

**Case study****ORAL MALIGNANT MELANOMA-A REPORT OF CASE AND REVIEW OF LITERATURE****ABSTRACT**

MELANOMA IS A POTENTIALLY AGGRESSIVE MALIGNANT TUMOR THAT ARISES FROM MELANOCYTES AND IS MOST COMMONLY CUTANEOUS IN ORIGIN. PATIENTS GREATER THAN 60 YEARS OF AGE HAVE HIGHER INCIDENCE OF MALIGNANT MELANOMA WITH A SLIGHT MALE PREDILECTION. PRIMARY ORAL MELANOMA IS AN EXTREMELY RARE MALIGNANT TUMOR. THE PREDOMINANT SITE OF PRIMARY ORAL MELANOMA IS THE HARD PALATE AND MAXILLARY ALVEOLUS. THE ASYMPTOMATIC EARLY STAGE OF THE LESION MAKES THE LATE DIAGNOSIS OF THE TUMOR. THIS ARTICLE PRESENTS A RARE CASE OF MALIGNANT MELANOMA OF MAXILLA WITH AN ASYMPTOMATIC PALATAL PIGMENTATION.

**INTRODUCTION**

MALIGNANT MELANOMA IS AN EXTREMELY RARE MALIGNANCY AND ACCOUNTS FOR ABOUT 1.3% OF ALL CANCERS.<sup>[1]</sup> MALIGNANT MELANOMA HAS A HIGHER PREVALENCE IN BLACKS, JAPANESE AND INDIANS.<sup>[1-5]</sup> THE INCIDENCE OF PRIMARY ORAL MALIGNANT MELANOMA VARIES FROM 0.2% TO 8% OF ALL MELANOMA.<sup>[1,3,5-9]</sup> THE COMMON SITE OF INVOLVEMENT IS HARD PALATE FOLLOWED BY MAXILLARY GINGIVA.<sup>[1,4,5]</sup> ORAL MELANOMA PRESENTS AS PIGMENTED MACULE OR MASS WITH A RAPID GROWTH RATE.<sup>[5,8]</sup> THE PATIENTS REMAIN ASYMPTOMATIC FOR A PERIOD OF SEVERAL MONTHS MAKING THE DIAGNOSIS DIFFICULT.<sup>[5,10]</sup> WE REPORT A CASE OF ASYMPTOMATIC PRIMARY MALIGNANT MELANOMA INVOLVING THE HARD PALATE.

## 25 CASE REPORT

26 A 71 YEAR OLD MALE PATIENT REPORTED TO THE DEPARTMENT OF ORAL MEDICINE  
27 AND RADIOLOGY, RAGAS DENTAL COLLEGE AND HOSPITAL, CHENNAI WITH A  
28 COMPLAINT OF MISSING TEETH. PATIENT HAD NO SYSTEMIC ILLNESS AND NO  
29 HISTORY OF ADVERSE HABITS.

30 ON CLINICAL EXAMINATION, DIFFUSE HYPO AND HYPER PIGMENTED AREAS WERE  
31 EVIDENT IN THE HARD PALATE. IT WAS EVIDENT THAT DURING THE PROSTHETIC  
32 TREATMENT, FOR THE REPLACEMENT OF MISSING TEETH THERE WAS GRADUAL  
33 PROGRESSION OF LESION IN WHICH THE HYPERPIGMENTED AREAS WERE  
34 ACCOMPANIED WITH A WELL-DEFINED BLACK COLOURED PLAQUE WITHIN THE  
35 DURATION OF ONE MONTH. THE LESION WAS ABOUT 4X3 CM IN SIZE AND PRESENT  
36 ON THE LEFT SIDE OF THE EDENTULOUS MAXILLARY ARCH. IT EXTENDS ANTERIORLY  
37 FROM THE ALVEOLAR RIDGE IN RELATION TO THE CLINICALLY MISSING 22, 23, 24.  
38 POSTERIORLY 1CM SHORT OF THE JUNCTION OF HARD AND SOFT PALATE, MEDIALY  
39 UP TO THE MIDLINE AND LATERALLY TILL THE EDENTULOUS ALVEOLAR RIDGE IN  
40 RELATION TO 26, 27. THE SURFACE OVER THE LESION APPEARED ROUGH AND  
41 CORRUGATED WITH ULCERATION OVER THE CENTRE OF THE LESION WITH AN  
42 IRREGULAR BORDER SURROUNDED BY WHITISH KERATOTIC AREAS. THE LESION  
43 WAS NON TENDER, NON SCRAPABLE WITH INDURATION EVIDENT ON PALPATION OF  
44 THE ULCERATED AREA. THE DIFFERENTIAL DIAGNOSIS INCLUDES PHYSIOLOGICAL  
45 PIGMENTATION, MELANOTIC NEVI, MELANOTIC MACULE, MELANOPLAKIA, ADDISONS  
46 DISEASE, PEUTZ-JEUGHERS, KOPOSIS SARCOMA.

47 AN INCISIONAL BIOPSY REVEALED DYSPLASTIC SURFACE EPITHELIUM. ATYPICAL  
48 MELANOCYTES ARE SEEN IN BASAL LAYER AND INVADING THE CONNECTIVE TISSUE  
49 STROMA IN FORMS OF CLUSTERS AND SINGLE CELLS. ATYPICAL MELANOCYTES

EXHIBITS A FEATURES OF NUCLEAR PLEOMORPHISM AND PROMINENT NUCLEOLI. THE DENSE FIBROUS CONNECTIVE TISSUE SHOWS A DIFFUSED CHRONIC INFLAMMATORY CELL INFILTRATE. VASCULARITY IS MODERATE. PATIENT WAS ADVISED FOR FURTHER INVESTIGATION AND SURGICAL RESECTION BUT THE PATIENT WAS NOT CONVINCED FOR THE TREATMENT.

## DISCUSSION

ORAL MELANOMAS ARE MALIGNANT NEOPLASM OF THE MELANOCYTES WHICH IS A NEURAL CREST CELL DERIVATIVE, PRESENT IN THE BASAL LAYER OF THE MUCOUS MEMBRANE.<sup>[4,10-12]</sup> THEY MAY ARISE EITHER FROM BENIGN MELANOCYTIC LESION OR FROM NORMAL MUCOSA. MUCOUS MEMBRANE OF NOSE, PARANASAL SINUS, PHARYNX AND CONJUNCTIVA ARE ALSO AFFECTED BY MELANOMA.<sup>[4]</sup> THE PERCENTAGE OF MELANOMA AFFECTING THE SKIN IS 91.2%, EYES OF ABOUT 5.2% AND MUCOSAL SURFACE IS 1% IN WHICH 55.4% OF MUCOSAL LESION AFFECTS THE HEAD AND NECK REGION.<sup>[13]</sup>

INCIDENCE OF ORAL MELANOMA ACCOUNTS FOR 0.2%-8% OF ALL MELANOMAS WITH 1.2% OF NEW CASES PER 10 MILLION PER YEAR.<sup>[3,10,14]</sup> VANDERWALL ET AL. IN HIS STUDY REPORTED 2.5% OF ALL MELANOMAS AFFECTS ORAL CAVITY WHERE AS ROBBER SON ET AL AND REDDY ET AL ESTIMATED 0.4% TO 1.3% OF ORAL CONCURRENCE.<sup>[3,13,14,]</sup> THE PREVALENCE OF ORAL MELANOMA IS GREATER FOR BLACKS, JAPANESE, INDIANS DUE TO INCREASED RATE OF MELANIN PIGMENTATIONS IN THESE RACES.<sup>[1-4]</sup>

ORAL MELANOMA IS MORE PREVALENT AMONG ELDERLY MALE OF AGE ABOVE 60 YEARS. ACCORDING TO RAPINI ET AL., MORE FREQUENTLY AFFECTED AGE GROUP

74 FOR ORAL MELANOMA IS BETWEEN 41 TO 60 YEARS.<sup>[9]</sup> INCIDENCE INCREASES AS AGE  
 75 INCREASES.<sup>[15]</sup> ORAL MELANOMA IS EXTREMELY RARE IN YOUNGER AGE GROUP.<sup>[9]</sup>  
 76 HASHENIPOUR IN HIS STUDY FOUND THAT MALE TO FEMALE RATIO IS 2:1 WITH AN  
 77 AGE RANGE FROM 56-77 YEARS. STUDY OF BARKER ET AL., HICKS AND FLAITSZ ALSO  
 78 AGREES THAT MELANOMA HAS MALE PREDILECTION.<sup>[3]</sup> THIS IS IN ACCORDANCE TO  
 79 OUR CASE WHERE THE PATIENT WAS 71 YEAR OLD MALE.

80 ORAL MELANOMA HAS NO SPECIFIC ETIOLOGY. IN MORE THAN HALF OF THE ORAL  
 81 MELANOMA PATIENTS, P53 GENE ALTERATIONS ARE NOTED WITH LOSS OF  
 82 EXPRESSION OF P16 WHICH IS A TUMOR SUPPRESSOR GENE.<sup>[2,4,15,16]</sup> LOSS OF  
 83 HETEROZYGOSITY OF 12P13 AND P27KIP1 IS ALSO NOTICED.<sup>[2,4,16]</sup> THE POSSIBLE  
 84 ETIOLOGICAL FACTORS INCLUDE MECHANICAL TRAUMA, ILL FITTING DENTURE, USE  
 85 OF TOBACCO AND FORMALDEHYDE EXPOSURE.<sup>[1,2,4,5,8,12,15,16,17]</sup> INHALATION AND  
 86 INGESTION OF ENVIRONMENTAL CARCINOGENS AT HIGHER BODY TEMPERATURE  
 87 MAY ALSO ACTS AS A TRIGGERING FACTOR.<sup>[4,15,16,17]</sup> IN OUR PATIENT, THE PROBABLE  
 88 ETIOLOGICAL FACTOR MAY BE MECHANICAL TRAUMA DURING THE REPLACEMENT OF  
 89 MISSING TEETH SINCE HE IS DEVOID OF ANY ADVERSE ORAL HABITS.

90 ORAL MELANOMA MAY OR MAY NOT FOLLOW BY THE PREVIOUS  
 91 PIGMENTATIONS.<sup>[3,14,15,16,19]</sup> TAKAGI ET AL. SHOWED 30-73% OF MELANOMA IS  
 92 PRECEDED BY THE PIGMENTED LESION.<sup>[5]</sup> UMEDA ET AL. REPORTED THAT TYPICAL  
 93 ORAL MELANOMA USUALLY DISPERSED WITH THREE DISTINCT COMPONENTS,  
 94 CENTRAL NODULAR COMPONENT WITH BROWNISH BLACK PIGMENTED PLAQUE  
 95 WHICH IS SURROUNDED BY A MACULE.<sup>[4,15]</sup> TANKA ET AL. FOUND FIVE TYPES OF  
 96 CLINICAL REPRESENTATION OF ORAL MELANOMA NAMELY PIGMENTED NODULAR, NON  
 97 PIGMENTED NODULAR, PIGMENTED MACULAR, PIGMENTED MIXED, NON PIGMENTED  
 98 MIXED TUMOR.<sup>[2,3,4,14,16,17]</sup>

99 ORAL MELANOMA MOST COMMONLY INVOLVES HARD PALATE (32%), MAXILLARY  
100 GINGIVA (16%), FOLLOWED BY LOWER GINGIVAL MUCOSA (7%), BUCCAL MUCOSA  
101 (7%), TONGUE (7%) AND FLOOR OF THE MOUTH.<sup>[1,2]</sup> IN CASE OF SECONDARY LESION,  
102 COMMONLY INVOLVED SITES ARE TONGUE FOLLOWED BY PAROTID AND TONSILS.<sup>[2,14]</sup>  
103 ORAL MELANOMA IN GENERAL, USUALLY STARTS AS INITIAL RADICAL GROWTH  
104 PHASE WHICH IS FOLLOWED BY SUDDEN VERTICAL GROWTH PHASE WHICH LEADS  
105 TO INVASION OF THE UNDERLYING TISSUES.<sup>[15,19]</sup> THE CLINICAL PRESENTATION OF  
106 ORAL MELANOMA VARIES FROM ASYMPTOMATIC MACULE TO A LARGE EXOPHYTIC  
107 GROWTH WITH A WIDE COLOUR VARIATION. THE LESION MAY LATER ULCERATE,  
108 BLEED AND HAS RAPID ENLARGEMENT CAUSING LOOSENING OF TEETH.<sup>[5,8,10,18]</sup> OUR  
109 PATIENT HAD DIFFUSE HYPERPIGMENTATIONS IN THE HARD PALATE PRIOR TO THE  
110 PROGRESSION OF LESION. THE LESION WAS AN ASYMMETRICAL, IRREGULAR,  
111 BLACKISH PLAQUE WITH A DIAMETER OF MORE THAN 6MM ACCOMPANIED WITH  
112 ULCERATION IN THE CENTRE OF THE LESION THAT SATISFIES THE ABCD CHECK LIST  
113 OF MELANOMA.<sup>[1,16,18]</sup>

114 CRITERIA FOR THE DIAGNOSIS OF PRIMARY ORAL MELANOMA WAS FIRST PROPOSED  
115 BY GREEN ET AL IN 1953 WHICH INCLUDES, DEMONSTRATION OF CLINICAL AND  
116 MICROSCOPIC TUMOR IN THE ORAL MUCOSA, JUNCTIONAL ACTIVITY IN THE ORAL  
117 MUCOSA AND INABILITY TO SHOW ANY OTHER PRIMARY SITE.<sup>[4,8,12,13,15,16]</sup> OUR PATIENT  
118 SATISFIES THE ABOVE CRITERIA SINCE HE WAS PRESENTED ONLY WITH ORAL  
119 PIGMENTATIONS. UNION OF INTERNATIONAL CANCER CONTROL (UICC) DISTINGUISH  
120 MALIGNANT MELANOMA INTO THREE STAGES DEPENDING ON THEIR CLINICAL AND  
121 HISTOLOGIC FINDINGS AS STAGE I-LOCALIZED DISEASE, STAGE II- REGIONAL LYMPH  
122 NODE METASTASIS, STAGE III-WITH DISTANT METASTASIS.<sup>[17]</sup>

123 ORAL MELANOMAS SHOULD BE DIFFERENTIATED FROM OTHER PIGMENTED LESIONS  
124 OCCURRING IN THE ORAL CAVITY SUCH AS PHYSIOLOGICAL PIGMENTATIONS, ORAL  
125 MELANOTIC MACULE, SMOKERS MELANOSIS, MELANOTIC NEVI, AMALGAM TATTOO,  
126 DRUG INDUCED PIGMENTATIONS, MELANOPLAKIA, ADDISONS DISEASE, PEUTZ  
127 JOGHERS SYNDROME, KAPOSIS'S SARCOMA.<sup>[1,3,4,5,12,14,15,17,18]</sup> ACCORDING TO THE RULE  
128 OF THUMB, A PIGMENTED LESION WITH NO CHANGES LASTING FOR MORE THAN FIVE  
129 YEARS ARE NOT CONSIDERED AS MALIGNANT MELANOMA AND BIOPSY IS NOT  
130 REQUIRED.<sup>[18]</sup> THE DIAGNOSIS IS CONFIRMED BY HISTOPATHOLOGICAL EXAMINATION  
131 USING VARIOUS MARKERS SPECIFICALLY FOR MELANOMA.

132 THE HISTOLOGICAL APPEARANCE OF PRIMARY MELANOMA SHOWS VARIATIONS IN  
133 NUCLEAR SIZE, SHAPE AND STAINING CHARACTERISTICS OF MELANOCYTES.<sup>[2,5]</sup> IN  
134 CASE OF AMELANOTIC MELANOMA THERE WILL BE SCARCE MELANIN OR ABSENCE  
135 OF MELANIN EVIDENT.<sup>[3,13]</sup> IN THESE CIRCUMSTANCES IMMUNOHISTOCHEMISTRY  
136 SHOULD BE MANDATORY. WESTERN SOCIETY OF TEACHERS OF ORAL PATHOLOGY  
137 (WESTOP) WORK SHOP IN THE YEAR 1995 HELD AT BANFF, CANADA SUGGESTED  
138 THAT THE ORAL MELANOMA ARE RECOGNIZABLY DIFFERENT FROM NATURE OF  
139 CUTANEOUS MELANOMA AND RECOMMENDED TO CLASSIFY THEM INTO FOUR  
140 HISTOLOGICAL PATTERNS NAMELY 1. IN SITU TYPE WHICH ACCOUNTS FOR 15% OF  
141 ORAL MELANOMA, 2. INVASIVE TYPE AMOUNTS FOR 30%, 3. COMBINATION TYPE IS A  
142 COMBINATION OF INVASIVE WITH IN SITU COMPONENTS WHICH ACCOUNTS FOR 55%  
143 OF ORAL MELANOMA, 4. ATYPICAL TYPE.<sup>[4,6,7,12,16,19]</sup>

144 PRASAD ET AL. IN 2004 PROPOSED A CLASSIFICATION WHICH INCLUDES LEVEL 1-IN  
145 SITU MUCOSAL MELANOMA WITHOUT INVASION, LEVEL 2-INVASION UP TO LAMINA  
146 PROPRIA, LEVEL 3- DEEP INVASION INTO BONE, CARTILAGE, SKELETAL MUSCLE.<sup>[6,10]</sup>  
147 IN OUR CASE, HISTOPATHOLOGY REVEALS THE PRESENCE OF ATYPICAL

148 MELANOCYTES ON THE BASEMENT MEMBRANE INVADING THE CONNECTIVE TISSUE  
149 WHICH FALLS UNDER WESTOP TYPE-II GRADING AND LEVEL-II GRADING BY PRASAD  
150 ET AL.

151 THE HISTOLOGIC FEATURE OF MALIGNANT MELANOMA HAS SIMILAR FEATURES OF  
152 EPITHELIAL, MESENCHYMAL, NEURAL TUMORS.<sup>[4,10,14]</sup> MALIGNANT AMELANOMA HAS  
153 HISTOLOGICAL DIFFERENTIAL DIAGNOSIS OF MALIGNANT LYMPHOMA AND  
154 UNDIFFERENTIATED CARCINOMA.<sup>[1,13]</sup> THUS IMMUNOHISTOCHEMISTRY PLAYS A VITAL  
155 ROLE IN DIFFERENTIATING MELANOMA FROM OTHER MALIGNANCIES. S-100 PROTEIN;  
156 MELAN-A (MART-1), HMB-45 (GP100) AND TYROSINASE CAN BE VERY USEFUL TO  
157 DISTINGUISH PRIMARY ORAL MELANOMA FROM OTHER MALIGNANCIES. KI-67 HAS  
158 BEEN CONSIDERED TO BE THE MOST USEFUL TOOL TO ESTIMATE THE VARIATIONS IN  
159 ITS BIOLOGIC BEHAVIOR AND PROGNOSIS OF MELANOMA. TA90 IMMUNE COMPLEX  
160 (TA90IC), MIA PROTEINS ARE RECENTLY INTRODUCED MARKERS FOR THE  
161 ASSESSMENT OF THE SURVIVAL OF THE MELANOMA PATIENTS. FATTY ACID  
162 SYNTHASE (FAS) IS A USEFUL MARKER TO DIFFERENTIATE ORAL MELANOMA FROM  
163 MELANOCYTIC NEVI. IN CASE OF AMELONATIC MELANOMA THE FEATURES USUALLY  
164 MIMICS SQAMOUS CELL CARCINOMA AND IN SUCH CIRCUMSTANCES CK AND LCA  
165 ARE THE USEFUL MARKERS TO DISTINGUISH BETWEEN THEM.<sup>[13]</sup> IN RECENT DAYS,  
166 FISH (FLUORESCENCE IN SITU HYBRIDIZATION) IS USED TO ANALYSE THE ORAL  
167 MELANOMA GENETIC MARKERS.<sup>[2]</sup> SOME AUTHORS SUGGESTED INCISIONAL BIOPSY  
168 OR OTHER INVASIVE PROCEDURES MAY LEADS TO THE DISSEMINATION OF TUMOR  
169 CELLS WHICH MAY RESULTS IN INCREASED METASTATIC RATE. ACCORDING TO  
170 UMEDA ET AL. THE FIVE YEAR SURVIVAL RATE OF PATIENTS WITH INVASIVE  
171 PROCEDURES BEFORE DEFINITIVE TREATMENT IS WORST OF ABOUT 25.9% AND FOR  
172 PATIENTS WITH NO SUCH INVASIVE PROCEDURES IS 91.7%. STUDIES OF RAMPEN ET

173 AL. AND AUSTIN ET AL ALSO FAVOURS UMEDA ET AL'S RESULT.<sup>[2,16]</sup> BATSAKIS'S IN HIS  
174 STUDY SUGGESTED THAT THERE IS NO EVIDENCE FOR METASTATIC DISSEMINATION  
175 FOLLOWING THE PRELIMINARY INCISIONAL BIOPSY PRIOR TO THE SURGICAL  
176 RESECTION.<sup>[9]</sup> EXCISIONAL BIOPSY SHOULD CARRIED OUT IN CASE OF SMALL  
177 LESION, AND INCISIONAL BIOPSY FOR LARGE LESION FROM THE THICKEST AND  
178 DARKEST AREA OF THE LESION.<sup>[15]</sup>

179 APART FROM HISTOPATHOLOGICAL EXAMINATION, RADIOGRAPHIC INVESTIGATION  
180 OF CT, MRI, POSITION- EMISSION TOMOGRAPHY MAY PLAYS A MAJOR ROLE IN  
181 DIAGNOSIS OF PRIMARY INVASION AND DISTANT METASTASIS.<sup>[13]</sup> COMMON SITE OF  
182 METASTASIS ARE LUNGS, LIVER, BRAIN, BONES.<sup>[4,5]</sup> OUR PATIENT WAS NOT WILLING  
183 FOR TREATMENT EVEN AFTER COUNSELING SINCE THE PRESENTATION OF THE  
184 LESION WAS ASYMPTOMATIC WITHOUT OBVIOUS EVOLUTIONARY CHANGES.

185 NO PARTICULAR GUIDELINES FOR TREATMENT OF ORAL MELANOMA EXIST TILL  
186 DATE. THE MANAGEMENT OF ORAL MELANOMA IS PREFERABLY SURGERY AND IT IS  
187 MORE EFFECTIVE TREATMENT MODALITY. SURGERY MAY GET COMPLICATED BY  
188 ANATOMIC RESTRAINTS OF THE LESION.<sup>[7]</sup> ELECTRODISSECTION AND CRYOSURGERY  
189 MAY ALSO BE USED IN THE TREATMENT OF MELANOMA IN SOME CASES.<sup>[5]</sup> THOUGH  
190 MELANOMA IS NOT CLASSICALLY RADIOSENSITIVE, RADIOTHERAPY MAY BE THE  
191 CHOICE OF UNRESECTABLE LESIONS.<sup>[14]</sup> POSTOPERATIVE RADIOTHERAPY,  
192 ADJUVANT CHEMOTHERAPY, IMMUNOTHERAPY HAS THE INFLUENCE IN THE  
193 SURVIVAL RATE OF CUTANEOUS MELANOMAS BUT IT HAS QUESTIONABLE BENEFIT IN  
194 THE ORAL MELANOMA PATIENTS. THE DRUG IN USE FOR MELANOMA TREATMENT  
195 ARE DIMETHYL TRIAZENOIMIDAZOLE, CARBONIDE, NIMUSTINE HYDROCHLORIDE,  
196 VINCRISTINE AND INTERLEUKIN -2 AS IMMUNOTHERAPEUTIC AGENT. THE RECENT  
197 TREATMENT OPTIONS INCLUDES BRAF INHIBITION, SYSTEMIC AND INTRALESIONAL

198 ADMINISTRATION OF IL-2, IMIQUIMOD/TOLL LIKE LIKE RECEPTOR ACTIVATION,  
199 TREATMENT WITH BACILLUS CALMETTE-GUERIN, INTERFERON THERAPY, ONCOLYTIC  
200 VACCINES.<sup>[13,20]</sup> THE EFFICACY OF ADJUVANT TREATMENT IS MONITORED BY  
201 TYROSINASE MRNA AMPLIFICATION BY REVERSE TRANSCRIPTASE POLYMERASE  
202 CHAIN REACTION.<sup>[2]</sup> AFTER THE PRIMARY THERAPY, RECURRENCE MAY OCCUR EVEN  
203 10 TO15 YEARS LATER.<sup>[19]</sup> DURING THE FOLLOW UP OF POSTOPERATIVE CASES,  
204 PRESENCE OF CIRCULATING MELANOMA CELLS ARE CONSIDERED AS THE MARKERS  
205 FOR THE DETECTION OF HIGH RELAPSE RISK AND FOR SHORTER DISEASE FREE  
206 SURVIVAL.<sup>[2]</sup>

207 PROGNOSIS OF ORAL MELANOMA IS EXTREMELY POOR WITH 5 YEARS SURVIVAL  
208 RATE OF 5-20% DUE TO ITS ASYMPTOMATIC NATURE AND LATE DIAGNOSIS.<sup>[5,7]</sup> OTHER  
209 FACTORS WHICH ARE CONTRIBUTING TO THE POOR PROGNOSIS AND SURVIVAL  
210 RATE OF PRIMARY ORAL MELANOMA ARE TUMOR THICKNESS OF MORE THAN 5MM,  
211 MORPHOLOGY OF TUMOR CELLS, ANATOMIC RESTRAINTS DURING SURGERY.<sup>[3,15,19]</sup>  
212 THE SURVIVAL RATE OF 5 YEARS IS COMPARATIVELY BETTER FOR GINGIVAL LESION  
213 THAN THE PALATAL MELANOMA.<sup>[16]</sup> ACCORDING TO VAIRAKTARIS ET AL. 5 YEAR  
214 SURVIVAL RATE DOES NOT EXCEED 5-9% AND CHAUDHRY ET AL. STATED THAT THE  
215 SURVIVAL TIME AFTER THE POINT OF DIAGNOSIS IS 18 MONTHS.<sup>[3,14]</sup>

## 216 CONCLUSION

217 ORAL MALIGNANT MELANOMA IS A HIGHLY AGGRESSIVE AND RARE NEOPLASM WITH  
218 UNCLEAR ETHIOPATHOGENESIS AND POOR SURVIVAL RATE. THE TIME OF DIAGNOSIS  
219 IS DIRECTLY RELATED TO THE PROGNOSIS OF THE MALIGNANCY. BUT  
220 UNFORTUNATELY THEY ARE COMMONLY DIAGNOSED AT THEIR LATE STAGES  
221 BECAUSE OF ITS ASYMPTOMATIC NATURE. PERIODIC EVALUATIONS OF VARIOUS

222 PIGMENTED LESIONS ARE MANDATORY WITH THROUGH CLINICAL AND  
223 HISTOPATHOLOGIC WORKUP AND WIDE KNOWLEDGE ABOUT VARIOUS TREATMENT  
224 OPTIONS.

225 Reference

- 226 1. Jashandeep Kaur, Kunal Sood. Malignant Melanoma of the Oral Cavity: A Review.  
227 International Journal of Science and Research 2015;4:664-6.  
228
- 229 2. Nambiar , Vishwanath MN, Bhat S, Farzana F, Khwaja, Alrani D. Oral Malignant Melanoma:  
230 A Brief Review. J Clin Exp Pathol 2016;6.  
231
- 232 3. MS Hashemi Pour. Malignant melanoma of the oral cavity: A review of literature. Indian J  
233 Dent Res 2008;19.  
234
- 235 4. Muralee Mohan, Vihang Y. Sukhadia, Deepak Pai, Smitha Bhat. Oral malignant melanoma:  
236 systematic review of literature and report of two cases. Oral Surg Oral Med Oral Pathol Oral  
237 Radiol 2013;116:e247-e254.  
238
- 239 5. Aline Mie Uratani, Danyel Elias da Cruz Perez, Pablo Agustin Vargas, Jacks Jorge, Marcio  
240 Ajudarte Lopes. Oral melanoma: review of the literature. Braz J Oral Sci 2004;3:428-32.  
241
- 242 6. Hsieh Ricardo<sup>1</sup>, Nico Marcello M, Claudia M. Camillo-Coutinho, Fernandes Juliana, Clovis  
243 Antonio Lopes Pinto, Lourenco Silvia. Primary Oral Mucosal Melanoma: a Short Review.  
244 Journal of Pigmentary Disorders 2015;2.  
245
- 246 7. Kelly R. Magliocca, Matthew K. Rand, Lyndon D. Su, Joseph I. Helman. Melanoma-in-situ of  
247 the oral cavity. Oral Oncology EXTRA 2006;42:46–8.  
248
- 249 8. Vijaykumar Biradar, Rahul Latturiya, Surekha Biradar. Late Diagnosis of Oral Mucosal  
250 Melanoma: Case Report. Journal of Dental & Allied Sciences 2012;1(2):85-7.  
251
- 252 9. Jagadish Ebenezer. Malignant melanoma of the oral cavity. Ind J Dent Res 2006;17:94-6.  
253
- 254 10. Juliana de Souza do Nascimento, Adalberto Mosqueda Taylor, Oslei Paes de Almeida,  
255 Bruno Augusto Benevenuto de Andrade. Primary Oral Melanoma: A Case Report with  
256 Immunohistochemical Findings. J Clin Exp Pathol 2014;4.  
257
- 258 11. Jae-Young Kima, HyunYoung Kima, Jung-Hwan Lima, Woong Nam. Treatment modality of  
259 malignant melanoma that metastasized to the mandible and multiple organs: A rare case  
260 report and the literature review. Journal of Oral and Maxillofacial Surgery, Medicine, and  
261 Pathology 2015;27:398–401.
- 262 12. Felice Femiano, Alessandro Lanza, Curzio Buonaiuto, Fernando Gombos, Federica Di  
263 Spirito, Nicola Cirillo. Oral malignant melanoma: a review of the literature. J Oral Pathol  
264 Med 2008;37:383–88.
- 265 13. Kai-Yuan Hsiao, Chiang-Shin Liu, Tung-Yiu Wong, Jehn-Shyun Huang, Ken-  
266 Chung Chen, Tze- Ta Huang. Oral Mucosa Malignant Melanoma: Clinical Features,

- Diagnosis, Treatment, and a Case Report. Journal of Dental Problems and Solutions 2015;2:019-024.
14. F. Elomrani<sup>1</sup>, H. Mouzount<sup>1</sup>, I. Ouziane<sup>1</sup>, R. Khmamouch, S. Ikhoyali, A. Boukir *et al.* Melanoma of the Oral Cavity: About Two Cases and Review of Literature. International Journal of Clinical Medicine 2013;4:191-4.
15. Olga Warszawik-Hendzel, Monika Słowińska, Malgorzata Olszewska, Lidia Rudnicka. Melanoma of the oral cavity: pathogenesis, dermoscopy, clinical features, staging and Management. J Dermatol Case Rep 2014;3:60-6.
16. Marco Meleti, C. Rene Leemans, Wolter J. Mooi, Paolo Vescovi, Isaac van der Waal. Oral malignant melanoma: A review of the literature. Oral Oncology 2007;43:116–21.
17. Hegde Vinuta, Naikmasur Venkatesh G, Burde Krishna N, Sirur Dhirendra G, Hallikeri Kaveri. Oral malignant melanoma of the mandibular gingiva – a case report int j Med Res Health Sci 2014;3:726-30.
18. Ajit Auluck, Lewei Zhang, Rajeev Desai, Miriam P. Rosin. Primary Malignant Melanoma of Maxillary Gingiva — A Case Report and Review of the Literature. JCDA 2008;74:367-71.
19. Neeraj Sharma. Primary OralMalignantMelanoma: Two Case Reports and Review of Literature. Hindawi Publishing Corporation Case Reports in Dentistry 2012.
20. Emanuel Maverakis, Lynn A. Cornelius, Glen M. Bowen, Tiffany Phan, Falin B. Patel<sup>1</sup>, Sarah Fitzmaurice *et al.* Metastatic Melanoma – A Review of Current and Future Treatment Options. Acta Derm Venereol 2015;95:516–24.