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Oral Ulceration in Patient with SAR-COV2 Infection. A Case Report.

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ABSTRACT

Background: Some oral ulcerative lesions reported in positive SARS-CoV-2 patients. However, still unknown if these lesions are due to the infection itself or secondary to the patient's systemic condition.
Aim: report a case with oral manifestations diagnosed with COVID-19.
Methods and Results: A case diagnosed with COVID-19 disease confirmed by polymerase chain reaction (PCR) test presented with nonspecific stomatitis, oral ulcerations, beside skin manifestations looks like erythema multiform.
Conclusion: Infection with SARS-CoV-2 may result in oral insults with various clinical presentations and suggest a link between COVID-19 and oral ulceration. This highlights the importance of adding dentists in the intensive care unit team to deal with oral health problems in critical patients. Also, to contribute to evidence-based and decision-making in managing COVID-19 oral presentations.

Keywords (Times New Roman, bold, 9)
COVID 19- Erythema multiform - Oral ulceration - SARS-CoV-2

Introduction

The novel coronavirus disease 2019 (COVID-19) presents an urgent threat to global health. The (COVID-19) causing virus is a single-chain RNA virus, that was initially named 2019-nCoV and now, officially as severe acute respiratory syndrome coronavirus 2 (SARS- CoV-2)[1]

SARS-CoV-2 transmission primarily occurs through tiny airborne droplets, large respiratory droplets and direct contact with infected individuals and contaminated surfaces.[2] It has high virulence with the human-to-human transmission, with an incubation period ranged from 2 to 14 days.[3]

The clinical progress of COVID-19 depends on the host immune response. The common frequent symptoms include headache, bone-ache, fever, malaise, cough, dyspnoea, loss of taste and smell. Other symptoms have been described like diarrhoea, abdominal pain, lymphopenia, and hemodynamic disorders.[4,5] Patients over 70 years, and those with comorbidities, or immunosuppressed conditions, predispose to develop severe acute respiratory symptoms, heart, and kidney failure with poor prognosis.[6]

Recalcati. 2020 detected the presence of skin lesions in 20.4% of 88 patients with COVID-19, matching to great degree that showed in some cutaneous viral infections.[7] Galván-Casas., et al 2020, identified skin lesions represented as (purpuric macules, pustules, papules, urticaria-like lesions, hemorrhagic vesicles and necrosis).[8] Chaux., et al 2020 and Martín., et al 2020, reported ulcerative and vesiculobullous lesions in the oral cavity in patients confirmed and suspected to be infected with the novel coronavirus disease.[9,10]

COVID-19 related oral lesions may be a typical pattern resulting from viral infection directly, or resulting from systemic deterioration, considering the possibility of opportunistic infections and it may be adverse reactions to treatments. So, the range of COVID-19 manifestations in the oral cavity has current interest.[11]

Here in this report, we introduce a case with COVID-19 who has skin lesions and oral cavity ulcers and describe complete history, to help identify lesser-common but possible manifestations of COVID-19.

The case report:

This report depicts a case that had confirmed by polymerase chain reaction (PCR) test as having COVID-19 infection, with oral and skin signs and symptoms. Female patient aged 22 years old, she had been in contact with two individuals were diagnosed as COVID-19 infection positive about 5 days ago.

These two cases were from her family members, one of them suffered from fever and mild respiratory symptoms (shortness of breath and slight chest tightness). The symptoms were not so severe, and the patient was advised by home isolation and medications. The other case suffered from more intense respiratory symptoms accompanied by fever, atrial fibrillation, chest pain and cardiac symptoms which required hospitalization.

Our case report patient was medically free, with no history of previous chronic or serious systemic medical problems. Her symptoms started with mild discomfort over here checks, decrease in saliva (xerostomia), dry lips and few erythematous patches on her face and neck skin. These relatively localized symptoms were accompanied by mild elevation of here temperature and slight difficulty in breathing which get her to consult a physician.

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Her general practitioner suspect infection with COVID-19 virus and he sent her for self – home isolation. He advised doing some laboratory investigations (CBC – and level of C-reactive protein) and, chest CT radiograph, then prescribed medications: antibiotics injection fortum 1 gm. per day , solupred 20 mg tablets one tablet a day in the morning, panadol tablets one tablet every 6 hours, the dermatologist prescribed for her acyclovir tablet 400 mg twice daily, fusicort cream.

On the next day directly, the patient began to feel a slight suffocation with a feeling of presence of postauricular enlarged masses that were explained as lymphadenopathy, burning sensation in oral mucosa, difficulty in swallowing, alteration in taste or smell (dysgeusia), painful swallowing (Odynophagia), tenderness inside the cheeks bilaterally and itching sensation over the skin lesions.

At this point, the oral and skin lesions exaggerated, and the patient seek dental consultation. She gave permission to evaluate her by using the digital photos, digital photographs were taken for the intraoral aspects, and for the affected areas of the skin and sent to the dental practitioners via mobile phone. The patient sent voice clips for here symptoms and suffering.

The intra oral signs as shown from the photographs were include:

- Painful cheilitis with hemorrhagic crusts. **FIG 1**
- The under surface of the tongue and the floor of the mouth affected by multiple shallow ulcers mixed surrounded by tissue tags. **FIG 1**
- Bilateral erythematous and erosive areas on the cheek's mucosa. **FIG 2**
- Upper and lower labial mucosa showed multiple shallows, irregular shaped, painful ulcers.
- Generalized moderate erythematous gingival margins (desquamative gingivitis) **FIG 3**

The skin lesions include:

- Multiple sharply demarcated patches, pink or reddish pink in color. Some of them are flat (macules), others are raised (papules/palpable). Small measured by mms but with variable diameters, mainly presents on extremities, and circumoral. Some of these patches has typical iris-target appearance with central dark point surrounded by a paler oedematous raised area. **FIG 4**

Other extra oral signs include: mild erosions in nasal mucosa.

The results of the laboratory investigations revealed the following: lymphopenia, monocytosis and high level of C reactive proteins. The chest radiograph showed mild ground glass patterns, more specific test was recommended (PCR for covid -19 virus from nasopharyngeal swab) the test was positive. She started the treatment protocol include remdesivir, azithromycin, and supportive treatment.

The dentist prescribed for her BBC spry, solupred starting dose 6 tablets/ day 10mg tapered over sixth days to one tablet/day, dexamethasone ampule only one injection and mouth wash consists of tantum verd with tetracycline powder. The symptoms started to disappear in few days after she start the treatment, and complete healing of oral and skin lesion take place in about two weeks.

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FIG 1: Cheilitis with hemorrhagic crusts on lips. Multiple shallow ulcers surrounded by tissue tags on the under surface of the tongue and the floor of the mouth.

FIG 2: Erythematous and erosive areas and multiple shallows, irregular shaped, painful ulcers on the cheek's mucosa.

FIG 3: Marginal Gingival redness

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FIG 4: Mixed reddish pink skin lesions as flat (macules), raised (papules). Some have typical iris-target appearance with central dark point surrounded by a paler oedematous raised area.

Discussions

This report describes a case confirmed clinically, radiographically, and by laboratory investigations (PCR test using nasal swape and blood analysis) as having COVID-19 and assessed using teleconsultation. The case developed both intra oral and extra oral manifestations (perioral and generalized skin lesions) which started mild in severity, coinciding with a rise in temperature and symptoms of shortness and difficulty breathing. The initial outset of our patient complains coincided with the emergence of COVID 19 symptoms and before the starting of any treatments.

The management began using corticosteroids, anti-inflammatory antipyretic and antiviral, then the patient had been put on the COVID 19 treatment protocol along with the medications for management of oral lesions. The oral symptoms started to resolve with in few days from the treatment starting point of time, healed completely with in about two weeks.

It is worth noting that, the diagnosis has been made, the treatment described and the communication with the patient was done through the indirect interaction via the digital imaging technology, telephone transmission and smart devices, which contributes positively to limiting the spread of the virus infection when dealing with a patient having oral lesions and at the same time not neglecting symptoms they suffered.

Several studies had reported COVID-19 cases accompany oral insults.[9,10, 12,13,14] Some cases of oral signs and symptoms had been recorded recently in COVID 19 patients., but it was not certain whether the cause is direct action of the virus, or medical impairment that increase the chance of opportunistic injuries.[10,11,15] Manifestations like xerostomia nonspecific oral ulcerative lesions dysgeusia, gingivitis were considered as adverse outcomes affecting the oral heath results from the acute COVID 19 viral infection or their related therapeutic measures.[16]

It was suggested that novel Coronavirus 2019 utilize angiotensin-converting enzyme 2 (ACE2) as its host receptor used for host cell entry and then, viral replication. Zou et al., 2020 showed that destruction of respiratory and other organs by corona virus is mainly attributed to (ACE2) receptors distribution in the human body.[17]

Cells of oral tissues as the tongue mucosa and salivary glands, as well as other human body cells that have angiotensin-converting enzyme 2 (ACE2) receptors on their surfaces are considered a host cells for the virus. Hence invasion of these cells by the virus results in inflammatory reactions that leads to tissues and organ damage.[18]

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Another important assumption that may help to explain the COVID-19. related oral mucosal injury is that the virus associated vascular-hematologic destruction which may results in primary or secondary alterations in oral tissues. These mechanisms proved by the histologic and clinical findings.[19] The association of the resultant organic damage and general systemic complications such as thrombocytopenia, disseminated intravascular coagulation, and systemic inflammation in COVID 19 patients with the emergence of the oral manifestations had been suggested in recently published literatures. [11, 20]

Histological examination of biopsies of COVID-19 patients showed the presence of perivascular lymphocytic infiltration with eosinophilia and vascular ectasia, (that had also dermatologic impacts). These observations led to the development of theories that explain the pathogenesis of COVID 19 related oral lesions which related to thrombotic and vascular effects in the oral mucosa. Also, the immune system respond to the viral infection by activation of lymphocytes and Langerhans cells which inducing vasculitis (lymphocytic thrombophilic arteritis).[21]

The symptoms that had been described by the patient and the signs observed from the sent photographs are almost typical to that of erythema multiform, both intra oral (ulcers which are painful with a whitish pseudomembrane cover, swollen the lips with haemorrhagic crusts and skin lesions. "target or iris lesion".[22] several studies had suggested that the onset of erythema cases is associated with viral infections such as Herpes Viruses, Adenoviruses Enteroviruses, in which 70% of the patients suffer from oral symptoms and mucosal lesions for example ulcers and blisters on the lips and lining mucosa.[23]In view of the above-mentioned findings, the novel corona virus can be considered to be able to induce the exanthematous lesions in the same manner as other viruses traditionally encountered in oral viral infections. [24]

Referring to that the main event in the pathogeneses of Erythema Multiforme is vasculitis, so it can be postulated that the mucosal lesions and the other oral manifestations presented by COVID-19 patients can be attributed to ACE2 which presents on the surface of endothelial cells.[24]

What reinforces the assumption that the presence of symptoms is caused by the viral components is the occurrence of the marginal gingivitis, which is considered an important diagnostic feature in oral diseases caused by viral infection especially herps simplex infection.[22] Our patient was suffering at the initial period from xerostomia dry lips which followed by post auricular lymph adenopathy. Both symptoms had been reported with viral infection as manifestations associated with HIV infection.[25]

Conclusion

with a comprehensive view of the published studies on the novel corona virus, beside taking into consideration our interpretation of the circumstances and associated conditions related to the case under discussion, the following conclusions and recommendations can be drawn up: it can be said that there is a link between infection with novel corona virus and the appearance of oral and skin symptoms, which requires other extensive and accurate studies.

The dentist's relevance as part of the multi-disciplinary team in supporting critical patients in ICU, such as COVID-19, should be highlighted. Also, dental follow up after the patient is dismissed from the hospital must be provided. clinical dental examination of patients with infectious diseases in the ICU an issue of great importance to control pain, improve the quality of life.[11]

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