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Original Research Article

Factors that influence the delay in diagnosis and treatment of Oral Cancer

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Abstract: Oral cancer is a public health problem. Despite all the efforts and improvements in the field of oncology, the mortality rate had not significantly declined in the course of recent years. This may be due to the fact that diagnosis of oral cancer is frequently delayed. The main goal of this study is to analyze the factors responsible of this delay. We analyzed the clinical history of 76 patients with oral cancer diagnosed in our center from 2013 to 2016. We divided the diagnostic delay into 3 major groups: delay attributable to patient, delay attributable to public health system and delay attributable to professionals. According with our results, the major delay is attributable to patient. However, we find that the waiting time to get an appointment with Maxillofacial Unit is too long for patient referred by family doctors and dentists (α <0,01). Moreover, we could observe that other hospital professionals such as emergency physicians and ENT specialists take less time to suspect oral cancer than family doctors or dentists (α <0,01). However, dentists suspected oral cancer earlier than family doctors (α <0,01).the major diagnostic delay is due to patient and this could depends on several variables. However, the waiting time to obtain a specialist consultation after the request of family doctors or dentists is too long. The creation of special derivation protocols is essential in cases of suspicious lesions.
Keywords: Oral Cancer; Diagnostic Delay; Preventable deaths; Preventable mutilations; Oral self-examination

INTRODUCTION:

Oral cancer is a public health problem which provokes significant morbidity and mortality. It presents an incidence of 274,300 cases and 128,000 deaths per year worldwide [1]. Recognized risk factors are tobacco and alcohol. In addition, human papillomavirus (HPV) infection represent a major risk factor for young people. It is important to emphasize that oral cancer offers one of the lowest 5-year survival rates (≤ 50%) among the major types of cancer. Specifically, the survival rate decreases dramatically in advanced-stage [2]. Thus, early diagnosis and treatment is essential for obtaining good prognosis, and delay in diagnosis makes treatment difficult or impossible. Indeed, patients with advanced stage disease show significantly worse functional results and treatment is extremely mutilating [3,4].

In this sense, oral cancers could be detected early with a simple inspection of the oral cavity. Notwithstanding, the rate of early diagnosis has not really improved over the years. The reasons for this differ but generally the lack of awareness about oral cancer among civil society, family doctors and dentists might contribute to increasing the diagnostic delay [2,5]. The main aim of the present report is twofold. First, we analyze the factors influencing the diagnostic delay of this disease in order to identify the weaknesses of diagnostic process. Second, we would like to generate a medical and social sensitization about oral cancers. These are the key points that should enhance patient's prognosis.

MATERIALS AND METHODS:

We analyzed the clinical history of 183 patient with oral cancer diagnosed in our center from 2013 to 2016. 101 of these were excluded from the study due to the lack of a complete clinical history (date of first symptoms, date of first medical consultation or date of surgery). Importantly, other six patients were not included in the study because the pathology was defined unrespectable (7.89%). Thus, 76 patients in total were included.

Predictors of diagnostic delay were divided into 3 major groups.

1- Delay attributable to patient:

In this group we considered the time that the patients took to consult a doctor after the appearance of the first sign or symptom associated with oral cancer. This factor is extremely variable for each patient and it depends on a series of variables such as personal pain

tolerance, cancer phobia, lack of awareness of oral cancer, absence of symptoms in early stages. This score was averaged.

2- Delay attributable to public health system:

In this category we examined the waiting time to obtain a specialist consultation after the request of primary care doctors, dentists, ENT specialists and emergency doctors. We used Enova for performing a multivariate analysis among the different groups. We also investigated the waiting time to perform radiological and histopathological tests to confirm diagnosis following the request of maxillofacial unit. In addition, we calculated the elapsed time between the appearance of the first symptoms and the cancer-removal surgery. These scores were averaged.

3- Delay attributable to professionals involved in diagnostic process:

In this group we analyzed the diagnostic delay provoked by different professional categories implied in the diagnostic process. Specifically, we studied the time needed for each professional to suspect oral cancer and refer patient to our service. Enova was used for calculating the delay attributable to various professionals.

RESULTS:

Ages of patients were ranged between 19 and 96 years, with a mean of 63.27. 51 were males and 25 females. The most common symptom referred by patients at presentation was sensation of ballooning or ulceration into the oral cavity, pain, swallow difficult and bleeding. Approximately, two-thirds of patients presented risk factors as smoke or alcohol intake. Follow the first consultation, several practitioners referred the patient to a specialist. However, some clinicians preferred starting an antibiotic or antifungal therapy as first treatment option, while others adopted a wait and see approach. With regard with diagnostic delay, our statistical analysis evidenced the following details:

1- Delay attributable to patient:

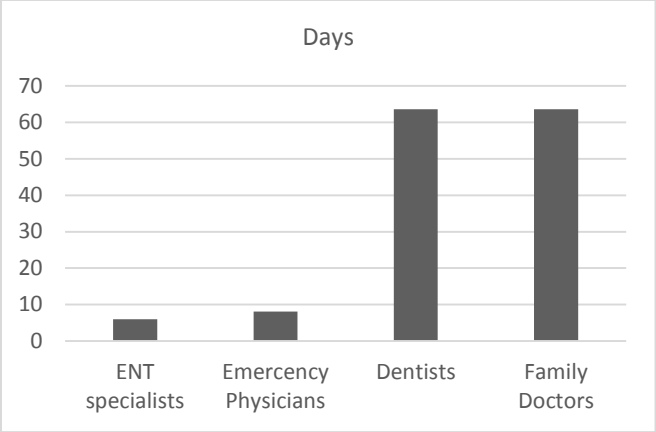
The average time for visiting a general practitioner or dentist after the presentation of the first symptom was 13.13 weeks (91.95 days). The asymptomatic evolution of early head and neck cancer, the lack of awareness about the existence of this disease and the lack of oral self-examination represent the main culprits of this delay.

2- Delay attributable to public health system:

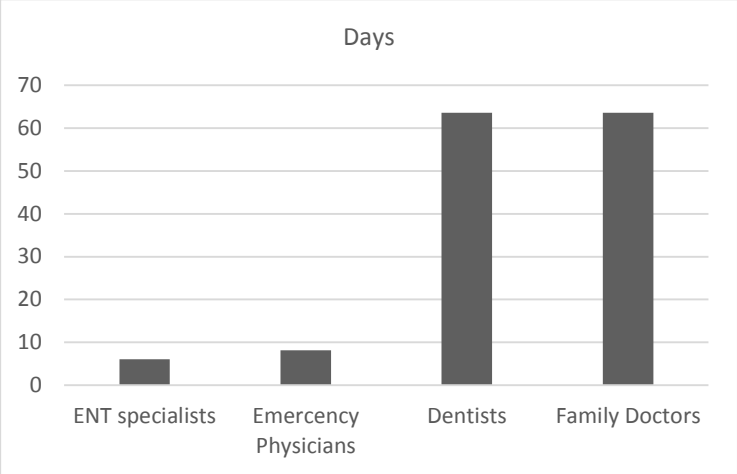
The waiting time to get an appointment with Maxillofacial Unit after an official request was 9.08 weeks (63.59 days) for family doctor and dentist, 1.16 weeks (8.12 days) for emergency physician and 0.86 weeks (6.03 days) for ENT specialists (α <0,01) (Fig 1). Consequently, the waiting time from the first symptom to the first consultation with Maxillofacial unit was 40.47 weeks (283.32 days) for patients referred by family doctors, 29.39 weeks (205.77 days) for patients referred by dentist, 17.01 weeks (119,08 days) for patients referred by emergency doctors and 14.64 weeks (102.49 days) for patients referred by ENT specialist. Finally, the time from the first symptom to extirpative surgery was 45.56 weeks (318.93 days), 34.62 weeks (242.38 days), 22.14 weeks (159.69 days) and 19.87 weeks (139.09 days) for patients referred by family doctors, dentists, emergency physician and ENT specialist respectively. In addition, the average time for concluding histopathological and radiological exams following maxillofacial unit request was 3.15 weeks and 3.03 weeks, respectively. Whereas, the average time from the first maxillofacial consultation to surgery was 5.23 weeks (36.61 days).

3- Delay attributable to professionals involved in diagnostic process:

In this study, patients referred by family doctors were 45. In contrast, patients referred by ENT services, Emergency services and dentists were 8, 12 and 11 respectively. Patients referred from other Hospital Services such as emergency or ENT show lower diagnostic delay than patient referred by family doctor or dentist. Nevertheless, patients referred by dentist experienced lower delay than patients that consulted a general practitioners as first diagnostic step. More in detail, according to our results the estimated time to suspect oral cancer was 0.57 weeks (4.5 days) for ENT specialists, 2.71 weeks (19.01 days) for emergency physicians, 7.17 weeks (50.23 days) for dentists and 9.91 weeks (69.37 days) for general practitioners (α <0,01) (Fig 2). Nevertheless, is important to note that most of patients referred by emergency services had consulted before a general practitioner or a dentist. In these cases, in order to avoid the waiting time for specialist consulting, patients were recommended to go to the emergency service directly.



Fig−1: Required Time to obtain an appointment with Maxillofacial Unit



Fig−2: Required time to suspect oral cancer depending on specialist.

DISCUSSION:

In contrast with other cancers, the survival of oral cancer has not significantly improved in the last years [6]. One reason for this is that the diagnosis is often delayed. This delay depends on several factors as zone, low symptoms in early stages, insidious nature of malignant lesions, lack of screening programs and lack of awareness about oral cancer in several medical fields [2, 7, 8, 9]. In accordance with these assertions, Rengaswamy and al., evidenced that periodic examination of the oral cavity might reduce the mortality related with this disease in high-risk patients. Specifically, 9 years after the start of screening, authors evidenced a significant reduction of mortality in the intervention group. Authors also affirmed that oral visual screening in presence of risk factors could prevent about 40 000 deaths. In this regard, screening performed in medical centers is even more effective than oral self-examination [10, 11].

Our result confirmed that the delay in oral cancer diagnosis could be related to numerous variables. For instance, major delay is attributable to patient. This is presumably due to the scarcity of symptom in early stages. In addition, the lack of knowledge in the society about this type of cancer should contribute. Against this backdrop, the promotion of media campaign or screening programmers should help to improve the society awareness about oral cancer [7, - 14].

In relation with the factors attributable to public health system, the finding of a median total delay of 9.08 weeks (63.59 days) to obtain a specialist visit after the request of family doctors and dentists was much longer than expected. Lamentably, no official derivation protocols exist for these professionals if oral cancer is suspected. In contrast, clear referral mechanisms and protocols exist for other hospital professionals as emergency doctors and ENT specialists. Due to this, general practitioners and dentists usually refer these patients to emergency services with the hope to accelerate the final diagnosis. Hence, we would like to point out that the creation of a special derivation protocols might accelerate the diagnosis [6, 15-17]. This is extremely important, considering the fact that several papers demonstrated that a longer time interval from first symptom to diagnosis is a risk factor for advanced stage and mortality of oral cancer [18-20].

In relation with factors attributable to professionals, we highlight that patient referred by other Hospital Services (Emergency or ENT) experience lower diagnostic delay than patients referred by family doctors or dentists. In our opinion this data is due to the major awareness about oral cancer of these professionals. Dentists and family doctors usually start treating oral lesions with antibiotic, antifungal or symptomatic therapy and this contribute to diagnostic delay. Moreover, several family practitioners not perform a periodical examination of oral cavity in patient with high risk factors. For all these reasons, we firmly believe that a major education of dentists and family doctors about this disease is essential. Training program and common clinical session could help to improve the knowledge of oral cancer and facilitate early diagnosis. In fact, upon arrival to maxillofacial service, the waiting time for concluding the diagnostic process (radiological and histopathological tests) is not excessive.

Importantly, professionals must suspect oral cancer in non-smokers too. Lamentably, these patients present major diagnostic delays [2]. Clinicians may extensively examine every patient that refers the appearance of symptoms related with oral cavity. In this line, Lydia *et al* suggested the following guidelines [20]:

1- Patient's sensation that something is different in the mouth need to be investigated in depth;
2- Is mandatory to obtain a firm diagnosis for any oral lesion;
3- Cancer has to be suspected in all patients with symptoms, despite their age;
4- A definitive diagnosis must be obtained in maximum 3 months;
5- Biopsy of any suspect lesion is essential;

The authors also recommend that primary care physicians and dentists should insist in oral cancer screening.

CONCLUSIONS:

This paper contains four central points. First, the major diagnostic delay is due to patient and this could depends on a series of variables as personal pain tolerance, cancer phobia, lack of awareness about gravity of oral cancer and absence of symptoms in early stages. Second, a major interaction between head and neck cancer specialists, family doctors and dentists might be useful for reducing the diagnostic delay attributable to professionals. Third, media campaign is essential to improve the society awareness about this pathology. Fourth, the average time to obtain a specialist consultation is too long when the request is made by family doctors or dentists. The creation of special derivation protocols is essential in case of suspicious lesions.

Conflict of interest:

The authors declare that they have no conflict of interests.

Ethical standards:

Authors declare we that they have taken into account the ethical responsibilities.

Financial assistance:

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Informed Consent:

All patients agreed to participate in the study, and all of these signed the informed consent.

REFERENCES:

1. Parkin, D. M., Läärä, E., & Muir, C. S. (1988). Estimates of the worldwide frequency of sixteen major cancers in 1980. International journal of cancer, 41(2), 184-197.
2. Yu, T., Wood, R. E., & Tenenbaum, H. C. (2008). Delays in diagnosis of head and neck cancers. Journal of the Canadian Dental Association, 74(1).
3. Onizawa, K., Nishihara, K., Yamagata, K., Yusa, H., Yanagawa, T., & Yoshida, H. (2003). Factors associated with diagnostic delay of oral squamous cell carcinoma. Oral Oncology, 39(8), 781-788.
4. Groome, P. A., Rohland, S. L., Hall, S. F., Irish, J., Mackillop, W. J., & O'Sullivan, B. (2011). A population-based study of factors associated with early versus late stage oral cavity cancer diagnoses. Oral oncology, 47(7), 642-647.
5. Rogers, S. N., Vedpathak, S. V., & Lowe, D. (2011). Reasons for delayed presentation in oral and oropharyngeal cancer: the patients perspective. British Journal of Oral and Maxillofacial Surgery, 49(5), 349-353.
6. Gómez, I., Warnakulasuriya, S., Varela-Centelles, P. I., López-Jornet, P., Suárez-Cunqueiro, M., Diz-Dios, P., & Seoane, J. (2010). Is early diagnosis of oral cancer a feasible objective? Who is to blame for diagnostic delay?. Oral diseases, 16(4), 333-342.
7. Seoane-Romero, J. M., Vázquez-Mahía, I., Seoane, J., Varela-Centelles, P., Tomás, I., & López-Cedrún, J. L. (2012). Factors related to late stage diagnosis of oral squamous cell carcinoma. Medicina oral, patologia oral y cirugia bucal, 17(1), e35.
8. Hollows, P., McAndrew, P., & Perini, M. (2000). Delays in the referral and treatment of oral squamous cell carcinoma. British dental journal, 188(05), 262.
9. Kerdpon, D., & Sriplung, H. (2001). Factors related to delay in diagnosis of oral squamous cell

carcinoma in southern Thailand. Oral oncology, 37(2), 127-131.
10. Mignogna, M. D., & Fedele, S. (2005). Oral cancer screening: 5 minutes to save a life. The Lancet, 365(9475), 1905-1906.
11. Mignogna, M. D., Fedele, S., Russo, L. L., Ruoppo, E., & Muzio, L. L. (2002). Costs and effectiveness in the care of patients with oral and pharyngeal cancer: analysis of a paradox. European journal of cancer prevention, 11(3), 205-208.
12. Petti, S., & Scully, C. (2007). Oral cancer knowledge and awareness: primary and secondary effects of an information leaflet. Oral oncology, 43(4), 408-415.
13. Panzarella, V., Pizzo, G., Calvino, F., Compilato, D., Colella, G., & Campisi, G. (2014). Diagnostic delay in oral squamous cell carcinoma: the role of cognitive and psychological variables. International journal of oral science, 6(1), 39.
14. Paleri, V., Wight, R. G., Silver, C. E., Haigentz, M., Takes, R. P., Bradley, P. J., ... & Ferlito, A. (2010). Comorbidity in head and neck cancer: a critical appraisal and recommendations for practice. Oral oncology, 46(10), 712-719.
15. Crossman, T., Warburton, F., Richards, M. A., Smith, H., Ramirez, A., & Forbes, L. J. (2016). Role of general practice in the diagnosis of oral cancer. British Journal of Oral and Maxillofacial Surgery, 54(2), 208-212.
16. Speight, P. M., Palmer, S., Moles, D. R., Downer, M. C., Smith, D. H., Henriksson, M., & Augustovski, F. (2006). The cost-effectiveness of screening for oral cancer in primary care.
17. Valente, V. B., Takamiya, A. S., Ferreira, L. L., Felipini, R. C., Biasoli, É. R., Miyahara, G. I., & Bernabé, D. G. (2016). Oral squamous cell carcinoma misdiagnosed as a denture-related traumatic ulcer: a clinical report. The Journal of prosthetic dentistry, 115(3), 259-262.
18. Seoane, J., Alvarez–Novoa, P., Gomez, I., Takkouche, B., Diz, P., Warnakulasiruya, S., & Varela–Centelles, P. (2016). Early oral cancer diagnosis: The Aarhus statement perspective. A systematic review and meta-analysis. Head & neck, 38(S1).
19. Seoane, J., Takkouche, B., Varela-Centelles, P., Tomás, I., & Seoane-Romero, J. M. (2012). Impact of delay in diagnosis on survival to head and neck carcinomas: a systematic review with meta-analysis. Clinical Otolaryngology, 37(2), 99-106.
20. Gómez, I., Seoane, J., Varela-Centelles, P., Diz, P., & Takkouche, B. (2009). Is diagnostic delay related to advanced-stage oral cancer? A meta-analysis. European journal of oral sciences, 117(5), 541-546.
21. Lydiatt, D. D. (2002). Cancer of the oral cavity and medical malpractice. The Laryngoscope, 112(5), 816-819.