INTRODUCTION

Most common types of pain originating from a dental setup are acute pain arising from preoperative conditions (infection, inflammation) or procedure based (surgical, inflammatory). Although majority of teeth with pulpal, periodontal and periapical involvement can be identified by the dentist, or in some cases even by the patients themselves, there are still a number of cases in which disease could easily be missed if not examined thoroughly.

A CASE REPORT

Case report of a patient suffering from odontalgia is being presented in which diagnosis was missed and became a bit difficult due to obscure nature of a simple problem. A 55 years old female reported with complaint of pain involving right side of face for the last one week. The pain was intermittent, diffused in nature and aggravated when the patient took cold drinks. The offended tooth could not be identified by the patient. There was no history of trauma or swelling. Patients’ medical history was not significant. Extra oral examination showed no abnormality. Intra oral examination revealed satisfactory oral hygiene with all teeth present including 3rd molars. There were no signs of caries, attrition or abrasion. There was no swelling or signs of inflammation. All teeth were intact and normal.

All teeth in right upper/lower quadrant except right mandibular second premolar #45 responded normally to thermal stimulus and electric pulp testing. Both EPT and cold application to #45 elicited a painful response. The tooth was however, not responsive to hot stimulus. All teeth in right maxillary/mandible quadrant responded normally to percussion & palpation tests including #45. Periodontal condition was normal. Intra oral radiograph right upper/lower posterior quadrants revealed no abnormality. Trans illumination test #45 was performed in order to detect hairline fracture of the tooth was not conclusive. Analgesics were prescribed and patient was advised to return after three days.

As the diagnosis became a bit difficult due to inconclusive tests, right mandibular 2nd premolar #45 was checked again in all respects clinically, as because of hyper sensitivity to cold stimuli it became the chief suspect. Thorough examination of the tooth finally showed cervical erosion apparently minor in nature just below the gingival margin on the buccal aspect. Sharp pain elicited when this area was subjected to cold test. Based on history, clinical examination and investigations, diagnosis of reversible pulpitis #45 was made and area of cervical erosion was intended to be restored with glass ionomer cement.
TREATMENT AND FOLLOW UP

Patient was explained about the cause of pain. The offended tooth #45 was isolated with cotton rolls and under efficient suction the gingival margin was retracted with the help of cotton strands soaked in astringent solution (Reccepetine septodont). The area of cervical erosion was cleaned with the help of pumice & rubber cup mounted on slow speed hand piece. The tooth was dried manually with chip blower and glass ionomer cement (Shofu, Japan) was mixed and applied on the defect. Protective coating of bland petroleum jelly was then applied and patient was advised to report after one day for check up. On next visit patient was comfortable, there was no pain or sensitivity to hot or cold drinks. Restoration was checked for any rough surface/margin and adjusted. Patient was advised to return after one month for checkup.

DISCUSSION

Dental pulp is a highly specialized connective tissue. Surrounded by mineralized walls, its capacity to deal with injury and inflammatory reaction is drastically limited. And its ability to increase blood supply in vasodilatation is consequently impaired. In addition to this pain involving the dental pulp due to tissue injury, i.e., pulpitis, is mainly due to stimulation of unmyelinated C fibers. Pain due to hypersensitive dentine is due to pressure changes in the dentinal tubules resulting in stimulation of myelinated Aδ fibers. (Hydrodynamic theory of dentine sensitivity.) Regardless of the nature of the sensory stimulus i.e., thermal change, mechanical deformation, injury to the tissues etc., almost all afferent impulses from the pulp result in the sensation of pain. So the patient can not localize the affected tooth in the initial stage of pulpal disease. Dental pain due to pulpitis in initial stage is therefore, extremely difficult to diagnose, and the clinician must collect as much information as possible from patient history, clinical and radiographic examination, and other special tests In order to reach correct diagnosis, step by step analysis of the problem is necessary in a methodical manner. Proper treatment planning is a must for desirable results. (See table 1 & 2 for innervation of dental pulp).

<table>
<thead>
<tr>
<th>Type of fiber</th>
<th>Function</th>
<th>Diameter( μ m)</th>
<th>Conduction velocity ( m /sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aα</td>
<td>Motor, proprioception</td>
<td>12-20</td>
<td>70-120</td>
</tr>
<tr>
<td>Aβ</td>
<td>Pressure, touch</td>
<td>5-12</td>
<td>30-70</td>
</tr>
<tr>
<td>Aγ</td>
<td>Motor, to muscle spindles</td>
<td>3-6</td>
<td>15-30</td>
</tr>
<tr>
<td>Aδ</td>
<td>Pain, temperature, touch</td>
<td>1-5</td>
<td>6-30</td>
</tr>
<tr>
<td>B</td>
<td>Preganglionic autonomic</td>
<td>&lt; 3</td>
<td>3-15</td>
</tr>
<tr>
<td>C dorsal root</td>
<td>Pain</td>
<td>0.4-1.0</td>
<td>0.5-2.0</td>
</tr>
<tr>
<td>Sympathetic</td>
<td>Postganglionic sympathetic</td>
<td>0.3-1.3</td>
<td>0.7-2.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiber</th>
<th>Myelination</th>
<th>Location of terminals</th>
<th>Pain characteristics</th>
<th>Stimulation threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aδ</td>
<td>Yes</td>
<td>Principally in region of pulp-dentine junction</td>
<td>Sharp, pricking</td>
<td>Relatively low, associated with dentine hypersensitivity.</td>
</tr>
<tr>
<td>C</td>
<td>No</td>
<td>Probably distributed throughout pulp</td>
<td>Burning, aching, less bearable than Aδ fiber sensation</td>
<td>Relatively high, usually associated with tissue injury.</td>
</tr>
</tbody>
</table>
# DIAGNOSTIC FORM (ORO-DENTAL)

<table>
<thead>
<tr>
<th>Name</th>
<th>No.</th>
<th>Rank</th>
<th>Unit</th>
<th>Age</th>
<th>Date</th>
</tr>
</thead>
</table>

### 1. Subjective Findings

**Chief Complaint:**

- **Significant Medical History:**
  - Reaction to Thermal Stimulus:
    - 0. None
    - 1. Short
    - 2. Prolonged
  - Reaction to Direct Dentine Stimulus:
    - 0. None
    - 1. Response
  - Reaction to Thermal Stimulus:
    - 0. None
    - 1. Response
  - Reaction to Palpation of Overlying Mucosa:
    - 0. No
    - 1. Yes
  - Reaction to Percussion:
    - 0. No
    - 1. Mild-Moderate
    - 2. Severe
  - Swelling:
    - 0. Absent
    - 1. Present
  - Sinus Tract:
    - 0. Absent
    - 1. Present
  - Caries Excavation:
    - 0. No exposure
    - 1. Exposure
  - Periodontal Status of Suspect Tooth:
    - 0. Normal
    - 1. Excessive mobility (1+2+3+)
    - 2. Significant Periodontitis
    - 3. Irreversible pulpitis
    - 4. Necrotic pulp
    - 5. Not applicable
  - Nature of Pain:
    - 0. None
    - 1. Spontaneous
    - 2. Diffuse
    - 3. Localized
  - Duration of Pain:
    - 0. None
    - 1. Short
    - 2. Prolonged
  - Significant Periodontitis
    - 0. Normal
    - 1. Excessive mobility (1+2+3+)
    - 2. Significant Periodontitis
  - Operator’s Sign:

### 2. Objective Signs & Tests

- **Electrical Pulp Tester**
  - Tooth No
  - Response
  - No Response

### 3. Radiographic Findings

- Periapical Radiographic finding:
  - 0. Normal
  - 1. Thickened periodontal ligament space
  - 2. Apical radiolucency > 10 mm
  - 3. Apical radiolucency < 10 mm
  - 4. Apical root resorption
  - 5. Apical radio opacity
  - 6. Furcal radiolucency, significant findings affecting Diagnosis/Treatment (Anatomy, Isolation, Calcification, etc)

### 4. Diagnosis

- 1. Normal
- 2. Reversible pulpitis
- 3. Irreversible pulpitis
- 4. Necrotic pulp
- 5. Not applicable
- 6. Normal PDL
- 7. Acute apical periodontitis
- 8. Chronic apical periodontitis
- 9. Suppurative apical periodontitis
- 10. Acute apical abscess
- 11. Condensing osteitis
- 12. Other

**REMARKS:** (Treatment planning/Referral)
Obscure Dental Pain

Majority of the patients attend the dental office with pain as the chief complaint, pain in the oro-facial region could be due to diseased teeth and periodontium, i.e., pulpitis/periodontitis or related to other structures such as jaws, sinuses, ears, T.M.J, muscles, nose, eyes, blood vessels and nerves etc. In addition to this there are others pathologic conditions that can induce symptoms which may mimic dental pain; these are Neuralgias especially Trigeminal, Myocardial Ischemia and Psychiatric disorders.

The important point to remember is that majority of cases attend the dental office with complaint of pain due to tooth related problems, other conditions mentioned above induce pain in relatively smaller number of cases, nevertheless these conditions should be included in differential diagnosis. Primary attention should always be on the person who matters most i.e. “The Patient.” Psychological factors should be considered only after all other factors have been eliminated.

In difficult cases it is always better to stop and think, analyzing the available data in a calm and relaxed manner before making the final diagnosis. Pain can be controlled with analgesics until the things become clearer. For mild to moderate pain, a reasonable first consideration is Paracetamol in doses of 500 mg to 1000 mg every four hours. Alternatively any NSAIDs can be prescribed. If maximum dose of nonopioid fails to control the pain addition of an opioid may be considered. It is important to remember however, that analgesics are only the second best means to control the pain. The best method is to diagnose and remove the cause as quickly as possible. Referral and consultation with other dental or medical specialists should always be considered when examiner is not satisfied with the diagnosis in the best interest of patient.

SUMMARY AND CONCLUSION

A case of odontalgia has been presented in which diagnosis became difficult due to obscure nature of a simple problem. Salient points of oro-facial diagnosis are discussed and a systematic approach to solve the problem described. A simple diagnostic form adapted from Krell & Walton, modified slightly is attached with this paper as per Annex.-A; this form is being used successfully as a simple and logical aid in diagnosing pulpal, periapical and periodontal pain and other orofacial disorders.

REFERENCES