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Review Article

The Impact of COVID-19 on Oral Cancer Diagnosis: A Systematic Review

Riccardo Pulcini, Silvia D'Agostino*, Marco Dolci, Alessandra Bissioli, Lucia Caporaso, and Francesca Iarussi

Abstract

The Coronavirus-19 pandemic has led to severe collapses in international health systems that have repercussions at all levels of disease prevention. Oral squamous cell carcinoma (OSCC) is the most common head / neck malignancy, and it is usually diagnosed late due to patients neglecting symptoms. The purpose of this systematic review is to verify the impact of Sars-Cov-2 pandemic on OSCC diagnosis. The search methodology follows the PRISMA statement performing a PubMed investigation from 2019 to 2021 using MeSH such as "Covid-19; oral cancer". A multidisciplinary approach would be effective, with a broadening of the knowledge of health professionals to identify cancerous lesions. A timely diagnosis of OSCC is crucial and its management is fundamental also for dental specialists. With the aim to anticipate the diagnosis, it will be desirable to set prevention campaigns also by the assistance in telemedicine.

Keywords: COVID-19, Sars-Cov-2, oral cancer, oral squamous cell carcinoma, public health

1. INTRODUCTION

Sars-Cov-2 infection leads to a severe acute respiratory syndrome that can present with various clinical manifestations that fall within the definition of "Coronavirus disease 2019" (COVID-19) [1].

The infection has spread very rapidly since December 2020, bringing much concern to global public health. In Europe it has spread since February 2020, where several national health systems have faced and continues to face enormous difficulties in the fight against the pandemic with seasonal periods of Lockdown. This significant spread has led to shortages of health personnel and adequate facilities to deal with the most serious cases of the Covid-19 disease [2][3].

There are important consequences on the social, economic and employment level, also due to the need for social distancing, the blocking of many workers and the closure or time limit of numerous companies during the confinement periods. The post-Lockdown situation has imposed maximum prudence in the reopening of work activities and in the reintegration of the worker in public offices and companies, favoring the working methods in working from home. This pandemic period poses further challenges in the area of cancer diagnosis and treatment [4][5].

Oral carcinoma is the most common of the malignant tumors of the oral cavity that tends to appear in the fifth or sixth decade of life, generally the diagnosis is made when the neoplasm is in an advanced clinical phase and therefore with a subsequent prognosis with high morbidity and high mortality. Diagnostic delay for this condition is common.

Oral cavity squamous cell carcinoma (OSCC) is the most common malignancy of the head and neck; In the United States alone, the American Cancer Society estimated that there were 48,330 new cases of oral cavity and pharyngeal cancer in 2016 [6]. Worldwide 350,000–400,000 new cases are diagnosed each year [7]. In 2018, 354,900 cases of oral SCC were estimated worldwide, with 177,400 deaths [8]. The incidence of oral cancer in western areas is about 3-6% which also reaches 30% in eastern-Indian countries, this significant difference is attributable to the customs and traditions of the various populations involved [8][9].

Squamous cell carcinomas (SCCs) make up over 90% of all oral cancers. The remaining 10% of neoplasms arises from epithelium, connective tissue, minor salivary glands, lymphoid tissue and melanocytes or from distant tumor metastases. Non-squamous cell carcinomas of the oral cavity are rare [10]. Minor salivary gland carcinomas account for
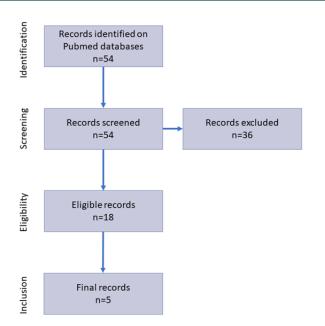
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Figure 1. PRISMA statement flow chart [16].

2. MATERIALS AND METHODS

This research is based on the PRISMA statement (*Preferred Reporting Items for Systematic reviews and Meta Analysis*) updated by Page et al. in 2020.

An electronic search was performed on PubMed considering the modern period of the last 2 years from 2019 to 2021, the following MeSH was used: "COVID-19 oral cancer". Studies eligibility criteria are description of oral cancer during the COVID-19 pandemic in adult patients, reviews and letters to the editor including free full text and abstracts exclusively in English.

3. RESULTS AND DISCUSSIONS

The digital investigation has provided 54 articles, but only 18 were positive for inclusion criteria, while other were excluded because regarding other pathologies with Covid-19. The data contained in the eligible articles were developed in order to understand and analyze any shortcomings of the various types of prevention on oral cancer patients in the ongoing COVID-19 pandemic. Five articles have been shown to be highly relevant to the delay in oral cancer diagnosis during COVID-19 (Figure 1). The main results are summarized in Table 1.

Ferlay, et al. [8], has collected data from 185 countries for the cancer situation in the world reporting that in 2018, it was estimated that 354,900 cases of oral SCC occurred worldwide, with 177,400 deaths. From the study by Scott, et al. [13] it was observed that 54% of participants with symptoms or potential malignancies delayed seeking help and 39% waited more than 3 months before visiting a healthcare professional. So, it is possible to speculate how these data may actually deteriorate in the context of a COVID-19 pandemic.

Various decrees have limited the movement of people, movements only in case of work-related reasons, reasons of urgency or health reasons, bringing further inconvenience to fragile subjects such as the elderly. people appear to be reluctant to go to hospitals and facilities such as dental offices for check-ups despite the provisions and aids used [17].

COVID-19 has also led to a decrease in the influx of patients to health and hospital facilities

less than 5% of oral cancers. They frequently occur on the hard palate (60%), on the lips (25%) and on the buccal mucosa (15%). Mucoepidermoid carcinoma is the most common type (54%), followed by low-grade adenocarcinoma (17%) and adenoid cystic carcinoma (15%) [11]. Risk factors for oral cancer are tobacco, betel quid chewing, alcohol, infectious agents (HPV), alterations in nutritional and dietary factors, oral hygiene, chronic trauma, genetic factors [12].

Prevention of oral cancer requires better education of professional profiles such as dentists and dental hygienists on lifestyle-related risk factors and a better understanding of the interpretation of signs and symptoms to achieve an early diagnosis. They can be considered sentinels in the interpretation of oral lesions. A very important consideration in the fundamental role of these two figures concerns the periodicity with which patients carry out six-monthly preventive checks for oral diseases such as: caries, periodontitis and gingivitis, therefore they would have a better chance of meeting patients with potentially cancerous lesions, taking into account that 30% of patients delay seeking help about 3 months after self-discovery for symptoms attributable to oral cancer [13]–[15]. To obtain effective prevention measures, a multidisciplinary approach by different health professionals is therefore necessary.

Table 1. Summary of significant articles from the search.

Authors and year	Results
da Cruz Perez, et al. (2020) [15]	Dentists should be more aware of OSCC symptoms during the pandemic for a timely diagnosis
Villani, et al. (2020) [17]	Telephone triage is crucial to avoid loss of follow-up during the pandemic
Day, et al. (2020) [18]	COVID-19 delays OSCC diagnosis causing reduced therapeutical success
Søreide, et al. (2020) [19]	OSCC diagnosis delay means more invasive treatments
Ferrari, et al. (2021) [20]	Oral oncology needs specific protocols during the pandemic in order to reach a wider cluster of patients

with regard to attention to prevention (primary, secondary and tertiary) leading to a worsening of global public health. The goal of the primary preventive measure is to raise public awareness of risk factors and aims to change public behavior. Secondary prevention aims at detecting malignant lesions early through screening techniques. Tertiary prevention aims to prevent the retraining of oral tumors in patients.

Diagnostic delay reduces both surgical and radiotherapy therapeutic success [18]. This delay results in therapies that become highly invasive, as the adjacent tissues are compromised by altering the oral cavity from a functional, morphological and psychological point of view. Surgical services for oral cancer patients need a contingency plan to keep surgical care in a pandemic or post-pandemic phase [17][18].

World Health Organization (WHO) defines quality of life as the perception of the individual as an individual's perception of his or her position in life in the cultural context and value systems in which he lives, in relation to his goals and his expectations. The clinical manifestations of a late intervention against oral cancer also leads to negative effects in the quality of life of patients who may have post-surgical treatment dysfunctions in communication, swallowing, functional aesthetic alterations.

In a historical period like this can be perceived in current conditions and which has changed many lifestyles, also reducing their quality of life, a right priority should be given to patients who could have further collateral damage if preventive measures are not implemented.

4. CONCLUSIONS

Oral cancer involves many people and many of them fearful of contracting COVID 19, neglecting the signs and symptoms and further delaying the diagnosis of any cancerous lesions, seriously affecting the prognosis. On these bases, the result from this search seems to point out the delay in OSCC diagnosis during the pandemic. Multi-level prevention will be the key to ensure patient health. An expansion of knowledge for the recognition of these injuries in the dental sector could anticipate the diagnosis. Furthermore, it is logical to think of a valid support that can come from technology, and it could be represented by telemedicine services available for patients of surgical interest and other patients. However, further future studies are needed to better interpret the data of a possible increased mortality of patients with oral cancer in the COVID -19 era.

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