

YOUR PRACTICE BUILDER

A QUARTERLY PUBLICATION OF HEALTH CARE TRUST FOR GENERAL DENTAL PRACTITIONERS

FROM THE EDITOR'S DESK

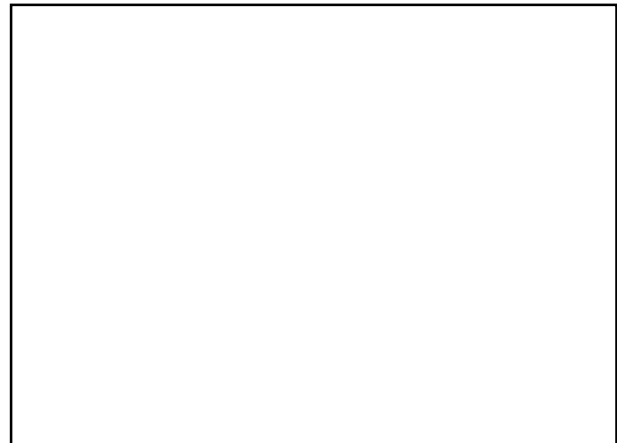
When we joined Dentistry, we learned that 'Dentistry is an art and Science.' While managing dental caries, we have been using dentistry as an art form predominantly. On replacing the tooth structure lost from caries, we have derived satisfaction in reproducing the anatomical features of the tooth. It is time we give equal importance to the scientific approach.

Dental caries is an infectious disease and we should have a deep understanding of the various factors involved in the development and progress of caries. This will enrich us with the knowledge on how to prevent caries. A conscientious dentist will impart this knowledge to each and every patient who comes with a cavity in his tooth.

The relationship of halitosis and periodontal disease is not new piece of information for us, dentists. But now we can have a broader vision on the subject of halitosis. It is interesting to know the relationship of Volatile Sulphur Compounds, which are responsible for the bad breath, and the permeability of periodontal membrane.

When we start a root canal treatment, it is necessary to be cognizant of the factors that have caused the pulp involvement. What are the pathways a root canal infection takes and what are their manifestations- these are outlined in the Endodontic series. I have found systemic administration of Metronidazole along with routine antibiotics very effective in root canal infection cases when cellulitis is evident.

I urge each one of you to make sure that you have **renewed** your subscription. At the Health Care Trust, we are touched by your response to the announcement of Life Membership. In each issue the names of the life members will be announced. Those who have already send in the



renewal subscription can also become a life member by sending the difference in the amount. (Rs. 450 if your renewal date is in 1998 and Rs. 400/- if your renewal date is in 1999). We are including a questionnaire in this issue. Please fill in and also give us name of your friend who may be a potential subscriber to 'Your Practice Builder'. Those who send us this questionnaire will get an extra issue added to their subscription.

Dr. Beena Rani Goel, M.D.S.

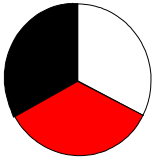
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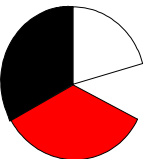
UNDERSTANDING DENTAL CARIES

A major part of our dental practice is spent on relieving pain caused by dental caries. Once a tooth receives a restoration, over time, it is in need for replacements. Further tooth damage associated with replacement restorations finally leads to non-vitality or the ultimate loss of the tooth.

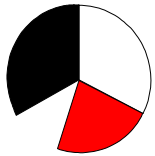
Time has come for us to understand the dental caries and treat it like a disease. Merely filling a cavity is not proper treatment. Causes for dental caries in a particular patient should be analysed and he should be advised appropriate care to avoid development of future carious lesions.



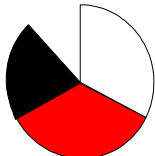
At the Faculty of Odontology, Lund University in Sweden, a model has been developed for understanding dental caries. By applying this model it becomes possible to analyse the situation in a patient and give proper advice to prevent development of caries in future. In this **cariogram concept**, the diagram 1 shows an unfavourable situation where caries will develop. Enough bacteria (red colour) are present, there is a cariogenic diet (white colour) and a susceptible host (black colour).



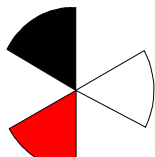
This broken circle (diagram 2) denotes something is missing for initiation of caries. Thus, a broken circle is a positive situation. We can control caries by opening the circle. The white sector is reduced indicating reduced frequency of sugar containing snacks, thus decreasing the frequency of acid attacks.



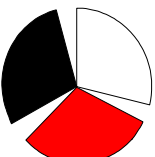
A reduced red sector (diagram 3) shows a reduction in cariogenic bacteria (Mutans Streptococci and Lactobacilli). Proper oral hygiene results in slower demineralisation resulting from less acid formation by bacteria.



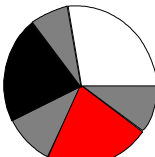
The black sector (diagram 4) is reduced, showing a reduction in the susceptibility to disease. Proper use of fluoride is an example to increase the resistance to caries, because it slows down demineralisation, and remineralisation will be more efficient.



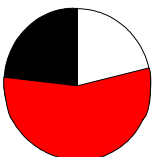
When all these factors are under good control (diagram 5), the risk can be very low. As there is a clear "safety sector" before cavities occur, there is no problem to increase sugar consumption.



High risk for caries is indicated by a small gap (diagram 6). A slight change, as a decrease in saliva secretion, an increase in sugar consumption, or a lack of oral hygiene will close the gap.



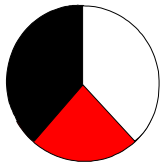
When these factors are too predominant (diagram 7), it creates an extreme situation. Such a case will have a high caries activity with several new cavities per year. Radical changes are needed to improve the situation. There are possibilities for the individual to change sector size. But they need **help** from us, dentists.



Demineralisation. When the bacteria gets sugar and other fermentable carbohydrates, they form acids, which start to dissolve the enamel. An incipient carious lesion occurs due to loss of calcium and phosphates.

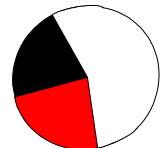
Remineralisation. On cessation of sugar consumption, saliva washes off sugars and buffers the acids. Calcium and phosphates can again enter the tooth. This process is strongly facilitated by fluorides.

When there is a lot of plaque (diagram 8), or if there is a high proportion of cariogenic bacteria in the plaque, the red sector increases.



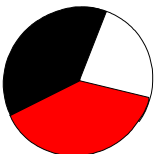
Good oral hygiene, which will bring down the proportion of cariogenic bacteria can decrease the red sector (diagram 9).

A high and frequent intake of sugar and other fermentable carbohydrates increases the white sector (diagram 10).

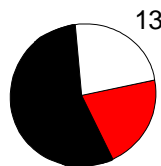


A decrease in white sector can be brought about by low and infrequent intake of sugar and other easily fermentable carbohydrates (diagram 11).

When susceptibility is high (diagram 12), due to low exposure to fluorides, low saliva secretion or low buffering capacity of saliva, the black sector increases.



The black sector decreases when susceptibility is low due to proper exposure to fluorides, normal saliva secretion and good buffering capacity of saliva (diagram



13).

Methods to reduce caries risk and caries activity.

I. Sector- Red sector- the plaque factor
 Patient factors: Tooth brushing after breakfast and after dinner should be a minimum. Further measures if indicated, should be installed from the dentist.
 Role of dentist: Analyse the situation by identifying sites covered with plaque instruct how to improve the oral hygiene. Dental plaque situation can be improved by repeated professional mechanical tooth cleaning. Where indicated, antimicrobial solutions or varnishes (eg. Containing Chlorhexidine) can be applied professionally to reduce the number of cariogenic bacteria.



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II. Sector- White sector- The diet/ sugar factor
 Patient factors: To reduce the white sector, a “sugar discipline” is needed. Frequent intake of sugar containing snacks should be avoided. Parents should be observant so that their children adopt a proper diet from general and dental health aspect.
 Role of dentist: Assess the situation by discussing the dietary pattern and by identifying the products that should be reduced or avoided.

III Sector- Black sector- the susceptibility factor.
 Patient factors: The patient should have a proper fluoride exposure (eg. from toothpaste) to reduce the susceptibility and increase the resistance to dental caries.
 -Children below 6 years of age inadvertently swallow a considerable portion of the toothpaste leading to mild fluorosis. Unless the brushing of these kids can be supervised, it is better to **avoid** recommending fluoride toothpaste to them.

-Various fluoride supplements can be used where indicated, on advice from the dentist.

-Diet that promotes the rate of saliva secretion by chewing is recommended (eg. Replace bread by chapati)

Role of dentist: Prescribe fluoride supplements (e.g. mouthwash) where indicated. Fluoride solutions, gels, and varnishes are available for professional application to increase fluoride concentration at tooth surfaces.

Combating Bad Breath

Bad breath is a common condition, which usually originates in the mouth itself, and thus falls under the responsibility of the dental practitioner. In individuals with a healthy periodontium and good oral hygiene, bad breath usually comes from the posterior tongue dorsum, and can be treated by regular deep tongue cleaning. Nasal problems are an important secondary cause of bad breath, and are easy to detect by comparing the odour existing in the mouth and the nose.

Numerous other medical conditions can lead to bad breath, but are found very infrequently, as compared to the odour of oral and nasal etiologies. Contrary to popular belief, the gastrointestinal tract is rarely, if ever, responsible for chronic bad breath. Because people have trouble assessing their own oral malodour, many individuals develop greatly exaggerated concerns of suffering from bad breath ("halitophobia"), while millions of others remain ignorant of their own oral odours. In most cases, good professional oral care combined with a daily regimen of oral hygiene including inter dental cleaning, deep tongue cleaning and optional use of an efficacious mouth rinse, will lead to improvement.

Halitosis and its management are fast becoming a part of dental practice. One of the strong reasons to render this treatment service in a dental practice is the power of this concept as a **marketing tool**. Management of halitosis is an excellent way of attracting new patients, especially those who are not regular users of dental services.

Fear of pain is a major factor preventing people from seeking dental treatment. Since the management of halitosis is often viewed a "non dental" procedure by the public, it does not carry the psychological impact of other dental treatments. The idea of getting freedom from bad breath can be a strong motivator for the acceptance of dental treatment, particularly for periodontal disease, a major source of halitosis.

Causes of Halitosis

1. **Odour causing foods:** Whatever food one consumes, affects the air exhaled and some of them like garlic and onion contribute to objectionable breath odour. After getting absorbed into the blood stream the food is transferred to the lungs, where it is expelled. The odour stops when the body eliminates it fully. Infrequent eating can also cause unpleasant breath.
2. **Lack of Oral hygiene:** If brushing and flossing is not done regularly, or if dentures are not cleaned properly, the food particles remain, collecting bacteria and causing bad breath. This appears to be due to the breakdown of proteins by a variety of bacteria. Several of the breakdown products are foul smelling gases. The posterior part of tongue is also an important source of bad breath. The postnasal drip can get stuck on the tongue, which is then broken down by bacteria on the tongue surface.
3. **Dry Mouth (Xerostomia):** Saliva is necessary to cleanse the mouth and remove particles that may cause odour. Dry mouth can be the result of continuous breathing through the mouth, salivary gland problems or various medications.
4. **Tobacco products** cause bad breath, stain teeth, reduce one's ability to taste foods and irritate gum tissues, increasing the likelihood for periodontal disease.
5. **Periodontal Disease:** Persistent bad breath or a bad taste in the mouth is one of the warning signs of periodontal disease.
6. **Sinus and respiratory infections:** If bad breath appears suddenly in a child, it can mean the onset of a throat infection.

The teeth and gums are common sources of oral malodour, particularly subgingival and proximal areas. Margins, overhangs, leaky crowns, and periodontal pockets are prime sites for anaerobic bacterial activity leading to putrefaction.

When in doubt concerning the oral etiology of the odour, the patient may be instructed to rinse and gargle for a week with a potent antibacterial mouthrinse (e.g., chlorhexidine-containing mouthrinses which have been shown in several studies to reduce odour levels significantly ($p < 0.001$) for long periods following use). If malodour is significantly reduced, then an oral origin may be inferred.

It is known that **Volatile Sulphur Compounds (VSCs)** are responsible for the bad odour, and 80-90% of these comes from oral sources. VSCs are produced by bacteria and cellular degradation and include hydrogen sulphide, methyl mercaptan and dimethyl sulphide. Since oral odour can originate from sources other than the oral cavity, thorough examination and history are required for correct diagnosis.

It is now possible to quantify the level of VSCs. **Halimeter-** a gas analysis sensor, similar to breath analyser in design can detect and measure the level

of VSCs. This provides an indication of the severity of the problem, its primary source and helps to monitor improvement.

The VSCs can be neutralized with a product containing a stabilized form of chlorine dioxide. Mouth rinses, tooth pastes and gels which contain this ingredient are pleasant for the patient to use and non-irritating to oral tissues. Combining their usage with other standard oral hygiene procedures, and promoting the use of tongue scrapers will effectively manage the worst of problems.

There is growing evidence that VSCs **increase** the permeability of the periodontal membrane to bacteria, and may play a role in its destruction process. Decreased levels of VSCs will show the opposite effect i.e. decreased permeability. It will often be a pleasant finding that you treat the patient for a primary complaint of halitosis, and you see a significant improvement in the periodontal condition.

Halitosis is a very prevalent problem. It may simply be embarrassment to some, but it may also be the sign of potentially serious problems in others. After a professional cleaning and checkup if the patient thinks he has constant bad breath, ask him to keep a log of the foods he eats and to make a list of medications he takes. Referral to a physician may be necessary to rule out systemic involvement.

Advice to People with Bad breath

1. Brush teeth after breakfast and dinner and get a professional cleaning done.
2. Floss the teeth to remove the food particles from interdental areas.
3. Clean the tongue by brushing or using tongue scraper.
4. Drink plenty of liquids.
5. Chew sugar free gum for a minute or two to stimulate saliva flow especially if mouth feels dry.
6. Rinse mouth with water every time you drink or eat especially milk products and fish or meat.
7. Denture wearers may soak denture in antiseptic overnight.
8. Use a suitable mouthwash.
9. Eat fresh fibrous vegetables such as carrots.

Reference:

1. Brit. Dent. Assoc. News release Sept 1996
2. J. of Periodont. Res. 27:233-238,1992
3. JADA 127:475-482, 1996.
4. Internet.

ENDODONTIC SERIES -2

Before we start a case for root canal treatment, it is necessary for its successful outcome to think how the pulp got affected. The involvement of the pulp may be from:

1. Carious lesion, directly via dentinal tubules
2. Cavity preparation, by direct exposure, or via dentinal tubules.
3. Periodontal disease, through exposed lateral canals or by apical extension of periodontal pockets.
4. Adjoining periapical lesion, via apical or lateral canals.
5. Heat and pressure, via dentinal tubules.
6. Abrasion, erosion, fracture and developmental anomalies.
7. Anachoresis, which is a major factor in the pulpal inflammation of heavily restored teeth. Anachoresis is elective localisation of blood-borne bacteria to a site of inflammation.

If we know the **different pathways** of pulpal infection, it will aid us in diagnosing pulpal involvement. The pathways are:

1. Apical and lateral periodontal ligament (acute periodontitis.)
2. Lamina dura
3. Marrow spaces (acute apical abscess, granuloma, cyst.)
4. Cortex (radiographic visualization of above.)
5. Mucoperiosteum (subperiosteal abscess).
6. Fluid accumulation (gumboil).
7. Labial or palatal drainage causing oral vestibular abscess (sinus tract) or cellulitis (space infections).

While managing these infections, adequate drainage should be established either through the tooth or through the soft tissue.

Antibiotic regimen when there is no cellulitis:

Penicillin for 7 days OR Erythromycin for 7 days OR Clindamycin 150 mg, 1 qid for 7days.

Antibiotic regimen when cellulitis is evident:

Penicillin for 7-10 days in double dose, OR Erythromycin for 7-10 days, with double dose on the first day, OR Clindamycin 150 mg, 2 qid for the first 3 days, then 1 qid for 7-10 days OR

Penicillin (as above) and Metronidazole 250 mg, 1 qid for 7-10 days OR Erythromycin (as above) and Metronidazole 250 mg, 1 tid for 7-10 days.

NEW PRODUCTS

Metrogyl DG gel. In the last issue of YPB we discussed the role of metronidazole in the treatment of periodontal disease. Metrogyl DG gel, which is a combination of metronidazole 1% and chlorhexidine 0.25% for local application, is now available from:

J.B. Chemicals & Pharmaceuticals Ltd.,
Neelam Centre, 'B' Wing, 4th Floor, Hind
Cycle Road, Worli, Mumbai. 400025.

It has to be applied twice daily to the gingiva. Patient should not rinse or eat for 5 minutes after the application. Metrogyl DG gel provides prophylactic or curative treatment for acute gingivitis, acute ulcerative gingivitis, chronic gingivitis, chronic periodontitis, recurrent aphthous stomatitis (ulcer), dental pain due to infection and dry socket.

All those whose subscriptions have expired should renew the subscriptions by sending a DD for Rs. 100/- or a cheque for Rs. 115/- favouring Health Care Trust, payable at Belgaum. We urge you to send life subscription.

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I would like to participate in a clinical research Yes NO

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