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AL-BADAR RURAL DENTAL COLLEGE & HOSPITAL, KALABURAGI

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3.5.1 ENDO Report.

Report of the collaborative research activity with HKE's SN Institute of Dental sciences & Research and other institutes, 2016-2017.

Dr. Rahul Halkai. Prof & HOD, **Department of Conservative Dentistry & Endodontics** of our institute has collaborated for research activity with **Dr Kiran R. Halkai, Prof Dr.Jayashree A. Mudda, Departments of Conservative Dentistry & Endodontics, and Periodontics, HKE's SN Institute of Dental sciences and Research, Dr Vandana Rathod Department of Microbiology Gulbarga University, Kalaburgi, and Prof Dr Vasundhara Shivanna, Department of Conservative Dentistry and Endodontics, College of Dental Sciences, Davangere, Karnataka, India**. The project was self-supported for a duration of 1 year. As a result of their joint research, they published article titled **"Halkai, K. R., Mudda, J. A., Shivanna, V., Rathod, V., & Halkai, R. Biosynthesized Silver Nanoparticles from Fungi as Antimicrobial Agents for Endo-Perio Lesions – A Review. Annual Research & Review in Biology 2016; 10(6): 1-7."**

Annual Research & Review in Biology
10(6): 1-7, 2016, Article no.ARRB.25756

SCIENCEDOMAIN international

Biosynthesised Silver Nanoparticles from Fungi as Antimicrobial Agents for Endo-Perio Lesions – A Review

Kiran R. Halkai[1*], Jayashree A. Mudda[2], Vasundhara Shivanna[3], Vandana Rathod[4] and Rahul Halkai[5]

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Authors' contributions

This work was carried out in collaboration between all authors. Authors KRH and RH designed the study, wrote the protocol and wrote the first draft of the manuscript. Authors JAM, VS, VR and RH managed the analyses of the study. Author RH managed the literature searches. All authors read and approved the final manuscript.

Article Information

(1) J. David Puett, Department of Biochemistry and Molecular Biology, University of Georgia, Athens, USA.
(2) George Perry, Dean and Professor of Biology, University of Texas at San Antonio, USA.

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Review Article

ABSTRACT

Even after rapid development in the treatment modalities and contemporary dental practice, still we encounter the failures due to endodontic, periodontal or combined lesions. Complete elimination of bacteria is the key for successful treatment. The emerging new microorganisms, increase in the

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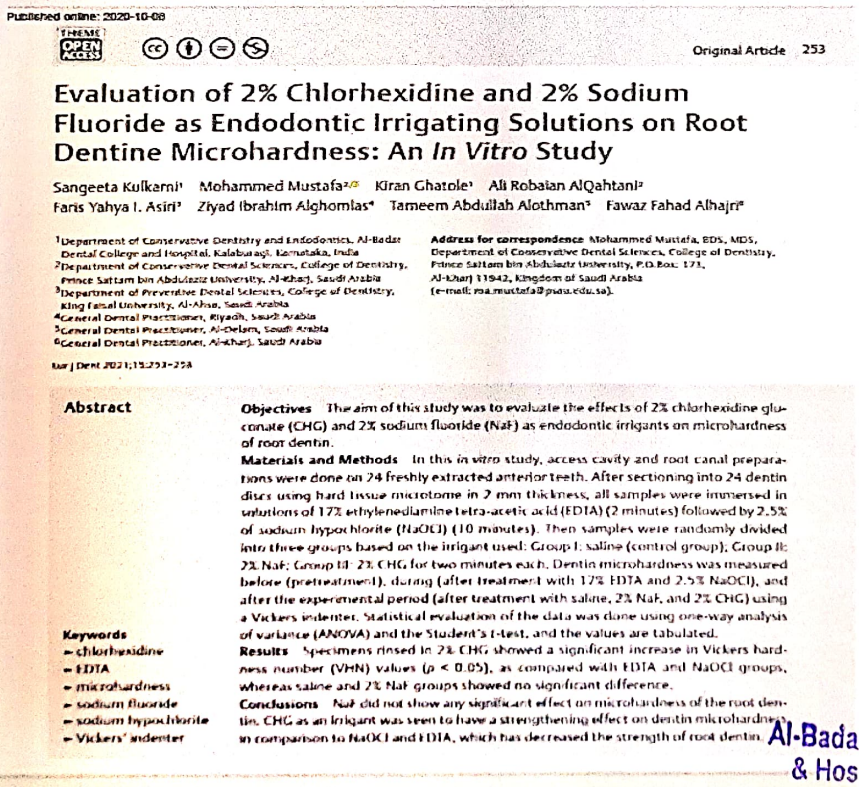

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Original Article 253

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Sangeeta Kulkarni[1] Mohammed Mustafa[2] Kiran Ghatole[1] Ali Robaian AlQahtani[2]
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Eur J Dent 2021;15:253–258

Abstract

Objectives The aim of this study was to evaluate the effects of 2% chlorhexidine gluconate (CHG) and 2% sodium fluoride (NaF) as endodontic irrigants on microhardness of root dentin.

Materials and Methods In this *in vitro* study, access cavity and root canal preparations were done on 24 freshly extracted anterior teeth. After sectioning into 24 dentin discs using hard tissue microtome in 2 mm thickness, all samples were immersed in solutions of 17% ethylenediamine tetra-acetic acid (EDTA) (2 minutes) followed by 2.5% of sodium hypochlorite (NaOCl) (10 minutes). Then samples were randomly divided into three groups based on the irrigant used: Group I: saline (control group); Group II: 2% NaF; Group III: 2% CHG for two minutes each. Dentin microhardness was measured before (pretreatment), during (after treatment with 17% EDTA and 2.5% NaOCl), and after the experimental period (after treatment with saline, 2% NaF, and 2% CHG) using a Vickers indenter. Statistical evaluation of the data was done using one-way analysis of variance (ANOVA) and the Student's *t*-test, and the values are tabulated.

Results Specimens rinsed in 2% CHG showed a significant increase in Vickers hardness number (VHN) values ($p < 0.05$), as compared with EDTA and NaOCl groups, whereas saline and 2% NaF groups showed no significant difference.

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Keywords
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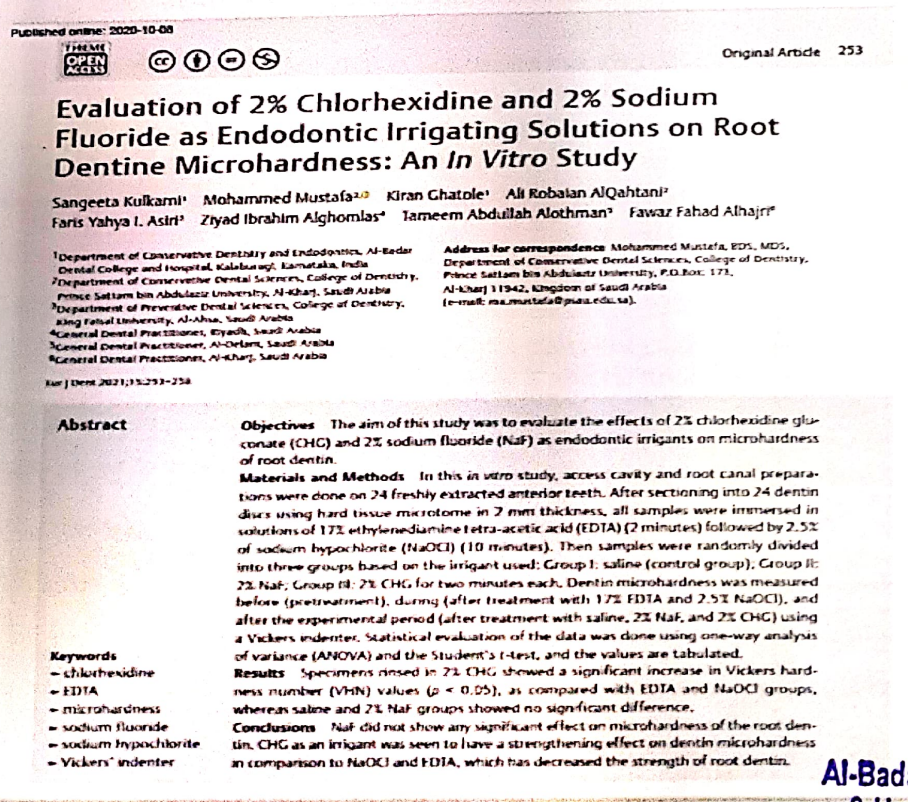

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Introduction

The strength of remaining dentin in the crown and root as well as better quality of postendodontic restoration is responsible for achieving treatment of root canal in a successful manner.[1] It includes that a tooth is subjected for loss of radicular as well as coronal tissue because of performed endodontic treatment, pathology, or restorative processes previously.[1] However, it has been analyzed that different root canal irrigants have dissolution effects, which results into

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Ahead of print publication

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ORIGINAL ARTICLE

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PRINCIPAL
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Introduction: Recently, silver nanoparticles were indicated for root canal irrigation. The cytotoxicity evaluation of these agents helps to ascertain confident clinical use. This article aims at evaluating the cytotoxic effect of fungal-derived nanosilver particle irrigant on human periodontal ligament fibroblast (hPDLF) cells using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. **Materials and Methods:** The test "nanoparticle" irrigant was produced using the fungi "*Fusarium semitectum*." The cells were cultured in Dulbecco's Modified Eagle's Medium solution and adjusted to 5×10^3 cells/ml. About 100 µl of cells were seeded into a 96 well microplate and 100 µl test irrigant ranging from 6 to 640 µg/ml concentrations was added to a microplate and incubated at 37°C, 5% CO_2 humidified conditions for 24 h. Untreated cells were used as a control group. About 5 mg/ml MTT was added to the plates and incubated at 37°C in 5% CO_2 conditions for 4 h. The viability of cells and the percentage inhibition of cell were determined. **Results:** The 50% inhibition of cells was found to be around 320 µg/ml concentration. Cytotoxicity was found to be dose dependent and increased with higher concentrations of the nanosolution. **Conclusion:** Fungal-derived nanosilver irrigant is safe to hPDLF cells "in vitro" at a concentration of <320 µg/ml.

Report of the collaborative research activity with College of Dental Medicine, University of Sharjah and other institutes, 2020-2021.

Dr. Rahul Halkai. Prof & HOD, **Department of Conservative Dentistry & Endodontics** of our institute has collaborated for research activity with **Dr Shishir Ram Shetty & Dr Sunaina Shetty Departments of Oral &Craniofacial Health Sciences and Preventive and Restorative Dentistry, College of Dental Medicine, University of Sharjah, Sharjah Dr Raghavendra M. Shetty, Department of Growth and Development, College of Dentistry, Ajman University, Ajman and Dr Prathibha Prasad, Department of Oral pathology, Ras Al Khaimah College of Dental Sciences, Ras Al Khaimah Medical and Health Sciences University, Ras Al Khaimah UAE.** The project was self-supported for a duration of 1 year. As a result of their joint research, they published article titled **"Halkai RS, Halkai KR, Shetty SR, Shetty RM, Shetty S, Prasad P. An in-vitro evaluation of cytotoxicity of fungal derived nanosilver particle endodontic irrigant on human periodontal ligament fibroblast cells. Saudi Endod J 2021;11:364-8."**

ORIGINAL ARTICLE

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An *in-vitro* evaluation of cytotoxicity of fungal derived nanosilver particle endodontic irrigant on human periodontal ligament fibroblast cells.

Rahul S Halkai[1], Kiran R Halkai[1], Shishir Ram Shetty[2], Raghavendra M Shetty[3], Sunaina Shetty[4], Prathibha Prasad[5]

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Keywords: Biosynthesized silver nanoparticles, cell culture, cytotoxicity, endodontic disinfection, periodontal ligament fibroblast cells

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INTRODUCTION

Rapid advancements in nanotechnology have led to a significant increase in the application of nanoparticles, especially the silver nanoparticles (AgNPs) in various fields including dentistry.[1] AgNPs possess unique physicochemical and biological properties. Owing to the smaller particle size (usually 1–100 nm) and large surface

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PRINCIPAL
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Report of the collaborative research activity with MGV's KBH Dental College & Hospital 2020-2021.

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Microcomputed tomographic evaluation of shaping ability of two thermo mechanically treated single-file systems in severely curved roots

Swapnil J. Kolhe, Priyanka S. Kolhe, Meenal N. Gulve, Gayatri B. Aher, Chetan J. Bhadage, Shailendra S. Mashalkar[1]

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Abstract

Context: Canal shaping abilities such as canal transportation, centering ability, and preparation time are important and have to be considered before using any Nickel–Titanium file system.

Aim: This *in vitro* study aimed to evaluate and compare the amount of canal transportation, centering ability, and time required for the shaping of severely curved canals with WaveOne Gold (WOG) Primary Reciprocating file and One Curve (OC) Rotary file using the micro computed tomography (μCT).

Materials and Methods: Thirty intact mesial roots of extracted human mandibular first molars having severe curvature (25°–35°) were selected. Samples were divided into two groups. Samples in Group I and II were shaped with WOG primary reciprocating files and OC rotary files, respectively, to the working length. Time required to prepare each canal was recorded. μCT pre- and post-instrumentation scans of all samples were taken. The cross-sectional images at 3, 6, and 9 mm from the radiographic apex were selected for analysis. Statistical analysis was performed using the Kruskal–Wallis and unpaired *t*-test.

Results: At 3 mm, OC showed statistically lower canal transportation with mean value (0.17 ± 0.10) than WOG (0.55 ± 0.42). Furthermore, OC showed statistically significant better centering ability (0.59 ± 0.25) than WOG (0.39 ± 0.20) at 3 mm level. However, the differences between both instruments were not statistical significant at 6 and 9 mm level for canal transportation and centering ratio. WOG reciprocating file required less time for canal preparation than OC file.

Conclusions: OC rotary file showed less canal transportation and better canal centring ability than WOG file, during the preparation of severely curved canals. However, WOG required less time for canal preparation.

Keywords: Canal centering; micro-computed tomography; one curve; transportation; WaveOne gold

INTRODUCTION

Schilder emphasized that the root canal should have a continuously tapering conical form, from the access cavity till the apex, with the narrowest cross-sectional diameter at the apex and the largest at the orifice, preserving the apical foramen but not altering the original canal curvature as this is the most appropriate canal shape for irrigation and obturation.[1] However, these objectives are difficult to achieve because of the highly variable root canal anatomy. Achieving a proper taper in a curved canal becomes difficult as there are the chances of canal transportation and loss of centering ability of endodontic files.

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Original Article

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Report of the collaborative research activity with SVS Institute of Dental Sciences and other institutes,2020-2021.

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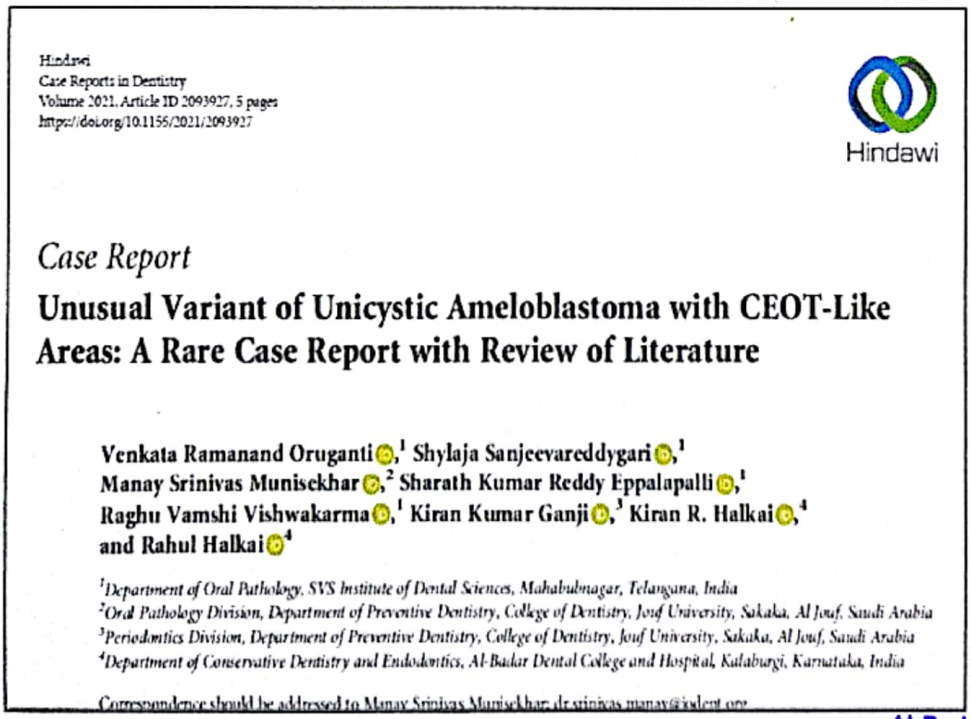

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Case Report

Unusual Variant of Unicystic Ameloblastoma with CEOT-Like Areas: A Rare Case Report with Review of Literature

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Ameloblastoma is an epithelial odontogenic neoplasm with clinical and histological diversity. They are locally invasive tumors with 3 clinical variants such as solid, unicystic, and peripheral ameloblastomas, and the unicystic variant constitutes only 13%. Histologically, it shows diverse microscopic patterns that may occur isolated or in combination with other patterns. The granular cell variant accounts for 3.5% of all ameloblastoma cases. The eosinophilic granules seen in the cytoplasm of the tumor are thought to be lysosomes and presumably contribute to the pathogenesis of the tumor. Although such a phenomenon is rare in unicystic ameloblastoma, granular cell differentiation in solid multicystic ameloblastoma is a well-established phenomenon. In this paper, we present a unique case of unicystic ameloblastoma with granular cell differentiation with a brief review.

1. Introduction

Ameloblastoma is a true benign odontogenic tumor of epithelial origin containing enamel organ-like tissue without any hard tissue formation. It was defined by Robinson as "unicentric, nonfunctional, intermittent in growth, anatomically benign and clinically persistent" tumor [1]. It is a locally invasive tumor accounting for 11% among odontogenic tumors in Caucasians [2]. Histologically, plexiform and follicular variants are the two chief patterns, and when certain changes like granular transformation and squamous metaplasia may be noted, they are referred to as granular cell and acanthomatous variants, respectively [3]. The granular cell variant is the least common, but the most aggressive histological type with higher incidence of malignant transformation and distant metastasis [4]. WHO clinically categorized ameloblastomas into solid multicystic, unicystic, desmoplastic, and peripheral ameloblastomas. However, they are similar histologically. Rarely do they present interesting variations microscopically. However, unicystic ameloblastoma (UA) rarely presents with a myriad of histopathological patterns. In this article, an interesting case of UA is presented along with a literature review relevant to its unique microscopic features [5].

2. Case Report

A 45-year-old female patient reported with a swelling in the mandibular anterior region since 4 years. It began as a peanut-sized swelling which progressed to about 6 cm and has increased rapidly during the last two months. Extraoral examination revealed that there was facial asymmetry (Figure 1) with the swelling extending from the right

Al-Badar Educational & Charitable Trust's

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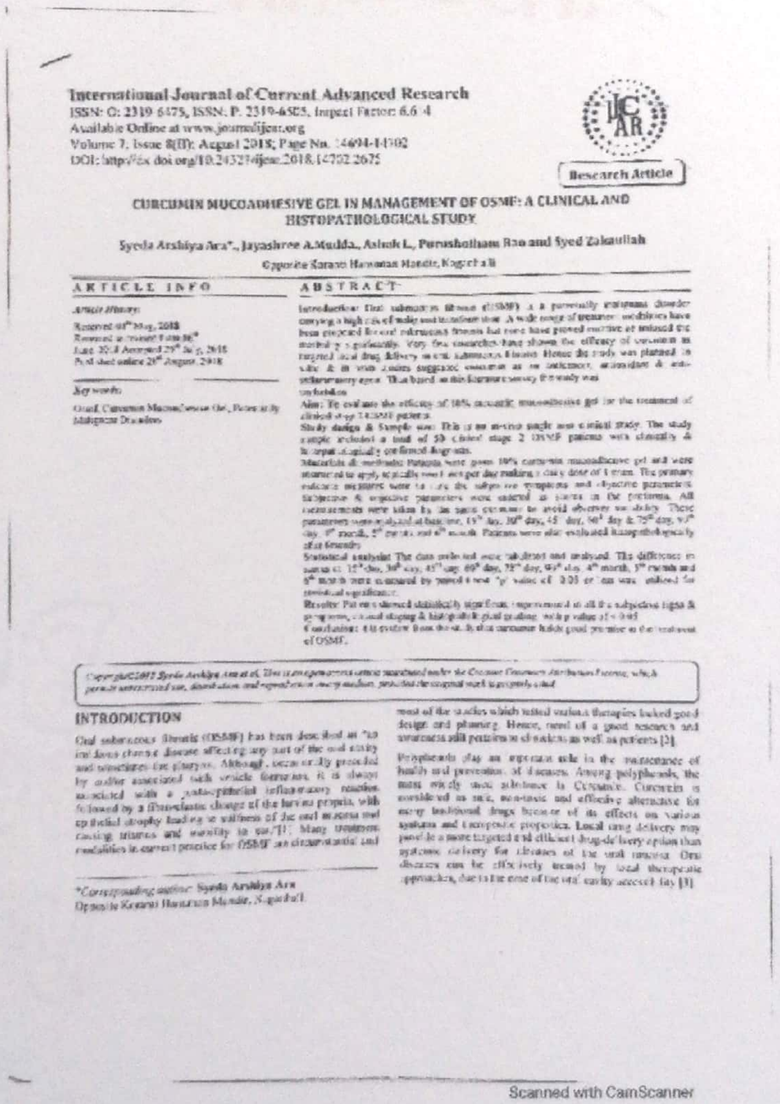
Report of the collaborative Activities with HKE'S ,S.Nijalingappa Institute of Dental Sciences and Research, Bapuji Dental College & Hospital, Davangere, HKE's Matohree College of Pharmacy

2018

Dr. Syeda Arshiya Ara, faculty in **Department of Oral medicine & Radiology** of our institute has collaborated for research activities with HKE'S S.Nijalingappa Institute of Dental Sciences and Research, Bapuji Dental College & Hospital, Davangere, HKE's Matoshree College of Pharmacy. As a result of their joint research they published the article titled "**Ara SA, Mudda JA, Ashok L , Rao P, Zakaullah S.** Curcumin mucoadhesive gel in management of OSMF - A Clinical And Histopathological Study. International Journal of Current Advanced Research 2018;7(8B):14694-14702



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Research Article

CURCUMIN MUCOADHESIVE GEL IN MANAGEMENT OF OSMF: A CLINICAL AND HISTOPATHOLOGICAL STUDY

Syeda Arshiya Ara*., Jayashree A.Mudda., Ashok L., Purushotham Rao and Syed Zakaullah

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ABSTRACT

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Research Article

EFFICACY OF COMBINATION CURCUMIN THERAPY IN ORAL SUBMUCOUS FIBROSIS - A CLINICAL AND HISTOPATHOLOGICAL STUDY

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Potentially malignant disorders, OSMF, Curcumin.

ABSTRACT

Introduction: Oral submucous fibrosis (OSMF) is a potentially malignant disorder carrying a high risk of malignant transformation. A wide range of treatment modalities have been proposed for oral submucous fibrosis but none have proved curative or reduced the morbidity significantly. Shankar and co authors have reviewed the most common mucosal diseases and identified the current treatment approaches systemically and locally. Systemic bioavailability of curcumin is less. Local drug delivery may provide a more targeted and efficient drug-delivery option than systemic delivery for diseases of the oral mucosa. Oral diseases can be effectively treated by systemic and local therapeutic approaches, due to the ease of the oral cavity accessibility.
Very few researches have shown the efficacy of curcumin as combination of systemic and targeted local drug delivery in oral submucous fibrosis. Hence the study was planned.
Aim: The aim of the study was to evaluate the efficacy of curcumin 250 mg capsules and 5% curcumin mucoadhesive gel in stage 2 OSMF patients.
Study design & Sample size: This is an in-vivo single arm clinical study. The study sample included a total of 50 clinical stage 2 OSMF patients with clinically & histopathologically confirmed diagnosis.
Materials & methods: Patients were given curcumin 250 mg capsules and were instructed to take 2 capsules per day and 5% curcumin mucoadhesive gel and were instructed to apply topically two times per day making a daily dose of 1 gram.
The primary outcome measures were to note the subjective symptoms and objective parameters. Subjective & objective parameters were entered as scores in the proforma. All measurements were taken by the same examiner to avoid observer variability. These parameters were analysed at baseline, 15th day, 30th day, 45th day, 60th day & 75th day, 90th day, 4th month,5th month and 6th month. Patients were also evaluated histopathologically after 6 months.
Statistical analysis: The data collected were tabulated and analysed. The difference in scores at 15th day, 30th day, 45th day, 60th day, 75th day, 90th day, 4th month, 5th month and 6th month were compared by paired t test. 'p' value of 0.05 or less was utilized for statistical significance.
Results: Patients showed statistically significant improvement in all the subjective subjective symptoms and objective parameters, clinical staging & histopathological grading with p value of < 0.05.
Conclusion: It is evident from the study that curcumin combination therapy holds good promise in the treatment of OSMF.

INTRODUCTION

Oral submucous fibrosis (OSMF) has been described as "an insidious chronic disease affecting any part of the oral cavity and sometimes the pharynx. Although, occasionally preceded by and/or associated with vesicle formation, it is always associated with a juxta-epithelial inflammatory reaction followed by a fibro-elastic change of the lamina propria, with epithelial atrophy leading to stiffness of the oral mucosa and causing trismus and inability to eat."[1]

Many treatment modalities in current practice for OSMF are circumstantial and most of the studies which tested various

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Report of the collaborative Activities with HKE'S S.Nijalingappa Institute of Dental Sciences and Research, Bapuji Dental College & Hospital, Davanengere, HKE's Matohree College of Pharmacy

2018

Dr. SyedaArshiya Ara, faculty in **Department of Oral medicine & Radiology** of our institute has collaborated for research activities with HKE'S S.Nijalingappa Institute of Dental Sciences and Research, Bapuji Dental College & Hospital, Davangere, HKE's Matoshree College of Pharmacy. As a result of their joint research they published the article titled "**Ara SA, Mudda JA, Ashok L , Rao P, Zakaullah S.** Efficacy Of Curcumin In Oral Submucous Fibrosis - A Randomized Controlled Clinical Trial. International Journal of Pharmaceutical Sciences and Research (IJPSR) 2018;9(12):5277-5286

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EFFICACY OF CURCUMIN IN ORAL SUBMUCOUS FIBROSIS - A RANDOMIZED CONTROLLED CLINICAL TRIAL

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Keywords:
Oral submucous fibrosis, Curcumin, Potentially malignant disorder

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ABSTRACT: Introduction: Oral submucous fibrosis (OSMF) is a potentially malignant disorder carrying a high risk of malignant transformation. A wide range of treatment modalities have been proposed for OSMF but none have proved curative or reduced the morbidity significantly. *In-vitro* and *in-vivo* studies suggested curcumin as an anticancer, antioxidant and anti-inflammatory agent. Thus based on this literature survey the study was undertaken. **Aim:** To evaluate the efficacy of curcumin for the treatment of clinical stage 2 OSMF patients and to compare it with patients receiving placebo drugs. **Study Design and Sample Size:** A randomized single blinded placebo controlled clinical trial was conducted in 100 clinical stage 2 OSMF patients with clinically and histopathologically confirmed diagnosis. **Materials and Methods:** 100 clinical stage 2 patients selected for the study were divided into 2 groups with 50 patients each. Group 1 patients were given placebo capsules. Group 2 patients were given curcumin capsules of 500 mg. The primary outcome measures were to note the subjective symptoms and objective parameters. These parameters were analyzed at baseline and 6th month. Patients were also evaluated histopathologically after 6 months. ANOVA, students t test and p value were utilized for statistical inferences. **Results:** Patients in group 2 showed statistically significant improvement in all the subjective signs and symptoms and histopathological changes with p value of < 0.001 when compared with group 1 patients. **Conclusion:** It is evident from the study that curcumin holds good promise in the treatment of OSMF.

INTRODUCTION: OSMF was first described by Schwartz in 1952 as a fibrosing condition in five Indian women and in Kenya and he called it as atrophica idiopathica tropica [1]. Subsequently Aeshi in 1953 is credited to have coined the term Oral submucous fibrosis. Epidemiological studies show a unique prevalence of this premalignant condition in India and South East Asia [2]. It has a specific geographic distribution and predominantly affects the Asians [3]. Pindborg has summed up the clinical and histopathological features in his definition for OSMF as "an insidious chronic disease affecting oral mucosa or any part of the oral cavity and occasionally extending into pharynx and Esophagus, although occasionally

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Report of the collaborative Activities with College of Dentistry, Jazan University, Jazan, Saudi Arabia

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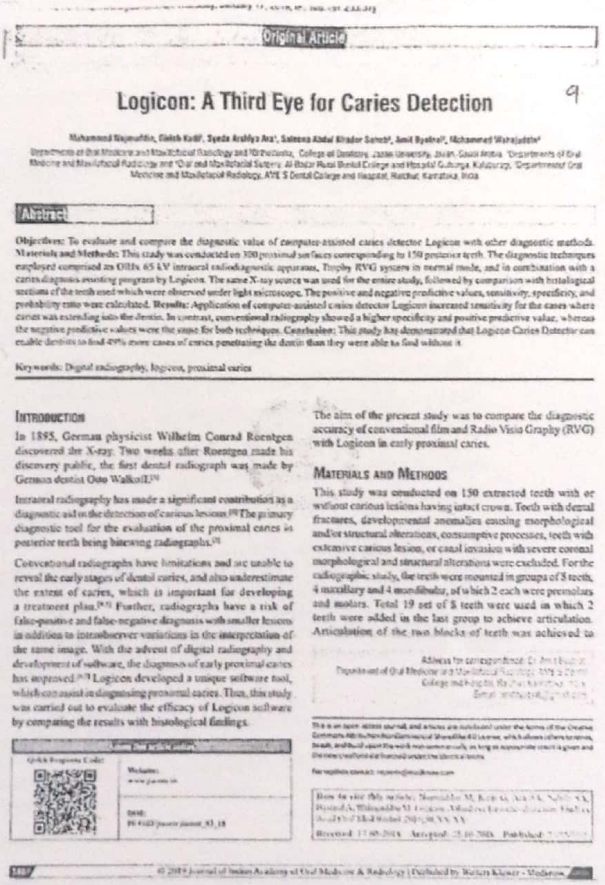

Original Article

Logicon: A Third Eye for Caries Detection

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Abstract

Objectives: To evaluate and compare the diagnostic value of computer-assisted caries detector Logicon with other diagnostic methods. **Materials and Methods:** This study was conducted on 300 proximal surfaces corresponding to 150 posterior teeth. The diagnostic techniques employed comprised its Gilbs 65 kV intraoral radiodiagnostic apparatus, Trophy RVG system in normal mode, and in combination with a caries diagnosis assisting program by Logicon. The same X-ray source was used for the entire study, followed by comparison with histological sections of the teeth used which were observed under light microscope. The positive and negative predictive values, sensitivity, specificity, and probability ratio were calculated. **Results:** Application of computer-assisted caries detector Logicon increased sensitivity for the cases where carries was extending into the dentin. In contrast, conventional radiography showed a higher specificity and positive predictive value, whereas the negative predictive values were the same for both techniques. **Conclusion:** This study has demonstrated that Logicon Caries Detector can enable dentists to find 49% more cases of caries penetrating the dentin than they were able to find without it.

Key words: Digital radiography, logicon, proximal caries

Introduction

In 1895, German physicist Wilhelm Conrad Roentgen discovered the X-ray. Two weeks after Roentgen made his discovery public, the first dental radiograph was made by German dentist Otto Walkoff.[1]

Intraoral radiography has made a significant contribution as a diagnostic aid in the detection of carious lesions.[2] The primary diagnostic tool for the evaluation of the proximal caries in posterior teeth being bitewing radiographs.[3]

Conventional radiographs have limitations and are unable to reveal the early stages of dental caries, and also underestimate the extent of caries, which is important for developing a treatment plan.[4,5] Further, radiographs have a risk of false-positive and false-negative diagnosis with smaller lesions in addition to interobserver variations in the interpretation of the same image. With the advent of digital radiography and development of software, the diagnosis of early proximal caries has improved.[6,7] Logicon developed a unique software tool, which can assist in diagnosing proximal caries. Thus, this study was carried out to evaluate the efficacy of Logicon software by comparing the results with histological findings.

The aim of the present study was to compare the diagnostic accuracy of conventional film and Radio Visio Graphy (RVG) with Logicon in early proximal caries.

Materials and Methods

This study was conducted on 150 extracted teeth with or without carious lesions having intact crown. Teeth with dental fractures, developmental anomalies causing morphological and/or structural alterations, consumptive processes, teeth with extensive carious lesion, or canal invasion with severe coronal morphological and structural alterations were excluded. For the radiographic study, the teeth were mounted in groups of 5 teeth, 4 maxillary and 4 mandibular, of which 2 each were premolars and molars. Total 19 out of 5 teeth were used in which 2 teeth were added in the last group to achieve articulation. Articulation of the two blocks of teeth was achieved to

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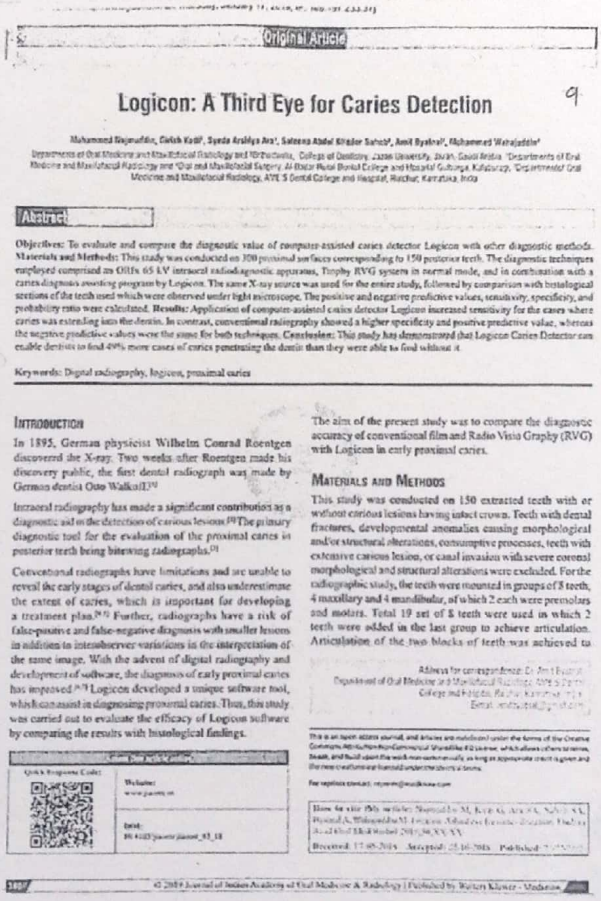

Original Article

Logicon: A Third Eye for Caries Detection

Mohammed Najmuddin, Girish Katti, Syeda Arshiya Ara, Sateesh Abdul Khader Saheb, Amit Byatnal, Mohammed Wahajuddin

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Keywords: Digital radiography, logicon, proximal caries

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Dr. Syeda Arshiya Ara, faculty in **Department of Oral medicine & Radiology** of our institute has collaborated for research activities with Al-Farabi college Jeddah, Saudi Arabia. As a result of their joint research they published the article titled "**Shireen A, Ara SA.** Odontometric analysis of permanent maxillary first molar in gender determination. Journal of forensic dental sciences 2016, vol 8(3),145-149

10

ORIGINAL ARTICLE

Odontometric analysis of permanent maxillary first molar in gender determination

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Abstract

Aims: This study was conducted to assess the sex determination potential from mesiodistal (MD) and buccolingual (BL) dimensions of permanent maxillary first molar. **Subjects and Methods:** The study was conducted in the Department of Oral Medicine and Radiology, Al-Badar Rural Dental College and Hospital, Gulbarga, Karnataka, on 600 subjects (300 male and 300 female), aged 17–25 years. The subjects were selected based on the inclusion and exclusion criteria set forth for the study. After obtaining informed consent, the intraoral measurements of MD and BL dimensions on casts of the first maxillary molars were taken using digital vernier calipers with resolution of 0.01 mm. **Statistical Analysis Used:** The data obtained were subjected for statistical analysis using paired and unpaired *t*-test to compare MD and BL dimensions between males and females. $P \leq 0.05$ was considered statistically significant. **Results:** The mean MD width of the first maxillary molar was 10.60 ± 0.6644 mm (right) and 10.50 ± 0.6644 mm (left) in males and 10.40 ± 0.6255 mm (right) and 10.40 ± 0.6255 mm (left) in females. The mean BL width of the first maxillary molar was 11.60 ± 1.2227 mm (right) and 11.60 ± 1.2227 mm (left) in males and 11.20 ± 0.8440 mm (right) and 11.20 ± 0.8440 mm (left) in females. The differences between males and females in MD and BL dimensions measured were statistically significant ($P < 0.05$). Right and left MD dimensions exhibited sexual dimorphism of 1.92% and right and left BL dimensions exhibited sexual dimorphism of 3.57%. **Conclusions:** The MD and BL dimensions of the maxillary first molars may be used as an aid in sex discrimination.

Key words: Forensic odontology, gender, maxillary first molar, sex determination, sexual dimorphism

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Introduction

Human beings are born with an identity.[1] The identification of a dead body may be required in cases of sudden and unexpected death, explosions, fires, road/railway or aircraft accidents, mutilated or hidden decomposed bodies, or fraud.[2] Gender determination of skeletal remains is a part of the archaeological and many medico-legal

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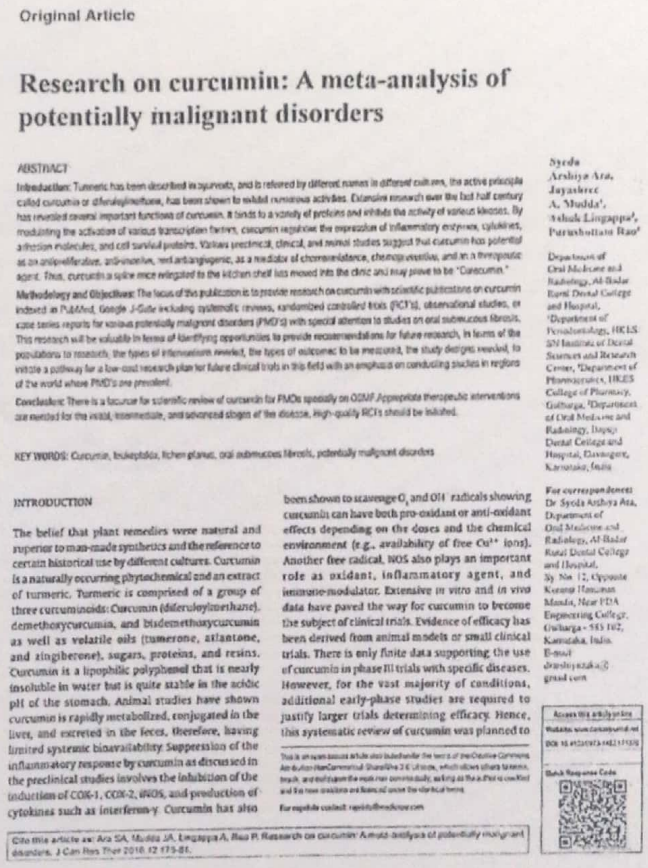

Original Article

Research on curcumin: A meta-analysis of potentially malignant disorders

ABSTRACT

Introduction: Turmeric has been described in ayurveda, and is referred by different names in different cultures, the active principle called curcumin or diferuloylmethane, has been shown to exhibit numerous activities. Extensive research over the last half century has revealed several important functions of curcumin. It binds to a variety of proteins and inhibits the activity of various kinases. By modulating the activation of various transcription factors, curcumin regulates the expression of inflammatory enzymes, cytokines, adhesion molecules, and cell survival proteins. Various preclinical, clinical, and animal studies suggest that curcumin has potential as an antiproliferative, anti-invasive, anti-angiogenic, as a mediator of chemoresistance, chemopreventive, and as a therapeutic agent. Thus, curcumin a spice once relegated to the kitchen shelf has moved into the clinic and may prove to be "Curecumin."

Methodology and Objectives: The focus of this publication is to provide research on curcumin with scientific publications on curcumin indexed in PubMed, Google J-Gate including systematic reviews, randomized controlled trials (RCT's), observational studies, or case series reports for various potentially malignant disorders (PMD's) with special attention to studies on oral submucous fibrosis. This research will be valuable in terms of identifying opportunities to provide recommendations for future research, in terms of the populations to research, the types of interventions needed, the types of outcomes to be measured, the study designs needed, to initiate a pathway for a low-cost research plan for future clinical trials in this field with an emphasis on conducting studies in regions of the world where PMD's are prevalent.

Conclusion: There is a lacunae for scientific review of curcumin for PMDs specially on OSMF. Appropriate therapeutic interventions are needed for the initial, intermediate, and advanced stages of the disease. High-quality RCTs should be initiated.

KEY WORDS: Curcumin, leukoplakia, lichen planus, oral submucous fibrosis, potentially malignant disorders

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INTRODUCTION

The belief that plant remedies were natural and superior to man-made synthetics and the reference to certain historical use by different cultures. Curcumin is a naturally occurring phytochemical and an extract of turmeric. Turmeric is comprised of a group of three curcuminoids: Curcumin (diferuloylmethane), demethoxycurcumin, and bisdemethoxycurcumin as well as volatile oils (tumerone, atlantone, and zingiberone), sugars, proteins, and resins. Curcumin is a lipophilic polyphenol that is nearly insoluble in water but is quite stable in the acidic pH of the stomach. Animal studies have shown curcumin is rapidly metabolized, conjugated in the liver, and excreted in the feces, therefore, having limited systemic bioavailability. Suppression of the inflammatory response by curcumin as discussed in the preclinical studies involves the inhibition of the induction of COX-1, COX-2, iNOS, and production of cytokines such as interferon-γ. Curcumin has also been shown to scavenge O_2 and OH· radicals showing curcumin can have both pro-oxidant or anti-oxidant effects depending on the doses and the chemical environment (e.g., availability of free Cu^{++} ions). Another free radical, NOS also plays an important role as oxidant, inflammatory agent, and immune-modulator. Extensive *in vitro* and *in vivo* data have paved the way for curcumin to become the subject of clinical trials. Evidence of efficacy has been derived from animal models or small clinical trials. There is only finite data supporting the use of curcumin in phase III trials with specific diseases. However, for the vast majority of conditions, additional early-phase studies are required to justify larger trials determining efficacy. Hence, this systematic review of curcumin was planned to

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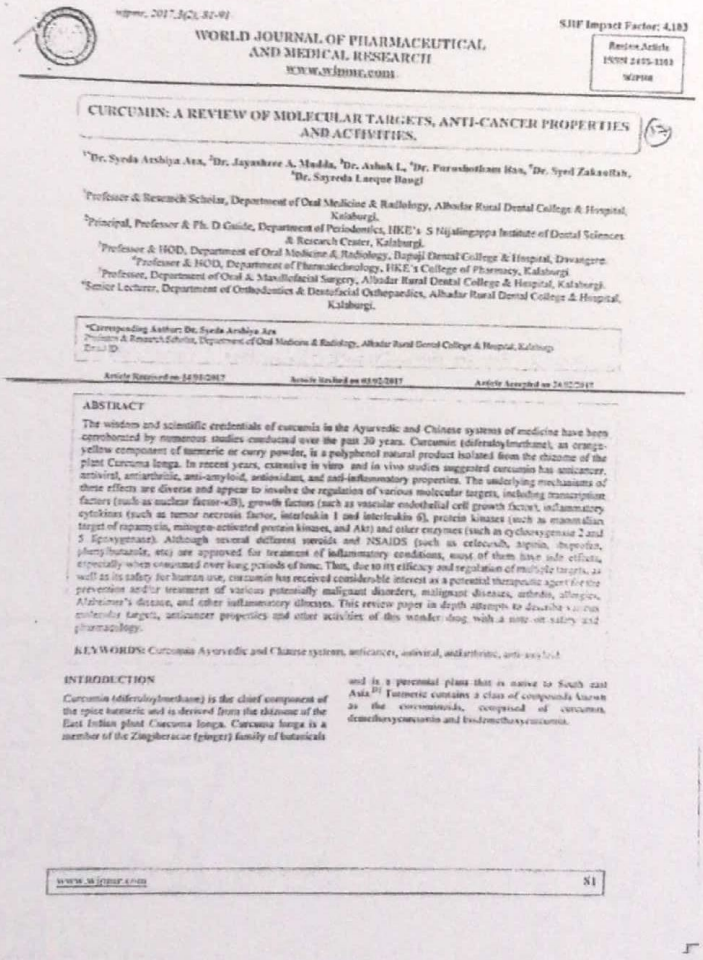

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Review Article
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CURCUMIN: A REVIEW OF MOLECULAR TARGETS, ANTI-CANCER PROPERTIES AND ACTIVITIES.

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ABSTRACT

The wisdom and scientific credentials of curcumin in the Ayurvedic and Chinese systems of medicine have been corroborated by numerous studies conducted over the past 30 years. Curcumin (diferuloylmethane), an orange-yellow component of turmeric or curry powder, is a polyphenol natural product isolated from the rhizome of the plant Curcuma longa. In recent years, extensive in vitro and in vivo studies suggested curcumin has anticancer, antiviral, antiarthritic, anti-amyloid, antioxidant, and anti-inflammatory properties. The underlying mechanisms of these effects are diverse and appear to involve the regulation of various molecular targets, including transcription factors (such as nuclear factor-κB), growth factors (such as vascular endothelial cell growth factor), inflammatory cytokines (such as tumor necrosis factor, interleukin 1 and interleukin 6), protein kinases (such as mammalian target of rapamycin, mitogen-activated protein kinases, and Akt) and other enzymes (such as cyclooxygenase 2 and 5 lipoxygenase). Although several different steroids and NSAIDS (such as celecoxib, aspirin, ibuprofen, phenylbutazole, etc) are approved for treatment of inflammatory conditions, most of them have side effects, especially when consumed over long periods of time. Thus, due to its efficacy and regulation of multiple targets, as well as its safety for human use, curcumin has received considerable interest as a potential therapeutic agent for the prevention and/or treatment of various potentially malignant disorders, malignant diseases, arthritis, allergies, Alzheimer's disease, and other inflammatory diseases. This review paper in depth attempts to describe various molecular targets, anticancer properties and other activities of this wonder drug with a note on safety and pharmacology.

KEYWORDS: Curcumin Ayurvedic and Chinese systems, anticancer, antiviral, antiarthritic, anti-amyloid

INTRODUCTION

Curcumin (diferuloylmethane) is the chief component of the spice turmeric and is derived from the rhizome of the East Indian plant *Curcuma longa*. *Curcuma longa* is a member of the Zingiberaceae (ginger) family of botanicals and is a perennial plant that is native to South east Asia.[1] Turmeric contains a class of compounds known as the curcuminoids, comprised of curcumin, demethoxycurcumin and bisdemethoxycurcumin.

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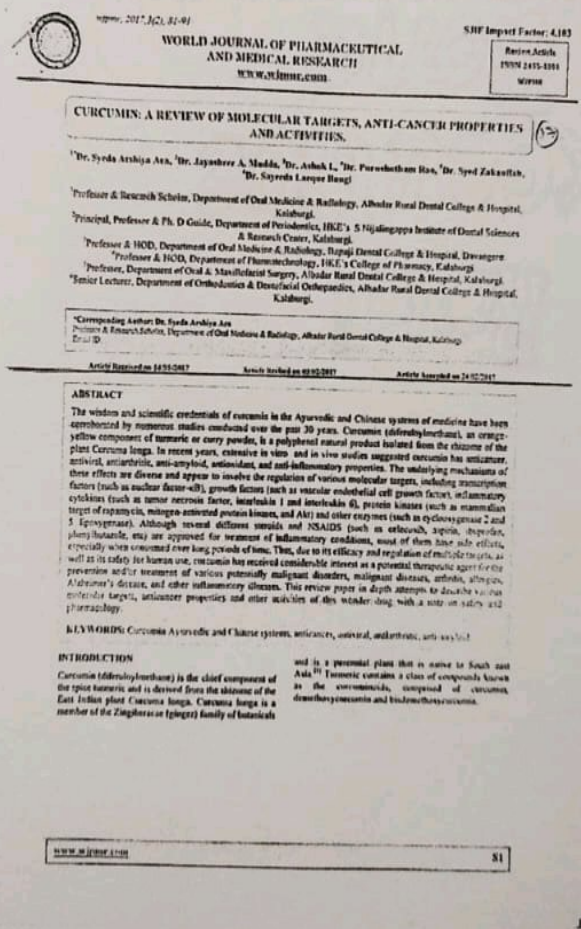
Dr. Laeque Bangi, faculty in **Department Of Orthodontia and Dentofacial Orthopaedics** of our institute has collaborated for research activities with HKE'S S.Nijalingappa Institute of Dental Sciences and Research, Bapuji Dental College & Hospital, Davangere, HKE's Matoshree College of Pharmacy.As a result of their joint research they published the review article titled "**Ara SA, Mudda JA, Ashok L , Rao P, Zakaullah S, Bangi S.L. Curcumin: A Review Of Molecular Targets, Anti-Cancer Properties World Journal of Pharmaceutical and Medical Research 2017,3(2), 81-91**



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Review Article
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CURCUMIN: A REVIEW OF MOLECULAR TARGETS, ANTI-CANCER PROPERTIES AND ACTIVITIES.

[1]Dr. Syeda Arshiya Ara, [2]Dr. Jayashree A. Mudda, [3]Dr. Ashok L, [4]Dr. Purushotham Rao, [5]Dr. Syed Zakaullah, [6]Dr. Sayeeda Laeque Bangi

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ABSTRACT

The wisdom and scientific credentials of curcumin in the Ayurvedic and Chinese systems of medicine have been corroborated by numerous studies conducted over the past 30 years. Curcumin (diferuloylmethane), an orange-yellow component of turmeric or curry powder, is a polyphenol natural product isolated from the rhizome of the plant Curcuma longa. In recent years, extensive in vitro and in vivo studies suggested curcumin has anticancer, antiviral, antiarthritic, anti-amyloid, antioxidant, and anti-inflammatory properties. The underlying mechanisms of these effects are diverse and appear to involve the regulation of various molecular targets, including transcription factors (such as nuclear factor-κB), growth factors (such as vascular endothelial cell growth factor), inflammatory cytokines (such as tumor necrosis factor, interleukin 1 and interleukin 6), protein kinases (such as mammalian target of rapamycin, mitogen-activated protein kinases, and Akt) and other enzymes (such as cyclooxygenase 2 and 5 lipoxygenase). Although several different steroids and NSAIDS (such as celecoxib, aspirin, ibuprofen, phenylbutazole, etc) are approved for treatment of inflammatory conditions, most of them have side effects, especially when consumed over long periods of time. Thus, due to its efficacy and regulation of multiple targets as well as its safety for human use, curcumin has received considerable interest as a potential therapeutic agent for the prevention and/or treatment of various potentially malignant disorders, malignant diseases, arthritis, allergies, Alzheimer's disease, and other inflammatory illnesses. This review paper in depth attempts to describe various molecular targets, anticancer properties and other activities of this wonder drug with a note on safety and pharmacology.

KEYWORDS: Curcumin Ayurvedic and Chinese systems, anticancer, antiviral, antiarthritic, anti-amyloid

INTRODUCTION

Curcumin (diferuloylmethane) is the chief component of the spice turmeric and is derived from the rhizome of the East Indian plant Curcuma longa. Curcuma longa is a member of the Zingiberaceae (ginger) family of botanicals and is a perennial plant that is native to South east Asia.[1] Turmeric contains a class of compounds known as the curcuminoids, composed of curcumin, demethoxycurcumin and bisdemethoxycurcumin.

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2018

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Research Article

CURCUMIN MUCOADHESIVE GEL IN MANAGEMENT OF OSMF: A CLINICAL AND HISTOPATHOLOGICAL STUDY

Syeda Arshiya Ara*, Jayashree A.Mudda, Ashok L, Purushotham Rao and Syed Zakaullah

ARTICLE INFO

ABSTRACT

INTRODUCTION

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Report of the collaborative Activities with College of Dentistry, Jazan University, Jazan, Saudi Arabia

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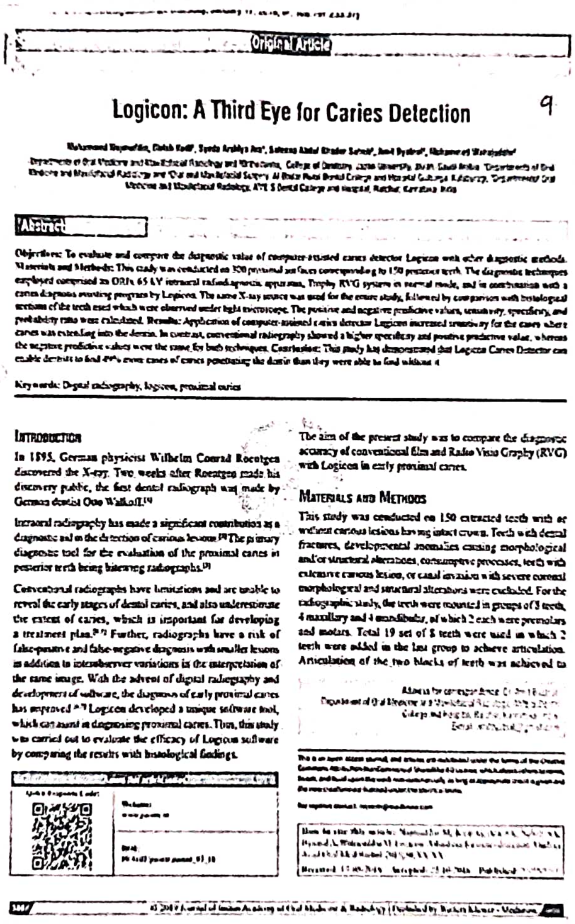
Dr.Wahajuddin, faculty in **Department of Oral and Maxillofacial Surgery** of our institute has collaborated for research activities with College of Dentistry, Jazan University, Jazan, Saudi Arabia. As a result of their joint research they published the article titled "**Najmuddin M, Katti G, Ara S.A, Saheb SAK, Byatnal A, Wahajuddin M.** Logicon : A Third eye for caries detection Journal of Indian academy of oral medicine and radiology. 2018,30,(4),381-384



Original Article

Logicon: A Third Eye for Caries Detection

9

Abstract

Objectives: To evaluate and compare the diagnostic value of computer-assisted caries detector Logicon with other diagnostic methods. **Materials and Methods:** This study was conducted on 300 proximal surfaces corresponding to 150 posterior teeth. The diagnostic techniques employed comprised an ORIX 65 kV intraoral radiodiagnostic apparatus, Trophy RVG system in normal mode, and in combination with a caries diagnosis assisting program by Logicon. The same X-ray source was used for the entire study, followed by comparison with histological sections of the teeth used which were observed under light microscope. The positive and negative predictive values, sensitivity, specificity, and probability ratio were calculated. **Results:** Application of computer-assisted caries detector Logicon increased sensitivity for the cases where caries was extending into the dentin. In contrast, conventional radiography showed a higher specificity and positive predictive value, whereas the negative predictive values were the same for both techniques. **Conclusion:** This study has demonstrated that Logicon Caries Detector can enable dentists to find 49% more cases of caries penetrating the dentin than they were able to find without it.

Keywords: Digital radiography, logicon, proximal caries

Introduction

In 1895, German physicist Wilhelm Conrad Roentgen discovered the X-ray. Two weeks after Roentgen made his discovery public, the first dental radiograph was made by German dentist Otto Walkoff.[1]

Intraoral radiography has made a significant contribution as a diagnostic aid in the detection of carious lesions.[2] The primary diagnostic tool for the evaluation of the proximal caries in posterior teeth being bitewing radiographs.[3]

Conventional radiographs have limitations and are unable to reveal the early stages of dental caries, and also underestimate the extent of caries, which is important for developing a treatment plan.[4-5] Further, radiographs have a risk of false-positive and false-negative diagnosis with smaller lesions in addition to interobserver variations in the interpretation of the same image. With the advent of digital radiography and development of software, the diagnosis of early proximal caries has improved.[6-7] Logicon developed a unique software tool, which can assist in diagnosing proximal caries. Thus, this study was carried out to evaluate the efficacy of Logicon software by comparing the results with histological findings.

The aim of the present study was to compare the diagnostic accuracy of conventional film and Radio Visio Graphy (RVG) with Logicon in early proximal caries.

Materials and Methods

This study was conducted on 150 extracted teeth with or without carious lesions having intact crown. Teeth with dental fractures, developmental anomalies causing morphological and/or structural alterations, consumptive processes, teeth with extensive carious lesion, or canal invasion with severe coronal morphological and structural alterations were excluded. For the radiographic study, the teeth were mounted in groups of 8 teeth, 4 maxillary and 4 mandibular, of which 2 each were premolars and molars. Total 19 set of 8 teeth were used in which 2 teeth were added in the last group to achieve articulation. Articulation of the two blocks of teeth was achieved to

![signature]

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Research Article

EFFICACY OF COMBINATION CURCUMIN THERAPY IN ORAL SUBMUCOUS FIBROSIS - A CLINICAL AND HISTOPATHOLOGICAL STUDY

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Potentially malignant disorders, OSMF, Curcumin.

ABSTRACT

Introduction: Oral submucous fibrosis (OSMF) is a potentially malignant disorder carrying a high risk of malignant transformation. A wide range of treatment modalities have been proposed for oral submucous fibrosis but none have proved curative or reduced the morbidity significantly. Shankar and co authors have reviewed the most common mucosal diseases and identified the current treatment approaches systemically and locally. Systemic bioavailability of curcumin is less. Local drug delivery may provide a more targeted and efficient drug-delivery option than systemic delivery for diseases of the oral mucosa. Oral diseases can be effectively treated by systemic and local therapeutic approaches, due to the ease of the oral cavity accessibility.
Very few researches have shown the efficacy of curcumin as combination of systemic and targeted local drug delivery in oral submucous fibrosis. Hence the study was planned.
Aim: The aim of the study was to evaluate the efficacy of curcumin 250 mg capsules and 5% curcumin mucoadhesive gel in stage 2 OSMF patients.
Study design & Sample size: This is an in-vivo single arm clinical study. The study sample included a total of 50 clinical stage 2 OSMF patients with clinically & histopathologically confirmed diagnosis.
Materials & methods: Patients were given curcumin 250 mg capsules and were instructed to take 2 capsules per day and 5% curcumin mucoadhesive gel and were instructed to apply topically two times per day making a daily dose of 1 gram.
The primary outcome measures were to note the subjective symptoms and objective parameters. Subjective & objective parameters were entered as scores in the proforma. All measurements were taken by the same examiner to avoid observer variability. These parameters were analyzed at baseline, 15th day, 30th day, 45th day, 60th day & 75th day, 90th day, 4th month,5th month and 6th month. Patients were also evaluated histopathologically after 6 months.
Statistical analysis: The data collected were tabulated and analysed. The difference in scores at 15th day, 30th day, 45th day, 60th day, 75th day, 90th day, 4th month, 5th month and 6th month were compared by paired t test 'p' value of 0.05 or less was utilized for statistical significance.
Results: Patients showed statistically significant improvement in all the subjective subjective symptoms and objective parameters, clinical staging & histopathological grading with p value of < 0.05.
Conclusion: It is evident from the study that curcumin combination therapy holds good promise in the treatment of OSMF.

INTRODUCTION

Oral submucous fibrosis (OSMF) has been described as "an insidious chronic disease affecting any part of the oral cavity and sometimes the pharynx. Although, occasionally preceded by and/or associated with vesicle formation, it is always associated with a juxta-epithelial inflammatory reaction followed by a fibro-elastic change of the lamina propria, with epithelial atrophy leading to stiffness of the oral mucosa and causing trismus and inability to eat."[1]

Many treatment modalities in current practice for OSMF are circumstantial and most of the studies which tested various

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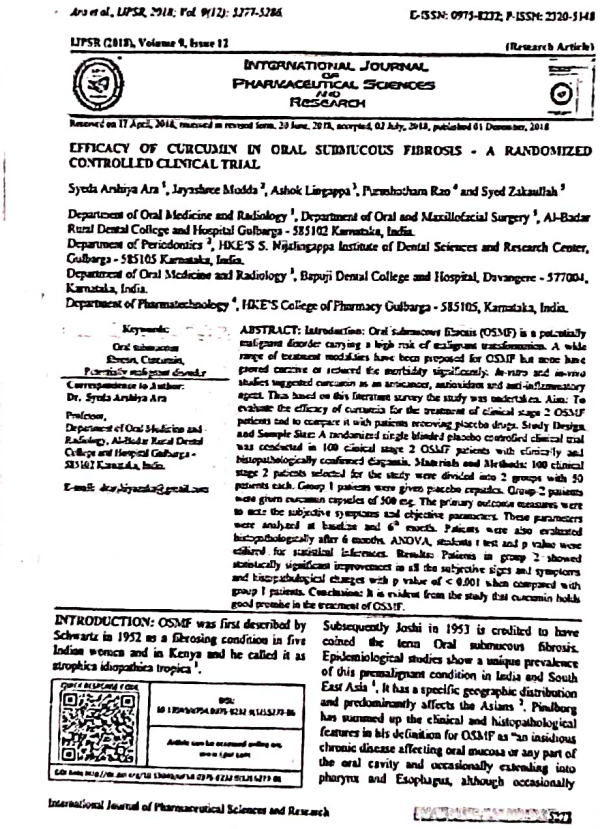

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EFFICACY OF CURCUMIN IN ORAL SUBMUCOUS FIBROSIS - A RANDOMIZED CONTROLLED CLINICAL TRIAL

Syeda Arshiya Ara [1], Jayashree Mudda [2], Ashok Lingappa [3], Purnachandra Rao [4] and Syed Zakaullah [5]

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Keywords: Oral submucous fibrosis, Curcumin, Potentially malignant disorder

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ABSTRACT: Introduction: Oral submucous fibrosis (OSMF) is a potentially malignant disorder carrying a high risk of malignant transformation. A wide range of treatment modalities have been proposed for OSMF but none have proved curative or reduced the morbidity significantly. In-vitro and in-vivo studies suggested curcumin as an anticancer, antioxidant and anti-inflammatory agent. Thus based on this literature survey the study was undertaken. Aim: To evaluate the efficacy of curcumin for the treatment of clinical stage 2 OSMF patients and to compare it with patients receiving placebo drugs. Study Design and Sample Size: A randomized single blinded placebo controlled clinical trial was conducted in 100 clinical stage 2 OSMF patients with clinically and histopathologically confirmed diagnosis. Materials and Methods: 100 clinical stage 2 patients selected for the study were divided into 2 groups with 50 patients each. Group 1 patients were given placebo capsules. Group 2 patients were given curcumin capsules of 500 mg. The primary outcome measures were to note the subjective symptoms and objective parameters. These parameters were analyzed at baseline and 6th month. Patients were also evaluated histopathologically after 6 months. ANOVA, students t test and p value were utilized for statistical inferences. Results: Patients in group 2 showed statistically significant improvement in all the subjective signs and symptoms and histopathological changes with p value of < 0.001 when compared with group 1 patients. Conclusion: It is evident from the study that curcumin holds good promise in the treatment of OSMF.

INTRODUCTION: OSMF was first described by Schwartz in 1952 as a fibrosing condition in five Indian women and in Kenya and he called it as atrophica idiopathica tropica [1].

Subsequently Joshi in 1953 is credited to have coined the term Oral submucous fibrosis. Epidemiological studies show a unique prevalence of this premalignant condition in India and South East Asia [1]. It has a specific geographic distribution and predominantly affects the Asians [2]. Pindborg has summed up the clinical and histopathological features in his definition for OSMF as "an insidious chronic disease affecting oral mucosa or any part of the oral cavity and occasionally extending into pharynx and Esophagus, although occasionally

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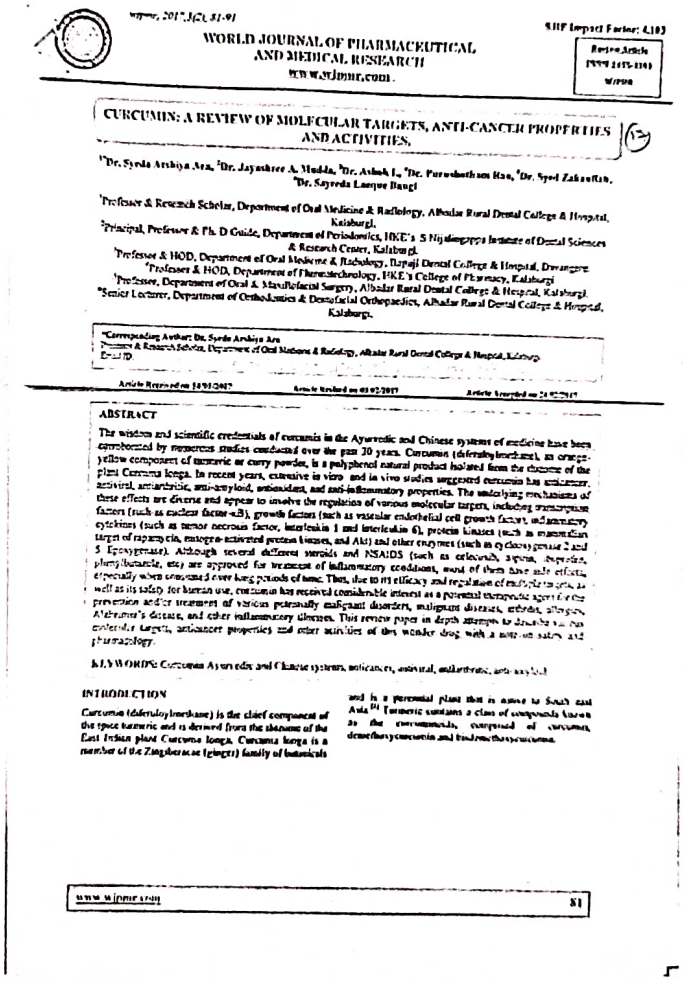

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CURCUMIN: A REVIEW OF MOLECULAR TARGETS, ANTI-CANCER PROPERTIES AND ACTIVITIES.

ABSTRACT

INTRODUCTION

81

Report of the collaborative activities with Chirayu hospital, court road, Kalaburgi.

2018

Dr Mithlesh Bhagat, Post Graduate student In **Department of Periodontics** of our college has collaborated for research activities with Chirayu hospital, Kalaburgi. As a result of their joint research, they published the article titled "**Dr Mithlesh Bhagat, Dr Roopali Tapashetti, Dr Ghousia Fatima and Dr Neha Bhutani**. Assessment of periodontal status in Nephrotic syndrome. International Journal of science and research: volume 8 Issue 7, July 2019

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Assessment of Periodontal Status in Nephrotic Syndrome

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Abstract: *Aim: To evaluate the Oral Hygiene Index (OHI), Periodontal Index, Gingival Index, Serum albumin levels and Assessment of Mucosal Lesion in Nephrotic Syndrome patients. Material and methods: A Total number of 20 Nephrotic syndrome patients within the age group of 18-50 years were included in the study. By the means of the documentary method of personally addressed inquiry we obtain essential data regarding the common health status. After selection of case, based on the inclusion & exclusion criteria, the assessment of oral hygiene status, gingival status, mucosal status, serum albumin levels and laboratory blood investigations were performed. Results: Among 20 patients, 50% (n=10) Patients had poor oral hygiene and 50% (n=10) patients have fair oral hygiene. Where 60% (12) patients had mild gingival inflammation and undergoing treatment since last 2 years, and 40% (8) patients had moderate gingival inflammation and undergoing treatment since last 1 year. And 70% (14) patients had mild gingivitis and 30% the patients had negative gingival score. Conclusion: The present study showed that untreated Nephrotic Syndrome patients showed poor oral hygiene, where as the patients undergoing early medical treatment showed fair oral hygiene status, therefore early diagnosis and treatment of Nephrotic Syndrome at young age will prevent the further periodontal destruction.*

Keywords: Nephrotic syndrome, oral health, gingivitis, periodontal index, gingival index, OHI

1. Introduction

As technology and medicine advances, the oral health care professionals also have to attain a holistic approach to the management of patients with complex medical problems. Among all the systemic disorders, diseases of the renal system pose a major cause of morbidity and mortality worldwide[1], as the kidneys are vital organs for maintaining a stable internal environment i.e homeostasis.[2] India, is now becoming a major reservoir of chronic diseases like diabetes and hypertension. This burden is expected to rise and thus, health care professionals need to take care of them. The Nephrotic Syndrome(NS) Nephrotic syndrome is a common chronic disorder that is characterized by alterations of permselectivity at the glomerular capillary wall, resulting in protein loss through the urine. The clinical condition with a proteinuria level exceeding the body's compensating abilities (protein loss over 50 mg/kg/day). Proteinuria results in hypo and dysproteinaemia, hyperlipidaemia, modifications in immunoglobulin composition (including decreased IgG levels), which additionally impair the body's immunity [3]. The onset and progression of the systemic disorders of pyelonephritics and Nephrotic Syndrome are related with the necessity of frequent hospitalization. Efforts of doctors, parents and patients are concentrated on overcoming the somatic problem. The protocol of proper therapy of Nephrotic Syndrome and pyelonephritis includes, specific dietary regime with limitation of protein-enriched foods and predominant consumption of fruits and carbohydrates, application of antibiotics mainly aminoglycosides- Amicacin, Gentamycin, Rocephin, Fortum, semi-synthetic penicillines-piperacillin. To reinforce the anti-inflammatory efficiency of antibiotics, these are combined with anti-pyretic medicines and non-steroid anti-inflammatory drugs. [4]

Nephrotic Syndrome is one of the chronic illness and is characterized by increase amount of protein in the urine, hyperlipidaemia, hypoproteinaemia, decreased protein in the blood, high cholesterol levels and swelling. Various studies have reported oral manifestations with chronic renal failure and End stage renal disease (ESRD) due to decreased host-immune response and periodontal diseases are associated with various systems, diseases,[5,6] but there are very few studies which shows oral health problems with Nephrotic Syndrome. Hence present study is undertaken to evaluate the prevalence of gingival condition, mucosal status in patients suffering from Nephrotic Syndrome and to provide a good dental awareness for these patients.

2. Material and Methods

The present study was conducted in the department of Nephrology at CHIRAYU Hospital, Kalaburgi, Karnataka. A total number of 20 patients were selected based on the inclusion and exclusion criteria. Informed and written consent were taken prior to the commencement of the study from the patients.

Inclusion Criteria

- Patients should be aged above 20-50 years.
- Patients diagnosed by Nephrologist / Physician as nephrotic syndrome individual

PRINCIPAL
Al-Badar Rural Dental College
& Hospital, KALABURAGI

Report Of The Collabrative Acitivities With Mediscan Diagnostic Care Gulbarga

2016- 2017

Dr Shaima Postgraduate student in **Department Of Oral Pathology And Microbiology** of our institute has collabrated for reseach acitivites with **Mediscan Diagnostic Care Gulbarga**. The project was self supported for a duration of 1 year. As result of their joint resreach, they published article titled **A Comparative Study To Assess Risk Of Oral Candidiasis In Pregnant And Nonpregnant Women. JOMFP2021;25:118-23.**

Original Article

A comparative study to assess risk of oral candidiasis in pregnant and nonpregnant women

Shaimaa, Heena Zainab, Deepa Hugar, Ameena Sultana

Department of Oral and Maxillofacial Pathology and Microbiology, Al Badar Dental College and Hospital, Gulbarga, Karnataka, India

Abstract

Background: The major hormonal changes observed in pregnant women lead to an imbalance in the oral environment. Hence, recent studies suggest that the placenta may harbor a unique microbiome that may have originated in the maternal oral microbiome.

Aim: The present study aimed to assess the risk factor of oral candidiasis in pregnancy and to evaluate the prevalence of *Candida* species in the oral cavity of pregnant women in all three trimesters. The comparison was also done between pregnant and nonpregnant women to evaluate the cause of the prevalence of candidal species.

Materials and Methods: Thirty pregnant and thirty nonpregnant women aged between 20 and 30 years were included in the study that were healthy and who did not have any obvious lesion in the oral cavity. The sterile swabs were used to collect samples from the oral cavity from both the groups by brushing the dorsum of the tongue and buccal mucosa. The pregnant women were followed throughout the pregnancy, i.e., in every trimester, for the sample collection. The samples were then cultured on Sabouraud Dextrose Agar media. The positive growth on culture plates was then inoculated on HiCrome agar differential agar media for speciation.

Results: Statistical analysis was done by comparing the positive growth in pregnant and nonpregnant women using Fisher's exact test. The pregnant women were compared in three trimesters using the McNemar Chi-square test.

Conclusion: The study concludes that there was no significant presence of Candidal species when compared between pregnant and nonpregnant groups. The prevalence of *Candida* species also remained the same.

Keywords: *Candida*, culture, media, microbiology, oral cavity, pregnancy, prevalence

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Submitted: 12-Jul-2020, **Revised:** 07-Oct-2020, **Accepted:** 10-Mar-2021, **Published:** 14-May-2021

INTRODUCTION

Candida is a normal inhabitant in the skin, oral cavity, gastrointestinal tract, respiratory tract and genitourinary tract. Many changes in the internal and external factors induce the harmless saprophyte to become a true pathogen. These predisposing factors are aging, pregnancy, AIDS,

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PRINCIPAL
Al-Badar Rural Dental College
& Hospital, KALABURAGI

Report Of The Collabrative Acitivities With Bharti Vidyapeeth Deemed Dental College And Hospital, Sangli Maharashtra

2015- 2016

Dr Deepa Hugar faculty in **Department Of Oral Pathology And Microbiology** of our institute has collabrated for reseach acitivites with **Dr Santosh Hugar** associate professor **Department Of Conservative Endodontics Bharti Vidyapeeth Deemed Dental College And Hospital, Sangli Maharashtra India**. The project was self supported for a duration of 1 year. As result of their joint resreach, they published article titled **efficicency of bleaching over enamel bond strength of newer generation bonding agents and of 10% sodium ascorbate on reversing the compromised bond strength. Iranian endodontic journal in June 2016.730-73**

Efficiency of bleaching over enamel bond strength of newer generation bonding agents and of 10% sodim ascorbate on reversing the compromised bond strength.

Dr Santosh Hugar, Dr Deepa Hugar Dr Sangamesh Sajjanshetty, Dr Prahlad saraf, Dr Suma Saraf, Dr Sridevi Tamagond

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ABSTRACT

Aim: The purpose of the study was to check the effect of beaching agent on enamel bond strength of newer generation bonding agent and efficacy of 10% sodium ascorbate on compromised bonding.

Setting and design:

Eighty freshly extracted human anterior teeth were collected and stored in 10% formalin. These were assigned into two groups of 40 teeth each as group A and group B. Again both groups were subdivided into 4 sub groups with 10 teeth in each group. Two bonding agents that are 5th generation and 7th generation were used to check the enamel bond strength on unbleached and bleached tooth surface using Hi-lite in-office bleach. Role of sodium ascorbate in reversing the compromised bond strength on bleached teeth were also assessed.

Methods and material:

All the specimens were bonded with resin composite and were subjected to bond strength testing machine.

Statistical analysis used:
Data were and statistically analysed using ANOVA followed by Duncan Multiple Range Test

Results:
A decrease in bond strength was seen with 7th generation adhesive system compared to 5th generation bonding system. When bonding procedure was done after 24 hours Storage in water and treatment with 10% sodium ascorbate, the enamel bond strength of both the groups

Conclusions:
Shear strength of a single bond was significantly higher as compared to iBond on bleached and unbleached surface. 10% sodium ascorbate has an ability to reverse the compromised bond strength on bleached enamel surface.

Key-words:

Single Bond, iBond. Hi-Lite bleaching agent 10% sodium ascorbate.

Key Messages:
Despite simplification of bonding products, technique sensitivity, substrate variability, concern about enamel bond strength over a bleached tooth have increased. With respect to the bleached enamel surface, the compromised bond strength that were observed with different bonding system, effectively reversed with an antioxidant such as 10% sodium ascorbate, when it was used for at least one third of the time of application of the oxidizing bleaching agent.

PRINCIPAL
Al-Badar Rural Dental College & Hospital, KALABURAGI

Report of the collaborative research activitiy with Y.M.T Dental College and Hospital. 2020-2021.

Dr. Rahul Halkai. Prof & HOD, **Department of Conservative Dentistry & Endodontics** of our institute has collaborated for research activitiy with **Prof. Dr. Rizwan M. Sanadi, Dr. Priyanka Jain and Dr. Kavita Pol Nalawade, Department of Periodontics, Department of Periodontics, Dr. G.D. Pol Foundation's Y.M.T Dental College and Hospital, Kharghar, Navi Mumbai, Maharashtra, India.** The project was self-supported for a duration of 1 year. As a result of their joint research, they published article titled **"Sanadi RM, Jain PP, Nalawade KP, Halkai KR, Halkai Gingival Crevicular Fluid An Update. International Journal of Research and Analytical Reviews (IJRAR) 2020; 7 (4): 724-730"**

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GINGIVAL CREVICULAR FLUID-AN UPDATE

[1]Dr. Rizwan M. Sanadi, [2]Dr. Priyanka P. Jain, [3]Dr. Kavita Pol Nalawade, [4]Dr. Kiran Rahul Halkai, [5]Dr. Rahul Halkai
[1] Professor, [2] 2nd year Post graduate student, [3] Professor, [4] Professor, [5] Associate Professor
[1,2,3] Department of Periodontics, Dr. G.D. Pol Foundation's Y.M.T Dental College and Hospital, Kharghar, Navi Mumbai, Maharashtra, India
[4,5] Department of Endodontics, Al-Badar Dental College and Hospital, Kalaburgi, Gulbarga, Karnataka, India

Abstract: The existence of gingival crevicular fluid (GCF), a fluid that emerges between the surface of the tooth and the epithelial integument, has been recognized for over many years. GCF is a complex mixture of substances derived from serum, leukocytes, structural cells of the periodontium and oral bacteria. This review highlights about the gingival crevicular fluid in detail and also its function as a potential biomarker.

IndexTerms - Gingival crevicular fluid, exudate, biomarkers, Periodontitis

I. INTRODUCTION

The existence of GCF, a fluid that emerges between the surface of the tooth and the epithelial integument, has been recognized for over many years. GCF is a complex mixture of substances derived from serum, leukocytes, structural cells of the periodontium and oral bacteria. It contains a large repertoire of serum proteins, inflammatory mediators, host cell degradation products and microbial metabolites.[1] Gingival crevicular fluid (GCF) along with leukocytes, saliva, epithelial barrier of the gingival sulcus are generally effective in controlling the deleterious effect of the heavy concentration of bacteria found in dental plaque. If this balance between host and parasite is slightly changed, the result can be progressive periodontal breakdown.[1]

II. HISTORICAL BACKGROUND

Researchers	Studies
Waerhaug [2] (1952)	Focused on anatomy of the sulcus and its transformation into gingival pocket during the course of Periodontitis.
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III. PERMEABILITY OF JUNCTIONAL & ORAL SULCULAR EPITHELIA [5]

The main pathway for the transport of substances across the junctional and sulcular epithelia seems to be the intercellular spaces which, according to *Schroeder and Munzel-Pedrazzoli* [1970], form 18% of the total volume of the junctional epithelium and 12% of that of oral sulcular epithelium. Squier (1973) and Vogel et al (1981) showed that, degree of permeability does not depend on the degree of keratinization.

Three routes have been described for permeability:

1. **Passage from connective tissue into the sulcus :**
   In a series of experiments, Brill verified the assumption that, interstitial fluid entered the gingival sulcus through its epithelial wall by showing that the tracer material, sodium fluorescein, administered parenterally or perorally, could be recovered from the gingival sulcus but not from other oral epithelia [Brill and Krasse, 1959; Brill and Björn, 1959]. Brill was also the first to show the presence of plasma proteins in the gingival fluid. The fundamental observations of Brill have been confirmed in other experiments, where it was shown that extraneous materials such as India ink [Ratcliff, 1966], labeled albumin or labeled fluorescein [Brown-Grant and Browne, 1966], tetracycline [Bader and Goldhaber, 1966] and saccharated iron oxide [Weinstein et al, 1967] could be seen to pass from the gingival vessels into the gingival sulcus or pocket.

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PRINCIPAL
Al-Badar Rural Dental College & Hospital, KALABURAGI

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Recognized by Dental Council of India (New Delhi)

Report of the collaborative activity with Army College of Dental sciences, 2018-2019.

Dr Gladson Selvakumar, post graduate student, **Department of Conservative Dentistry & Endodontics** of our institute has collaborated with **Department of Conservative Dentistry & Endodontics, Army College of Dental sciences, Hyderabad** for participation in **student exchange programme** for upgrading the knowledge and skills in the subject. The programme was self-funded by the student for a duration of 3 days from 27-08-2018 to 30-08-2018.

STUDENTS EXCHANGE PROGRAM 2018

LEARN TO EXCEL

Certificate of Participation

This certificate is presented to

Dr. GLADSON SELVAKUMAR B

for his active and valuable participation in the Students Exchange Program held at Army College of Dental Sciences from 27-08-2018 to 30-08-2018

Dr. Kidiyoor .K.H, President
Dr. B. Mohan, Hon.Gen.Sec
Dr. K.V. Ramana Reddy, Principal
Dr. Mamta Kaushik, Professor & Head

PRINCIPAL
Al-Badar Rural Dental College
& Hospital, KALABURAGI

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Affiliated to Rajiv Gandhi University of Health Sciences Bangalore &
Recognized by Dental Council of India (New Delhi)

Report of the collaborative activity with Army College of Dental sciences, 2018-2019.

Dr Sarita Bhandari, post graduate student, **Department of Conservative Dentistry & Endodontics** of our institute has collaborated with **Department of Conservative Dentistry & Endodontics, Army College of Dental sciences, Hyderabad** for participation in **student** exc The pro 30-08-

STUDENTS EXCHANGE PROGRAM 2018

LEARN TO EXCEL

Certificate of Participation

This certificate is presented to

Dr. SARITA BHANDARI

for her active and valuable participation in the Students Exchange Program held at Army College of Dental Sciences from 27-08-2018 to 30-08-2018

Dr. Kidiyoor .K.H	Dr. B. Mohan	Dr. K.V. Ramana Reddy	Dr. Mamta Kaushik
President	Hon.Gen.Sec	Principal	Professor & Head

PRINCIPAL
Al-Badar Rural Dental College
& Hospital, KALABURAGI