

# Oral Lesions Diagnosed during Oral Cancer Prevention Campaign in Fernandópolis, Brazil, 2015

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## ABSTRACT

**Background:** To describe oral lesions diagnosed during oral cancer prevention campaign performed in Fernandópolis, Brazil, in 2015.

**Materials and methods:** Patients who attended for the Basic Health Units of the city of Fernandópolis on the day of the campaign were examined by dental surgeons who searched for oral lesions clinically suggestive for oral squamous cell carcinoma (SCC) or potentially malignant lesions. Final diagnosis was obtained by a re-evaluation of patients with suspicious lesions performed by an expert in oral diseases.

**Results:** Seven hundred and sixty-two patients were examined during the campaign; although 96 (12.59%) presented with oral suspicious lesions and forwarded for re-evaluation, only 72 (9.44%) attended for re-evaluation and got the final diagnosis. Among re-evaluated patients, only 1 (1.38%) was diagnosed with oral SCC, whereas 56 (77.77%) were diagnosed with oral benign lesions, and 19 (26.38%) were diagnosed with oral normality variations.

**Conclusion:** Oral cancer low diagnosis rate detected during this campaign might be attributed to lacks on oral cancer prevention campaign methodologies, which clearly needs to be improved aiming to reach patients in real risk for oral cancer development. Furthermore, oral benign lesions diagnosis among patients forwarded with suspicious lesions rates suggests a lack on dental surgeons' knowledge regarding oral cancer.

**Keywords:** Oral diseases, Oral health, Oral neoplasms, Prevention, Public health.

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## INTRODUCTION

As one of the most prevalent human malignant diseases, oral and oropharyngeal cancer represents a challenging public health problem worldwide, showing low cure and 5-year survival rates.<sup>1</sup> For the year 2014, 11.280 new oral cancer cases were estimated for male individuals, whereas 4.010 new cases were estimated for female individuals in Brazil.<sup>2</sup> Squamous cell carcinoma (SCC), which develops from the lining epithelium cells, is the most prevalent malignant lesion occurring in oral cavity, representing about 90% of all oral malignancies.<sup>3</sup> Oral mucosa carcinogenesis is nowadays clearly associated to harmful habits such as abusive alcohol drinking and tobacco smoking.<sup>4</sup> Furthermore, oral cancer has been associated to chronic solar radiation exposure and human papillomavirus (HPV) infection.<sup>5,6</sup>

Clinically, oral squamous cell carcinoma (OSCC) might be recognized by painless ulcers with more than 2 weeks duration period. Nevertheless, exophytic, leukoplakic and erythroplastic lesions might also clinically suggest oral mucosa carcinogenesis.<sup>3,6</sup> Furthermore, in some cases, OSCC might develop from oral potentially malignant lesions, which, according to World Health Organization (WHO), are lesions with increased risk for malignant evolution when compared to normal mucosa.<sup>7</sup> Among these lesions, oral leukoplakia stands out as the most prevalent, although, oral erythroplakia lesions shows a higher malignant potential; oral lichen planus and actinic cheilitis, which is due to chronic solar exposure and precedes lip carcinogenesis, are also considered oral potentially malignant lesions.<sup>7,8</sup>

Early diagnosing OSCC is mandatory for improving affected patients' cure and long-term survival chances, besides reduce morbidity associated to the disease and treatment, and also reduce costs.<sup>9</sup> Unfortunately, in most of cases OSCC is diagnosed in advanced stages, explaining high mortality rates associated to oral cancer.<sup>10</sup> Several authors have described factors which might be associated to delayed oral cancer diagnosis, and two factors seem to seriously aggravate this delay.<sup>9,10</sup> Apparently, there is a lack regarding general population awareness about oral cancer, once, most commonly, affected patients appear for professional care 4 to 8 months after noticing

any signal in oral mucosa.<sup>6,9,11</sup> Furthermore, several studies have demonstrated lacks on dental surgeons' knowledge and capacity for clinically recognizing and early diagnosing OSCC, and although some studies have demonstrated satisfactory knowledge regarding this disease by these professionals, there is a general agreement regarding the need for continuous education programs aiming to adequately train dental surgeons for early diagnosing and preventing OSCC.<sup>12-14</sup>

Aiming to raise awareness regarding oral cancer among general population, Fernandópolis city (São Paulo, Brazil) public health service and the Camilo Castelo Branco University Dentistry School, performed an oral cancer prevention campaign, which in patients were clinically examined by public health dental surgeons searching for oral cancer clinically suggestive signals, and furthermore, dental surgeons instructed patients regarding the importance of early diagnosing oral cancer, oral self-examination and prevention attitudes regarding this malignance. During this campaign, several oral lesions were diagnosed among these patients; therefore, the aim of this paper is to present diagnosed lesions rates from this campaign.

## MATERIALS AND METHODS

This study is characterized as a cross-sectional study which in the aim was to evaluate the oral cancer diagnosis rate during an oral cancer prevention campaign performed in May 2015.

### Sample

Patients who attended for Basic Health Units on the Fernandópolis city (São Paulo, Brazil) on the refereed campaign day.

### Examiners' Calibration

Dental surgeons performing clinical activities for the Fernandópolis city public health service were previously trained by an expert in oral cancer diagnosis professional, who instructed public dental surgeons regarding clinical diagnosis, preventive conducts and the importance of early diagnosing oral cancer and oral potentially malignant disorders. Moreover, dental surgeons were encouraged to adequately instruct patients to perform oral self-examination.

### Initial Examination

Initial patients' examination consisted on a free oroscopy performed by calibrated dental surgeons. This clinical examination aimed to detect lesions in the oral mucosa

and verbal recommendations regarding risk factors for oral cancer occurrence and the importance of self-examination for oral cancer early detection. Visual examination had its validity confirmed by study performed by Alves et al<sup>15</sup> (2013), which in this technique demonstrated great value for preventive oral cancer programs and public health campaigns.

### Final Diagnosis

Patients who presented with malignant or potentially malignant suspicious oral lesions over oral mucosa during the day which in the oral cancer prevention campaign was performed were forwarded to the Fernandópolis Dental Specialties Center, where they were re-evaluated by the professional responsible by the oral pathology service of the center. This professional conducted adequately in front of each case, therefore right diagnosis was obtained for each patient.

## STATISTICAL ANALYSIS

Data were transferred to electronic tabulation program and variables of interest data were obtained using the program Epi Info<sup>TM</sup> version 7.1.5.0, which is proposed by the Centers for Disease Control and Prevention.

## RESULTS

During oral cancer prevention campaign performed in Fernandópolis, São Paulo, Brazil in May 2015, a total of 762 (n = 762) patients were examined by public health dental surgeons. Among these patients, 96 (12.59%) were detected with oral cancer clinically suggestive lesions and forwarded for the Fernandópolis Dental Specialties Center for re-evaluation by an expert in oral diseases and final diagnosis obtaining. Nevertheless, only 72 (9.44%, n = 762) attended for re-evaluation at the Dental Specialties Center (Table 1).

Among re-evaluated patients (n = 72), only 1 (1.38%) was diagnosed with OSCC, whereas 56 (77.77%) were diagnosed with benign lesions and 19 (26.38%) were diagnosed with oral normality variations (Table 1).

**Table 1:** Examined patients and diagnosis, oral cancer prevention campaign, Fernandópolis, São Paulo, Brazil, 2015

Patients	Nº	%
Examined	762	100
Forwarded for re-evaluation	96	12.59
Re-evaluated	72	9.44
<i>Diagnosis</i>	<i>n = 72</i>	<i>%</i>
Malignant lesions	1	1.38
Benign lesions	56	77.77
Normality variations	19	26.38

When considering the total of 762 examined patients during the campaign, oral cancer diagnosis rate is 0.13%, benign lesions diagnosis rate is 7.34% and oral normality variations diagnosis rates is 2.49%.

Of the oral benign lesions diagnosed on the campaign ( $n = 56$ ), the most prevalent was the hemangioma, with 10 (17.85%) lesions diagnosed, followed by candidiasis with 9 (16.07%) lesions, leukoplakia with 8 (14.28%) lesions and fibroma, also with 8 (14.28%) diagnosed lesions (Table 2). Among oral normality variations diagnosed, geographic tongue stands out as the most prevalent, with 5 (26.31%) diagnosed cases. Racial melanocytic pigmentations were diagnosed in 4 (21.5%) patients, Fordyce granules in 3 (15.78%), and tongue varicosities were also diagnosed in 3 (15.78%) patients (Table 3).

## DISCUSSION

Early diagnosing oral cancer is mandatory for improving affected patients' cure and long-term survival chances, besides reduce morbidity and treatment costs.<sup>10</sup> Nevertheless, most commonly, oral cancer cases are diagnosed in advanced stages, making this disease a public health problem worldwide.<sup>9,10</sup> Therefore, attitudes aiming to early diagnosing and rising awareness regarding oral cancer early detection and prevention among general population are required, once high rates of oral cancer

cases associated to harmful habits, such as tobacco smoking and alcohol drinking suggests this is a preventable malignance.<sup>16,17</sup>

Delayed OSCC diagnosis is clearly associated to general population awareness regarding this malignancy.<sup>18</sup> Agrawal et al<sup>19</sup> (2012) reported the unsatisfactory awareness of the general public regarding oral cancer, commenting the need for further dissemination of information on this issue and its associated risk factors. Our results, as well as in these studies, suggests lacks on general population concerning oral cancer, once of the 96 patients forwarded with suspicious lesions for re-evaluation only 72 attended for the Fernandópolis Dental Specialties Center and had a final diagnosis.

Oral cancer low diagnosis rate obtained during this campaign might be also attributed to dental surgeons' capacity to clinically recognize OSCC clinical signs, once oral benign lesions and normality variations diagnosis rates (7.34 and 2.49%, respectively) were widely higher when compared to OSCC diagnosis rate (0.13%). Several studies have reported lacks on dental surgeons' knowledge regarding oral cancer, and although some studies described this knowledge as satisfactory, the need for improving dental surgeons' knowledge and capacities for adequately diagnosing and educate general population regarding oral self-examination and oral cancer prevention is still undisputed.<sup>12-14</sup>

Although high oral cancer occurrence rates reported in literature, during oral cancer prevention campaign performed in Fernandópolis, SP, Brazil in 2015 we identified an extremely low rate of oral cancer diagnosis (0.13%). However, we believe this low oral cancer diagnosis rate might not be attributed to a decrease in oral cancer prevalence. According to Nemoto et al<sup>16</sup> (2015), oral cancer prevention campaigns does not reach patients in risk group for oral cancer development; furthermore, on the same study authors commented although these campaigns are well structured and reaches a large number of people, further forms of prevention should be developed in order to reach the real risk group for this disease, which consists, generally in chronic alcohol drinkers and tobacco smokers. Nevertheless, several groups around the world have performed oral cancer prevention and awareness campaigns using different methodologies, such as oral cancer information dissemination campaigns by media resources, however, Saleh et al<sup>20</sup> (2012) reported oral cancer prevention campaign by mass media approach was not effective to improve respondents' ability to recognize oral cancer signs or retain information obtained from media, and furthermore, commented the need for re-assessing campaigns strategies aiming to improve comprehension, acceptability and potential effectiveness concerning

**Table 2:** Oral benign lesions diagnosis, oral cancer prevention campaign, Fernandópolis, São Paulo, Brazil, 2015

<i>Benign lesions</i>	<i>n = 56</i>	<i>%</i>
Fibrous inflammatory hyperplasia	7	12.5
Leukoplakia	8	14.28
Candidiasis	9	16.07
Recurrent aphthous ulcer	5	8.92
Hemangioma	10	17.85
Fibroma	8	14.28
Lipoma	4	7.14
Granuloma	3	5.35
Amalgam tattoo	2	3.57
Total	56	100

**Table 3:** Oral normality variations diagnosis, oral cancer prevention campaign, Fernandópolis, São Paulo, Brazil, 2015

<i>Normality variations</i>	<i>n = 19</i>	<i>%</i>
Tongue varicosities	3	15.78
Geographic tongue	5	26.31
Torus (palatal or mandibular)	2	10.52
Fordyce granules	3	15.78
Fissured tongue	2	10.52
Racial melanocytic pigmentation	4	21.05
Total	19	100



these campaigns. On the other hand, some studies have reported effectiveness regarding oral cancer prevention campaigns compatible with campaign described on this study.<sup>21</sup> Nevertheless, as commented by Martins-Filho et al<sup>22</sup> (2014), although the fight against oral cancer in Brazil is almost secular, there is still a lot to be done aiming to combat this disease, especially in the field of primary prevention, stressing the importance regarding works around this disease and the need for more competent attitudes for preventing oral cancer.

Among oral benign lesions diagnosed during the campaign (n = 56), one of the most commons was the leukoplakia (14.28%). Although being benign on its behavior, oral leukoplakia is considered as the most common potentially malignant disease, showing increased potential to evolve malignantly when compared to normal mucosa and other oral lesions.<sup>7,8</sup> Malignant transformation rates for leukoplakia lesions are variable, depending on the sample selection and the follow-up time; Lončar-Brzak et al<sup>23</sup> (2012), have reported malignant evolution rate on a 10-year follow-up period was 0.64% among 139 leukoplakia lesions studied. Brouns et al<sup>24</sup> (2014), recently reported among 144 leukoplakia lesions studied on a 51 months follow-up period, malignant transformation rate was approximately 2.6%. Although leukoplakia malignant evolution rates are lower when compared to malignant evolutions rates for oral erythroplakia<sup>7,8</sup> the risk for OSCC occurrence in patients diagnosed with leukoplakia is clear, therefore, patients diagnosed with oral leukoplakia during this campaign will have a periodical follow-up and therapeutic intervention, if necessary.

## CONCLUSION

Oral cancer low diagnosis rates during this campaign suggests a need for re-assessing these campaigns' methodologies aiming to reach patients with real risk for oral cancer development. Furthermore, high rates of oral benign lesions forwarded as clinically suggestive for oral cancer indicates lacks on dental surgeons' to clinically recognize oral cancer suggestive lesions, requiring continued education programs regarding this malignance for these professionals.

## REFERENCES

- Jemal A, Bray F, Center MM, Ferlay J, Ward E, Forman D. Global cancer statistics. *CA Cancer J Clin* 2001;61(2):69-90.
- Instituto Nacional de Câncer José Alencar Gomes da Silva-INCA. Coordenação Geral de Ações Estratégicas, Coordenação de Prevenção e Vigilância. Estimativa 2014. Incidência de Câncer no Brasil. Rio de Janeiro: Inca 2014.
- Pires FR, Ramos AB, Oliveira JBCD, Tavares AS, Luz PSRD, Santos TCRBD. Oral squamous cell carcinoma: clinicopathological features from 346 cases from a single oral pathology service during an 8-year period. *J Appl Oral Sci* 2013;21(5):460-467.
- Hashibe M, Brennan P, Chuang SC, Boccia S, Castellsague X, Chen C, et al. Interaction between tobacco and alcohol use and the risk of head and neck cancer: pooled analysis in the International Head and Neck Cancer Epidemiology Consortium. *Cancer Epidemiol Biomarkers Prev* 2009;18(2):541-550.
- Oliveira Ribeiro A, da Silva LCF, Martins-Filho PRS. Prevalence of and risk factors for actinic cheilitis in Brazilian fishermen and women. *Int J Dermatol* 2014;53(11):1370-1376.
- Chi AC. Patologia epitelial. In: Neville BW, et al. Patologia oral e maxilofacial. 3 ed. Rio de Janeiro: Elsevier; 2009. p. 363-453.
- Van der Waal I. Oral potentially malignant disorders: is malignant transformation predictable and preventable? *Med Oral Patol Oral Cir Bucal* 2014;19(4):386-390.
- Neville BW, Day TA. Oral cancer and precancerous lesions. *CA Cancer J Clin* 2002;52(4):195-215.
- Panzarella V, Pizzo G, Calvino F, Compilato D, Colella G, Campisi G. Diagnostic delay in oral squamous cell carcinoma: the role of cognitive and psychological variables. *Int J Oral Sci* 2014;6(1):39-45.
- Akbulut N, Oztas B, Kursun S, Evirgen S. Delayed diagnosis of oral squamous cell carcinoma: a case series. *J Med Case Rep* 2011;5(1):291-294.
- Tibaldi ACB, Tomo S, Boer NP, Simonato LE. Avaliação do conhecimento da população do município de Fernandópolis-SP em relação ao câncer bucal. *Arch Health Inv* 2015;4(1):6-12.
- Falcão MML, Alves TDB, Freitas VS, Coelho TCB. Conhecimento dos cirurgiões-dentistas em relação ao câncer bucal. *RGO Rev Gaúcha Odontol* 2010;58(1):27-33.
- Jaber MA. Dental practitioner's knowledge, opinions and methods of management of oral premalignancy and malignancy. *Saudi Dent J* 2011;23(1):29-36.
- Tomo S, Mainardi EC, Boer NP, Simonato LE. Conhecimento dos cirurgiões dentistas em relação ao câncer de boca. *Revista Arq Ciências Saúde* 2015;22(2):46-50.
- Alves JC, da Silva RP, Cortellazzi KL, de Lima Vazquez F, de Amorim Marques RA, Pereira AC, et al. Oral cancer calibration and diagnosis among professionals from the public health in São Paulo, Brazil. *Stomatologija* 2013;15(3):78-83.
- Nemoto RP, Victorino AA, Pessoa GB, da Cunha LLG, da Silva JAR, Kanda JL, et al. Oral cancer preventive campaigns: are we reaching the real target?. *Braz J Otorhinolaryngol* 2015;81(1):44-49.
- Van der Waal I. Are we able to reduce the mortality and morbidity of oral cancer; some considerations. *Med Oral Patol Oral Cir Bucal* 2013;18(1):33-37.
- Lombardo EM, da Cunha AR, Carrard VC, Bavaresco CS. Atrasos nos encaminhamentos de pacientes com câncer bucal: avaliação qualitativa da percepção dos cirurgiões-dentistas. *Ciênc Sau Col* 2014;19(4):1223-1232.
- Agrawal M, Pandey S, Jain S, Maitin S. Oral cancer awareness of the general public in Gorakhpur City, India. *Asian Pac J Cancer Prev* 2012;13(10):5195-5199.
- Saleh A, Yang YH, Ghani WMNWA, Abdullah N, Doss JG, Navonil R, et al. Promoting oral cancer awareness and early

- detection using a mass media approach. *Asian Pac J Cancer Prev* 2012;13(4):1217-1224.
21. Martins JS, de Abreu SCC, de Araújo ME, Bourget MMM, de Campos FL, Grigoletto MVD, et al. Estratégias e resultados da prevenção do câncer bucal em idosos de São Paulo, Brasil, 2001 a 2009. *Rev Panam Salud Pub* 2012;31(3):246-252.
  22. Filho M, PRS, Santos TDS, Silva LCFD, Piva MR. Oral cancer in Brazil: a secular history of Public Health Policies. *RGO Rev Gaúcha Odont* 2014;62(2):159-164.
  23. Lončar Brzak B, Mravak-Stipetić M, Canjuga I, Baričević M, Baličević D, Sikora M, Filipović-Zore I. The frequency and malignant transformation rate of oral lichen planus and leukoplakia—a retrospective study. *Coll Antropol* 2012;36(3):773-777.
  24. Brouns EREA, Baart JA, Karagozoglu KH, Aartman IHA, Bloemena E, Waal I. Malignant transformation of oral leukoplakia in a well-defined cohort of 144 patients. *Oral Dis* 2014;20(3):19-24.