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Oral Ulcers And Its Differential Diagnosis

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Abstract: The diagnosis of oral ulcerative lesions might be difficult. Because of the clinician's limited exposure to the causes that may induce the lesions and their similar features, diagnosing and treating oral ulcers can be difficult. While most oral ulcers are caused by continuous damage, others may be signs of a more serious underlying problem, such as gastrointestinal dysfunction, cancer, immunologic abnormalities, or cutaneous disease. Clinicians who treat patients with oral mucosal infection must make sure that a definitive diagnosis is made correctly. Although some of these illnesses are contagious, the majority are chronic, symptomatic, and desquamative. Understanding the immunopathologic nature of the lesion is necessary for treatment and management. This article will explain how to distinguish and diagnose different forms of oral ulcers, as well as how to treat them.

Keywords: Oral ulcer, cancer, gastrointestinal dysfunction, immunologic abnormalities

1. INTRODUCTION

Defects in the epithelium, underlying connective tissue, or both describe ulcers[1]. Oral ulcerative lesions can be difficult to diagnose due to the wide range of causal variables and presenting symptoms[2]. Nonneoplastic and neoplastic lesions regularly afflict the tongue, with the latter being characterised by a gradual growth that can be benign or malignant. Non-neoplastic lesions are either inflammatory or a reaction to a variety of irritative stimuli, and they are frequently identified by chance during normal oral examinations[3]. The present study explains some of the differential diagnosis of oral ulcers.

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2. NEOPLASM

2.1 Squamous Cell Carcinoma

Oral squamous cell carcinoma (SCC) can appear as a white lesion (leukoplakia), a red lesion (erythroplakia), a red and white lesion (erythro leukoplakia), an indurated mass, or a mucosal ulcer or lumps, granular ulcers with tissue infiltration and elevated exophytic edges, or a nonhealing extraction socket are the most common symptoms[1]. As a result, clinicians should be

aware if any of these symptoms last longer than two weeks because it could be a sign of oral cancer.among other clinical manifestations. The most prevalent intraoral locations for this cancer are the floor of the mouth and the lateral tongue. Tobacco usage and alcohol use are two important risk factors for oral cancer. SCC of the lip, which is typically connected with UV light and pipe smoking, manifests as a chronic, nonhealing ulcer at the vermillion border[1]. Several other ulcerative disorders, such as recurrent herpes simplex virus 1, can resemble this type of malignancy in appearance (HSV-1) the 5-year survival rate for cancer of the lower lip is 90%, which is higher than the 40- to 50 % of 5-year survival rate for intraoral cancer. Nodal metastases are found in about 80% of tongue cancers at the time of diagnosis, which contributes to the lower 5-yea. SCC of the oral cavity can appear to be a number of different benign conditions at different times. As a result, at each dental or medical appointment, a thorough soft tissue examination should be done. Any ulcer that has been present for more than two weeks and cannot be explained should be referred to a specialist[1].

3. REACTIVE LESIONS

3.1 Trauamatic Ulcer

Traumatic injuries are relatively common oral mucosa. Mechanical injury (contact with sharp foodstuffs; unintentional biting during mastication, chatting, or even sleeping) as well as thermal, electrical, or chemical burns cause them[1, 2]. The tongue, lips, and buccal mucosa are the most prevalent sites for traumatic ulcers. Traumatic lesions of the oral cavity were most commonly detected on the buccal mucosa (42%) followed by the tongue (25%) and the lower lip (9%)[4], according to Chen et al men are more likely than women to develop traumatic ulcers (male to female ratio of 2.7:1). Traumatic ulcers can also occur as a result of mucosal injury while the patient is still anaesthetized after dental treatment. These lesions can last a few days or even weeks, especially in the form of tongue ulcers caused by recurrent assaults to the tongue.

3.2 Recurrent Apthous Stomatitis

Recurrent aphthous ulcers (RAS), sometimes known as 'canker sores,' are divided into three types based on their size and appearance. Minor aphthae can be single or many, have a diameter of 2-5 mm, are shallow, and heal without scarring. Major aphthae, on the other hand, are usually single, more than 5 mm in diameter, deep, and scar when healed. Nonkeratinized tissues such as the labial and buccal mucosae, alveolar mucosa, and soft palate are susceptible to minor and major aphthae. Herpetiform aphthous(<1mm) ulcers are a rare type of aphthous ulcer that occurs in clusters. A yellow-gray pseudomembrane covering, rounded shape, and red (erythematous) halo characterise all types of aphthous ulcers. Immunity mediated by pathogenesis may be essential.Treatment options are broad and palliative because both mild and herpetiform aphthous ulcers normally heal in 7-10 days. Tetracycline or doxycycline mouth rinses, topical corticosteroids (fluocinonide), and silver nitrate cauterization have all been used as treatments. The latter relieves aphthae pain via necrosis of tiny nerve fibres, but it usually leads to protracted healing of aphthous ulcers, which is not fully defined, but involves changes in local cell. Corticosteroids, either intralesional or oral, are used to treat serious aphthae. Oral corticosteroids may be combined with steroid-sparing medicines like azathioprine or mycophenylate to treat extensive, persistent illness. Colchicine, dapsone, and pentoxifylline have also been used with different degrees of success for serious aphthae[6]

3.3 Systemic Disorders Associated With Recurrent Aphthous Ulcers

Oral aphthous ulcers can cause a variety of systemic issues, including Behçet's syndrome, celiac disease, cyclic neutropenia, nutritional deficiencies, Immunoglobulin A (IgA) deficiency, MAGIC syndrome (mouth and genital ulcers with inflamed cartilage), and Sweet syndrome (febrile neutrophilic dermatosis). Aphthous ulcers in these patients appear clinically similar to those in patients without systemic illnesses. It's critical to inquire about any gastrointestinal problems, whether they've been diagnosed or not. Oral ulcers can become a major condition if they become chronic.

3.4 Oral Lichen Planus

Oral lichen planus (LP) is a mucosal form of lichen planus with a wide range of clinical characteristics. Oral LP can be reticular (white papules and plaques), atrophic (erythematous; plaque-like), or erosive (erosions and ulcers). The majority of people with reticular LP are asymptomatic. The erythematous and erosive variants of LP are more commonly associated with pain. The buccal mucosa is the most common intraoral location, however the tongue, lips, palate, gingiva, and mouth floor can all be involved. Hyperkeratosis, degradation of the epithelium's basal cell layer, and the appearance of a subepithelial band of lymphocytes are all signs of LP [2,4]. Direct immunofluorescence (DIF) is a valuable diagnostic test for demonstrating fibrinogen depositions beneath the basement membrane. Patients with symptoms or complaints that point to the involvement of other mucosal locations should be sent to a specialist for further investigation. There is no need for treatment if the patient is asymptomatic; however, if the patient has symptoms and/or ulcers, topical or systemic corticosteroids may be utilised as a treatment option[1,2].

4. VESICULO BULLOUS LESIONS INDUCED ULCERS

4.1 Pemphigus Vulgaris (PV)

PV is a persistent vesiculobullous mucocutaneous autoimmune illness marked by a lack of cell adhesion (acantholysis) and the production of blisters. Oral lesions appear in over 90% of PV patients, and in more than half of those cases, they are the initial sign of disease[7]. On a noninflamed base, oral lesions begin as bullae. Because the bullae rupture quickly, physicians are more likely to discover shallow irregular lesions. Over the course of weeks, the edges of lesions continue to spread out until they cover extensive regions of the oral cavity. The lesions usually begin on the buccal mucosa, but they can also affect the palate and gingivae[1]. Lesions can be as little as a 5 mm aphthous ulcer or as large as a severe psuedomembrane-covered lesion (2 cm). Due to significant pain during food ingestion, the severity of oral lesions can limit appropriate nutrition. PV must be separated from other erosive mucosal disorders such as mucous membrane pemphigoid, erosive LP, and erythema multiforme in terms of clinical manifestations. A biopsy is needed to determine the location of the epithelial separation (acantholysis) and, in most cases, DIF is used to locate the autoantibody linked to the tissue in the suprabasal portions of the stratum spinosum (IgG and C3)[1,7].Almost all cases of PV necessitate the use of systemic corticosteroids, which are frequently combined with nonsteroidal immunosuppressants like Mycophenolate or azathioprine .Topical corticosteroids may be administered if there is less severe form of oral involvement cases but this is not common[1,8].

4.2 Mucous Membrane Pemphigoid

Mucous membrane pemphigoid (MMP) is also called benign mucous membrane pemphigoid, cicatricial (scarring) pemphigoid, and ocular cicatricial pemphigoid. MMP is a frequent immune-mediated subepithelial blistering condition that mostly affects the oral mucosa (over 90% of cases), although skin lesions can also occur in 20% to 30% of cases. Gingivae are the most affected area in the oral cavity, followed by buccal mucosa and palate. It affects twice as many women as it does men, and it usually affects those over the age of 50[2]. Desquamative or erosive gingivitis is a term used to describe lesions that are isolated to the gingiva. Only gingival erythema and edoema are seen in certain moderate cases of MMP, which dentists mistake for gingivitis. Because eye lesions are common and scarring of the canthus (symblepharon), corneal scarring, and eyelash inversion (entropion) can cause to visual difficulties, an ophthalmologist is usually included in the MMP diagnosis and long-term care team. Epithelial separation at the basement membrane level without acantholysis can be seen microscopically. The target proteins laminin-5 and bullous pemphigoid antigen-180 are shown to have a linear distribution of IgG and C3 localised at the basement membrane in DIF (BP-180). Depending on the degree and scope of the condition, MMP can be treated with topical or systemic corticosteroids. Corticosteroid treatment is sometimes combined with nonsteroidal immunosuppressants like azathioprine or mycophenolate in refractory cases.

4.3 Erythema Multiforme

Erythema multiforme (EM) is a hypersensitive reaction that causes unique target-like lesions on the skin, as well as erosions of the oral and vaginal mucosa. It's characterised by irregular red macules, papules, and vesicles that merge with one another to become larger and form target lesions on the skin . Large pseudomembrane-covered ulcers on the buccal mucosa, ventral tongue, and labial vestibule are common intraoral lesions followed by bullae and ulcerations with irregular boundaries and an inflammatory halo. EM is characterised by hemorrhagic crusting of the lips' vermillion border which is a diagnostic sign[9,10]. Although the oral mucosa can be damaged alone, cutaneous lesions frequently accompany those detected in the oral cavity. Erythema multiforme major is a drug-induced erythema that affects both the skin and the mucous membranes. Erythema multiforme minor is a non-mucosal erythema caused by HSV infection. Sulfonamides, penicillin, cephalosporins, quinolones, analgesics, and nonsteroidal anti-inflammatory drugs (NSAIDs) can all cause EM, as can a variety of viruses (herpes simplex virus, Epstein-Barr virus, Cytomegalovirus, Varicella Zoster Virus, fungal agents, and parasites)[9]. EM usually strikes young adults (20–40 years old) and teenagers, although it can strike anyone at any age, including those who are 50 years old or older. With a male to female ratio of 3:2, there is a male preference[11]. Corticosteroids and, in some cases, acyclovir are used to treat both minor and serious EM. Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) are currently regarded to be more severe symptoms of bullous EM. SJS is defined as skin detachment of less than 10% of the body surface, whereas TEN is defined as skin detachment of more than 30% of the body surface. Sepsis and septic shock (S. aureus and P. aeruginosa) are the leading causes of death in individuals with SJS/TEN. Blood, wounds, and mucosal lesions should all have suitable cultures taken because of the high risk of bacterial superinfection and sepsis[1]. Infection with Mycoplasma pneumoniae should also be evaluated in children.

5. VIRAL CAUSES OF ULCERATION

5.1 Herpes Simplex Virus: Type 1

The most frequent symptom of herpes simplex virus (HSV) infection is primary herpetic gingivostomatitis. HSV type 1 is responsible for around 90% of instances, whereas HSV2 is responsible for the remaining 10%. In young people, it may be asymptomatic or extremely mild, but it is linked to more severe general symptoms in the elderly[12]. The majority of occurrences occur between the ages of 6 months to 5 years, with the highest prevalence occurring between the ages of2 to 3 years. Initial symptoms include fever, nausea, anorexia, and irritability. Oral signs include a widespread gingivitis that is followed by pin-headed vesicles that burst easily and cause painful ulcers covered by a yellowish pseudomembrane after 2-3 days[1,2,12]. They usually merge to form bigger ulcers. Mucosa that is keratinized or nonkeratinized can be damaged, and the number of lesions is vary. Punched-out erosions along the free gingival margin have been described in many cases[4]. In the majority of cases, submandibular lymphadenitis, halitosis, and difficulties swallowing are observed. It's worth noting that some adult patients may have pharyngotonsillitis. Furthermore, the oral mucosa anterior to Waldeyer's ring is involved in about 10%

of cases. The ulcers normally heal without scarring within 5 to 7 days, however they might last up to two weeks in extreme situations[13].

5.2 Herpes Simplex Virus: Type 2

HSV-2 is transmitted orogenitally and can cause mouth ulcers similar to those caused by primary HSV1 infections.

5.3 Epstein-Barr Virus

Hairy leukoplakia, a white lesion on the lateral border of the tongue, is the most classic condition of EBV infection. EBV-positive mucocutaneous ulcer is a rare form of EBV infection that occurs in immunocompromised people. This is an indolent, self-limiting condition that responds well to conservative treatment. A polymorphous infiltration and atypical big B-cell blasts, typically with Hodgkin/Reed-Sternberg (HRS) cell-like morphology, describe lesions histologically. In an environment of numerous T cells, the B cells display significant CD30 and EBER (Epstein-Barr virus encoded small RNA) positivity, with some showing reduced CD20 expression.

5.4 Human Immuno Deficiency Virus

Infection with the human immunodeficiency virus (HIV) can result in a range of oral ulcers, including severe necrotic ulcers with no recognised cause. Ulcers can be unpleasant and induce dysphagia. The mucosa of the buccal and pharyngeal cavities is the most usually affected. The cause of these HIV-related ulcers is uncertain, while it was first thought to be Cytomegalo virus(CMV). Antiinflammatory medications such as thalidomide and tumour necrosis factor alpha (TNF) blockers are used to treat these ulcers.

6. V BACTERIAL CAUSES OF ULCERATION

6.1 Treponema Pallidum

Treponema pallidum, a spirochete, causes the disease, which has 3 distinct phases. Primary syphilis manifests itself as a chancre at the site of infection. Oral chancres are a common complication of orogenital contact. Chancres begin off as a tiny papule that grows larger, enlarges, erodes, and ulcerates. The lesion is typically punched-out, indurated, and around 2-3 cm in diameter, without red inflammatory border. A yellowish, highly infectious, serous discharge covers the surface[2]. Chancres usually last 2–4 weeks and heal on their own. Oral lesions such as red macules, pharyngitis, or isolated/multiple painless, shallow, and highly infectious ulcers surrounded by an erythematous halo are all symptoms of secondary syphilis. The uneven boundaries may resemble "snail tracks." In about 30% of untreated syphilis cases, tertiary syphilis develops many years after the initial infection. Gummas, palatal perforation, and neurological problems are the most common symptoms. For all phases of syphilis, penicillin-G remains the antibiotic of choice[1].

6.2 Tuberculous Ulcer

Tuberculosis and leprosy are two granulomatous illnesses that can induce ulcerative sores in the oral cavity[15]. Oral mucosa is rarely affected by tuberculosis in about 1.4 % of all TB cases, with a male to female ratio of 4 : 1[14,]. The tongue, gingivae, floor of the mouth, palate, lips, and buccal mucosa are the most common sites for the classic oral lesion, which usually manifests as a solitary ulcer with an undermined edge. In the meanwhile, it may be ragged and indurated, as well as painful. Traumatic ulcer, syphilitic ulcer, and oral Squamous cell carcinoma are all possible diagnoses for tuberculous ulcer[14].

7. ORAL ULCERS DUE TO SYSTEMIC CONDITIONS

7.1 Granulomatosis With Polyangitis

Oral ulcers are a symptom of(GPA); granulomatosis with polyangitis (Wegner's Granulomatosis), which is characterised by upper respiratory tract, lung, and kidney involvement. The first signs of the disease are usually painful cobblestone alterations on the mucosal surface of the palate and gingiva (strawberry gingiva). GPA is a necrotizing vasculitis with granulomatous inflammation. Having a high GPA can lead to palatal perforation. The presence of anti-neutrophil cytoplasmic and peri-nuclear antibodies (cANCA, pANCA) on cytological examination confirms the diagnosis. ; however, their absence does not rule out the diagnosis. Corticosteroids and cyclophosphamide are used in the treatment of this condition[16].

7.2 Behçet's Disease

Behçet's illness is a chronic inflammatory disease that affects many organ systems and has no recognised cause. Diffuse aphthous-appearing mucosal erosions are the most common oral lesions. The International Criteria for Behçet's Disease (ICBD) set out criteria in 2006 in an attempt to better describe the disease using a point system. Behçet's Disease is diagnosed with three or more points (genital aphthosis has two points, ocular lesions has two points, and the remaining has one point

each [skin, mouth aphthous, vascular lesion]). Behçet's syndrome has no consistent treatment. Corticosteroids, azathioprine, thalidomide, and Dapsone have all been tried and proven to be effective[1, 2, 4].

8. CONCLUSION

The diagnosis of oral ulceration can be difficult, and it necessitates a thorough clinical examination and a complete medical history. It's critical to recognise that oral symptoms could be a symptom of a greater problem. A biopsy may be necessary to confirm a correct diagnosis.Any ulcer in the oral cavity that does not heal within two weeks should be examined microscopically.

9. REFERENCE

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