

# GLOSSODYNIA AND GLOSSOPYROSIS — A DISCUSSION OF THE AETIOLOGY AND MANAGEMENT

HASHIM B. YAACOB  
LING BOOI CIE

## SUMMARY

*Forty-two patients were seen with glossodynia or glossopyrosis: 68.6 percent had ulcers, 26.4 percent showed erythema, fissuring or depapillation of the tongue, whilst 4.8 percent showed no tongue sign. The common causes, diagnoses and management of these conditions are discussed.*

## INTRODUCTION

The tongue is a muscular structure which performs many varied functions. Besides being an organ of taste, the tongue plays major roles in mechanical removal of debris within the oral cavity, mastication, deglutition and speech. It is also an organ of expression: feelings of love, emotion and hatred are but some of the reactions that may be expressed through the tongue.

Glossodynia or pain in the tongue, and glossopyrosis or burning tongue are not uncommon conditions. The patients with these conditions are usually distressed and worried. Depending on the aetiology, patients complain of pains of varying intensities and duration. The purpose of this paper is to discuss some of the common causes, clinical manifestations and management of glossodynia and glossopyrosis.

## MATERIALS AND METHODS

Forty-two patients were seen in the Oral Medicine Department, Dental Faculty, University of Malaya, for

---

Hashim b. Yaacob BDS, M.Sc., Cert Imm., MAAOP, MIHE.  
Department of Oral Medicine & Oral Pathology  
Faculty of Dentistry,  
University of Malaya.

Ling Booi Cie BDS, M.Sc.  
Department of Prosthetic Dentistry,  
Faculty of Dentistry  
University of Malaya.

---

pains felt in the tongue over a period of five months. Their tongues were examined for specific signs. The relevant medical history and symptoms were elicited. In cases where diagnoses could not be arrived at by clinical examinations, specific haematological examinations were carried out. The routine included haemoglobin estimation, cell count, stained film for cell morphology, serum iron, total iron binding capacity and saturation, serum Vitamin B<sub>12</sub> and Folate estimation.

## RESULTS

Table I shows the types of lesions found in the forty-two patients. Twenty-nine patients (68.8 percent) were affected by ulcers of which aphthous ulceration predominated. Trauma, lichen planus and squamous cell carcinoma were also important in the causation of tongue ulcers. Thirteen patients (31.2 percent) had painful tongues presenting as either erythematous, depapillated or fissured tongues. Two patients (4.8 percent) did not show any tongue sign at all.

## DISCUSSION

Patients who complain of painful tongue usually present with either one or more of the following manifestations on their tongues:—

One or more ulcers, erythema, depapillation, fissuring, and various degrees of whiteness mostly due to infection by *Candida Albicans*. Occasionally, there may not be any tongue sign at all. Lesions that may give rise to pain in the tongue are best discussed under the following headings:—

### PAIN DUE TO ULCERATIONS

Aphthous ulceration is a common lesion seen in the oral cavity. Ten (23.7 percent) of our patients were affected by this. There are three types in this division: the minor, major and herpetiform ulcerations. It is the minor ulceration that is commonly encountered on the tongue and presents as a shallow painful ulcer about 2-4 cm in

TABLE I  
DISTRIBUTION OF LESIONS IN THE 42 PATIENTS

Types of Lesion	No. of Patients	Percentage
<b>Ulceration group</b>		
Aphthous ulceration	10	23.7
Traumatic ulceration	7	16.7
Squamous cell carcinoma	5	11.8
Lichen planus	5	11.8
Herpetic gingivostomatitis	2	4.8
Total	29	68.8
<b>Blood and Nutritional Disorders group</b>		
Iron deficiency	2	4.8
Vitamin B <sub>12</sub>	1	2.4
Folic acid	1	2.4
Total	4	9.6
<b>Drugs group</b>		
Antibiotic sore Tongue	1	2.4
Aspirin Burn	2	4.8
Total	3	7.2
<b>Others</b>		
Geographic tongue	3	7.2
Psychogenic	2	4.8
Sjogren's Syndrome	1	2.4
Total	6	14.4
Grand total	42	100

diameter and erythematous periphery. It occurs singly, or uncommonly, up to five in number. It heals in about two weeks without leaving any scar. The remission period varies from several weeks to several months. The aetiology is not definitely known although there is increasing evidence to suggest that this is an immunological disturbance (Lehner 1972). *Streptococcus sanguis* and L-forms, hormonal imbalance, psychosis, the influence of heredity and Merkel cells have all been incriminated in the past but without concrete evidence.

As the disease is self-curing, treatment is only palliative. The single lesion is satisfactorily treated by the application of any corticosteroid paste preparation onto the ulcer three times daily. Suitable ones are Adcortyl A and Kenalog-in-Orabase. These drugs are

effective in reducing pain as well as reducing the number of ulcer days. Levamisole, a drug which enhances cellular and humoral immune response is one of the promising drugs still under experimentation. Oestrogen therapy benefits 30 percent of women patients. In multiple lesions, it is important to prevent infection of these ulcers. Tetracycline mouthwash is hence prescribed for the patient three times daily. Diagnosis is reached by the history of recurrence, absence of systemic involvement, site and nature of the ulcers. A triad of oral, genital and ocular ulcerations constitute the Behcet's syndrome. If not treated early, this is a fatal condition which may lead to blindness and neurological disturbances due to necrosis in the nervous system. The clinician therefore must be wary of this whenever he deals with aphthous ulcerations in the mouth.

Traumatic ulceration usually occurs in the cheek along the occlusal line of teeth. Patients tend to accidentally 'bite' the mucosa in these parts resulting in the formation of ulcers. Sharp teeth and poorly made oral prosthesis are obviously sources of injury to the oral mucosa. Treatment consists of identifying the causes and eliminating them.

Lichen planus is a dermatological condition that may appear in the mouth. There are many forms of lichen planus in the mouth, the most common being the reticular type. The atrophic or erosive type is not uncommon and it is these forms that often give rise to discomfort felt in the tongue. The aetiology is not known although there is close association between it and emotional stress.

Grinspan *et al* (1966) described the association between lichen planus, diabetes mellitus and hypertension. Clinical appearance is usually diagnostic, and incisional biopsy of the lesion is confirmative. The treatment includes the avoidance of alcohol, hot and spicy foods. A high standard of oral hygiene is recommended whilst topical corticosteroid is only advocated for the ulcerative types (Tyldesley 1974).

Squamous cell carcinoma of the tongue is not uncommon and usually involves the lateral borders, the tip and the dorsal surface. The early non-ulcerated type rarely causes pain and hence delays detection. Once it becomes ulcerated, it tends to become infected by the oral microorganisms. Carcinoma of the tongue has the worse prognosis compared with others in the mouth due to its rapid spread to the regional lymph nodes. Its mobility is thought to assist in the spread.

Herpetic gingivostomatitis affects the cheek, gingival

and lip mucosa mostly. It rarely affects the tongue. Patients are usually children though adults may also be affected; 90 percent of patients develop positive antibody. It consists of multiple, small but painful ulcers which tend to coalesce with each other to form larger ones. Salivation is profuse. It may cause lymphadenopathy. It is caused by the virus *Herpes simplex* and usually heals in two weeks without scarring.

Iodoxyridine 0.1% is effective. The patient should hold one millilitre of this solution in the mouth for 3 minutes four times daily. For the infant, the same agent is used but painted onto the ulcers several times daily. A high fluid intake is recommended. Tetracycline mouthwashes may be given to prevent infection by microorganisms.

Diagnosis is mainly clinical. A direct smear from the fresh vesicle of this lesion should yield acantholytic cells containing Lipschutz bodies. An increasing titre of antibody to the virus is an indication of herpetic infection.

Myeloid leukaemia manifests itself in the form of swollen mucosa with foci of purpura. Lymphoma-like deposits are laid down in the oral tissues including the tongue, which tend to break down to form painful ulcers. These ulcers take a very long time to heal and it is very stressful to the patient. To eliminate the ulcers, the leukaemia must be brought under control. Diagnosis is solely by full blood examination.

Lack of protective granulocytes tends to lower the body resistance to infective agents. In the oral cavity, painful ulcerations may be found anywhere in patients with agranulocytosis, including the tongue.

Tuberculous ulcers on the tongue, though not commonly seen, is worth considering. It is a painful ulcer with an undermined edge. It is thought that the bacilli becomes implanted onto the oral mucosal surface through any break in its surface. Diagnosis is reached with certainty by biopsy of the ulcer. Smear and culture of the bacilli may also be performed. Chest x-rays are important for the detection of pulmonary tuberculosis.

Syphilis may express itself in the oral cavity during its primary, secondary and tertiary stages. The chancre, "Snail tract" lesion and the "gumma" may well be seen on the tongue. In contrast, none of these is painful. There are various tests for this which include the Venereal Disease Reference Laboratory (VDRL) and Wasserman Reiter's protein complement fixation. The diagnosis is not certain if the above tests are positive. The clinician must then request for the *Treponema Pallidum* Immobilisation test or the Fluorescent treponemal antibody test.

Actinomycosis, blastomycosis and histoplasmosis are rare infections that may produce tongue ulcerations.

#### PAIN DUE TO BLOOD DYSCRASIAS AND NUTRITIONAL DISORDERS

Blood disorders that cause ulcerations have been discussed earlier. Here it is intended to discuss blood and nutritional disorders that usually do not lead to ulcerations of the tongue.

Iron deficiency anaemia, if severe, may lead to glossopyrosis and dysphagia. Together with angular cheilitis, the tongue is depapillated and feels sore. Such tongue may be complicated by superinfection with *Candida Albicans*. The anaemia must be corrected to affect cure of the tongue lesion. Any residual candidal infection is treated by antifungal agents. Nystatin or amphotericin B may be sucked or applied onto the lesion a few times daily to combat the fungus.

Lack of Vitamin B<sub>2</sub> causes pernicious anaemia and leads to depapillation of the tongue which appears smooth and shiny. Angular cheilitis and candidosis may be seen too. Patients with malabsorption syndrome or those with a history of gastrectomy may have lowered serum Vitamin B<sub>2</sub>. Treatment consists of restoration of the deficient nutritional factors and antifungal agents for candidosis. Lowered level of serum folate leads to macrocytic anaemia. The signs and symptoms expressed on the tongue are quite similar to the previous conditions.

Lack of ascorbic acid, riboflavin, pyridoxine and nicotinic acid may all result in variable degrees of glossitis and tongue discomfort.

Diagnosis in the above conditions cannot be achieved by clinical examinations alone. Full blood analysis together with the various affected serum components must be undertaken.

#### PAIN CAUSED BY DRUGS

Drugs are frequently the causes of painful tongue. Aspirins are sometimes employed by patients to cure toothaches. The tablets are usually directly placed onto the oral mucosa and this provides temporary relief from the tooth ache. In doing so, the mucosa ulcerates and become painful later on — the so called "Aspirin Burn".

Certain antibiotics may cause displacement of the normal oral flora by other pathogens. An example is the prolonged use of tetracycline mouthwash, resulting in a red sore tongue. The use of penicillin may precipitate an allergic reaction in susceptible patients. Among other reactions, the tongue may react by producing an

angioneurotic oedema. Steroid, especially when administered systemically, may give rise to epithelial atrophy of the oral mucosa, and superinfection by staphylococci and *Candida Albicans*. Azathioprine, a very valuable immunosuppressive drug, is well known for causing depapillation of the tongue which may become sore.

The management of the above conditions basically is to remove the causal agents. It is known that the withdrawal of azathioprine or steroid led to the disappearance of the tongue lesion. Such drugs are administered to treat systemic conditions, without which the patient's well-being would be at stake. It is a matter of misfortune that such side effects, which are equally important to avoid, should arise. The clinician knows that he has to be realistic. Questions that he must ask himself are whether it is possible to reduce the amount, or even substitute the drugs used, for another similar one, so that the side effects may be reduced or eliminated completely. In many instances, the above choices are possible, though in some, there is no choice and the patient will have to live with the unwanted side-effects.

#### PAIN DUE TO OTHER CAUSES

Geographic tongue (erythema migrans) presents with a smooth area bordered by a white margin on the dorsum of the tongue due to depapillation of the filiform papillae. It may occur at any age and rarely causes discomfort to the patient. The aetiology is not known. Avoidance of hot and spicy foods prevents discomfort from developing. Clinical examination and good history taking yield diagnosis.

Median Glossitis is thought to be developmental in origin due to the failure of the tuberculum impar from descending when the halves of the tongue unite, though recently it has been proposed that it may be caused by candidal infection. This appears as a smooth depapillated reddish-pink area on the dorsum of the tongue in front of foramen caecum. It does not cause discomfort most of the time, but should it grow in size and become traumatised, patients will complain of pain. Diagnosis is arrived at by clinical examination. If the condition is small and not causing problems to the patient it is best left alone. Otherwise, a total excision is advised.

The fissured tongue may be congenital or it may occur in conjunction with myasthenia gravis or Melkerson-Rosenthal Syndrome (Nally 1970). Deep fissures may be seen on the tongue which may cause glossopyrosis.

It is thought that this is due to colonisation of these deep fissures by bacteria and fungi, thus setting up inflammation and irritation. Local causal factors must be

removed and the patient should be advised to clean the fissures with a stiff toothbrush. Any associated systemic condition must be treated accordingly.

Sjogren's Syndrome is typified by xerostomia, keratoconjunctivitis sicca and rheumatoid arthritis. The oral mucosa including the tongue, are dry and dysphagia is commonly experienced. This is caused by degeneration of the salivary and lacrymal glands thought to be due to immunological disturbances. Salivary flow test, lip salivary gland biopsy and serological tests for antinuclear and anti-Rheumatoid factors will establish the diagnosis. There is no curative treatment for Sjogren's syndrome. Palliation is obtained by regular use of demulcent mouthwashes and artificial saliva. It is essential to keep a high standard of oral hygiene to avoid complications from super-infection by bacteria and dental caries due to lack of salivary flow.

#### PSYCHOSOMATIC PAIN

Harris (1975) stated that the tongue reacts to anxiety neurosis and depression by symptom of pain in certain patients. Professional worries, bereavement, loneliness and feelings of frustrations are known causes. The pain in this type of condition usually worsens towards the end of the day and is not present on waking up in the morning. The patients are mostly females in their middle ages and are often cancerophobic. In contrast to the organic type of pain, the sufferers get relief from eating and drinking. Diagnosis is difficult and is established only with exclusion of other conditions after adequate clinical and laboratory investigations. Reassurance coupled with antidepressants are important in such cases. The sooner the condition is treated the easier it will be for the patient to realise his emotional state and come to terms with it. The intelligent patient will recover once his apprehensions and fear are abolished.

#### REFERENCES

- Grinspan, D., Diaz, J., Villapol, L.O., *et al* (1966) *Lichen ruber planus de la muqueuse buccale. Son association a un diabete*, *Bull soc. Fr. Dermatol. Syphiligr.*, 73, 898-900.
- Harris, M. (1975) Psychosomatic disorders of the mouth and face, *The practitioner* 214, 372-379.
- Lehner, T. (1972) Immunological aspects of oral ulcers, *Oral Surg. Oral Med. Oral Path.*, 33, 80-83.
- Nally, F.F. (1970) Melkerson-Rosenthal Syndrome, *Oral Surg. Oral Med. Oral Path.*, 29, 694-696.
- Tyldesley, W.R. (1974) Oral Lichen planus, *Brit. J. Oral Surg.*, 11, 187-189.