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A comprehensive review on Aphthous ulcers of oral cavity

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Abstract
Recurrent aphthous stomatitis, also commonly referred to as aphthous ulcers, can be defined as an immensely customary excruciating condition which affects variegated areas of the oral cavity. It is common complaint of patients attending out patient clinics. It is most common disease of oral mucosa which occurs due to variety of reasons which ocuurs mostly during childhood. The purpose of the article is to provide comprehensive review on etio-pathogenesis of this disease along with prognosis associated with the treatment modalities available.
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Keywords: oral ulcer, pain, racurrent aphthous stomatitis, sores

Introduction
Aphthous stomatitis is common condition characterized by the repeated formation of benign and non-contagious mouth ulcers in otherwise healthy individuals. The informal term Canker sores is also used mainly in North America which refers to any mouth ulcer. The term is from Greek word "aphtha meaning "mouth ulcer".These ulcers occurs periodically and heal completely between attacks. In majority cases it lasts about 7-10 days for 3-6 times per year. The condition is very common affecting about 20%of general population. The onset is often during childhood or adolescence and condition usually lasts for several years before disappearing. [1-4]

Signs and Symptoms
There are no detectable signs or symptoms. Generally symptoms include prodromal sensations like burning, itching, or stinging which worsen by physical contact of certain foods and drinks which are acidic. Pain is worst in the days immediately following initial formation of ulcer and then recedes as healing progresses [2]. If there are lesions on the tongue speaking and chewing can be uncomfortable and ulcers on soft palate, back of throat can cause painful swallowing.

Epidemiology
Aphthous stomatitis affects between 5% and 66% with about 20% of individuals in most population having condition to some degree. This makes it most common disease of oral mucosa. It occurs worldwide but mostly in developed countries and common in higher socioeconomic groups. Males and females are affected in equal ratio with peak age of onset between 10-19 years [5].

Clinical Presentation
The individual ulcer begins as a round or oval area of erythema which develops a pin point central area of white ulceration [3]. Over the next 3-7 days the ulcer enlarges laterally and becomes saucerized or cupped out. As healing commences, the red halo diminishes and small punctuate red areas dot the white ulcer bed (representing blood vessels from the underlying granulation tissue which have reached the surface). Over several days the white color of the bed changes to red or pink and the areas heals without scar formation in the major type [6-8].

Classification
The 3 main clinical types of recurrent aphthous stomatitis (RAS) are as follow:
1. Minor aphthous ulcer or Mikuliccz ulcers (80% of all RAS).
2. Major aphthous ulcers
3. Herpetiform ulcers

Minor aphthous ulcer
They occur mainly in persons 10-40 years of age and often cause minimal symptoms. They are small, round or ovoid ulcers 2-4 mm in diameter. They have an ulcer floor that is initially yellow but assumes gray hue as healing and epithelization proceeds. They are surrounded by erythematous halo and some odema. Found mainly on non-keratinized mobile mucosa of lips, cheeks, floor of mouth, sulci or ventrum of tongue. They occur in groups of only a few ulcers (1-6) at a time. They heal in 7-10 days and occur at interval of 1-4 months. They leave little or no evidence of scarring [5-8].

Major aphthous ulcer or Suttons ulcer
They are larger, of longer duration and more frequent recurrence, often more painful than minor ulcers. They are round or ovoid but larger than minor and associated with surrounding edema. They reach about 1 cm in diameter or even larger. They involve any oral site including keratinized mucosa and dorsum of tongue. They heal slowly 10-40 days or longer and heal with scarring. They recur frequently and are occasionally are found with raised ESR or plasma viscosity [8].

Herpatiform ulcers
They are found in slightly older age group than the other RAS. Commonly found in females. They begin with vesiculation that passes rapidly into multiple pinheaded discrete ulcers. They involve any oral site including keratinized mucosa, increase in size and coalesce to leave large round ragged ulcera. They heal

in 10 days or longer and are often painful. They recur so frequently that ulceration may be virtually continuous [6-10].

Predisposing factors

1. **Genetic Factor**: It is depicted that around 40% of cases have positive family history. Hence it is main pre-disposing factor. These subjects have ulcers owing to genetic may be more severe [11].
2. **Trauma:** in dentistry frequent uses of injections may lead to trauma. Trauma due to sharp cusps or hard bristles of brush result into injury finally leading to aphthous ulcers [12]. It can also be seen in patients
3. **Deficiency:** it is seen that certain deficiencies like iron and Vitamin B12 mainly lead to aphthous ulcer [13]. The concept is backed by evidence in cases where administration of vitamins have improved the condition [14].
4. **Stress:** Stress is one of the common factors in RAS. When subject is under stress it leads to development of gratuitous habits which involves injury to oral mucosa. This injury in turn lead to oral aphthous ulcer [15].
5. **Endocrine Involvement:** It is seen that luteal phase of menstrual cycle may be associated with onset of aphthous ulcer [16]. It is also seen among pregnant ladies and women taking contraceptive pills, however no epidemiology study have successfully corroborated the hypothesis [17].
6. **Tobacco Products:** An interesting relation has been established between tobacco cessation and RAS. This has been demonstrated as a result of increased mucosal keratinization [18].
7. **Drug Intake:** Many drugs mainly ACE inhibitors have been associated with RAS. NSAIDS like diclofenac and cytotoxic drugs have been associated with development of oral ulcers [16].
8. **Microbes:** IN development of RAS, streptococci have been implicated as a major factor. Especially Streptococcus Sanguis have been particularly isolated. Some of ulcers have been detected to have some content of H.pylori but a definite relationship has not been established yet [19, 20].
9. **Allergy:** Ulcers can be seen in patients allergic to different kind s of foods like chocolates, wheat, tomatos etc [17]. It is also seen in some cases that dentrifices containing sodium lauryl sulfate causing ulcers to some patients [18].

Systemic conditions and Aphthous like lesions [20-23]

1. Behchet's disease
2. Nutritional deficiencies
3. Gastrointestinal disorder
4. Cyclical neutropenia
5. PFAPA syndrome
6. HIV infection
7. Drug reaction
8. Celiac disease
9. MAGIC syndrome
10. Sweet's syndrome
11. Reactive arthritis
12. Ulcus vulvae acutum

Differential Diagnosis [23-25]

1. Traumatic ulcer
2. Squamous cell carcinoma
3. TB ulcer
4. Herpetic ulcer
5. Pemphigus
6. ANUG.

Histopathology

Anitshkow cell: Pathognomic for rheumatic heart disease, also known as caterpillar cells as they have large amount of clear cytoplasm surrounding rod shaped nucleus that to some resembles a caterpillar [6].

Squamous epithelial cells with nuclear changes resembling Anitshkow cells have been observed in RAS.

Treatment [10-15, 26]

Since the etiology of RAS remains unknown and there are no diagnostic tests available, our goal being to

- Decrease symptoms
- Reduce ulcer number and size
- Increase disease free period [1].

Chlorhexidine gluconate mouthwashes and topical corticosteroids, the mainstays of therapy, should be used during the prodrome, if possible [25]. he corticosteroid can be dexamethasone 0.5 mg/5 mL tid used as a rinse and then expectorated or clobetasol ointment 0.05% or fluocinonide ointment 0.05% in carboxymethylcellulose mucosal protective paste (1:1) applied tid. Patients using these corticosteroids should be monitored for candidiasis [10]. If topical corticosteroids are ineffective, prednisone (eg, 40 mg po once/day) may be needed for ≤ 5 day. Treatment may require prolonged use of systemic corticosteroids,cauterizing drugs like azathioprine or other immunosuppressants, pentoxifylline, or thalidomide. Intralesional injections can be done with betamethasone, dexamethasone, or triamcinolone. Supplemental B_1, B_2, B_6, B_{12}, folate, or iron lessens RAS in some patients. Milk of Magnesia is also useful. Diclofenac, a NSAIDs, reduces duration of pain by inhibiting the production of cyclooxygenase enzyme and preventing the arachidonic acid converting to other compounds like prostaglandins. Seemingly, diclofenac can act as sodium channel blocker which is mediated by topical analgesic [10-18]. The drug pentoxifylline, a non-selective phosphodiesterase inhibitor with hemorheological properties, has many potential uses [1].

Conclusion

RAS is common oral disorder of uncertain etiology for which symptomatic therapy is only available. The important role is to identify underlying precipitating factors and try to eliminate them. It is essential to educate patients regarding the nature of the disease especially that it is not contagious and not caused by herpes simplex virus. All patients should be fully investigated to establish a definitive diagnosis and eliminate the possibility of underlying systemic disorder or oral malignancy. Patients with undiagnosed oral ulcers should be reffered to oral surgeon for further investigations including biopsy if appropriate.

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