ECRONICON OPEN ACCESS

EC DENTAL SCIENCE
Review Article

# Diseases Affecting Both Skin and Oral Mucosa

**Bashar Helail[1]* and Abobakr Fahdawi[2]**

[1]*Health and Social Care, The University of Bedfordshire, Luton, England, United Kingdom*
[2]*Clinical Fellow in General Medicine at the Royal Shrewsbury and Telford NHS Trust, United Kingdom*

***Corresponding Author:** Bashar Helail, Health and Social Care, The University of Bedfordshire, Luton, England, United Kingdom.

**Received:** December 16, 2022; **Published:** December 26, 2022

## Abstract

**Objective:** The aim of this paper is to provide information about some possible inflammatory diseases affecting the skin and oral highlighting the following points:

- The aetiology
- General aspects of each disease
- Clinical features
- The important histological features
- Management including both (diagnosis and treatment)
- The prognosis.

***Keywords:*** *Diseases; Skin; Oral Mucosa*

## Introduction

Several diseases may affect both skin and oral mucosa. This article presents hereditary, autoimmune and other inflammatory conditions within this group.

Lichen planus, erythema multiforme and lupus erythematosus are relatively common disorders with generally favourable prognosis. The much less frequent bullous diseases pemphigoid and pemphigus are characterized by a high morbidity, often requiring a deliberate use of immunosuppressants. Stevens-Johnson syndrome, toxic epidermal necrolysis and the more severe forms of epidermolysis bullosa are potentially life-threatening conditions. It is recommendable that medical doctors and dentists are familiar with the clinical presentations and diagnostic procedures of diseases affecting skin and oral mucosa [1].

### Toxic epidermal necrolysis

This condition is a rare, life-threatening dermatological condition, it is usually induced by a reaction to medications [2]. It is characterized by the detachment of the top layer of skin (the epidermis) from the lower layers of the skin (the dermis) all over the body [2].

## Aetiology

Toxic epidermal necrolysis is a rare and usually severe adverse reaction to certain drugs. History of medication use exists in over 95% of patients with TEN [2]. The drugs most often implicated in TEN are antibiotics such as sulfonamides, nonsteroidal anti-inflammatory drugs, allopurinol, antimetabolites (methotrexate), antiretroviral drugs, corticosteroids, chlormezanone (anxiolytic) and anticonvulsants such as phenobarbital, phenytoin, carbamazepine, and valproic acid.

## General aspects

There is disagreement over whether TEN belongs on a disease spectrum that also includes erythema multiforme, although there is general agreement in the medical literature that it can be thought of as a more severe variant of Stevens-Johnson syndrome [3]. Some authors believe that the two diseases overlap to some extent (10% to 30% of skin detachment is typical).

Every year, there are between 0.4 and 1.3 instances per million.

## Clinical features

Although TEN affects numerous body parts, the mucous membranes, including those in the mouth, eyes, and vagina, are the most severely impacted. A fever of one to two weeks usually precedes the severe TEN symptoms. These signs could be mistaken for an upper respiratory tract illness. When the rash first starts, it may cover a wide number of different body areas. It is typically heated and looks red. The body's immune system deposits fluid into the dermal layer, frequently as a result of an adverse reaction to an antibiotic [4].

The skin then begins to sag from the body and can be peeled off in great swaths. The mouth becomes blistered and eroded, making eating difficult and sometimes necessitating feeding through a nasogastric tube through the nose or a gastric tube directly into the stomach. The eyes are affected, becoming swollen, crusted, and ulcerated and blindness may occur [3].

## Histological features

Microscopically, TEN results in epidermis-wide cell death. Necrosis occurs in the keratinocytes, which are positioned lower in the epidermis and are known for binding the skin cells together (cell death) [5].

## Management

### Diagnosis

The diagnosis can frequently be made clinically. In general, the diagnosis of TEN is valid if the clinical history is consistent with Stevens-Johnson syndrome and the skin lesion covers more than 30% of the body surface area. However, occasionally, microscopic inspection of the afflicted tissue may be required to separate it from other entities like staphylococcal scalded skin syndrome. The dermoepidermal junction may be obscured by a moderate lymphocyte infiltrate, and significant cell death with basal vacuolar alteration and individual cell necrosis are typical histological indicators of TEN [6].

### Treatment

The first line of treatment is early withdrawal of culprit drugs, early referral and management in burn units or intensive care units, supportive management, and nutritional support.

The second line is Intravenous immunoglobulin (IVIG) - Uncontrolled trials showed promising effect of IVIG [citation needed] on treatment of TEN; a randomized control trial is needed in the future to determine the efficacy of IVIG in TEN [6].

The third line is ciclosporin, cyclophosphamide, plasmapheresis, pentoxifylline, N-acetylcysteine, ulinastatin, infliximab, and/or Granulocyte colony-stimulating factors (if TEN associated-leukopenia exists [7].

### Dental aspects

Difficulty in swallowing and the presence of oral lesion must be taken into consideration.

### Pemphigus vulgaris

Is a rare autoimmune chronic blistering mucocutaneous skin disease which is lethal if not treated, oral ulceration is the most common early manifestation.

### Aetiology

An immune basis can be readily shown for pemphigus. The two main findings are

- First: A raised titre of antibodies (mainly IgM) to the intercellular substance of epithelium.
- Second: Antibodies demonstrated by immunofluorescence in the intercellular region of the epithelium, as shown by electron microscope the antibodies- binding site is the intercellular region is the site of tissue damage [8].

### General aspects

- It Is mainly dominant in female.
- It can appears mainly in middle age (fourth decade).
- More common in Jewish and Mediterranean people.

### Clinical features

The lesions first appear in the mouth but eventually spread to other parts of the body, mainly the trunk [3].

The vesicles (blisters) in the mouth, where irregular erosions are the more common lesions, are typically highly fragile and are rarely seen whole. It seems rough with muddy margins that are superficial, uncomfortable, and tender. A notable feature is that a blister (Also known as the Nikolsky sign) may form when the mucosal membrane is lightly rubbed [1]. The disease progresses at a very varied rate. With the emergence of broad oral ulceration and involvement of other areas like the eyes and skin, it may be rapidly fulminating.

At times, lesions may stay within the mouth for months or years before spreading to the skin. The cutaneous blisters vary from a few millimetres to several centimetres in size. At first they contain clear fluid which may become purulent or haemorrhagic. Rupture of the vesicles leaves painful ulcers with ragged margins of loose epithelium, which only gradually re-epithelialise.

### Histological features

Loss of epithelial cell attachment to one another The cytoplasm compresses around the nucleus and the epithelial cells that lose their attachment become rounded in shape.

In vesicles, these cells are frequently encountered in small groups [1].

### Management of pemphigus vulgaris

### Diagnosis

Because acute cases require immunosuppressive medications, it is important to keep in mind that prompt and thorough diagnosis is necessary. Diagnosis is confirmed by biopsy, which calls for the use of an immunofluorescent microscope and direct smear, which is taken from the fluid of recently ruptured vesicles and reveals Tzanck cells.

### Several diagnoses

Very few lesions may be mistaken for pemphigus vulgaris, but this may happen with lesions like leukoplakia and large papillomas [6].

### Treatment

A biopsy is required, and the changes are typically enough distinctive to establish a diagnosis. Once the diagnosis has been verified, the patient has to receive proper immunosuppressive care. To manage the condition, systemic corticosteroids are frequently required, either alone or in combination with steroid-sparing medications such azathioprine.

It is beneficial to utilise topical treatments alone or in conjunction with systemic therapy. Betamethasone mouthwash and beclomethasone inhaler spraying are required for this. Treatment may need to last a lifetime because drug discontinuation frequently triggers relapse [7].

### Prognosis

- Lethal if not treated
- Dental aspects
- Local anaesthesia and conscious sedation can be given
- Oral and skin manifestation includes (Nikolsky's sign).

### Mucous membrane pemphigoid

A uncommon chronic autoimmune subepithelial blistering illness known as mucous membrane pemphigoid causes erosive skin lesions on the mucous membranes and skin, scarring at least part of the conjunctival sites of involvement. Despite the possibility of severe side effects including blindness, the illness is rarely fatal. It can, however, be exceedingly tenacious and treatment-resistant [1].

### Aetiology

The exact cause is unknown, yet the disease appears to be immunologically mediated, and the binding of immunoglobulins or complements components along the basement membrane can often be noticed.

### General aspects

- Skin is affected in 20% only of the cases
- Occurs more in female
- Over the age of 50.

### Clinical features

The mouth is often first affected and frequently the only site involved. Other sites include the eyes or the mucous membranes of the nose, larynx or oesophagus and vagina. The skin is rarely affected or to only a minor degree. Lesions are rarely widespread and progress is typically indolent.

In the oral cavity bullae can be seen intact and may be filled with blood or sero-sanguinous fluid. Rupture of bullae leaves raw areas with a well-defined margin. Individual erosions can persist for protracted periods before healing. Further erosions may develop nearby and the process can persist for years.

Desquamative gingivitis is one of the most common features and sometimes this is the only oral manifestation. Other mucous membranes may eventually be involved.

### Histological features

The lesions are characterised by separation of full thickness epithelium from the connective tissue, epithelial tissue remains intact and forms the roof of bulla, whole the floor of bulls if formed by connective tissue.

### Management of pemphigoid

### Diagnosis

Diagnosis via biopsy and immunofluorescence microscopy, but a healthy vesicle or bulla must be obtained. A striking clinical finding is that during a biopsy, the epithelium tends to separate from the underlying connective tissue due to the friction of even a new scalpel blade, and not infrequently it disappears up the sucker. If Nikolsky's sign is positive, as in pemphigus vulgaris, the section is cut in half and frozen and immunoglobulins and complements components are tested [9].

A possible alternative diagnosis is pemphigus vulgaris leukoplakia [3].

### Treatment

Topical corticosteroids for very long periods are of good use. This treatment delays the need for giving systemic steroids with their attendant complications.

Systemic steroid are given in cases of eye involvement.

Some cases, however, seem to defy all treatment regimes and the discomfort is then controlled by Difflam and topical anaesthetics. As with pemphigus vulgaris, there may be spontaneous remissions [7].

### Prognosis

Seldom do blisters occur elsewhere in the upper aerodigestive tract, but patients with laryngeal or esophageal involvement will develop dysphagia or esophageal webs. Ocular involvement eventually becomes manifested in 50 - 85% of cases and skin involvement is eventually seen in up to 30% of cases. The patient should be followed carefully by an ophthalmologist whether or not conjunctival involvement is seen at the time of oral lesion diagnosis [2].

### Erythema multiforme (Stevens-Johnson syndrome)

This is a group of sign and symptoms of multifactorial aetiology, the most severe form is called Steven Johnson syndrome, affect skin and mucous membrane, and is often the only site, particularly among patients likely to be seen in dental practice.

### Aetiology

The cause is not clear and may be a variety of different causes.

Certain infections (herpes, pneumonia) can play a role in the aetiology drugs such as sulphonamides (do not forget that Septrin contains sulphonamide), barbiturates, tetracyclines and penicillamine can participate the reaction.

Pregnancy and irradiation also can have a certain involvement.

### General aspects

- Affect skin and mucous membrane with acute onset.
- Usually in young adult males.

### Clinical features

The lips are frequently the most noticeable feature, being horribly swollen, crusty, and bleeding. The mouth typically has mucositis, with or without blisters, and widespread irregular erosions with ill-defined edges [2].

The second most frequently affected site is the eyes, when conjunctivitis of varying severity may be observed. Widespread erythema on its own or distinctive target lesions might be considered dermal lesions. These are centimeter-plus-diameter crimson macules with a bluish cyanotic centre. Massive blisters develop in severe cases. The attack often lasts two to three weeks, with fresh lesions cropping up every 10 days or so. Recurrences, typically at intervals of several months over a year or two, are typical, but the condition can also be chronic and persistent in certain cases [10].

In erythema multiforme, skin involvement is variable. The classical lesion is a circular macule which has a targetoid or 'bull's eye' appearance. They can arise anywhere but the palms and soles are the commonest site (as in secondary syphilis). In severe cases large blisters may be seen. When there is conjunctivitis.

In the most severe cases the patient is systemically unwell after prodromal fever and constitutional disturbance and the term Stevens-Johnson syndrome is applied to this type of disease. Ocular damage can impair sight and rarely cause blindness.

### Histological features

The histological appearance varies, widespread necrosis of keratinocytes with eosinophilic colloid and may progress to vesicle or bullous, degenerative changes are associated with infiltration of inflammatory cells having a perivascular distribution [10].

### Management

### Diagnosis

Is based on clinical ground, diagnosis can be difficult when the disease it limited to the mucosa, and medical history can be of good help.

Differential diagnosis may include recurrent aphthous, Bechet's syndrome, Reiter syndrome, pemphigus, pemphigoid and herpetic stomatitis [9].

### Treatment

Oral lesions by topical corticosteroids and chlorhexidine (0.2%) or lidocaine gel, also antibiotic may be given, healing occurs within 2 weeks [7].

### Prognosis

Usually heals within two weeks although some cases might last longer, recurrences are common unless precipitation factors can be identified and eliminated

### Dental aspects

Local anaesthesia and conscious sedation are safe [2].

### Epidermolysis bullosa

A rare connective tissue skin disease which exist in different forms, the dystrophic autosomal recessive form is most likely to present with oral manifestation.

### Aetiology

It is an inherited autosomal condition affecting mainly collagen VII caused by It is caused by a mutation in the keratin or collagen gene.

### General aspects

- Incidence of 1/50,000. Its severity ranges from mild to lethal.
- The disorder occurs in every racial and ethnic group throughout the world and affects both sexes.

### Clinical features

There are four types of epidermolysis bullosa

1. Non-scarring type (simplex and letalis), which is fatal and its onset is in neonatal towards birth and it mainly affects the hand feed and elbow with rare oral lesions but the letalis form shows some oral lesions.
2. Scarring type (Dermolytic dominant and dermolytic recessive) affects children at the extremities and oral mucous lesions are common in the recessive type.

Generally, the clinical features are vesicles and bullae may lead to disabling scarring.

### Management

Corticosteroids may prevent blister formation [7].

### Dental aspects

Advice is important as even normal teeth brushing can cause ulceration, oral corticosteroids might be given in short courses, antimicrobial for surgery coverage is advised and general anaesthesia is avoided [11].

## Conclusion

Medical history is always a vital point in the dental clinic in regards to oral mucous lesions, in order to be available to adapt/alter the related dental treatment once the condition is recognised as many of those lesions are treated with corticosteroid and this should be kept in mind when treating such patient in the clinic to avoid any sort of crisis.

## Bibliography

1. RA Cawson. Essential of dental surgery and pathology: Fifth edition (2005).
2. Crispian Scully and Robert A Cawson. Medical problems in dentistry fifth edition (2010).
3. William R Tyldesley and E Anne Field. Oral Medicine. Fourth edition (1995).
4. Choonhakarn C., *et al*. "The efficacy of aloe vera gel in the treatment of oral lichen planus: a randomized controlled trial". *British Journal of Dermatology* 158.3 (2008): 573-577.
5. Neville BW., *et al*. Oral and maxillofacial pathology. Philadelphia, W. B. Saunders (1995).
6. Sami Saddik. Oral Medicine and diagnosis. Second edition (1990).
7. Pavlotsky F., *et al*. "Ultraviolet-B treatment for cutaneous lichen planus: our experience with 50 patients". *Photodermatology, Photoimmunology and Photomedicine* 24.2 (2008): 83-86.

8. Agha-Hosseini F., *et al*. "Efficacy of purslane in the treatment of oral lichen planus". *Phytotherapy Research* 24.2 (2010): 240-244.

9. Norman K Wood and Paul W Goaz. "Differential Diagnosis in Oral and Maxillofacial Lesions: fifth edition" (1997).

10. David Mitchell and Laura Mitchell. Oxford handbook of clinical dentistry. Fourth edition (2006).

11. Holsen DS and Johannessen AC. "Diseases that affect both skin and oral mucosa". *Tidsskrift for Den norske Legeforening* 126.9 (2006): 1214-1217.

**Volume 22 Issue 1 January 2023**