DENTAL CARIES

Case Definition : Dental caries is an infectious microbiologic disease of the calcified tissues of the teeth, characterized by demineralization of the inorganic portion and destruction of the organic substance of the tooth. It is a common chronic disease that leads to pain and disability across all age groups. The infection results in loss of tooth minerals that begin on the outer surface of the tooth and can progress through the dentin to the pulp, ultimately compromising the vitality of the tooth. If left untreated, it may lead to pain, infection and even tooth loss. During the past few decades, changes have been observed not only in the prevalence of dental caries, but also in the distribution and pattern of the disease in the population.

INCIDENCE OF THE CONDITION IN OUR COUNTRY

In 1940's the prevalence of dental caries in India was 55.5% while in 1960's it was reported to be 68%. Recent studies show an incidence ranging from 44 - 73%.In order to make continued progress in eliminating this common disease, new strategies will be required :

- To provide enhanced access for those who suffer disproportionately from the disease.
- To provide improved detection, risk assessment, and diagnosis.
- To create improved methods to arrest or reverse the noncavitated lesion while improving surgical management of the cavitated lesion.

DIFFERENTIAL DIAGNOSIS

Essentially any condition having onset of sensitivity or acute pain. Important ones include:

- Hypersensitivity
- Abrasions
- Periapical abscess

DIAGNOSTIC CRITERIA, INVESTIGATIONS, TREATMENT & REFERRAL CRITERIA

LEVEL 1: AT SOLO PHYSICIAN CLINIC:

Clinical Diagnosis:

- Visual inspection of the oral cavity.
- To check for black spots on the teeth which is supposed to be paining.
- Patients complain of increased sensitivity to hot and cold.
- Pain on percussion of the effected tooth/teeth.
- Swelling in relation to the effected tooth.
- Restricted mouth opening.
- Tenderness of draining lymph nodes .

Treatment:

- If only sensitive to hot and cold then refer to Dental surgeon at level four
- In case of acute pain and swelling start antibiotics and analgesics
- Cap Amoxicillin 30-40 mg/kg /day 8 hourly for 5 days.
- Tab Paracetamol 500mg 8 hourly for 5 days.
- Tab Brufen 400mg 8 hourly for 5 days.
- Antiplaque mouth wash containing Triclosan (5 ml) twice a day.
- Inform the patient to do warm saline gurgles 8-12 times daily in case of swelling.

Referral criteria:

- Increased sensitivity to hot and cold for more than two weeks
- Mouth opening restricted and pain not subsiding for more than a week
- Intra oral sinus
- Extra oral sinus
- Refer cases to level 4 as Dental surgeons are available there

LEVEL 2: AT 6-10 BEDDED PRIMARY HEALTH CENTRE

Clinical Diagnosis: Same as Level 1 for a fresh case reporting directly

Treatment: Same as Level 1

Referral criteria: Same as Level 1

LEVEL 3: AT 30-100 BEDDED COMMUNITY HEALTH CENTRE

Clinical Diagnosis : Same as level 1

Investigations:

- Intra oral radiograph to check for pulpal involvement
- If an extra oral sinus exists then pus culture and sensitivity can be done and medications given accordingly.

Treatment: Same as Level 1 except that the medication will be according to culture and sensitivity test.

Referral criteria: Same as level 1

LEVEL 4: AT 100 OR MORE BEDDED DISTRICT HOSPITAL

Clinical Diagnosis

- Visual inspection of the oral cavity
- Check for black spots on the teeth which is supposed to be paining
- Patients complain of increased sensitivity to hot and cold
- Pain on percussion of the effected tooth / teeth
- Swelling in relation to the effected tooth / teeth
- Restricted mouth opening
- Draining lymph nodes tender

Investigations:

- Intra oral periapical radiographs to check whether pulp is involved or not
- Vitality test of the tooth

Treatment:

- If caries not involving the pulp restoration is suggested
- In case of abscess drain the abscess and open the root canals.
- Pulpotomy/ pulpectomy
- In case where pulp is involved - Root Canal Treatment
- Extraction of tooth if the tooth is highly decayed

- Institute medication in case of swelling/cellulites or abscess
  - Cap Amoxicillin 30-40 mg/kg /day 8 hourly for 5 days.
  - Tab Tinidazole 500 mg - 12hourly for 5 days.
  - Tab Paracetamol 500mg - 8 hourly for 5 days.
  - Tab Brufen 400mg - 8 hourly for 5 days.

Follow up:

- Recall patient after a week to check the restorations.
- In case of Root Canal Treatment recall the patients after 2 weeks to check the status and to examine any signs of swelling/ intraoral sinus.
- Permanent restoration of Root Canal Treated tooth with crown (Metal/ Porcelain) after six weeks.
- Check the level of oral hygiene measures instituted by the individual.
- Recall of patient every six month to examine development of new carious lesions.

SUGGESTED READING

1. Louis I. Grossman, Seymour Oliet, Carlos E. Del Rio: Textbook of Endodontic Practice, 11th Edition
2. Shafer, Hines , Levy: Text book of Oral Pathology, 4th Edition WB Saunders 2004; 406-479
3. Theodore M Roberson, F Lunden Caries In: Theodore M Roberson, Haral Heymann, Edward J Swift Jr : Sturdevants Art & Science 0f Operative Dentistry,4th Edition Mosby Inc 2002; 63-133.

PERIODONTITIS

Case Definition: Periodontitis is the inflammation or the loss of supporting tooth structures namely the periodontal ligaments and alveolar bone resulting in gingival bleeding, foul odor, periodontal pockets and lastly mobility of the tooth.

INCIDENCE OF THE CONDITION IN OUR COUNTRY

In India the prevalence of gingivitis is 80-90% and the incidence of chronic periodontitis is 21-28%. Prevalence of Chronic Periodontitis increases steadily with age from 35.7% for 30-39 yrs old to 89.2% for 80-90 yrs old. The average attachment level change or bone loss varies between 0.15mm to 0.19mm per year .It is commonly seen in age group of 30 yrs and above. Prevalence of Aggressive Periodontitis is below 1%. The average attachment level change or bone loss varies between 0.1mm to 1.0mm per year. Most frequently occurs in the period of puberty to 20 yrs.

Knowledge of the prevalence, extent and severity of periodontal disease within a population is modified by a wide range of concerns: epidemiological description of the distribution and patterns of disease, research interest related to the biological and environmental determinants of the disease. Knowledge of the distribution of the disease may reduce the direct and indirect economic cost of prevention and treatment programs and may assist in the development of efficient designs in clinical trials in periodontal disease.

DIFFERENTIAL DIAGNOSIS

Essentially any condition having gum bleeding, pain or abscess. Important ones include:

- Acute gingival conditions.
- Peri apical abscess
- Periodontal abscess.

DIAGNOSTIC CRITERIA, INVESTIGATIONS, TREATMENT & REFERRAL CRITERIA

LEVEL 1: AT SOLO PHYSICIAN CLINIC:

Clinical Diagnosis :

Generally asymptomatic cases or complains with either of following symptoms:-

- Bleeding from gums, slight to spontaneous, of prolonged duration
- Slight to moderately swollen gums
- Alteration in the color of gums ranging from pale red to magenta
- Occasional suppuration
- Difficulty in chewing
- Loosening of teeth, in advanced cases
- Spacing appearing between teeth.
- Dull pain radiating deep into the jaws
- History of occasional acute pain or swelling
- Pain on percussion on the involved tooth

Treatment

- Motivation and education of patient regarding oral hygiene measures
- Chlorohexidine mouthwash (5 ml) twice daily for minimum 15 days
- Antibiotic therapy in case of acute pain or swelling
- Tab Ciprofloxacin 500mg and Tab Tinidazole 500mg 12 hourly for 5 days
- Advise patient to use interdental aids like dental floss and brushes

Referral criteria

- Persistent gingival inflammation for one week.
- Suppuration from the gums and halitosis
- Progressive loss of clinical attachment and spontaneous bleeding from the gums
- Increase in the mobility of teeth and spacing of teeth

LEVEL 2: AT 6-10 BEDDED PRIMARY HEALTH CENTRE

Clinical Diagnosis : Same as Level 1 for a fresh case reporting directly.

Treatment: Same as Level 1

Referral criteria: Same as Level 1

LEVEL 3: AT 30-100 BEDDED COMMUNITY HEALTH CENTRE

Clinical Diagnosis : Same as level 1

Investigations: Intra oral radiographs taken to assess the amount of bone loss and to see the underlying pathology.

Treatment: Same as Level 1

Referral criteria: Same as Level 1

LEVEL 4: AT 100 OR MORE BEDDED DISTRICT HOSPITAL

Clinical Diagnosis

- Same as level 1
- Dental charting which includes pocket depth ,clinical attachment loss, recession
- Check for bleeding on probing

Investigations:

- Intra oral periapical radiographs to check whether pulp is involved or not
- Vitality test of the tooth
- Orthopantamogram (OPG)
- Microbiological examination of the sub gingival flora using culture media.

Treatment:

- Motivation and education of the patient on oral hygiene
- Tab Ciprofloxacin 500mg and Tab Tinidazole 500mg 12 hourly for 5 days
- Scaling and root planing
- Periodontal surgery in the region of persistent inflammation of the gingiva and bone loss if seen on the radiographs after phase I therapy
- Review of case at interval of 1, 3, 6 months
- More frequent review for aggressive case at 3 months interval and antibiotic therapy consisting of Tab Ciprofloxacin and Tab Tindazole to be given for 14 days

SUGGESTED READING

1. Micheal G Newman, Henry H Takei, Perry R Klokkevold, Editors: Text Book of Clinical Periodontology, 10th Edition Saunders, Elsevier 2006.
2. Jan Lindhe ,Thorkild Karring, Nicholas P Lang Editors : Text Book of Clinical Periodontology and Implant dentistry ,4th Edition Blackwell Munksgaurd 2003