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A REVIEW ON NATURAL REMEDIES FOR MANAGEMENT OF MOUTH ULCER

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ABSTRACT

An oral ulcer is a lesion that appears on the membrane of the mouth. A breach in the buccal cavity's mucosal surface, as defined. Uncovered sores of the mucous membrane or surface where inflammatory dead tissue has been removed are called ulcers. Many diseases have unknown etiopathogenesis despite their high occurrence. It often causes pain and is followed by bleeding, swelling, and redness in the affected area. A person's eating habits may change as the mouth ulcer heals, and it frequently causes pain and suffering. They may be categorized as acute or chronic based on how they manifest and develop. Behcet's disease, recurrent aphthous stomatitis, bacterial and viral infections, allergic reactions, and adverse medication reactions are all associated with acute ulcers. Oral lichen planus and other conditions are associated with chronic oral ulcers. Many synthetic drugs can be used to treat mouth ulcers. Due to its cultural acceptance, compatibility with natural things, and lack of adverse effects, herbal medicine is, as we all know, the most widely used basic healthcare. Dietary supplements and lifestyle modifications can help prevent or treat canker sores. Homeopathic medicine is an effective treatment for mouth ulcers. With the use of a carefully selected homeopathic medication, this issue can be fully resolved in a few months. Each person responds differently to homeopathic treatment for mouth ulcers. Homeopathic treatments for mouth ulcers have very promising results and are extremely safe to use.

KEYWORDS: Bacterial infections, Oral ulcer, viral infections, Etiopathogenesis.

INTRODUCTION

Recurrent sores that cause tissue loss are called ulcers. These are somewhat frequent lesions of the oral mucosa that harm the connective tissue beneath the mucosa. Oral ulcers are a significant cause of medical visits and are often extremely painful. Infectious processes, neoplasms, gastrointestinal problems, blood disorders, rheumatic diseases, immunological diseases, trauma lesions, and other factors are some of the reasons. A correct differential diagnosis is necessary because they might be caused by a variety of factors [1-2]. Mouth ulcer kind Depending on their size and quantity, mouth ulcers are classified as large, small, or herpetiform. The most prevalent types of oral ulcers are as follows: Small ulcers: About 80% of cases are minor aphthous ulcers, which are the most common form. These typically disappear in 10 to 2 weeks and have a diameter of 2 to 8 mm. These ulcers frequently develop alone or in clusters, are superficial, tiny (less than 1.0 cm in size), few in number, and heal without leaving scars. [3-4] The second type is major aphthous ulcers, which affect about 10% of individuals. These have a diameter of more than 1 cm, are deeper and bigger, and have an irregular or elevated border. They could show up as a collection of lesions or as a single lesion. This type of ulcer may take many days to heal due to the degree of necrosis, and it may result in oral problems. Herpetiform ulcers: The third category, known as herpetiform ulcers, describes lesions that occur in clusters. This ulcer is made up of a collection of many pinhead-sized lesions. It is unrelated to the herpes virus. These are composed of multiple small lesions that eventually unite to form larger plaques, and they can emerge in massive quantities, ranging from 10 to 100 at a time. Depending on the extent and depth of the ulcer, they may heal with a scar in seven to thirty days. Because of ulceration Sores and erosions can be the final common sign of a number of conditions, including trauma-induced epithelial damage, immunological attacks like lichen planus, selective or partial, immune defects like leukemia and the human immunodeficiency virus, infections like syphilis, tuberculosis, and viral pathogens, or nutritional deficiencies like vitamin [5-14]. Local causes of ulceration Chemical burns, heat, ice, or ionizing energy burns, or factitious ulceration of the maxillary group includes, can appear at any age. Ulceration can appear at any age as a result of trauma, hard meals, or equipment. The lingual fraenum can be damaged by brushing the lowest incisors repeatedly as in cunnilingus, or by persistent cough as in rapid coughs, or by self-mutilation. After receiving a dental local anesthetic, children may bite their lower lip, resulting in ulceration. Non-accidental injury can manifest as ulcers of the

higher labial fraenum, particularly in a youngster with slightly swollen lips, subluxed dentition, or a fractured jaw [15]. Recurrent oral ulceration trauma: Many of the most frequent causes of recurring mouth ulcers are oral trauma. This happens when the mucosa is irritated mechanically, chemically, or thermally. These are usually acute, short-term episodes that result in painful ulcers that heal quickly and without scarring within a few weeks. If the inciting stimuli are not removed, the ulcers may reoccur. Recurrent oral ulceration can be produced by dental appliances, dentures, and orthopedic devices [16]. Ulcers can be produced by trauma, such as those caused by sharp teeth and tooth edges. In the oral mucosa of children and patients with mental illnesses, self-inflicted lesions can occasionally be seen. Self-inflicted traumatic ulcers can also be produced by improper teeth brushing and biting the tongue or lower lip after anesthesia. Dental prosthetics can cause decubitus sores. Irritation caused by a sharp or fractured tooth is generally obvious. Patients may also unknowingly cause traumatic ulcers by biting the oral mucosa, either by mistake or through habit [17-20] .This commonly happens on the tongue, lower lip, or loose buccal mucosa. Erosion along the bite line, which corresponds to the closing of the abutment teeth, is caused by habitual cheek biting. Cheek biting does not usually create lesions above or below the bite line. Like an effect of exposure to acidic or basic substances, chemical irritation causes ulceration. Nonsteroidal anti-inflammatory medicines, such as aspirin, which patients may keep in their mouths to treat toothache, might cause local ulceration on occasion. Many additional over-the-counter drugs have the same effect on the mucosa when used for extended periods.

INFECTIONS CAUSED BY VIRUSES

The clinical features of the herpes virus in the mouth depend on whether the infection is primary or secondary. The first infection is called primary herpetic gingivostomatitis. It can be relatively mild or asymptomatic in very young children, but as the patient ages, it is associated with increasingly severe nonspecific symptoms. The first sign is gingivitis, which is followed by the formation of easily ruptured vesicles that cause painful ulcers covered in a yellowish membrane that usually coalesces after two to three days. The most frequent sites are still the lips, tongue, palate, throat, and oral mucosa [21-27].Herpes simplex virus 1: Oral ulcers can be caused by a variety of infections. Primary herpes simplex type 1 (HSV-1) is the most common viral cause of ulcers. Those who are impacted may get widespread, small, superficial ulcers on their oral mucosa. Similar to acute necrotizing ulcerative gingivitis, the gingiva is often swollen and ulcerated. Although it was once believed to be a childhood illness, primary HSV-1 infection typically manifests in the second or third decade of life [28].

About 5% of individuals with an initial HSV-1 infection get recurrent episodes of herpes labialis (cold sores). This involves ulcers at the mucocutaneous junctions of the lips and/or nose, paraesthesia, erythema, vesiculation, and pustulation. Pregnancy, UV light, and concurrent illness are risk factors for herpes labialis. Epstein–Barr Virus (EBV): Epstein–Barr Virus (EBV) ulcers are uncommon, however, they can be a symptom of infectious mononucleosis. A few little superficial ulcers of the oral mucosa make up the ulcers. EBV is more commonly linked to the ulcers that accompany various non-lymphomas. Hodgkin's [31] or white spots known as tooth decay hairy leukoplakia (OHL), which can Ulcers caused by fungal infections Candidiasis: Candidiasis is the most common fungal infection involving the oral cavity and shows a variety of clinical presentations, including ulcération [32]. The usual causative organism, Candida Albicans, is present in the oral flora in about 40% of individuals without signs and symptoms of candidiasis. This fungus, however, is capable of causing infection when the oral flora is altered. Predisposing variables must be evaluated in all cases of candidiasis. Inadequate vertical dimension and ill-fitting dentures are two examples. Systemic variables must be examined in dentulous patients and persistent situations involving edentulous people. Intractable mucocutaneous candidiasis is common in immune deficiency disorders such as acquired immune deficiency syndrome and rare hereditary immune deficiencies." Candidiasis is common in patients taking immune suppressive drugs for cancer or autoimmune disease, or to prevent transplanted organ rejection. Diabetes mellitus patients appear to be more susceptible to Candida infection infections. Candida infection is more typically seen in patients who have been treated for an infectious condition with broad-spectrum antibiotics. The antibiotic suppresses the natural flora in this condition, allowing Candida spp. to thrive. Acute pseudo membranous candidiasis, acute atrophic candidiasis, and chronic atrophic candidiasis are all clinical types of candidiasis that show as mouth ulcers [33]. Ulcers caused by bacterial infection Acute necrotizing ulcerative gingivitis: Acute destructive ulcerative periodontal is a nonspecific ulceration disease that affects the gingivae almost exclusively. Poorly controlled diabetes, tobacco smoking, immune deficiency, and possibly psychological stress are all associated contributing factors [34]. Minor trauma, as well as cleaning and flossing, usually cause pain in the patient. Rubbing the gingiva can result in tissue desquamation or the creation of a blood-filled bulla. The illness is more common among postmenopausal women, but it is not exclusive to them. Erosive lichen planus, allergic stomatitis, and bullous pemphigoid are just a few of the disorders that might show clinically with comparable lesions [35]. Acute necrotizing ulcerative gingivitis causes painful sores along the gingival edges, especially between the teeth. The ulcers can be

localized or universal, and if they are serious enough, they might cause cervical lymphadenopathy, pyrexia, and malaise. Oral malodor is very common. Interdental papillae can be destroyed and lost as a result of long-term or recurrent illness. Cancrum oris (noma), a disorder similar to ANUG, can develop in severely malnourished children and adults. The ulcers of cancrum oris extend to the neighboring soft tissues, leading to necrosis of the lips and/or cheeks, unlike the ANUG in immunocompetent patients. Children in Central Africa have been most typically diagnosed with Cancrum oris, malnutrition caused by poverty brought on by political and economic upheaval [36] . Mycobacterial infection: Sputum-borne Mycobacterium tuberculosis can infect the oral mucosa, causing non-healing indurated ulcers. Chronic ulcers are the most frequent source of ulcers. A granulomatous inflammation occurs, along with caseous necrosis. These lesions aren't easily distinguishable, hence tissue culture is required for diagnosis. Oral ulcers are persistent, indurated, and have an uneven undermined edge as well as thick mucous material at the base. Tuberculous ulcers are usually painless and persistent, with overhanging or undermined borders and a pale floor, but they can also be ragged and uneven, which can be unpleasant. Secondary tuberculosis oral symptoms can occur anywhere in the mouth, with the tongue being the most usually afflicted site. The gingiva, mouth floor, palate, lip, and mucous membrane are the additional sites involved [37,38] Nutritional deficiency Various nutritional deficiencies, including ferric, folic acid, b-complex, B1, B2, and B6, have been linked to a subset of aphthous ulcer patients. Nutritional deficits' role in aphthous ulcers is expected to vary by region, depending on diet and dietary supplementation [38] . Food allergies Allergies can be triggered by a variety of foods. Patients with recurrent aphthous stomatitis have antibodies to milk from cows and wheat protein. As a result, several typically allergenic foods have not been linked to recurrent aphthous stomatitis. Cacao, coffee, almonds, cereals, nuts, strawberries, cheeses, tomato, and flour may be linked to some patients' symptoms [39, 10]. Genetic factors Patients with aphthous ulcers have a genetic component, with about 30 percent to 40 percent of patients having a family background [40]. Some sufferers have a family background of recurrent aphthous ulcers. A common link is the start of symptoms at a young age and the severity of the symptoms. In identical twins, recurrent aphthous ulcers are substantially associated [41]. Chemical injuries Chemicals like aspirin or alcohol that are kept or came in contact with the mucous membranes can cause necrosis and sloughing, resulting in an ulcerated surface. There is little evidence to link sodium laurel sulfate (SLS), one of the key chemicals in most toothpaste to an increased risk of mouth ulcers [42]. Immune system many researchers believe that aphthous ulcers are the result of a variety of disease processes, all of which are

mediated by the immune system. Aphthous ulcers are hypothesized to emerge when the body becomes aware of compounds it doesn't recognize and assaults them [43].

Symptomatic therapy is the most popular method of treating mouth ulcers. Treatment for the illness is also recommended if the reason is known. Maintaining good oral hygiene may also help reduce symptoms [44]. Avoiding hot or spicy food and using topical antihistamines, antacids, corticosteroids, oral analgesics like paracetamol or ibuprofen, as well as local anesthetic lozenges, paints, or mouthwashes like benzocaine, may be helpful. The first line of treatment for aphthous stomatitis is topical medication rather than systemic medication. Topical corticosteroids are the most popular treatment for aphthous stomatitis.Due to the potential of significant side effects associated with several of these medications, systemic treatment is usually reserved for severe disease.To prevent secondary infection of the ulcers, good dental hygiene is also necessary. Amlexanox, when used topically, has been extensively examined and found to be successful in healing; however, less conclusive research suggests that vitamin B12 intake and avoiding sodium lauryl sulfate in toothpaste may help prevent a recurrence [45].

Natural methods Canker sores can be treated or prevented with the use of dietary supplements and lifestyle adjustments. There is no scientific proof for them; however, people have reported feeling better after using them: Vitamins Vitamin B1, B2, and B-complex are all B vitamins. Take a B complex prescription on a regular basis. Lactobacillus acidophilus is a type of probiotic bacteria (Chew four Lactobacillus tablets 3 times per day to reduce soreness) Lactobacillus acidophilus and Lactobacillus bulgaricus have been observed to help persons with recurring canker sores.

Adansonia digitata:

The Malvaceae family includes the plant Adansonia digitata, which is commonly referred to as the "boabab or chimp tree of Africa." Phobaphene-rich pulp, mucilage and gum, glucose, potassium tartrate, acetate, and other salts are among its chemical constituents [10]. A leaf contains albuminoids, wax, glucose, salts, and gum. The bark contains wax, albuminous carbonate, soluble and insoluble tannin, acid gum, sodium and potassium chloride, and glucoside Adamson. [46]. The show study Reported by Abeer Adansonia digitata extract has a substantial protective effect against acetaminopheninduced hepatotoxicity. This protection is provided by Adansonia digitata extract, which reduces lipid peroxidation by scavenging free radicals and boosting the antioxidant defence system [47]. allivum sativa: The Liliaceae

family's Allium sativum is usually referred to as "garlic." The active ingredient in this plant is an acrid volatile oil, which is also found in starch, mucilage, albumen, and sugar. Seeds produce fragrant oil and vitamin-rich supplementary compounds [48].

Indigowood root: The herb indigo wood root is used extensively in China. This plant belongs to the Brassicaceae family. This material contains anti-inflammatory, detoxifying, and antiviral properties. In a clinical investigation, the effects of indigowood on radiation therapy patients' oral mucositis were examined. The results showed that indigowood's anti-inflammatory qualities could lessen mucosal damage [53]. Wang et al. report on that. In 2016, V1G1 was the most effective water control method. with values of 0.9746 and 0.9741, respectively, followed by V1G0. In addition, with values of 0.9762 and 0.9458, V1G0 was the best water control treatment in 2017, followed by V1G1. With values of 0.0078 and 0.0081 for the two years, the V3G2 therapy was the worst. The V1G1 treatment reduced irrigation costs and increased water efficiency without lowering yield. It also improved the quality of the herb to some amount, boosting the indigowoad root's commercial worth and providing more economic benefits to growers [54-57].

Azadirachta indica: Azadirachta indica is a member of the Meliaceae family. It's commonly called "neem." This plant contains a variety of chemical components, including nimbidin, polyphenols, saponin, and flavonoids. It contains the bitter alkaloid margosine. Ten to thirty-one percent of the seeds contain yellowish bitter persistent oil. The oil contains aromatic and unbound fatty acids [54]. Its potent antiulcer and gastroprotective qualities have been found. Rats were used to test this at a dose of 2.5 g/kg. To determine whether there was a workable method for treating ulcers, it was tested on a number of variables.. Its antisecretory and protons pumps inhibitory effects, instead of defensive mucin formation, are responsible for ulcer protection. In vitro, bark extract inhibits H+-K+-ATPase function. It protects the stomach mucosa from oxidative damage by inhibiting lipid peroxidation and scavenging the endogenous hydroxyl radical (OH), which is a significant cause of ulcers [55].

Papaya: Carica papaya Linn is the biological source of papaya. It is a member of the Caricaceae family and is well-known because of its medicinal properties. The fruits are said to have antiulcer properties. Antimicrobial, anthelmintic, and antiamoebic activities have been documented for the seeds [56]. It reported show at doses of 125 mg/kg, 250 mg/kg, and 500 mg/kg, a methanolic extract of the plant's seed has gastroprotective and ulcer-healing benefits in rats. It significantly reduced the gastric lesion with 56%, 76%, and 82% inhibition.

Papaya's anti-ulcerogenic action is due to its cytoprotective properties. The enzyme P1G10 found in papaya has been demonstrated to help cure chemically induced stomach ulcers [57, 59]. Turmeric: Turmeric is derived from the Curcuma longa plant, which belongs to the Zingiberaceae family. Turmeric's antiulcer activity in the stomach and duodenum has been studied in rats. Curcuma longa volatile oil has anti-inflammatory and antiarthritic properties. Curcumin water and fat-soluble extracts had antioxidant activity comparable to vitamins C and E [60]. The reported research Endoscopy is used to examine ulcers in the abdomen and the duodenum Their ulcer sizes were between Sizes range from 2 mm2 × 6 mm2 and 15 mm2 × 15 mm2. Following that endoscopic exams were performed at 4, 8, and 12 weeks after capsule-filled turmeric was given orally in the quantity of 2 capsules (300 mg each) five times daily. The percentages of ulcer healing were 48 percent (12 cases), 72 percent (18 cases) and 76 percent (19 cases) after 4, 8 and 12 weeks of treatment respectively [61].

Glycyrrhiza glabra L.:

Glycyrrhiza glabra L., frequently referred to as liquorice, is a member of the Fabaceae family and is a sweet, moist, calming, and flavorful herb. The literature has documented this plant species' biological activities, which include hormonal effects, cough control, expectorant and anti-inflammatory qualities. It detoxifies and shields the liver. Addison's disease, asthma, bronchitis, gastric ulcers, arthritis, allergic reactions, and steroid therapy are all treated internally. Licorice is applied externally to treat shingles, herpes, and eczema. Liquorice lowers testosterone levels in women's blood and helps with aplastic anaemia. Since licorice extract is used to treat autoimmune diseases and has therapeutic value in immunodeficiency diseases such as AIDS. Licorice root preparations exhibit estrogenic and oestrogen antagonistic properties. As a result, it's a vital plant for treating female hormone-related issues. The root is used to various formulations as an energy tonic, notably for the spleen and stomach. Glycyrrhiza glabra roots are employed in genito-urinary illnesses as a tonic, demulcent laxative, and emollient [62].

Hibiscus rosa sinesis: The Malvaceae family's Many people refer to Hibiscus rosa Sinensis as a "changing rose." This plant's chemical components include flavonoids, anthocyanins, quercetin, cyaniding, kaempferol, and hydro citric acid [63]. According to the study, the group's gastric secretion volume, free acidity, and total acidity were 29.24 ± 0.54 mL, 6.90 ± 0.34 mEq/dL, and 8.20 ± 0.50 mEq/dL, respectively. There was a notable decrease in three measures.

CONCLUSION

Because of its lack of adverse effects, compatibility with natural items, and cultural acceptance, it is the most widely used primary healthcare method. Dietary supplements and lifestyle modifications can help prevent or treat canker sores. Homeopathic medicine is an effective treatment for mouth ulcers. With the use of a carefully selected homeopathic medication, this issue can be fully resolved in a few months. Each person responds differently to homeopathic treatment for mouth ulcers. Homeopathic treatments for mouth ulcers have very promising results and are extremely safe to use.

REFERENCES

1. Del Olmo-López J, et al. Úlceras orales. Piel. 2006;21:92-100.
2. Muñoz-Corcuera M, et al. Oral ulcers: clinical aspects. A tool for dermatologists. Part II. Chronic ulcers. Clinical and Experimental Dermatology. Clin Dermatol. 2009;34:456-461.
3. Parent D, et al. Aftas, aftosis, enfermedad de Behc¸ et. EMC–Dermatología.2008;42:1–20.
4. Bruce AJ, et al. Acute oral ulcers. Dermatol Clin. 2003;21:1-5.
5. Schneider LC, et al. Diagnosis of oral ulcers. Mt Sinai J Med. 1998; 65:383-387.
6. Randle HW, et al. Treatment of oral ulcers. Dermatol Clin. 1993;11:801-808.
7. Bruce AJ, et al. Diagnosing oral ulcers. J Am Acad PAs. 2015;28:1-0.
8. Woods MA, et al. Oral ulcerations. Quintessence Int. 1990;21.
9. Vaishnavi Burley D, et al. Medicinal plants for treatment of ulcer: A review. J Med Plants. 2021;9:51-59.
10. Woo SB, et al. Recurrent aphthous ulcers: a review of diagnosis and treatment. J Am Dent Assoc.1996;127:1202-13
11. Mittal S, et al. A review: herbal remedies used for the treatment of mouth ulcer. Int J Heal and Clin Res. 2019;2:17-23.
12. Singh S, et al. Formulation and Evaluation of Herbal Gel From Different Parts of Cyamposis Tetragonoloba (L.) Taub. For Wound Healing. World J Pharm Pharm Sci. 2015;5:740-752.
13. Purushotham K, et al. Formulation of topical oral gel for the treatment of oral sub mucous fibrosis (OSMF). Pharm Lett. 2011;3:103-102.
14. Felix DH, et al. Oral medicine: 1. Ulcers: aphthous and other common ulcers. Dental update.2012;39:513-519.

15. Lucavechi T, et al. Self-injurious behavior in a patient with mental retardation: Review of the literature and a case report. Quintessence Int.2007;38.
16. Zonuz AT, et al. Factitial pemphigus-like lesions. Med Oral Patol Oral Cir Bucal (Internet). 2007;12:205-208.
17. Budtz-Jørgensen E, et al. Oral mucosal lesions associated with the wearing of removable dentures. J oral pathol. 1981;10:65-80.
18. Kivovics P, et al. Frequency and location of traumatic ulcerations following placement of complete dentures. J Prosthodont Res. 2007;20.
19. Hebert AA, et al. Oral lesions in pediatric patients. Adv Dermatol. 1997;12:169-194.
20. Lake RI, et al. Genetic factors in the aetiology of mouth ulcers. Genet Epidemiol.1997;14:17-21.
21. Hale L, et al. Mouth ulcers: how can you help? The Practitioner. 1997;241:86-90.
22. Rogers III RS, et al. Recurrent aphthous stomatitis: clinical characteristics and associated systemic disorders. Semin Cutan Med Surg. 1997;16:278-283.
23. Boras VV, et al. Recurrent aphthous ulcerative disease: presentation and management. Aust Dent J. 2007;52:10-15.
24. Natah SS, et al. Recurrent aphthous ulcers today: A review of the growing knowledge. Int J Oral Maxillofac Surg. 2004;33:221-234.
25. Porter SR, et al. Oral ulcers and its relevance to systemic disorders. Aliment Pharmacol & Ther.2005;21:295-306.
26. Lafferty WE, et al. The changing epidemiology of HSV-1 and HSV-2 and implications for serological testing. Herpes. j IHMF. 2002;9:51-55.
27. Spruance SL, et al. Spaulding for the acyclovir cream study group T. Acyclovir cream for treatment of herpes simplex labialis: results of two randomized, double-blind, vehicle-controlled, multicenter clinical trials. Antimicrob Agents Chemother. 2002;46:2238-2243.
28. Sarisky RT et al. Penciclovir susceptibilities of herpes simplex virus isolates from patients using penciclovir cream for treatment of recurrent herpes labialis. Antimicrob Agents chemother. 2002; 46:2848-2853.
29. McCullough MJ, et al. Oral viral infections and the therapeutic use of antiviral agents in dentistry. Aust Dent J. 2005;50:31- 35.
30. Szczepański T, et al. Acute lymphoblastic leukemia followed by a clonally-unrelated EBV-positive non-Hodgkin lymphoma and a clonally-related myelomonocytic leukemia cutis. Pediatr Blood Cancer. 2004;42:343-349.

31. Epstein JB, et al. Oral candidiasis: Effects of antifungal therapy upon clinical signs and symptoms, salivary antibody, and mucosal adherence of Candida albicans. Oral Surg Oral Med Oral Pathol. 1981; 51:32-36.
32. Silverman Jr S, et al. Oral findings in people with or at high risk for AIDS: A study of 375 homosexual males. J Am Dent Assoc.1986;112:187-192.
33. Novak MJ, et al. Necrotizing ulcerative periodontitis. Ann Periodontol.1999;4:74-77.
34. Enwonwu CO, et al. Pathogenesis of cancrum oris (noma): confounding interactions of malnutrition with infection. Am J Trop Med Hyg. 1999;60:223-232.
35. Krawiecka E, et al. Tuberculosis of the oral cavity: an uncommon but still a live issue. Postepy Dermatol Alergol. 2015;32:302.
36. Basha BN, et al. Formulation and evaluation of gel containing fluconazole-antifungal agent. Int J Drug Dev Res. 2011;3:119-127.
37. Aufdemorte TB, et al. Modified topical steroid therapy for the treatment of oral mucous membrane pemphigoid. Oral Surg Oral Med Oral Pathol.1985;59:256-260.
38. Abdullah, et al. Prevalence of recurrent aphthous ulceration experience in patients attending Piramird dental speciality in Sulaimani City. J Clin Exp Dent.2013;5:89.
39. Rezvaninejad R, et al. Herbal Medicine in Treatment of Recurrent Aphthous Stomatitis. J Isla Dent Assoc IRAN 2017;29:127-134.
40. Redman RS, et al. Recurrent oral ulcers. Northwest Dent. 1972;51:232-234.
41. Kumar BR, et al. A Review on the Perspective of Peptic, Mouth and Corneal Ulcer and Their Treatment Facts. Asian J Pharma Res Dev. 2013:2-11.
42. Halaszynski TM, et al. Management of oral ulcers and burning mouth syndrome. InOrofacial Pain. 2014; 103-114.
43. Yamada T, et al. Textbook of gastroenterol. John Wiley & Sons.2011.
44. Subiksha PS, et al. Various remedies for recurrent aphthous ulcer-A review. J Pharma Sci and Res. 2014;6:251.
45. Hanafy A, et al. Evaluation of hepatoprotective activity of Adansonia digitata extract on acetaminophen-induced hepatotoxicity in rats. Evid Bas Comp Alt Med. 2016.
46. Woo SB, et al. Recurrent aphthous ulcers: A review of diagnosis and treatment. J Am Dent Assoc. 1996;127:1202-1213.
47. Rees TD, et al. Recurrent aphthous stomatitis. Dermatol Clin. 1996;14:243-256.
48. Mostafa RM, et al. Antioxidant effect of garlic (Allium sativum) and black seeds (Nigella sativa) in healthy postmenopausal women. SAGE Open Med. 2013;1:2050312113517501.

49. Baharvand M, et al. Herbs in oral mucositis J Clin Diagn Res. 2017;11:05.
50. Su CK, et al. Phase II double-blind randomized study comparing oral aloe vera versus placebo to prevent radiation-related mucositis in patients with head-and-neck neoplasms. Int J Radiat Oncol Biol Phys. 2004;60:171-177.
51. Ahmadi A, et al. Potential prevention: Aloe vera mouthwash may reduce radiation-induced oral mucositis in head and neck cancer patients. Chin J Integr Med. 2012;18:635-640.
52. Marakoğlu K, et al. The recurrent aphthous stomatitis frequency in the smoking cessation people. Clin Oral Investig. 2007;11:149-153.
53. Tripathy S, et al. Herbal treatment alternatives for peptic ulcer disease. J Drug Deliv Ther. 2016;6:27-33.
54. You WC, et al. Effect of extracts from indigowood root on immune responses in radiation-induced mucositis. J Altern Complement Med. 2009;15:771-778.
55. Maity P, et al. The use of neem for controlling gastric hyperacidity and ulcer. Phytotherapy Research: An Int J Dev Pharmacol Toxicol Eval Nat Prod Deri. 2009;23:747-755.
56. Balasankar D, et al. Journal of medicinal plants studies. J Med Plants. 2013;1.
57. Pinto LA, et al. Antiulcerogenic activity of Carica papaya seed in rats. Naunyn Schmiedebergs Pharmacol.2015;388:305- 317.
58. Wang Z, et al. Integrated evaluation of the water deficit irrigation scheme of indigowoad root under mulched drip irrigation in arid regions of northwest china based on the improved TOPSIS method. Water. 2021;13:1532.
59. Prucksunand C, et al. Phase II clinical trial on effect of the long turmeric (Curcuma longa Linn.) on healing of peptic ulcer. Southeast Asian J Trop Med.2001;32:208-215.
60. Preeti Rathaur, et al. Turmeric: The golden spice of life. Int J Pharm Sci Res. 2012;3:1987-1994.