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It gives me immense pleasure to forward this issue of Dentimedia to our esteemed members. I congratulate the editorial team on starting with A first of its kind peer reviewsed e-journal .

Research and innovations are the lifeline for any field to progress. Dentimedia is one such platform where people with clinical or academic experience can contribute towards upliftment of knowledge for the benefit of the dental fraternity. I again congratulate the editor along with his team for acting in synchrony with this ideology .Hope the readers will find the journal enlightening and enriching.

Greetings from HON. STATE SECRETARY

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New Beginnings!

A new issue of Dentimedia- the official journal of IDA Gujarat State is finally being published after a long time. Dentimedia would definitely be useful to those who are affiliated to academic institutes and to post-graduate students; but I wish that members in private dental practice in Gujarat too take advantage of this journal. In that context, I request the Editorial team to include a special section for general dental practitioners which has articles of clinical nature rather than just academic.

Dr Haren Pandya took over as Hon Editor last year and within a year he has been able to bring out a new issue. I congratulate him and his team for that, and we expect that now the Dentimedia will be published regularly.

IDA Gujarat is moving with the times and that is why we are going for an online version of the journal instead of a print version.

Friends, let us come together to motivate our friends, colleagues and juniors to join IDA. IDA may not be perfect but only you can make IDA as well as dental profession stronger and better by being inside

rather than outside.

United we Stand, Divided We Fall.

Jai Hind, Jai IDA

Greetings from Editor

DR. HAREN PANDYA

Editor - Journal, IDA Gujarat State Branch

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After a long hiatus I extend warm greetings from the editorial board for the relaunch of our esteemed journal. We have an elite review board and a knowledgeable advisory board for the same .Being a peer reviewed journal it goes through a blind review from the designated review members. This issue includes articles pertaining to financial management other than articles for our core dental research and advancements . Hence forth i would strive to include diverse clinically applicable articles. Active participation from members in the form of article contributions for advancements in techniques or a unique treatment modality or research would go a long way in enriching our journal. I would encourage young qualified practitioners and post graduates to take advantage of this platform to highlight their work and skills.

I would extend my heartfelt thanks to my coeditor DR VIMESH PATEL and the media expert for designing the online link for uploading and reviewing the articles thus giving a boost to the green revolution.

Knowledge should be upheld and prevail above all.

Special Thanks to Our Editorial Board

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1 MANAGING CLINIC for DENTISTS – Part I
The Efficient Clinician Master Key

Author: Dr. Bhavdeep Singh Ahuja

ABSTRACT

Marketing our dental clinic practice can be a very dicey thing; especially when the attention span to such an activity is limited and we have to always keep looking around to control our mind being pulled in so many different directions. There are way too many distracters around us to decide on the most or the least priority tasks needed to us. It is an established fact that in today's social media savvy times, marketing is extremely vital to increased traffic and is the key to the success of any business and thus, dental practices can't be an exception. For any dental practice to grow at a bare minimum level, a dentist should be having a minimum of 15 new patients in a month. But how do you get them? We all know that bringing in good patients and also lots of them, is very hard as well. Hence, marketing your dental practice involves a lot of planning and thus, marketing should be your time well spent.

INTRODUCTION

We all have a minimum professional life of 6-8 hours out of a maximum possible 24 hours in a day. We have to remember that we are parallely working as well in clinic along with doing consultations to make conversions actually happen in our practice. Thus, between finding new patients and catering to the already existing databank of patients, marketing can fall much low on the list of priorities. The way the digital world has come to a screeching halt in the palms of most individuals (Big Thanks to Reliance Jio for that), every search begins on mobile phone first and hearsay later. But in this today's social media studded world, when we don't have a proper Me-time (for ourselves), a proper family time, can we afford that extra time for marketing? The traditional dental marketing practices like the word of mouth may still be the best, but who has the patience for those 3-5 years in this today's fast moving racy pacy and expensive world where the expenses are surmounting day by day. As per a study done in 2018, 97% of consumers go online to find local services, 73% use online search engines to research dental treatments and the first step 72% of patients take when searching for a new dentist is looking up online reviews. Welcome to the age of digital dental marketing.

REVIEW

Let's define Marketing!!!

Marketing is about creating satisfactory exchanges via effective and integrated communication with consumers and building relationships with customers and with other publics who could impact organizational performance by means of effective corporate communication.

However; Marketing is not selling.

Who says that?

None other than the guru of all marketing gurus, Philip Kotler.

Selling, of course, is part of marketing, but marketing includes much more than selling.

Peter Drucker observed that "the aim of marketing is to make selling superfluous." What Drucker meant is that marketing's task is to discover unmet needs and to prepare satisfying solutions. When marketing is very successful, people like the new product, word-of-mouth spreads fast and little selling is necessary.

Marketing cannot be equivalent to selling because it starts long before the company has a product. Marketing is the homework that managers undertake to assess needs, measure their extent and intensity, and determine whether a profitable opportunity exists. Selling occurs only after a product is manufactured. Marketing continues throughout the product's life, trying to find new customers, improve product appeal and performance, learn from product sales results and manage repeat sales.

Marketing is creative, exhilarating and I must say, pure fun.

Brainstorming ideas late into the night, throwing ideas around, watching them get better and bigger by the minute in a group is very cool and exciting. Seeing your ad in print for the first time or watching the results of an email campaign right after you hit the send button – it is pure adrenaline.

Marketing folks are, for the most part, not too fond of process, reporting or anything that might limit creativity. At least that's how most non-marketers view marketing people. Some marketers would certainly classify themselves as "right-brain" types, not inclined to documentation, data or discipline. Not everyone fits this description and it might be hard for some of you to hear. Marketing is one of the last disciplines to apply process, automation and technology to improve both efficiency and effectiveness.

I have always believed and the literature also proves it that marketing is not only external but 'internal' too.

We as dentists would and should be interested in doing internal marketing rather than external marketing which in a lay man language is known as advertising and promotion.

So as a reader are you wondering?

What exactly is internal marketing?

Can I do it?

Am I capable of doing it with no prior 'MBA' or something similar?

Shedding some light on internal marketing would be like opening a can of worms. **Internal marketing** practically, is the communication of information (many types) that needs to be shared with staff members. It is important to coordinate the efforts of employees/staff members to strengthen the performance of the company (in our case, read clinic or dental office). Our clinic usually strives to provide an exemplary customer experience; we need to train our employees to provide that experience, but creating a workforce that is educated about our goals and enthusiastic about meeting those goals is not as easy as some would expect. Businesses must make serious efforts to distribute timely and relevant information so that every employee is working toward common goals. A disorganized workforce and an inconsistent marketing message are easy ways to lose a business.

There was a time when an awesome creation got its due and was appreciated for being brilliantly creative, but now the times have changed. With so much technology at our disposal, we hardly need to look around more things and much is available at our fingertips.

'Managing Clinic for Dentists – The Efficient Clinician Master Key' is just my assembly of ideas and theories and a collection of a few practical and methodical approaches that I have been compiling ever since my M.B.A.'s finished.

The only plan was to create a series of gentle and helpful reminders; things that doctors/dentists as 'planners' should know & should do, but don't always have the time or patience to do so.

We are in a 'noble' profession where technically marketing was considered to be 'legally' prohibited earlier. It is allowed now albeit with a few limitations.

I will start with a few 'Rules of Marketing' in this series of articles after a little introduction above about marketing. As you go through the rules, I request that you don't take them literally as they are my series of anecdotes and observations which might be a different point of view than yours. Please feel free to share the same with friends & family that you think might benefit from some experiences. You can use them to start a discussion about what you think the rules should have been. Also, I will suggest you that don't read the rules in order; just randomly sail through them until you also have a 'Eureka' and if that lets you shriek out a cry of joy or satisfaction, then I would believe my job is done.

After all, these are my rules.

What are yours?

Please do share with me in the feedback at my email **drbhavdeep@gmail.com** or SMS/Whatsapp at **98761-93039**.

So as I said, like every discipline, marketing also has a particular regimen & a schedule; with a proper development of a perfect plan followed by a deft execution.

As is the saying, "You can have brilliant ideas, but if you can't get them across, your ideas won't get you anywhere"; hence the **RULES** of marketing.

The RULES

Rule 1: ***Rule 1 says Rules are meant to be broken.***

Don't follow them blindly; break them sometimes, after all, we are humans; have emotions, and we are not robots who have to follow all the instructions all the time; but breaking certain rules, sometimes is different from breaking all rules, all the time, just because 'I said so' is entirely unacceptable. Use a little discretion sometimes; after all you also have a top floor (brain) as well.

Rule 2: ***Marketing must result in sales***

Marketing is essentially a 'right-brain' activity, not inclined to data, documentation and discipline as it to an extent limits the creativity of the marketers. How effective is your marketing doesn't necessarily reflect in your visibility at various forums but in your effective 'conversion rate'. Marketing is essentially the way, the messages about your clinic's products (methods & materials) & service; which you provide are conveyed to your walk-in patient or a referral patient, to elicit a positive response or effectively known as the sales. Putting it in a simpler way, Marketing is conveying of your 'brand' to the patient to garner his attention resulting in his convincing to get his job done from you.

Rule 3: ***Plan a little; so you can do a lot more.***

T-20 Cricket can be easily analyzed as a game; initial half played by the Coach in the dressing room and the latter half by power hitters in the ground. The coach plans and the power hitters execute the same. The same way marketing goes about the task in a proper phased manner. Essentially, everyone in this arena can be classified into either a 'Planner' or a 'Finisher'. Planners plan, analyze, assess, request more info, then re-assess and if situation changes, they repeat the whole process again. They usually just plan and don't work that much. Having said that, planners are still a vital cog in the whole process as without them, the workers or the 'Finishers' as we say would be like chickens running with their heads cut off. The finishers are the actual 'doers', with great ideas in tow, excitement and energy levels at their peak, the finishers are always jumping on the bandwagon; in the process, their enthusiasm & commitment rubbing off on others; thus making everyone work; but the question is, are they doing the right things in consistency with the strategy and the laid out objectives?

The bottom line is that to achieve the desired goals, we need both planning & finishing. There is actually a very thin rope between planning & doing and if the scales tilt on any particular side; in the final outcome, it is reflected as a lack of balance between strategy & execution. Well, thanks to planning, we can develop brilliant strategies – on paper at least and thanks to finishing, we can spend a lot of time and money without much to show for it. My Late Father (He passed away recently on 30th June, 2019) used to tell me "If you slow down, you will go faster" and he was right most of the times (even when I have just crossed 43 myself and I sometimes, yell at my own daughter).

How many times do you realize/wish later had you had just taken a minute at that moment to think something through before you jumped in?

How about you?

Did this ever happen with you?.

Rule 4: ***Know what you are aiming at.***

Before we embark on any venture, we have to ask ourselves a particular question every time, "What are our goals & what are we trying to accomplish?" The beauty is that most of the time, we think it to be too naïve a question, thus it usually goes un-asked and most of the time, unanswered. Marketing strategy connects us to where we are with a vision in our mind of where we want to be in due course of time. Identifying primary goals is of paramount importance, for e.g.

Do we want to make our patients aware of our new services; we have launched with new gadgets/products and ultimately with increased awareness achieve growth & profitability?

Or Is it just the focused agenda to increase the conversion rate and ultimately achieve high profitability?

Identify your primary target audience; the kind of patients you want to target with your enhanced services. Creating a content strategy without a clear understanding of your audience is a bit like setting a boat adrift without navigational tools. You are out there and you are taking action, but you are not working toward a specific goal.

These are the situations that marketers dread: huge amounts of time and money, without a clear potential for good Return on Investment (ROI). Let's start with goals.

It's easy to think about goals in different ways. Just quoting a random example here in below:

"I want to do 20 RCT's with my newly bought Apex Locator in the next month (not all cases, but a fixed percentage for trial) with those 20 paying me an increased price"

"I want to get 10 new patients of RCT through these above 60 patients in next 3 months (as supposed above, 20 each month) through inbound marketing."

"I want to double my profit 100% each month on these 'inflated charge RCT's' in my regular patients so that I recover my cost of Apex Locator soon."

What these goals don't articulate though, the truth lying right beneath the surface and driving every content effort, is a desire to reach more people with my newly bought gadget (Apex Locator). There is a need to identify specific people, that your brand will resonate with and who will take action to buy, use and promote your products and services. Beginning every campaign with a strong understanding of your audience is one of the best ways to ensure your success. That is where the concept of target audience comes in. A target audience is a particular group of consumers within the pre-determined target market, identified as the targets or 'recipients' for a particular advertisement or message..

Businesses which have a wide target market, will focus on a specific target audience for certain messages they are trying to send, rather than the whole market which would have included the whole population

Rule 5: ***Get to know your patients or the Target Audience.***

It is commonly understood among marketers that, in order to develop a message that will be heard by clients (patients), you have to be able to describe who your customers are. Unfortunately, it isn't always common practice to do the work required to really understand your patients in our field.

"Patient - centric" "Patient - driven" "Patient - focused"

All of these phrases have been used to describe different approaches to understanding patients. There is an important distinction between describing your patients and "getting to know" your patients. Following are the three golden rules of getting to know your patients to help you keep your edge in the market:

A: Know what they want: The biggest golden rule is to carefully identify what your patients need and want and then to show them that you can provide them with the service that will meet those needs. You need to have a direct connection with your target market to get the best return on investment from your marketing spends. The cornerstone of an effective marketing program is to have a current and accurate understanding of your patients' needs. Once you know what people expect of you, you can tailor your business objectives to meet their needs and develop a marketing plan that clearly outlines the specific initiatives required to achieve your own marketing objectives and business goals.

B : Communicate clearly: Direct engagement, either by social media, email or face-to-face contact creates a good rapport with your patients and allows you to remain competitive in your industry. The more honest and direct you are with your patients, the more trust you will build in your brand for them. It is much easier to exude a patients-driven business focus if you have already established a reputation of honesty and integrity. An unspoken rule of marketing says "Clients appreciate direct and honest engagement". Keeping your patients informed, and communicating clearly and honestly, creates positive word-of-mouth and referrals.

C: Use your reputation to your advantage: Small practices often grow from referrals. Word-of-mouth is one of the most successful ways a practice can quickly reach potential patients.

If a patient has a good experience with your clinic/practice, not only will they come back to you in the future, they are also likely to tell their friends. Patients who value your service and the way you provide your service will support you by passing on their praise – and these referrals have a strong correlation to action. Think about the last great restaurant you ate at. You probably told a number of people about the excellent food, service and atmosphere and recommended they try it for themselves and it's very likely that some of them followed your advice as well. So, it is a given that all patients want to have a good service experience. If you treat them with honesty and respect, while staying attentive to their needs, then you will create valuable repeat business for life and nothing can promote your business better than happy patients.

Rule 6: ***Target your messages.***

The old saying in the real estate business goes "The three most important things in real estate are location, location and location". Ms. Vidya Balan, a bollywood heroine also said in the film 'The Dirty Picture", that films run due to primarily three reasons – entertainment, entertainment and entertainment. That's why it is called an entertainment industry. In marketing, the three most important things are targeting, targeting and targeting. To create targeted messages, you first have to identify your audience – who are you talking to? Using targeting improves your focus and impact of your marketing activities. Understanding how different groups of customers perceive their problems helps you define your messages more clearly. Understanding behavior helps you to select the right marketing activities to reach your customers. For example, let's say you are advising / convincing routinely for Metal Free Crowns to middle class patients. In each of these types of patients, there are several people in their family you need to get messages to in order to make this convincing a success. There is the head of the family who cares about the costing of the same; there is the Mother of that family who cares about the longevity and technicality of the Metal Free Crowns and there is the patients' immediate close (Husband/wife) who is really focused on its durability and esthetics. Your message to the patient or his family should be consistent.

The individual communications to each target audience should be tailored to its unique needs, perceptions and business challenges.

Technology also allows you to target your messages in ways we couldn't even dream of before we had the Internet. With marketing automation tools today, you can directly "tag" your patients to indicate what work you have done in your clinic (cases), what you have recently bought (upgradation), what changes you made on your website, and so on. With this information you can specifically target your communications to them. You can communicate to your patients in ways that matter to them. And your messages are more effective at breaking through because your patients are actually interested in what you have to say. Targeting can significantly increase your ability to 'close the deal' (convince a patient). It helps you increase revenue and profitability. You can 'sell' more efficiently because you are targeting the right patient with the right product, with the right message in the right way and at the right time.

After all, isn't that the bottom line of marketing?

Clearly defining your audience makes all the difference when you are creating content.

If you are writing a piece about social media management tools, how do you frame it correctly?

The answer, of course, all depends on who you are writing for.

Why audience matters:

As I said above also, creating a content strategy without a clear understanding of your audience is a wrong approach. Working hard is fine but without a clear headed approach and a pre-determined goal is surely wrong. The ROI always matters because no one likes his balance sheet to be in the red zone after investing time, energy and most importantly, money. Let's look at few other goals.

It is easy to think about goals in terms of SEO and content strategy in different ways.

"I want my website to rank at the top of Google for the keyword "Dentist in Ludhiana."

"I want to get 60 new patients a month through inbound marketing."

"I want to double my website visitors 100% each month through my website updates and blogging."

The goals will still reflect the zeal to reach the maximum audience in our range an in our case, treat more people with our acquired skills and new gadgets.

Everyone loves money, name and fame, Isn' it?

If you have just launched a startup practice, you must have likely spent a lot of time planning and building your plan.

Part of that planning process involves or should involve deciding who will be on the receiving end of your marketing efforts. Your services might appeal to a large group of people, but it doesn't make sense to try to market to everyone. Targeted marketing, thus become very important in this regard. Having a well-defined target market is more important than a large number of patients from all classes and categories. No one can afford to target everyone. Small practices/clinics can effectively compete with large practices/clinics by targeting a niche market. Many businesses say they target "anyone interested in their services." Some say they target 'Lower Middle classes'.

All of these targets are too general. Targeting a specific market does not mean that you are excluding people who do not fit your criteria. Rather, target marketing allows you to focus your marketing and brand message on a specific market that is more likely to buy from you than other markets. This is a much more affordable, efficient, and effective way to reach potential patients and generate work for you. Defining a target audience might feel constraining to you, but just remember that you are not excluding anyone; you are choosing where to spend your maximum time, energy and money positively for a better output. Selecting a target audience will help save you a lot of resources. Focusing on a portion of the people who might be interested in your products will allow you to communicate and engage with that segment more deeply.

Rule 7: ***Learn to identify your Target audience.***

How will you do that?

Following are a few steps to decode your target audience:

1: Who are they? Every patient screening starts with a fundamental understanding of who your patients are. Demographic profiles are limited in their potential to uncover motivations and spending patterns, but they are a great launch point for any discussion and as they say 'Never underestimate the pocket of your patient'. Your patient could be an investment banker working six days a week, a housewife who used to work earlier but is now dependent on her husband's income, or a daily wager who is struggling to make ends meet, or a businessman who has enough money but not enough time or endeavour to spend it. These other details hang on that scaffolding and give it a context. It is this context that helps you sell. Still, without a fundamental understanding of where your prospect is coming from and how he/she lives her life, digging deeper into their needs and motivations is going

going to be a challenge. Always build your audience profiles on a solid demographic base.

2. What is their Most Pressing Issue, Problem or Desire? Every person mentioned above has something that keeps them awake at night. It might be a persistent problem – such as an inability to smile freely in public because of discolouration/broken anterior teeth, scathing pain in teeth and jaws, inability to eat hot/cold/sweet in parties or even home, afraid of false dentures coming out publicly and many more. Being a dentist, we can think of dental reasons, but they can be non-dental reasons also like an inability to get an entrepreneurial venture off the ground, find the willpower to be healthy or sustain a healthy relationship. It might be a momentary issue such as insomnia, the need to make the ends meet or a desire to figure out on how to deal with a difficult client. We have to make sure that we do figure out the dental problems easily and conveniently. Understand the predominant problem that has brought your previous patients to your door – especially your best and most profitable patients – helps you recognize that motivation in others. Your pattern recognition for the people that comprise your best patients will improve dramatically. It also helps you create content that attracts more of those prospects.

3. Where do they get their info? How your patients' gather information is absolutely critical and how to convey your message even more critical. Choosing the channels that you use to deploy your messaging is absolutely important. Creating a brand to reach out prospective patient either via website or blogs or online presence is one of the most convenient ways especially in this era of digitization courtesy Reliance JIO and Digital India when everyone has not one but two SIM cards and phones as well. There are multiple motivations for publishing or sharing content in a particular place.

•The brand name will lend you credibility with a wider audience.

•Your website will benefit from a high rank and relevant topical approach.

•Your potential patients or existing patients read or watch the publication (blogs)/access your website.

Let's focus on the last one: writing great content that achieves our goal of connecting us with the right people requires publication or blogs where those people spend time.

If they do read blogs or newspapers or other publications, which ones do they spend time on? If they are looking for reviews on services similar to yours, whom do they trust? As you move down this line of inquiry, a whole litany of questions will open up for you. Before you move to the next step in your process, be sure that you can answer how your prospects get their information in a holistic and meaningful way.

4. What benefit part of your services solves their problem? You might have heard about the need to focus on benefits over features. In other words, don't tell me what it does – tell me what it does for me (or rather, tell your patients what you can do for them, rather than they asking you, Can you do this?). If you have done your detective work earlier on, you will be able to articulate the problem of your patient that you are addressing and the benefits that your product or service offers. I will encourage you to take this one step further. Know which benefits are the most important and speak directly to one of your target audience patients. Build your online presence. A better online presence generates more traffic to your website. But what does that traffic mean in terms of benefits? It could mean more patients walking in, more people reading your content, more people sharing your ideas and any of these are valid benefits.

5. What sets off their psyche to choose you? We live in a world of skeptics. It is easy to understand why. We are flooded with advertisements and brand messages, wherever we go; Online, on TV, on the sidewalk & on the roads. These invasive sales pitches are filled with claims that are hard to verify. In many cases, advertisements are filled with outright lies. Sometimes, the ad makers don't realize that they are promising much more than they can deliver. So, it is always better to act with integrity. If your brand is known for being honest, ethical and delivering values, you will become a trusted source. It can take years to build trust and a few seconds to lose it forever. So, this should be your guiding star in content creation. Second, you need to understand the dynamics of your market well enough to be able to identify the standard bad claims. In website examples, sometimes, you can see tall and crazy claims about getting at the top of Google search in less than 30 days; as in weight loss promotions, extreme weight loss at rapid speeds is the normal promotion.

Take the time to understand these factors, and create a list of the terms, claims and other "bad triggers" you will never use in your content on your website. Finally, back up your claims with a proof. Legendary copywriter Gary Bencivenga always stresses the power of proof. Proof can be in the form of numbers, outside studies, testimonials, endorsements from trusted sources, and many more. Take the time to figure out what would back up your content and spend the time to work it in. The more proof you can show that your brand and products deliver, the more your content will deliver qualified and good prospective & paying patients.

6. Who do they trust? Who do your patients trust? I hope, in part, that it is you by this point! But it could be specific experts in your space, other doctors or brands. As much as possible, use that information to your advantage. The more connected you are with trusted brands, the more that trust and belief in expertise is transferred to you. Getting to know your patients in real depth takes time. The more you put in the hard/smart work, the happier, you will be at the end of the day.

There will be many abusers/detractors of Marketing who will always say that in order to attract new dental patients, a clinical practice must offer a competitive product at competitive pricing, along with convenient quality services and all of that should be backed by a solid dental marketing plan. I however don't agree with this fully.

Why?

We shall find out this in the next issue of the Journal

(To be Continued)

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14. http://www.macquarie.com
15. http://www.managementhelp.org
16. http://www.marketingland.com
17. https://www.qualitylogoproducts.com/blog

Dear Readers: Important Announcement

The above article by Dr. Bhavdeep S. Ahuja

will be published in many parts.

The above is Part 1.

Check out DentiMedia September 2019 Vol. 20 Issue 2 for the 2nd part of the above article.

2

Internal Resorption and Management with Thermoplastisized Obturation: A case report

Authors: Dr. Riya Dave, Dr. Anjali Kothari, Dr.Rajendra Bharatiya
Dr.Urvashi Ujariya

ABSTRACT:

Internal root resorption is unusual and involve resorption defect of the pulp cavity resulting in loss of dental hard tissues. The prognosis for treatment of small lesions of internal resorption is good. However, if the tooth structure is significantly weakened and perforation has occurred, the prognosis is poor and tooth extraction must be considered. In this article we report a case of internal resorption in a 33-year-old female patient managed with endodontic procedure.

KEY WORDS:

Internal resorption, tooth resorption, trauma, pink tooth, obturation.

INTRODUCTION:

According to American association of endodontics,resorption is defined as "a condition associated with either physiologic or a pathologic process resulting in loss of dentin, cementum or bone. Physiologic tooth resorption is a natural process during exfoliation of deciduous tooth, while pathologic process is seen in orthodontic movement, traumatic injuries, chronic infection of pulp and periodontal structure[1].

Internal resorption is further classified as internal inflammatory resorption and internal replacement resorption. Complex interaction between inflammatory and resorbing cells and formation of multinucleated giant cells lead to resorption of internal root surface[2]. It is a rare lesion with prevalence reported ranging from 0.01% to 1%[3]. Males are more affected than females and most commonly affected teeth are upper incisors[4].

CASE REPORT:

A 33 year old female patient reported to department of conservative dentistry and endodontics with chief complaint of pain since last one month with respect to upper front tooth. Patient also gave history of trauma to anterior teeth during childhood in a road accident. Clinical examination revealed discoloration with maxillary right central incisor. IOPA radiograph of 11 showed periapical radiolucency with 11 with apical third calcified and well defined ballooned out radiolucency in the root canal at middle third region.

Thus Root canal treatment with themoplasticized obturation of the root canal was planned as a suitable treatment modality for central incisor. Local anesthesia was administered and tooth was isolated using rubber dam. Access cavity preparation was done with tooth 11. Canal was negotiated to its full working length. WL was determined using Root ZX Mini apex locator (J. Morita Corp, Japan) and confirmed with 20 no k file and IOPA radiograph. The canal preparation was done with pro taper universal files with the final preparation kept to F3. Due to presence of defect more attention was kept towards chemical disinfectant over mechanical. Canal was irrigated regularly during filing using 2% Chlorhexidine solution and sodium hypochlorite activated with endoactivator (dentply). Final irrigation using 17% EDTA was done.

After thorough cleaning and shaping, calcium hydroxide was placed as intra canal medicament and patient was recalled after one week. High ph of calcium hydroxide is known to limit the progression of resorption defect. Obturation of the tooth was done with F3 pro taper cone and AH plus sealer (Dentsply) and back filling of the defect with Gutta flow (Coltene/ Whaldent Inc).

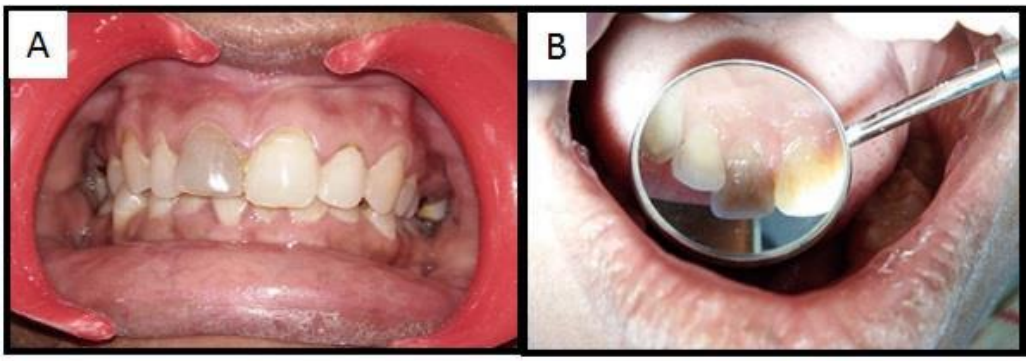

FIGURE 1:

A) pre operative clinical view discoloured central incisor

B) pre operative clinical palatal view

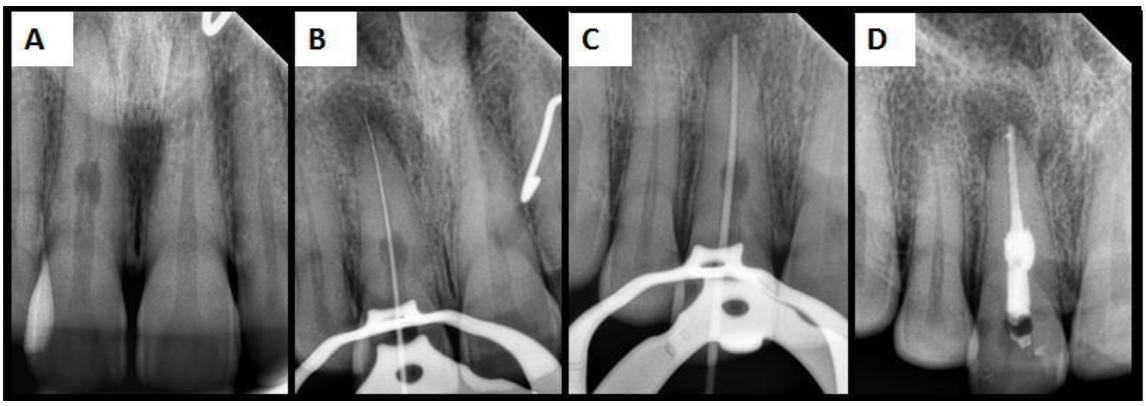

FIGURE 2:

A) pre operative

B) working length

C) Master cone

D) post operative radiograph

DISCUSSION:

Internal resorption is considered to be an inflammatory process established by the association between a pulp aggression, which causes a focal necrosis of the odontoblasts and a chronic inflammatory process without pulp necrosis[5]. The aim of root canal treatment is to remove any vital and necrotic pulp that might be sustaining and stimulating the resorbing cells via their blood supply and to disinfect and obturate the root canal system. Access cavity preparation should be conservative, preserving as much tooth structure as possible and should avoid further weakening of the already compromised tooth. Prognosis is good; however, the patient must be recalled, since the resorptive defect can recur. Once perforation occurs, therapy becomes more difficult and the prognosis is poor; in such cases repair must be carried out to create a barrier. Initial placement of calcium hydroxide paste occasionally may result in remineralisation of the site of perforation and stop the resorptive process. Extraction often is necessary for radicular perforation that does not respond to therapy[6]

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3

Prevalence and awareness regarding Apparent Facial Asymmetry: A cross sectional study

Author: Dr. Prerna P. Rupareliya , Dr. Dolly P. Patel, Dr. Kaushal J. Shah

ABSTRACT:

Introduction: The study of Orthodontics is indissolubly connected with that of art related to the human face. The facial aesthetics is of paramount importance to Orthodontist. Aim: The purpose of the present survey is to check prevalence and awareness regarding apparent facial asymmetry amongst undergraduates' students who are in the process of becoming future dentists. Method: 150 samples were clinically examined mainly in yaw (Sagittal) and Roll (Transverse) dimensions with reference to Mid saggittal reference plane(MSR).Maxillary and Mandibular Skeletal and dental midlines were checked, chin and nose projection, CR-CO discrepancy, maxillary arch width, Occlusal plane, Molar relation, Overjet, Overbite, Crossbite other dental features were examined. Results: Prevalence of Asymmetry 30.7%(n=46), Amongst them Skeletal 47.82%(n=22), Dental 4.35%(n=2), Both 47.82%(n=22). Asymmetry present on left side (76.08%) more than right (23.91%). Maxillary skeletal asymmetry 2.17%, Mandibular skeletal asymmetry 34.38%, chin deviation 67.39%, Nose deviation 47.83%, Maxillary and Mandibular midline not matching in 41.3%, Maxillary width not equally wide in 6.52%, Occlusal cant present in 21.74%. In these 46 undergraduates only 26.08% self aware and 8.69% by society. Conclusion: Asymmetry is more common findings in individuals but most of the times it goes unnoticed if it falls within 4 mm.

Key Words: Apparent asymmetry, Mid saggittal reference plane (MSR), prevalence, awareness.

INTRODUCTION:

'A person is always remembered by his face and deeds'. Beautiful faces are always eye catching. The terms beauty, attractiveness and harmony are all included under the umbrella of esthetics. Esthetics – derived from the Greek word for perception or experience is the branch of philosophy concerned with art and beauty. The term was introduced as a neologism in 1735 by Baumgarten[1]. Beauty is depicted as perfection and still carries a deep rooted spiritual and emotional influence. The human face has been the subject of study since man could first express himself. The human face is the area of our interest.

The Study of Orthodontics is indissolubly connected with that of art related to the human face. Therefore, the subject of facial aesthetics is of paramount importance to orthodontists. Facial aesthetics includes symmetry and balance. It depicts the state of facial equilibrium, the correspondence in size, form and arrangement of facial features on the opposite sides of the median sagittal plane [2].

Many parts of the human body develop from bilateral structures which give uniformity to the transverse dimension, which means that development of some parts leads to equal right and left sides. The midface and lower face develops from the intrinsic co-ordination of the lateral and medial nasal processes along with the maxillary and mandibular processes [3].

Any developmental abnormality or failure of maturation in these embryonic processes can result in unequal right and left sides which are perceived as an asymmetry.4The cause of these asymmetries can be multivariate. The asymmetry can be skeletal, dental or of the soft tissue envelop, each demanding different treatment approaches. SKELETAL due to maxilla, mandible, nose or chin deviated in regards to MSR (Mid-saggital Reference Plane). DENTAL problem oriented with abnormal dental eruption, premature loss of primary teeth or loss of permanent teeth. SOFT TISSUE problem is associated with upper or lower lips. Most of the time facial asymmetry goes unnoticed by the person and people surrounding them.

In relation to diagnosis and treatment, the Orthodontic specialty has been overwhelmingly preoccupied with vertical and sagittal relationships of the dentofacial structures. A basic orthodontic armamentarium is based on lateral cephalogram. Even though frontal esthetic is of paramount importance, transverse dimension is less explored diagnostic area. Now PA cephalogram also included as one of the important diagnostic tool for assessment.

This survey was conducted with the aim regarding Prevalence of Apparent facial asymmetry and to assess the rate of awareness about asymmetry amongst undergraduate students who are in the process of becoming future dentists.

MATERIALS & METHODS:

This survey was conducted (between December 2018-march 2019) in the Department of Orthodontics & Dento-facial orthopaedics amongst 150 undergraduate students of AMC Dental colleague, khokhra, Ahmedabad with prior permission from The Dean of AMC Dental colleague. Armamentariums used are mouth mirror, probe, glass marking pencils, metal scale, and dental floss.

Inclusion criteria:

- Participants studying in AMC dental college in Ahmedabad, Gujarat.
- Presence of full complement of teeth.
- No history of pathology/ trauma/surgical intervention or orthodontic treatment.
- Crowding, spacing, rotation other dental anomalies were not taken in consideration.
- Samples taken in consideration irrespective of saggital discrepancy.

Clinical examination allows asymmetry to be assessed in YAW (sagittal), ROLL (transverse) and PITCH (vertical) dimensions, and it is the most important diagnostic tool in assessing the condition. In this survey *YAW (sagittal) and ROLL (Transverse) are mainly taken in consideration* during Frontal examination. Extraoral assessment comprehends visual inspection of facial morphology, associated with *soft tissues* (Tip of the nose, lips*), hard tissues* (maxillary & mandibular skeletal midline, midpoint of chin) and *CR-CO* discrepancy.A through facial analysis was conducted, giving special attention to the center of the chin, and bilateral symmetry of gonial angles and mandibular body contours. Frontal analysis was done while smiling to assess whether *dental midlines coincide with facial midline* (YAW), *inclination of the occlusal plane* (ROLL) and *the amount of bilateral gingival exposure* (ROLL). Intraoral clinical examination focused on assessing malocclusion, tipping of posterior and anterior teeth, crossbite and the presence of functional deviation of the mandible.(ANNEXURE I).

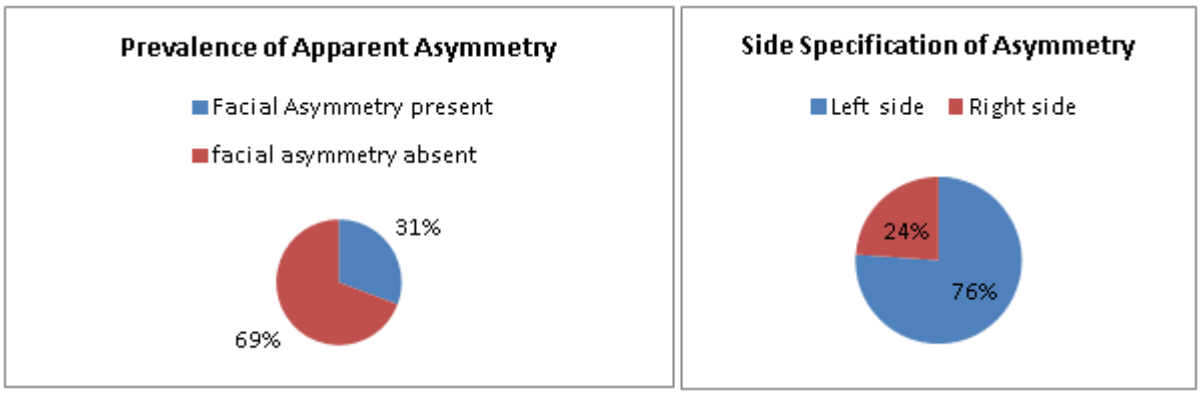
A cross sectional study was carried out participants was asked to sit upright with FH plane parallel to Floor. Mid sagittal reference plane was taken in considearation. This is a vertical reference line. According to Grummons, mid sagittal reference (MSR) closely follows visual plane formed by subnasale and the midpoint between the eyes and eyebrows, and hence MSR was selected as the key reference line. In reference to MSR prevalence of apparent facial asymmetry examined:

- maxillary and mandibular skeletal & dental midlines,
- chin & nose projection
- occlusal cant and maxillary arch width are examined
- Centric relation & Centric occlusion correlation was inspected with command method
- TMJ palpation also performed.
- Molar Relation
- Overjet & Overbite, Crossbite, Crowding, spacing, rotation or other dental features.

RESULTS:

A cross sectional study was performed on Undergraduates student who are in process of being a dentist in nearby future, total 150 sample size (121 females, 29 males) examined with age ranges from 18-23 years. Received Data converted into the excel sheet and SPSS 17 version used for statistical analysis.

As described in Table I Facial Asymmetry was found to be 30.7% (n=46) participants from 150 total sample size. They were evaluated in which Skeletal asymmetry present in 47.82% (n= 22), Dental asymmetry in 4.35% (n=02), Both in 47.82% (n= 22). Apparent Facial asymmetry present more on left side 76.08% (n=35) & less on right side 23.91% (n=11).



(Figure II)

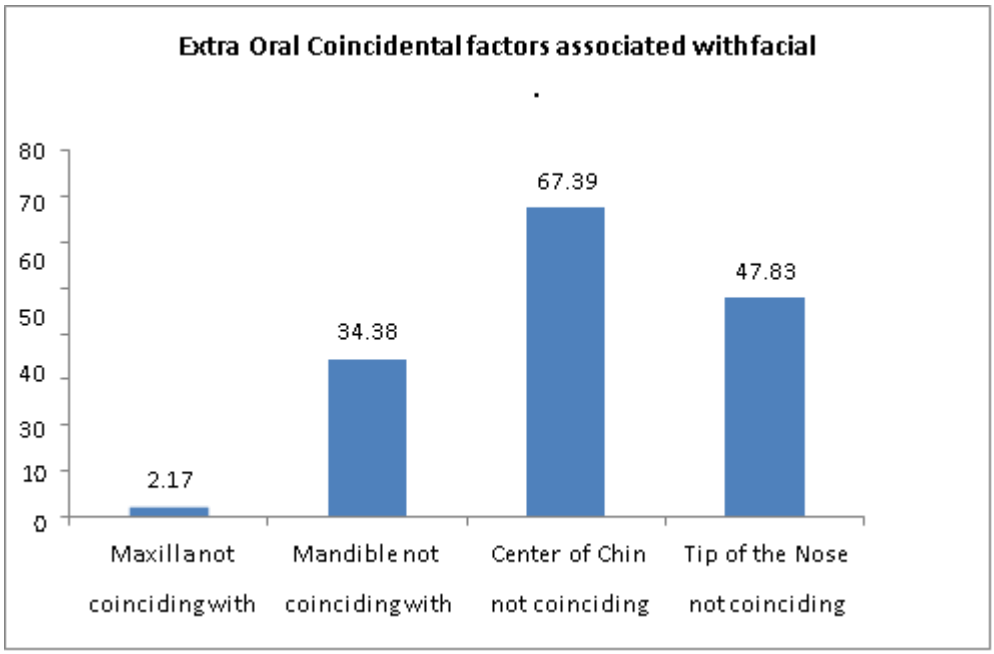
Apparent Facial Asymmetry	Frequency	Percentage
Yes	46	**30.7**
No	104	**69.3**
Total	150	**100.0**
Apparent Facial Asymmetry	Frequency	**Percentage**
Skeletal	22	**47.82**
Dental	02	**4.35**
Both	22	**47.82**
Apparent Facial Asymmetry	Frequency	**Percentage**
Right side	11	**23.91**
Left side	**35**	**76.08**

Table I: Prevalence rate

As described in Table II further *frontal extra oral skeletal examinations* were performed and results for that maxilla not coincide with MSR in 2.17% (n=1) participants, mandible not coinciding with MSR in 34.38% (n=16) participants, Chin deviated in relation to MSR 67.39% (n= 31),nose not coinciding with MSR 47.83% (n=22) participants.

Does maxillary midline coincide with MSR?	Frequency	Percentage
NO	1	**2.17**
Does mandidular midline coincide with MSR?		
NO	16	**34.78**
Does centre of chin coincide with MSR?		
NO	31	**67.39**
Does tip of the nose coincide with MSR?		
NO	**22**	**47.83**

Table II: Extra Oral Examination

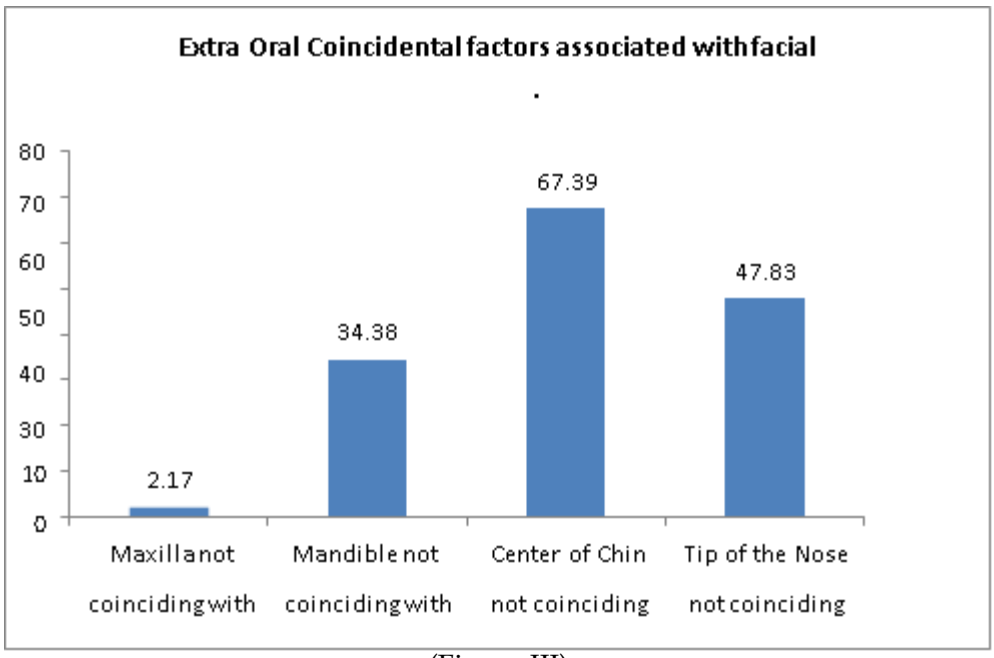


(Figure II)

As described in Table III in Intra oral dental examination maxillary and mandibular midlines are not matching in 41.3% (n=19) participants, maxillary width is not equally wide in6.52% (n=03) participants, occlusal cant in 21.74% (n=10) participants.

Intra Oral Examination		
Does maxillary & mandibular midlines matching?	Frequency	**Percentage**
NO	**19**	**41.3**

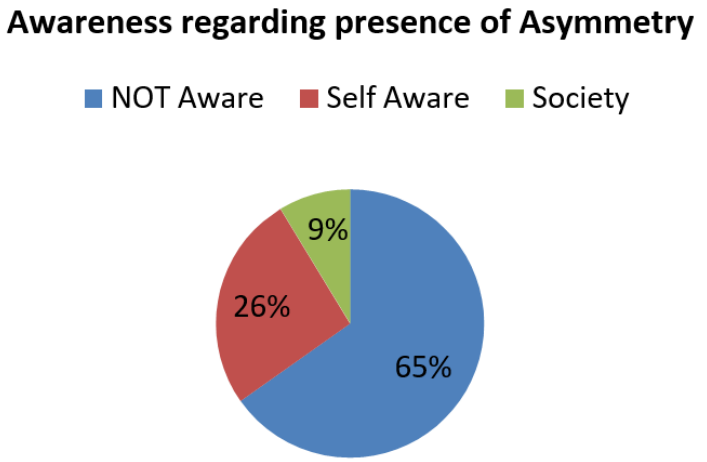
Table III: Intra Oral Examination



(Figure III)

Awareness regarding the presence of asymmetry results:

- Participants are not aware 65.21%(n=30 out of 46)
- Self awareness 26.08%(n=12 out of 46)
- Society 8.69%(n=4 out of 46).



(Figure IV)

DISCUSSION:

Many parts of the human body develop from bilateral structures which give uniformity to the transverse dimension, which means that development of some parts leads to equal right and left sides. The midface and lower face develops from the intrinsic co-ordination of the lateral and medial nasal processes along with the maxillary and mandibular processes. Any developmental abnormality or failure of maturation in these embryonic processes can result in unequal right and left sides which are perceived as an asymmetry[3].

In this cross sectional study regarding prevalence & awareness of apparent facial asymmetry total 150 samples (undergraduates students) were examined; age ranged from 18-23(121 females;29 males). Extra oral & intra oral clinical examination was performed on each individual. Participants were checked for Apparent Facial asymmetry according to Grummons, mid sagittal reference (MSR) vertical reference line closely follows visual plane formed by subnasale and the midpoint between the eyes and eyebrows (Glabella) , and hence MSR was selected as the key reference line.

In this particular survey prevalence of asymmetry in otherwise normal individuals is 31% which is an agreement with studies conducted by Profitt and Severt[5]. assessing facial asymmetries in orthodontic patients clinically found a prevalence ranging from 12% to 37% in North Carolina,United States, 23% [13],in Belgium [14] and 21% in Hong Kong [15]. Radiographic examinations reveal values higher than 50%[6,7].

In this survey we found that the asymmetries decrease in magnitude as we approach higher in craniofacial region and mandibular region showed the asymmetries of higher magnitude. A reason regarding this to be the longer mandibular growth periods, mandible is more movable than maxilla, as maxilla is rigidly attached to the stable region of synchrondroses at the cranial base[7].This finding is in agreement with the results of Peck *et al*.
[8], and Goel *et al*. [9].

In Extra oral examination prevalence of maxillary skeletal asymmetry in relation to MSR is 2.17%, mandibular skeletal midline not matching to MSR in 34.38%, Nose is deviated in 47.83% , Chin deviations in our study showed 67.39% and asymmetry more towards on left sided, This is in agreement with Severt and Profft5 who reported with 1460 patients at the University of North Carolina and reported that 34% of individuals were found with a prevalence of facial asymmetry, with deviation of the chin being the most remarkable feature of asymmetry. Deviation of the chin was present in 74% of asymmetrical patients, with a frequency of lateral guidance of the upper and midface equal to 5% and 36%, respectively.

In detailed examination Asymmetry most prevalent on LEFT side. Most studies on asymmetry claim that lateral guidance is most predominant on the left side of the face. [10-12] This occurrence could be explained by the dominant growth potential on the right side of the face, particularly considering the larger dimensions of the skull and the brain of individuals on the right side. Another potential innate mechanism causative of lateral guidance of the face might be related to the imbalanced development of neural crest cells. It has been speculated that neural crest cell migration happens earlier on the right side and tends to be delayed on the left side.[7]

In Intra oral examination maxillary and mandibular midlines were not matching in 41.3%, maxillary width was not equally wide in 6.52%, Occlusal plane was not levelled in 21.74% these findings are same is in accordance to the results of previous study done by Rose Sheats, McGorry, Musmar, Wheeler and Gregory King in which lack of dental midline coincidence 46%, Maxillary Occlusal asymmetry 20%. [13]

Many of the times Asymmetry goes unnoticed by the person and people surrounding them. Only 12.26% students who are in process of being dentists who are directly or indirectly related to the field were also not aware regarding the presence of Asymmetry.

CONCLUSION:

Following conclusion can be drawn from the present study:

Asymmetries are common finding in human beings.
The asymmetries decrease in magnitude as we approach higher in craniofacial regions.
Mandibular region shows the asymmetries of higher magnitude.
Left side dominance of mandibular asymmetry was appreciated.
Tip of the Nose and Centre of chin is shows marked asymmetry.
Most of the times Asymmetry goes unnoticed by the person and people surrounding them if it's within 4 mm.
Undergraduates' students who are in process of becoming future dentist are also not aware regarding the presence of asymmetry amongst them.

Financial support and sponsorship : Nil.

CONFLICTS OF INTEREST: There are no conflicts of interest.

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ANNEXURE I:

Prevalence and awareness regarding Apparent Facial Asymmetry: A cross sectional study

Name: _____

Age/Sex: _____ D.O.B: _____

Address: _____

_____

Contact N0. (M)_____ (R) _____

Relevant Past Medical History: _____

History Of Trauma If Any: _____

Relevant Past Dental History: _____

Clinical Examination:

	Yes	No
Apparent Facial Asymmetry	☐	☐
Apparent Cr-Co Discrepancy	☐	☐

Molar Relation:	Right	Left
Angle's Class I	☐	☐
Angle's Class Ii Division 1	☐	☐
Angle's Class Ii Division 2	☐	☐
Angle's Class Iii	☐	☐

If Any Other _____

	Normal	Increased	Decreased
Overjet	☐	☐	☐
Overbite	☐	☐	☐

	Yes	No	
Anterior Crossbite	☐	☐	
Posterior Crossbite	☐	☐	Right ☐ Left ☐

	Yes	No
Spacing	☐	☐
Crowding	☐	☐

If Any Other _____

Examination Of Asymmetry:

Skeletal ☐ Dental ☐ Both ☐

Extra Oral Examination:

	Yes	No	Right/Left
Does Maxillary Midline Coincide With Msr?	☐	☐	
Does Mandibular Midline Coincide With Msr?	☐	☐	
Does Centre Of Chin Coincide With Msr?	☐	☐	
Does Tip Of The Nose Coincide With Msr?	☐	☐	

Intra Oral Examination:

	Yes	No	Right/Left
Does Maxillary And Mandibular Midlines Matching?	☐	☐	
Does Maxillary Width Equally Wide?	☐	☐	
Does Occlusal Plane Level?	☐	☐	

	Yes	No
Is Participant Aware Of Apparent Facial Asymmetry?	☐	☐

If Yes Then How?

Self ☐

Society ☐

Others _____

4 Minimally Invasive Approach for Root Coverage in lower anterior teeth: A case report

Author: Dr. Krishna Doshi, Dr. Tejal Sheth, Dr. Dhwanit Thakore

ABSTRACT:

Introduction

Gingival recession is clinically manifested by an apical displacement of the gingival tissues, leading to root surface exposure. It is a concern for both patients and clinician for several reasons such as root hypersensitivity, erosion, root caries, and esthetics. There are very less techniques which are minimally invasive and more acceptable by the patients. There are various techniques which we perform in maxillary anterior teeth and gets favorable results due to the more amount of keratinized attached gingiva. VISTA is one such technique which clinicians use to perform in upper anterior teeth. But it can also be Done In Lower Anterior Teeth Of Adequate Keratinized Gingiva Is Present.

Case Report

In the present case report, VISTA (Vestibular Incision Subperiosteal Tunnel Access) technique is used for root coverage in 31,32,41,42 teeth in combination with PRF (Platelet Rich Fibrin).

Conclusion

Long term clinical studies and follow up will be required to obtain more information about the VISTA technique reinforced with PRF for the root coverage in lower anterior teeth and to obtain the predictability of this technique.

Keywords: VISTA, PRF, Minimally Invasive Technique

INTRODUCTION

Esthetics is most important factor of which patient is concern of nowadays. Gingival recession defects are frequently encountered complain because of functional problems like dentinal hypersensitivity, pain, carious and non-carious lesions, plaque retention and esthetic concern of the patient[1]. There are various anatomic, pathologic, physiological and iatrogenic factors causing recession. It can be caused because of periodontal disease, improper aggressive tooth brushing, inflammation or occlusal discrepancies. It can be either localized or generalized.

The treatment of recession defects associated with multiple teeth poses greater challenge to clinician as avascular root surface area is more extensive. Also, thin biotype, decreased keratinized tissue width (KTW), root prominence and root proximity make the choice of surgical treatment difficult as compared to localized gingival recession type defects[2]. The surgical treatment for gingival recession include connective tissue graft[3], guided tissue regeneration membrane[4], enamel matrix derivative[5], acellular dermal matrix allograft[6], and platelet-rich fibrin[7] (PRF) membrane. Different tunnel techniques that can maintain the better blood supply and maintain critical papillary integrity have been attempted for management of recession defects. However, these procedures are technique sensitive and tissue trauma to sulcular epithelium led to unfavorable healing outcomes as reported in some studies [4]. To avoid these complications in treatment procedures, the vestibular incision subperiosteal tunnel access (VISTA) approach was introduced. VISTA technique is usually performed in maxillary anterior teeth. The purpose of this case report is to evaluate clinically, the efficacy of the novel and minimally invasive VISTA in combination with PRF in the treatment of gingival recession in lower anterior teeth having good vestibular depth and adequate attached gingiva.

CASE REPORT

A case of Millers class I and class II multiple gingival recession in the maxillary anterior region extending from 32 to 42 was reported to the Department of Periodontics [Figure 1], Ahmedabad Dental College and Hospital, Ahmedabad. At the initial visit, thorough scaling and root planing was performed, patient was put on strict oral hygiene maintenance and recalled after 1-week. The VISTA approach began with a vestibular access incision in the midline of the mandibular frenum [Figure 3], which provide access to the anterior mandible. Subperiosteal tunnel was created by passing the incision through the periosteum and inserting a periosteal elevator between the periosteum and bone through the vestibular access incision (VISTA 1 & 2). These are a set of 6 instruments Figure 4. To mobilize gingival margins and facilitate coronal repositioning, the tunnel was extended at least one or two teeth beyond the teeth requiring root coverage.

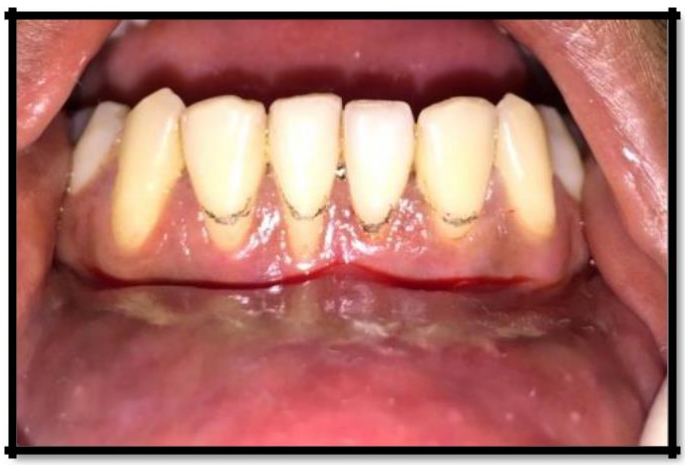

Figure 1: Pre-operative view

In order to achieve a low-tension coronal repositioning of the gingiva, the tunnel was sufficiently elevated beyond the mucogingival junction as well as through the gingival sulci of the teeth being augmented. Additionally, the subperiosteal tunnel was extended interproximally under each papilla as far as the embrasure space permits, without making any surface incisions through the papilla, it is achieved by using elevator with bayonet curves (VISTA 3 and VISTA 4).

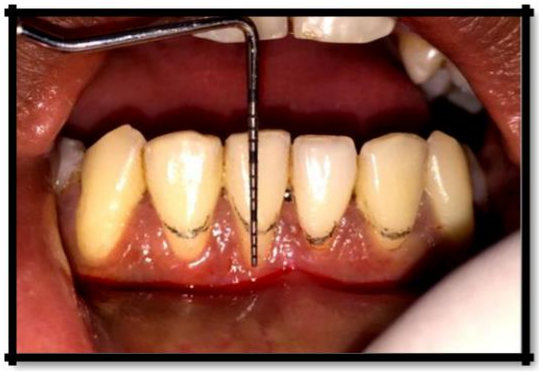

Figure 2: Measuring the depth of recession Incision

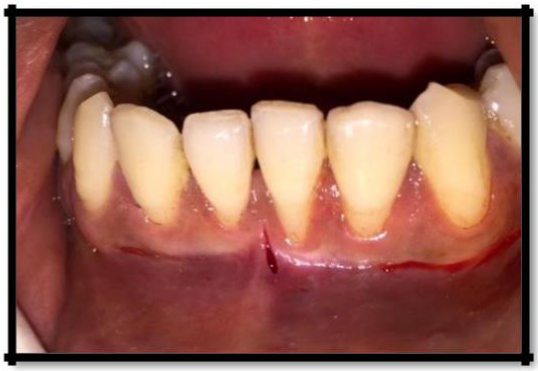

Figure 3: Vestibular Access

Freshly prepared platelet-rich fibrin (PRF) membrane was then trimmed to fit the dimensions of the recipient site and the width was adjusted to extend at least 3-4 mm beyond the bony dehiscence's overlying the root surfaces. The PRF membrane was then carefully inserted into the subperiosteal tunnel and repositioned below the gingival margin of each tooth. The membrane and mucogingival complex were then advanced coronally and stabilized in the new position with a coronally anchored suturing technique. Direct interrupted sutures at approximately 2-3 mm apical to the gingival margin of each tooth were placed using 3-0 silk suture. Sutures were tied, and the knots positioned at the mid coronal point of each tooth and stabilized at that position by placing composite stops Figure7. Patient was prescribed analgesics and was put on strict oral hygiene maintenance. Suture removal was done after 12 days [Figure 8]. After 6 months of follow-up, it was noticed that 91% of root coverage was achieved [Figure 9].

Figure 4: Set of VISTA Instruments

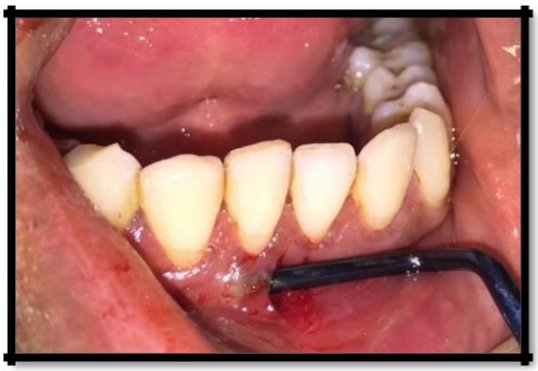

Figure 5: VISTA 1 for tunnel preparation

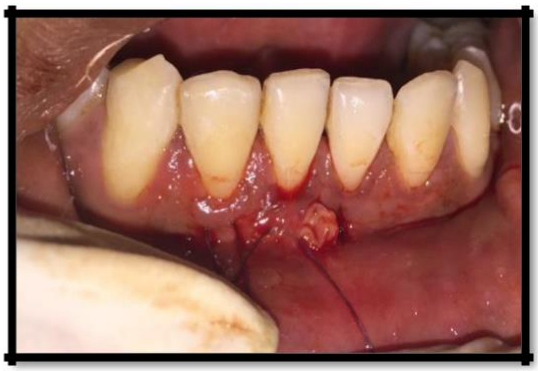

Figure 6: Inserting PRF membrane in tunnel

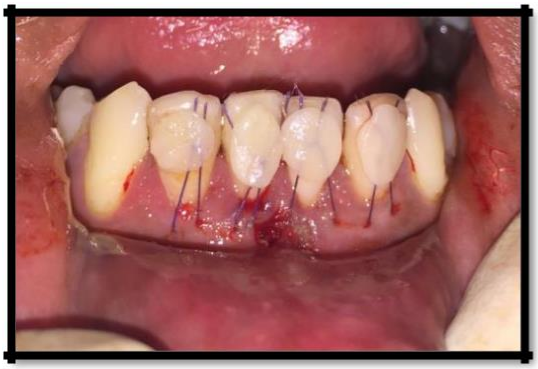

Figure 7: Coronally Anchored Sutures with Cpmposite stops

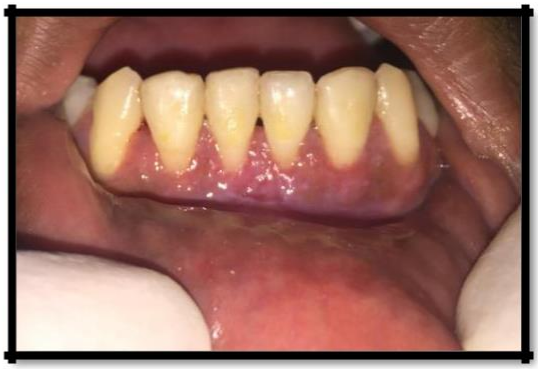

Figure 8: Follow Up at 12 days

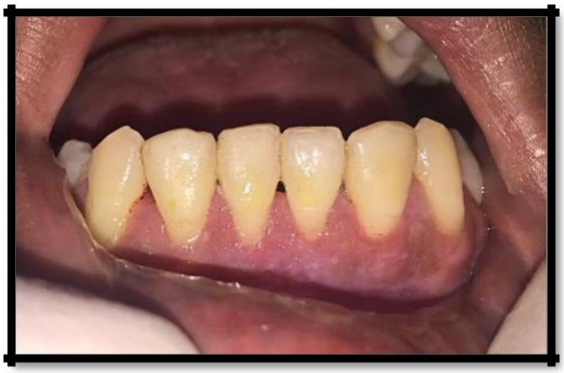

Figure 9: Post operative at 6 months

DISCUSSION

Several complications are associated with gingival recession due to roots exposed to oral environment. The right choice of treatment for the root coverage is based on tooth anatomy,location of the tooth, measurement of the defect, gingival phenotype, and surgical skill to treat entire recession[8]. Chambrone *et al*. had reported that CAF with subepithelial connective tissue graft is gold standard for achieving CRC in maximum cases being treated of multiple recession defects[3].

VISTA is modified CAF introduced by Zadah *et al*. in 2011 for coverage of Class I multiple maxillary recession defects[4]. Grafting serve as a scaffold to support wound healing and provide better root coverage. Thus, this technique was further reinforced by PRF-membrane to increase and improve the width and thickness of keratinized gingiva for the treatment of Classes I and II recession defects[9]. Moreover, we opted only for this membrane since it is cost-effective and does not elicit any immune reaction at the surgical site. Growth factors present in PRF plays crucial role in hard and soft tissue repair. These growth factors include (PDGFs), epidermal growth factor (EGF), transforming growth factor beta (TGF-β), vascular endothelial growth factor (VEGF), insulin like growth factor-1 (IGF-1) [10]. Also these growth factors has been shown to accelerate bone repair and promote fibroblastic proliferation, increase tissue vascularization. Considering the fact that PRF may enhance the healing of soft tissues as well as bone, its placement under coronally positioned flap (CAF) in recession defects have been previously reported[7, 11]. A recent 12-month study evaluated the use of PRF in the treatment of multiple gingival recessions with VISTA and found the significant improvement during the early periodontal healing phase with 96% root coverage[12].

An important technical difference between the VISTA and other tunneling approaches and more classical techniques of gingival augmentation is the degree of coronal advancement of the gingival margin advocated during the procedure[4].

The rigid fixation of the gingival margins introduced with the present coronally anchored suturing technique minimizes micromotion of the regenerative site[4]. Reduction of micromotion has proven to be a major advantage of the present technique over conventional methods, where gingival margin may be subject to displacement during facial movements[4].In VISTA technique, it was also possible to treat multiple recession defects without requiring secondary harvesting procedures.

In this study, the innovation is use of VISTA technique in lower anterior teeth root coverage which has adequate width of attached gingiva and vestibular depth.

CONCLUSION

Many different techniques are available for the treatment of gingival recession in lower anterior teeth. VISTA technique is minimally invasive and less sensitive technique, relatively, therefore employed in our study to overcome the disadvantage of other treatment options and gives better results though there are some limitations. Long term follow up and clinical and histological studies are required for the coverage of exposed root surface and to obtain the predictability of the technique.

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5

Efficacy Of Preprocedural Mouth Rinsing In Reducing Aerosol Contamination Produced By Ultrasonic Scaler

Author: Dr. Vasumati Patel, Dr. Shalini Gupta,Dr. Hiral Purani,dr. Dhvani Valvi

ABSTRACT:

Aim:

The aim of this study was to assess the importance of pre-procedural rinsing before scaling by ultrasonic instrumentation and to compare the efficacy of commercially available chlorhexidine gluconate mouth rinse and herbal mouth rinse with a control group and to assess the amount of contamination in the clinical environment at Location 1(Patient's chest), Location 2(Operator's chest) and Location 3(Assistant's chest) after the preprocedural mouth rinsing.

Material and method:

All patients were categorized into three groups. Group A or control group underwent scaling with water as pre-procedural rinse, Group B used 10 ml of 0.2% Chlorhexidine gluconate and group C were administered 10 ml of herbal pre-procedural rinse. Aerosol splatter produced during the procedure were collected on blood agar plates at Location 1(Patient's chest), Location 2(Operator's chest) and Location 3(Assistant's chest) after the preprocedural mouth rinsing and sent for microbiologic analysis for the assessment of bacterial Colony Forming Units (CFUs).

Results:

The mean Colony Forming Units for control group was 9657.00 ± 490.69, Chlorhexidine gluconate group was 2322.20 ± 646.72 and herbal rinse group was 5170.90 ± 589.38 as well as at location 1, 5716.70 ± 3121.24, at location 2, 3552.63 ± 2129.53and at location 3, 1946.53 ± 1150.89.

Conclusion:

0.2% chlorhexidine gluconate pre-procedural rinsing was found to be most effective than Herbal mouthwash and water respectively in reducing aerosol contamination during ultrasonic scaling. Location 1(Patient) was found to be at highest risk followed by Location 2(Operator) and Location 3 (Assistant).

Key Words: pre-procedural rinsing, 0.2% Chlorhexidine gluconate, Herbal mouthwash, aerosol.

INTRODUCTION

Infection control has been one of the major concerns of the dental community.[1,2] Aerosol and splatter are a concern in dentistry because of their potential effects on the health of immuno-compromised patients and of dental personnel.[3] These aerosols maybe inhaled into the lungs to reach the alveoli or may come in contact with the skin or mucous membranes. Most of the aerosols produced during treatment procedures have a diameter of 5 µm or less, and these can cause respiratory or other health problems because they can penetrate into, and remain within the lungs.[4,5]

MATERIALS AND METHODS

A single-center, randomized, three-group parallel design study was planned on systemically healthy subjects diagnosed with chronic periodontitis. The study was approved by ethical committee, before commencement of the study. A total of 30 subjects with chronic periodontitis were randomly selected. Inclusion criteria were, subjects who had minimum 20 permanent teeth. Subjects who had a mean plaque score of 2.0 to 3.0 on a plaque index (PI). Subjects who had four or more sites with probeable probing depth of ≥ 4 mm and nonsmokers. Exclusion criteria were, subjects who were on systemic or topical antibiotics. Subjects who had oral prophylaxis within last 3 months**.** Subjects who had five or more carious lesions, requiring immediate restorative treatment and pregnant or lactating women.

STUDY DESIGN:

Patients were recruited from OPD and who met the minimal criteria for entry were selected. Suitability for recruitment was assessed at a screening visit. Screening visit consisted of, Complete history and complete clinical and periodontal examination. Possible discomforts and risks were fully explained, and written informed consent was obtained from each patient.

Clinical measurements were recorded, plaque score was measured with plaque disclosing solution which was applied over the tooth with the help of cotton, left for 5 minutes and patient was asked to rinse with water. After that plaque score was measured. Patients with mean plaque score of 2.0 to 3.0 on the plaque index (Silness and Loe) were included in the study. The probeable probing depth was measured from the gingival margin to the base of the pocket using University of North Carolina (UNC-15) Probe.

The same closed operatory was used for all treatment procedures. Before each appointment, closed operatory was fumigated. Only one patient was treated per day to allow the room to be free of aerosols. Disinfection of all surfaces using 70% isopropyl alcohol was done just before clinical procedure. Patients were recruited in chronologic order, and were randomly allocated to one of three groups (group A: Water; group B: 0.2% Chlorhexidine; group C: Herbal). Randomization was done by flip a coin. Ten minutes before treatment, patients were asked to mouth rinse for 30 seconds. Sites for blood agar plate were determined as, one plate was positioned at the location 1 (patient's chest area), another at the location 2 (doctor's chest area), and a third at the location 3 (assistant's chest area). The average distance was 12 inches from the patient's mouth to the agar plate. After 10 minutes of mouth rinse, these coded blood agar plates was left uncovered to collect samples of aerosol bacteria. Prophylaxis was carried out with a piezoelectric ultrasonic scaler. Each treatment session consisted of 30 minutes of ultrasonic scaling. After collecting the samples, the blood agar plates were incubated at 37°C for 48 hours in Pathologic laboratory. The Microbiologist counted CFUs, utilizing picture of agar plates after 48 hours of treatment with the help of the computerized software.

RESULTS

Results of present study were tabulated and statistically analyzed by a multivariate analysis of variance ANOVA model, as the weighted least squares estimation. In the case of two groups, all the statistics are equivalent and the test reduces to Hotelling's T-square.

TABLE 1:

CFUs (mean ± SD) According to Treatment and Location

Location of Agar Plate	Group A (Water)	Group B (0.2% Chlorhexidine gluconate)	Group C (Herbal)
Location 1(Patient's chest area)	9657.00 ± 490.69	2322.20 ± 646.72	5170.90 ± 589.38
Location 2 (Operator's chest area)	6065.20 ± 1328.80	1367.90 ± 286.22	3224.80 ± 583.75
Location 3 (Assistant's chest area)	3309.90 ± 763.05	830.50 ± 128.26	1699.20 ± 390.01

All differences were statistically significant at $P < 0.05$.

TABLE 2:

Intergroup comparisons of CFUs between three groups (N=10 each) at Location 1 (Patient's chest):

Comparison of CFUs			Mean Difference	p VALUE
Location 1 (Patient's chest)	Group A	Group B	7334.80	.000*
		Group C	4486.10	.000*
	Group B	Group A	-7334.80	.000*
		Group C	-2848.70	.000*
	Group C	Group A	-4486.10	.000*
		Group B	2848.70	.000*
Location 2 (Operator's chest)	Group A	Group B	4697.30	.000*
		Group C	2840.40	.000*
	Group B	Group A	-4697.30	.000*
		Group C	-1856.90	.000*
	Group C	Group A	-2840.40	.000*
		Group B	1856.90	.000*
Location 3 (Assistant's chest)	Group A	Group B	2479.40	.000*
		Group C	1610.70	.000*
	Group B	Group A	-2479.40	.000*
		Group C	-868.70	.002**
	Group C	Group A	-1610.70	.000*
		Group B	868.70	.002**

The mean difference is significant at the 0.05 level;
*Statistically highly significant difference

TABLE 3:

Intergroup comparisons of CFUs between the locations in Group A (Water):

Comparison of CFUs			Mean Difference	p VALUE
Group A (Water)	Location 1	Location 2	3591.80	.000*
		Location 3	6347.10	.000*
	Location 2	Location 1	-3591.80	.000*
		Location 3	2755.30	.000*
	Location 3	Location 1	-6347.10	.000*
		Location 2	-2755.30	.000*
Group B (Chlorhexidine)	Location 1	Location 2	954.30	.000*
		Location 3	1491.70	.000*
	Location 2	Location 1	-954.30	.000*
		Location 3	537.40	.020*
	Location 3	Location 1	-1491.70	.000*
		Location 2	-537.40	.020**
Group C (Herbal)	Location 1	Location 2	1946.10	.000*
		Location 3	3471.70	.000*
	Location 2	Location 1	-1946.10	.000*
		Location 3	1525.60	.000*
	Location 3	Location 1	-3471.70	.000*
		Location 2	-1525.60	.000*

The mean difference is significant at the 0.05 level;
*Statistically highly significant difference

DISCUSSION

Aerosols are defined as particles less than 50 μm in diameter.[8] These aerosol particles have the potential to be harmful to the dental personnel as they carry infectious mico-organisms. Both the high speed air-rotor as well as the ultrasonic scaler, which work with water have the propensity of generating numerous air borne particles, (derived from blood, saliva or dental plaque and/or calculus) which in turn have detrimental effects on both the clinician and the patient.[1,2] The diseases caused due to these aerosols could be pneumonia, influenza, hepatitis, skin and eye infections to name a few.[1,2] One of the methods of reducing overall bacterial counts produced during dental procedures is pre-procedural rinsing with a product containing an antimicrobial agent.[8]

Other methods include flushing of water from ultrasonic scaler devices and turbine hand pieces for 5-10 min in the beginning of the day and for 2 min before treatment, attaching aerosol reduction devices to the ultrasonic scaler units (High volume suction apparatus). Purification of airborne microbial pollutants by physical and chemical means. Minimizing biofilm formation in dental unit water lines by using sterile water or sterile saline.[9] In the present study, the efficacy of pre-procedural rinsing with a herbal rinse was compared with 0.2% Chlorhexidine which was considered as a gold standard. In a study conducted by Fine *et al*, it was proved that pre-procedural oral rinsing with an antiseptic mouthwash significantly reduces the viable microbial content of bio-aerosols generated during dental procedures.[10] It was suggested that this pre-procedural rinsing may have a potential role in reducing the risk of cross contamination with infectious agents in the dental operatory.[10,11] Purohit *et al*, observed that pre-procedural rinsing with 0.12% chlorhexidine gluconate significantly reduced the colony forming units (CFU) than without rinsing which was due to the ability of antiseptic mouthwash to inhibit the microbial growth.[7] Contrary to the study done by Purohit *et al*, in this study the bacterial colony forming units were found to be more on the patients's chest area than on the operator's.[7] Further studies have to be conducted to ascertain the validity of this finding. In a study done by Snophia *et al*, comparing the efficacy of 10 ml of 0.2% of chlorhexidine mouth rinse and 20 ml of essential oil mouth rinse it was observed that chlorhexidine gluconate was 77% effective in reducing colony forming units (CFU) when compared to 43% reduction by essential oil mouth rinse.[12] Another study done by Eapen Thomas, has reiterated the superiority of 0.12% chlorhexidine (Periogard) as a preprocedural mouth rinse in reducing colony forming units (CFU) *i.e.*, aerobic and anaerobic counts when compared to 0.05% cetyl pyridinium chloride and 0.05% sodium fluoride (Reach) mouthrinse in children.[13]

Devker and colleagues in their study, which was a split mouth design compared the efficacy of chlorhexidine preprocedural rinsing alone, high volume evacuator alone and both in combination in reducing viable counts in aerosols produced during ultrasonic scaling and found that combination of high volume evacuator and chlorhexidine was the most efficient which was followed by high volume evacuator alone and chlorhexidine prepeocedural rinse alone.[14] Gunjan gupta *et al.* compared the efficacy of 0.2% chlorhexidine, and herbal mouth wash(Test Groups) to water (Control group) and found that both the test groups reduced CFUs significantly when compared to the control group.[6] They inferred that chloxhexidine group was superior to herbal mouth wash group. The study conducted by us also correlated with the finding that CFUs reduced significantly in the two test groups when compared to the control rinse *i.e.*, water. A recent study by Shanthipriya Reddy and colleagues observed that 0.2% chlorhexidine which was tempered in a thermostatically regulated water bath at 47 °C was more efficacious than non tempered chlorhexidine.[15] Though aerosol production cannot be totally eliminated withinfection control procedures, the putative potential of these aerosols can be minimized by preprocedural rinsing. Pre-rinsing with chlorhexdine gluconate mouth rinse was more effective than herbal mouthrince and water in this study.

CONCLUSION

In comparison of the 0.2% Chlorhexidine gluconate, Herbal mouthwash and Water as a preprocedural rinse in reducing the microbial load on the aerosol produced by ultrasonic scaler, 0.2% Chlorhexidine gluconate showed highest efficacy followed by Herbal mouthrinse and Water. Location 1(Patient) was found to be at highest risk followed by Location 2(Operator) and Location 3 (Assistant) after the pre procedural mouth rinsing with 0.2% Chlorhexidine gluconate, Herbal mouthwash and Water.

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