burning sensation present in the epigastrium, back of the trunk, both the upper limbs was reported to OPD No.20/21 (Department of *Noi Naadal*) in Ayothidoss Pandithar Hospital, National Institute of Siddha, Chennai, India. He was diagnosed with Chronic acid dyspepsia (H. pylori induced) that is *Eri Gunmam* in Siddha. It was diagnosed based on the history of symptoms, Siddha examinations and Endoscopy reports which revealed H.pylori infection's presence. He was treated with internal medications and external application. The clinical presentations were reduced well. After 6 months of treatment, H. pylori became negative with much improved symptoms. This case report summarises the novel Siddha management for H. pylori. Dealing with *Eri gunmam* using Siddha drugs helps in preventing complications that are caused due to gastritis in a healthy manner. So, it is better to go with herbo-mineral preparations in Siddha for gastrointestinal diseases even after the failure of Conventional therapy failure.

Keywords: Siddha, Eri Gunmam, H. pylori, Conventional therapy failure.

INTRODUCTION

In Siddha system of Medicine, it is not directly indicated as Helicobacter pylori. According to Siddha system of Medicine, *Eri Gunmam* is a disease which can be corelated with H. pylori induced gastritis based on its clinical presentations. Sage *Yugi* classified *Gunmam* which refers to the illnesses occurs in gastrointestinal tract into 8 varieties and *Eri Gunmam* is one among the types. Helicobacter pylori (H. pylori) was first isolated by Marshall and Warren in 1982, which is one among the most widespread bacterial infections worldwide. 70 to 90% of the population carries H. pylori in developing countries [1]. It is the most important cause for chronic or atrophic gastritis, peptic ulcer, gastric lymphoma and gastric carcinoma [2]. It is usually acquired in early childhood, persists without treatment [3]. These complications are rarely seen in children and adolescents when compared to adults [4]. The chemokines are secreted by gastric epithelial layer to initiate innate immunity and activates neutrophils which further damages the host tissue leading to the formation of ulcer and gastritis [5]. Being a group 1 carcinogen, H. pylori can lead to gastric adenocarcinoma through a sequence of pathology begin from gastritis, to atrophy to intestinal metaplasia to dysplasia to carcinoma. H. pylori

has been seen in more than 75% of patients with Mucosa-associated Lymphoid Tissue lymphoma [6]. It can be painful and affects the quality of life. H. pylori infection has more influence on society, its eradication has become the chief goal of digestive system diseases. The western medicine adopts triple, quadruple and sequential treatment based on proton pump inhibitors, antibacterial drugs and bismuth aluminate preparations. The treatment effect is to neutralize gastric acid, protect gastric mucosa and sterilization [7].

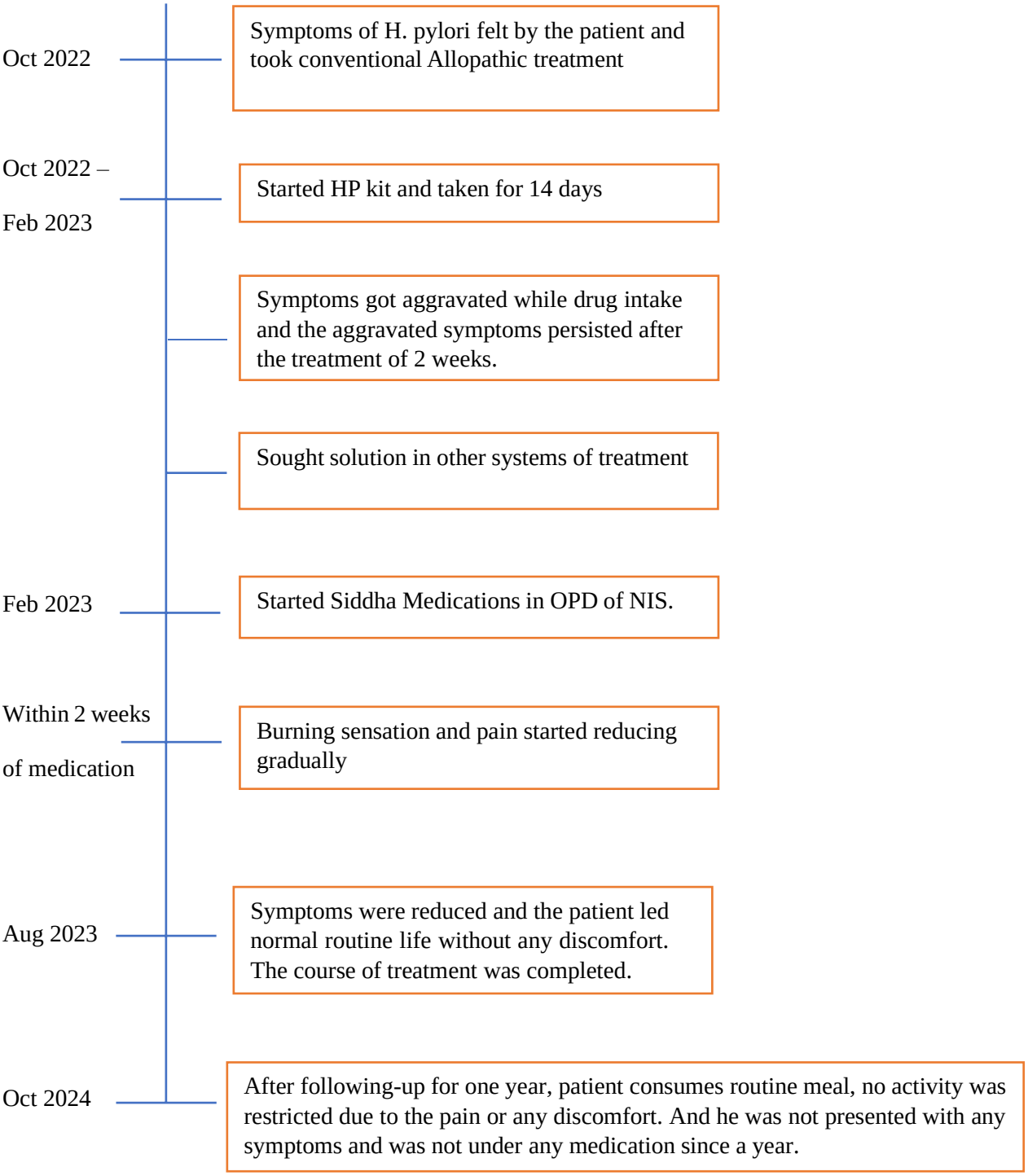
The Siddha system primarily focuses on regularising the health of the gut for all kinds of the diseases. This treatment method for gastritis (*Eri Gunmam*) is aimed to eliminate pathogenic factors, improve gastro-intestinal microenvironment and creates righteous environment unsuitable for the infection. There is pool of internal medicines which are indicated for various kinds of *Gunmam* which preferably removes infection, strengthens the internal organs related to GIT and protects the righteous microbes. Medicines like *Sembu Parpam, Vilvathi Ilagam, Anda Ilagam, Madhulai Manappagu, Elathy churnam, Kavikkal churnam,* etc have been prescribed widely helps in providing good health to the patients with *Gunmam*. This article consists of a single case report of Gastritis treated by means of Siddha treatment for treating and eradicating H. pylori.

DESCRIPTION OF CASE

A. Patient Information:

A 43-year-old man, Production Executive had severe burning sensation over epigastrium, back of the trunk, both the upper limbs which caused discomfort all over the day for 3 months. As the burning sensation began before meals aggravated after having spicy food, made the patient not to eat any normal routine meal. He has taken H.P kit (Kit for H. Pylori containing Amoxycillin 750mg, Omeprazole 20mg and Tinidazole 500mg) for 2 weeks before 3 months from visiting NIS OPD. The symptoms were aggravated while consuming H.P kit and the aggravated symptoms persisted even after finishing the course. Patient was not willing for endoscopy again fearing the procedural aggravation of pain. Then after 3 months, he approached Department of *Noi Naadal* at Ayothidoss Pandithar Hospital, National Institute of Siddha, Tambaram Sanatorium, Chennai 600047. The patient is conscious, oriented, afebrile and socially connected with no co-morbidities, no traumatic or past surgical history, no familial history related to this particular exposure.

Timeline – History of H. pylori



B. Clinical Findings:

The patient was clinically examined and found no tenderness, no scar seen over the abdomen. On examination based on Siddha principles, it was noted that the patient had *Pithavatha Naadi* (*Naadi*-pulse reading which is one among the diagnostic parameters in Siddha).

C. Diagnostic Assessment:

Endoscopy showed Bile Reflux Gastritis and Rapid Urease Test (RUT) revealed the presence of H. pylori infection. In Siddha system, the condition was diagnosed as *Eri Gunmam* which represents Gastritis, based on the symptoms, Siddha examinations and endoscopy reports.

D. Therapeutic Intervention:

The details of treatment instituted is depicted in Table no. 01.a and Table no. 01.b. The type of therapeutic intervention is given in Table no. 02.

Table 01.a. Drug diary of the patient at NIS.

Date of review and Medicine	2/07/23 to 16/07/23	23/07/23 to 07/08/23	20/08/23	27/08/23	3/09/23	10/09/23 To 17/09/23	24/09/23	1/10/23	26/02/23 to 05/03/23	12/03/23
Vilvathy Ilagam	`	`	`	`	`	`	`	`	`	`
Pancha Lavana Parpam	-	-	-	-	-	-	-	-	`	`
Tab.Sangu	-	-	`	-	-	-	-	-	`	`
Madhulai Manapagu	`	`	`	`	`	`	`	`	`	`
Inji Churanam	-	-	-	-	-	-	-	-	-	-
Manjal Noi Kudineer Churanam	`	-	`	-	-	`	`	`	-	-
Tab.Elathy	`	`	`	`	`	`	`	`	-	-
Tab.Silasathu	`	`	-	-	-	-	-	-	-	-
Muthu Parpam	-	-	-	`	`	`	`	`	-	-
Chukku thylam	-	-	-	-	-	-	-	-	✓	-
Kungiliya Vennai	-	-	-	-	`	`	-	-	`	`
Arakku thylam	✓	✓	✓	✓	✓	✓	✓	✓	-	✓
Seeraga Thylam	-	-	-	-	-	-	-	-	-	-

Table 01.b. Drug diary of the patient at NIS.

Date of review and Medicine	19/03/23	26/03/23 02/04/23	9/04/23 16/04/23	13/04/23 29/03/23	9/05/23 14/05/23	23/05/23 28/05/23 04/06/23	11/06/23	18/06/23	25/06/23
Vilvathy Ilagam	`	`	`	`	-	-	`	`	`
Pancha Lavana Parpam	`	`	`	`	`	`	-	-	-
Tab.Sangu	-	-	-	-	-	-	-	-	-
Madhulai Manapagu	-	-	-	-	`	`	`	`	`
Inji Churanam	`	`	`	-	-	-	-	-	-
Manjal Noi Kudineer Churanam	-	-	`	`	`	`	-	-	`
Tab.Elathy	-	-	`	`	`	`	`	`	`
Tab.Silasathu	-	-	-	-	-	-	-	`	`
Muthu Parpam	-	-	-	-	-	-	-	-	-
Chukku thylam	-	-	-	-	-	-	-	-	-
Kungiliya Vennai	`	`	-	-	-	-	-	-	-
Arakku thylam	`	`	`	`	`	`	-	-	-
Seeraga Thylam	-	-	-	-	-	-	`	`	`

Table no: 02 – Types of therapeutic intervention (pharmacologic, preventive)

THERAPEUTIC INTERVENTIONS WITH EXPLANATIONS	EXPLANATIONS WITH INDICATIONS	DOSAGE, STRENGTH, DURATION	MANUFACTURER DETAILS
Vilvathi Ilagam (Internal Medicine)	*Gunmam* (gastritis, other gastric problems), diarrhoea, etc	5g b.i.d for 6 months	Impcops
Panchalavana Parpam (Internal Medicine)	*Gunmam* (gastritis, other gastric problems), indigestion, diarrhoea, etc	200mg b.i.d for first 4 months	Impcops
Tab.Sangu Parpam (Internal Medicine)	*Gunmam* (gastritis, other gastric problems), *Maarbu erichchal* (retrosternal burning), etc	2 b.i.d for first 3 weeks	Tampcol
Tab.Silasathu Parpam (Internal Medicine	*Mael erivu* (burning sensation over the body), *vayittru vali* (pain in the abdomen), etc	2 b.i.d for last 2 months	Tampcol
Tab. Elathy churanam Internal Medicine	*Piththa vaayu* (symptoms due to piththa derangement), etc	2 b.i.d for last 4 months	Tampcol
Inji churanam Internal Medicine	*Kulai erivu* (burning sensation over the upper abdomen), etc	2g b.i.d for 1 month intermediately	Impcops
Manjal Noi Kudineer Churanam Internal Medicine	*Manjal kamalai* (symptoms related to bile), etc	5g with 2 glasses of water and made to concoction, b.i.d for last 4 ½ months	Impcops
Madhulai Manappagu Internal Medicine	*Kai kaal erivu* (burning sensation in the extremities), etc	5ml b.i.d for 4 months	Tampcol
Chukku thailam/Arakku thailam External – Oil bath	Oil bath to regularize vitiated humors	70ml (Ext-Oil bath) twice in a week for 6 months	Impcops
Kungiliya vennai External application	Burning sensation	2g (Ext) for first 1 month	Impcops

E. Follow-up and Outcomes:

Clinician and Patient-assessed outcomes:

Patient was diagnosed with Gastritis and was treated with Siddha medicines internally and externally which were given in Table 01.a and Table 01.b.

Patient was reviewed once a week, symptoms were documented, and prescribed medicines accordingly. By the end of 2 weeks, the patient started feeling the gradual reduction in symptoms.

Noticeable improvement in the symptoms were observed. Intermittent epigastric pain was reported to be completely relieved, burning sensation was reduced down to 90% after the treatment for 6 months.

Image no: 01 - The endoscopy reports before and after treatment are enclosed below.

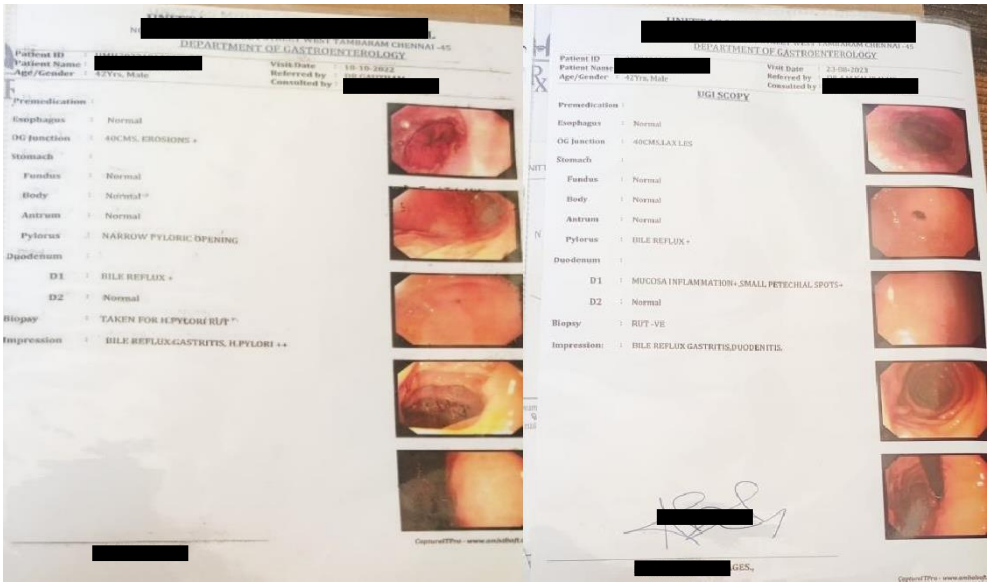


Table.no: 03 - The patient's quality of life is improved in remarkable manner which is depicted below [8] using QOL – SF 36.

SF-36 Score	**Before intervention**	**After intervention**
Physical functioning	85%	100%
Role limitations due to physical health	0%	100%
Role limitations due to emotional problems	0%	100%
Energy/fatigue	45%	100%
Emotional well-being	76%	100%
Social functioning	37.5%	100%
Pain	25%	100%
General health	55%	80%
Health change	0%	100%

The patient had been followed for 10 months after treatment and he had been running his routine life peacefully without any complaints regarding the disease. His quality of life was not affected till date.

Intervention adherence and tolerability:

As the patient visited the OPD of National Institute of Siddha every week, it assisted in facilitating Intervention adherence and tolerability.

Adverse and anticipated events:

No adverse and unanticipated events were occurred.

DISCUSSION:

H. pylori is a Gram-negative bacterium, which adheres to the gastric mucosa and erodes it, leading to gastroduodenal ulcer, gastritis, intestinal metaplasia and gastric cancer. The conventional

treatment methods include proton pump inhibitors, antibiotics and aluminium bismuth preparations, but they are resistant to drug and re-positive [9]. The treatment effect is for sterilization, to neutralize gastric acid and protect gastric mucosa [7]. There was no immediate or long-term relief noted after the administrating H.P kit, the picture was not resolved, hence after 5 months started Siddha medication. About the period of Siddha treatment for 6 months, patient had pain and discomfort greatly reduced and was willing to repeat the upper GI scopy which still showed gastroduodenitis, but Rapid Urease Test turned negative (as on 23/08/2023). The main treatment instituted in Siddha system were *Vilvathi ilagam, Madhulai Manappagu, Panchalavana Parpam* internally, *Kungiliya vennai* as external application and Oil bath with *Arakku thailam* (medicated oil). As the above-mentioned medicines were directly indicated for *Gunmam,* they were prescribed. *Vilvam* has many effects on gastro-intestinal disorders. In *Vilvathi ilagam, vilvam* roots have Coumarins like psoralen, marmelosin, marmelide, marmesin, xanthotoxol, etc which has anti-ulcer, anti-inflammatory and anti-oxidant activity [10]. It also contains terpenoids which has anti-cancer activity, which helps in preventing complications occurs due to H. pylori [11]. In *Madhulai Manappagu,* pomegranate targets a broad spectrum of genes and proteins to suppress cancer growth and progression [12]. Pomegranate activities include anti-inflammatory, antioxidant, and anticancer [13][14]. *Manjal Noi Kudineer* contains the drugs which have anti-oxidant, anti-inflammatory, growth inhibitory activity on cancer cell lines, hepatoprotective, anti-cancer activity, antifibrotic, antimicrobial, anti-proliferative activity and immunomodulatory effects [15]. *Sangu parpam* possesses significant anti-ulcer activity, decreases the pH and concentration and increases the gastric wall mucous and gastric mucosa. It suppresses the gastric damage induced by aggravating factors [16]. The ingredients of *Panchalavana parpam* has pharmacological activities like anti-ulcer, stomachic, anti-inflammatory, analgesic, etc [17]. The components of *Elathy churnam* has gastro-protective, anti-ulcers, wound healing activity, anti-inflammatory activity and anti-nociceptive activity [18]. No adverse drug reaction is noted during this treatment period. The long-term use of proton-pump inhibitors is associated with adverse effects such as renal disease, cardiovascular disease, liver disease, community acquired pneumonia, micronutrient deficiencies, dementia, gastric cancer [19]. The conventional treatment methods for H. pylori infection include proton pump inhibitors, antibiotics and aluminium bismuth preparations, but they are resistant to drug and re-positive. Hence,

it might be safer to administer Complementary/Traditional drug preparation which might be helpful in the eradication of organism and feeling of gastritis [20]. This regimen also appears to have provided a good extent of relief to the patient which was illusive even after the administering of H. pylori elimination regimen containing Amoxycillin, Omeprazole and Tinidazole. Siddha treatment regimen also helps in preventing the complications this disease might cause and improves the Quality of Life of the patients using SF-36 QOL which is enclosed in this article.

CONCLUSION

Based on this case report, it can be suggested/hypothesized that even in patients who fail to get adequate relief with H. pylori treatment regimen, Siddha system of Medicine can offer a radical solution for them.

Key points:

Conditions like Gastritis results in poor quality of life, increased stress and many other complications can be subjected to Siddha treatment modality.

LIMITATION OF THE STUDY

- As it is based on a single case which displays positive outcome, this cannot be generalised. Further clinical trials need to be done to assess the efficacy.
- RUT (Rapid Urease Test) could have been done before starting the Siddha treatment, so that it could have been an evidence-based treatment regimen.

CONFLICT OF INTEREST

The author(s) declare no conflict of interest.

REFERENCE

1. Taylor, D. N. and J. Parsonnet. 1995. Epidemiology and natural history of H. pylori infections, p. 551–564. In M. J. Blaser, P. F. Smith, J. Ravdin, H. Greenberg, and R. L. Guerrant (ed.), Infections of the gastrointestinal tract. Raven Press, New York, N.Y.
2. Iannone A, Giorgio F, Russo F, Riezzo G, Girardi B, Pricci M, Palmer SC, Barone M, Principi M, Strippoli GF, Di Leo A, Ierardi E. New fecal test for non-invasive *Helicobacter pylori* detection: A diagnostic accuracy study. World J Gastroenterol. 2018 Jul 21;24(27):3021-3029. [PMC free article] [PubMed] [Reference list]

3. Jones NL, Sherman PM. Helicobacter pylori infection in children. Curr Opin Pediatr. 1998 Feb;10(1):19-23. [PubMed] [Reference list]
4. Jones NL, Koletzko S, Goodman K, Bontems P, Cadranel S, Casswall T, Czinn S, Gold BD, Guarner J, Elitsur Y, Homan M, Kalach N, Kori M, Madrazo A, Megraud F, Papadopoulou A, Rowland M., ESPGHAN, NASPGHAN. Joint ESPGHAN/NASPGHAN Guidelines for the Management of Helicobacter pylori in Children and Adolescents (Update 2016). J Pediatr Gastroenterol Nutr. 2017 Jun;64(6):991-1003. [PubMed] [Reference list]
5. Kao CY, Sheu BS, Wu JJ. Helicobacter pylori infection: An overview of bacterial virulence factors and pathogenesis. Biomed J. 2016 Feb;39(1):14-23. [PMC free article] [PubMed] [Reference list]
6. Diaconu S, Predescu A, Moldoveanu A, Pop CS, Fierbințeanu-Braticevici C. Helicobacter pylori infection: old and new. J Med Life. 2017 Apr-Jun;10(2):112-117. [PMC free article] [PubMed] [Reference list]
7. Zhang QY. Clinical Study of Xinkaikujiang Therapy for the Treatment of Cold-Heat Mixed Helicobacter Pylori Infection. Beijing: University of Chinese Medicine; 2017.Cited Here |Google Scholar
8. http://www.brandeis.edu
9. Zhao, Mao MS; Jiang, Yuchang MS; Chen, Zhaoxing MS; Fan, Zhipeng MS; Jiang, Yong, A protocol for a systematic review and meta-analysis, Traditional Chinese medicine for Helicobacter pylori infection, Medicine 100(3):p e24282, January 22, 2021. | DOI: 10.1097/MD.0000000000024282
10. Sheelapriyadharshini A, Chitra M. Study on anti-ulcer and anti-inflammatory effects of Vilvathi Lehiyam. World J Pharm Sci [Internet]. 2013 Dec. 31 [cited 2024 Mar. 6];2(1):101-4. Available from: https://wjpsonline.com/index.php/wjps/article/view/anti-ulcer-anti-inflammatory-vilvathi-lehiyam
11. Rasool et al, A Comprehensive review on Medicinal plant: Aegle marmelos (Linn) Correa, European journal of Pharmaceutical and Medical research, Volume 9.

https://www.researchgate.net/publication/359693482_A_COMPREHENSIVE_REVIEW_ON_MEDICINAL_PLANT_AEGLE_MARMELOS_LINN_CORREA

12. Turrini E., Ferruzzi L., Fimognari C. Potential effects of pomegranate polyphenols in cancer prevention and therapy. *Oxidative Medicine and Cellular Longevity*. 2015;2015:19.doi: 10.1155/2015/938475.938475 [PMC free article] [PubMed] [CrossRef] [Google Scholar]
13. Eghbali S, Askari SF, Avan R, Sahebkar A. Therapeutic effects of Punica granatum (pomegranate): an updated review of clinical trials. Journal of nutrition and metabolism. 2021 Nov 16;2021.
14. Meenakshi Sundaram M, Anti-Oxidant Property of Madhulai Manappagu – A Siddha Herbal Syrup for Iron Deficiency Anaemia in Children. International Journal of Pharmaceutical Science Invention (IJPSI), vol. 09(02), 2020, pp. 01-07.
15. Gomathi R, Preetheekha E, Shanmuga Priya P, Mamallan A. (2021). Scientific validation of sastric siddha drug manjal kamalai kiyazham against paracetamol induced hepatotoxicity in zebra fish (danio rerio) model. Asian Journal of Pharmaceutical and Clinical Research. 66-69. 10.22159/ajpcr. 2021.v14i3.39901.
16. Madhavan R, Murugesan R, Govindarajan Sumathy, Sathish Adithya R, Evaluation Of Antiulcer Activity Of Sangu Parpam-An Experimental Study, Natural Volatiles&Essent.Oils,2021;8(5):49-60.
17. Rekha V, Essakky Pandian G. Review on Siddha drug: panchalavana parpam. Intrenational Journal of Health Sciences and Research. 2021; 11(5): 128-132. DOI: https://doi.org/ 10.52403/ijhsr.20210518
18. Thillaivanan S and Samraj K: A Review on Anti-Ulcer Activity of Polyherbal Siddha Formulation "*Yelathy Chooranam*" *Int J Pharmacognosy* 2015; 2(1) 1-5:.doi link: http://dx.doi.org/10.13040/IJPSR.0975-8232.IJP.2(1).1-5
19. Maideen NMP. Adverse Effects Associated with Long-Term Use of Proton Pump Inhibitors. Chonnam Med J. 2023 May;59(2):115-127. doi:10.4068/cmj.2023.59.2.115. Epub 2023 May 25. PMID: 37303818; PMCID: PMC10248387.

20. Zhao M, Jiang Y, Chen Z, Fan Z, Jiang Y. Traditional Chinese medicine for Helicobacter pylori infection: A protocol for a systematic review and meta-analysis. Medicine (Baltimore). 2021 Jan 22;100(3):e24282.doi: 10.1097/MD.0000000000024282. PMID: 33546052; PMCID: PMC7837890.
21. Savoldi A, Carrara E, Graham DY, et al. Prevalence of antibiotic resistance in Helicobacter pylori: a systematic review and meta-analysis in World Health Organization regions. Gastroenterology 2018;155:1372–82.Cited Here |Google Scholar
22. Zhang QY. Clinical Study of Xinkaikujiang Therapy for the Treatment of Cold-Heat Mixed Helicobacter Pylori Infection. Beijing: University of Chinese Medicine; 2017.Cited Here |Google Scholar
23. Zhang FQ, Bai G. Treatment of Helicobacter pylori-related gastropathy from “toxin and depression”. Liaoning J Tradit Chin Med 2015;42:71244–5.Cited Here |Google Scholar
24. Gan YH, Yan H, Cheng Z, et al. Research progress of traditional Chinese medicine in the treatment of Helicobacter pylori infection. Hunan J Tradit Chin Med 2014;30:2141–3.Cited Here |Google Scholar
25. Yang SX, Zhou FX. Effect of Jianpi Huayu Qingyou Decoction on HP infectious chronic gastritis. Chin J Chin Med 2011;26:159993–4.Cited Here |Google Scholar
26. Li Y, Liu HY. Research progress of traditional Chinese medicine on Helicobacter pylori-related gastritis. Mod J Integr Tradit Chin West Med 2011;27:203500–2.Cited Here |Google Scholar
27. Pan H. Research progress on treatment of Helicobacter pylori with Chinese and Western medicine. J Pract Tradit Chin Med 2011;25:249–50.Cited Here |Google Scholar
28. Liu F, Zhang BP, Xie QP. New progress in treatment of Hp-related peptic ulcer with traditional Chinese medicine. J New Chin Med 2011;43:01122–4.Cited Here |Google Scholar
29. Guerrant RL, Steiner TS, Lima AA, Bobak DA. How intestinal bacteria cause disease. J Infect Dis. 1999 Mar;179 Suppl 2:S331-7. doi: 10.1086/513845. PMID: 10081504.
30. Sharma GN, Dubey SK, Sati N, Sanadya J. Ulcer healing potential of *Aegle marmelos* fruit seed. *Asian J Pharm Life Sci.* 2011;1(2):172–178. [Google Scholar] [Ref list]

31. Das SK, Roy C. The protective role of *Aegle marmelos* on aspirin-induced gastro-duodenal ulceration in albino rat model: a possible involvement of antioxidants. *Saudi J Gastroenterol*. 2012;18(3):188–194. [PMC free article] [PubMed] [Google Scholar] [Ref list]

32. Madhu C, Hindu K, Sudeepthi C, Maneela P, Reddy KV, Sree BB. Anti ulcer activity of aqueous extract of *Aegle marmelos* leaves on rats. *Asian J Pharm Res.* 2012;2(4):132–135. [Google Scholar] [Ref list]

33. Benni JM, Jayanthi M, Suresha R. Evaluation of the anti-inflammatory activity of *Aegle marmelos* (Bilwa) root. *Indian J Pharmacol*. 2011;43(4):393–397. [PMC free article] [PubMed] [Google Scholar] [Ref list]