

# History, examination, special tests and diagnosis

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## Objectives

At the end of this module you should:

- Have an understanding of the diagnostic procedure involved in conducting a comprehensive patient evaluation
- Demonstrate understanding of Levels of Evidence and apply them to review literature before allowing the literature to influence diagnosis and treatment
- Have an understanding of pain and how to assess pain in a clinical setting
- Understand how to take a systematic clinical history and examination
- Have an understanding of different special investigations, their advantages/disadvantages and when it is appropriate to use them to formulate a diagnosis

## Diagnostic Procedure:

- RFV- reason for the visit
- Medical History – (including current medications)
- Dental and Social History
- Subjective History ( details of problem, other relevant info) Symptoms!!
- Differential Diagnoses
- Objective Testing ( Examination and special tests)- Signs!!
- Analysis of data collected – Clinical diagnosis
- Plan of Action – Treatment plan!!

## Definitions:

Symptom: "any bodily change perceptible to the patient"

Signs: "any bodily change perceptible to the trained observer"

## **Levels of Evidence:**

When looking at published studies or information available for a specific treatment, the following can be used to indicate the level of evidence

### **Level I**

Evidence obtained from a systematic review of all relevant randomised controlled trials.

### **Level II**

Evidence obtained from at least one properly designed randomised controlled trial.

### **Level III.1**

Evidence obtained from well designed controlled trials without randomisation.

### **Level III.2**

Evidence obtained from well designed cohort or case control analytic studies preferably from more than one centre or research group.

### **Level III.3**

Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments.

### **Level IV**

Opinion of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

**Treat the patient respectfully as a person not as a mouth or disease requiring treatment!!!!**

*Diagnosis begins with the reason for the visit. A simple question!*

### **Reason for visit:**

"Why have you come to see me today?" Or "what is the problem?" or " what is troubling you?"

History of presenting complaint- Where is the problem?

When did it start?, Has it got worse, improved or stayed the same? Is there pain?

### **Pain: (Socrates)**

- Site
- Onset
- Character
- Radiation
- Associations
- Time course
- Exacerbating and relieving factors
- Severity

### **Pulp Pain**

- Very poorly localized
- Intermittent
- Throbbing
- Intensified by heat, cold and sometimes chewing
- May be relieved by cold
- Usually severe

### **Peri radicular pain**

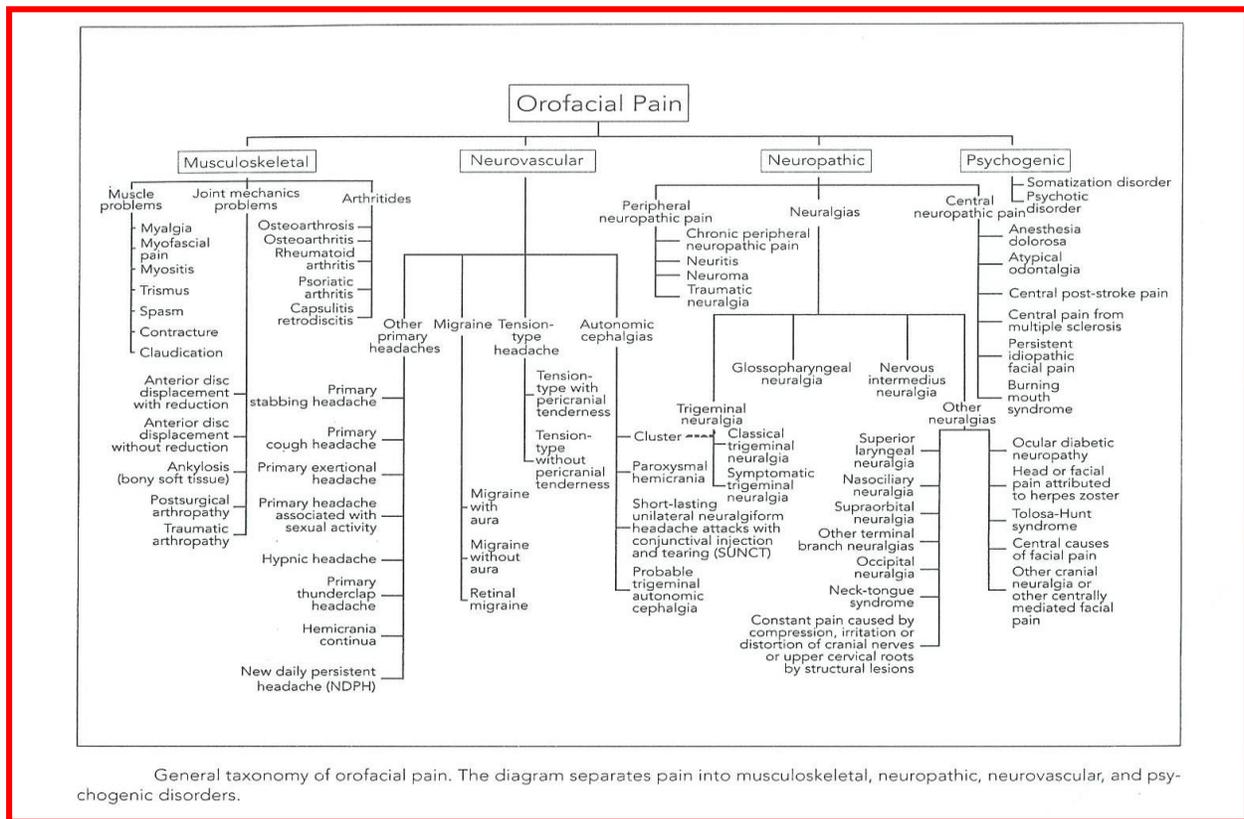
- May be well localized
- Deep pain
- Intensified by chewing
- Moderate to severe in intensity

## Periodontal Pain

- May be well localized
- Intensified by chewing
- Moderate to severe in intensity

## Pain of non odontogenic origin

- Sinus
- Otagia
- Pain referred from other sites
- Other orofacial pains ( See Differential Diagnosis of orofacial pain from Robert L. Merrill)



## **Medical History:**

- Review/update written medical questionnaire
- Medications
- Allergies
- Current medical conditions
- Written consultation with physician as required

### **History objectives:**

- Establish rapport
- Gather information to arrive at a provisional; diagnosis
- Gain an understanding of the patient's wishes and expectations

### **Subjective history:**

- May give rise to a provisional diagnosis
- Determines urgency of treatment
- Confirmed by examination and special

### **Dental and Social history:**

- Dental attendance
- Past dental treatment
- Cleaning regime - oral hygiene practice
- Current dental/gum/jaw problems/symptoms
- Oral appliances - dentures
- Diet
- Smoking status
- Alcohol assumption
- Habits

## **EXAMINATION**

### **Extra oral Examination:**

- Facial asymmetry
- Swelling
- Extra oral sinus tract
- TMJ
- Lymph nodes and salivary glands
- Cranial nerve function

**Intraoral Examination:**

- Visual Examination
- Radiographs
- Percussion
- Palpation
- Mobility
- Thermal tests
- Electric Pulp Test
- Periodontal probing
- Selective anesthesia
- Test cavity
- Transillumination
- Occlusion

**Swelling:**

- Site
- Size
- Texture (soft, rubbery hard ( lymphoma), Stony hard {carcinoma})
- Tenderness to palpation (infection)
- Fixation to underlying structures
- Nodes palpable

**Anatomical Variants and developmental anomalies**

- Fordyce spots- Sebaceous glands can be found as small, painless, raised white or yellowish spots/bumps on the oral mucosa (commonly cheek mucosa)
- Fissured tongue- Usually dorsum of the tongue (5% population), hereditary, can be seen in Psoriasis
- Stafne bone cavity- Lingual mandibular focal bone cavity seen on routine OPGs and a unilocular radiolucency beneath the ID nerve canal
- Tori- Developmental benign exostosis overgrowth of normal bone. Commonly of the midline palate or lingual mandible bilaterally. May also occur in buccal gingiva
- Varicosities- Purplish/blue spots asymptomatic. Usually in older people
- Others- Bifid uvula, Racial pigmentation, Lingual foliate papillae

## **Special Investigations**

### **Blood tests:**

- General health of the patient, presence of any deficiencies, autoimmune problems, liver function
- These may have direct association with the oral problem and have bearing on the management

### **Imaging:**

- Radiographs (OPG, TM Joint Views, Frontal and lateral, Intra oral)- best for hard tissues

### **CT scan:**

- Allows visualization of 2-10mm sections of the body in 2-D (enough clear distinction between black grey and white areas)
- Good for bone cartilage lymph nodes

### **MRI:**

- Safe, non invasive and allows 3-D imaging of internal organs ( created with radio waves and large powerful electromagnets to align hydrogen atoms within the body)
- Advantage of no ionizing radiation
- Good for soft tissue differentiation

### **Ultra sound:**

- High frequency sound waves (20 KHz) to bounce echoes off the soft tissues to determine if a lump is solid or fluid
- Good for soft tissues

### **Scintiscanning:**

- Radio nucleotide (radio-isotope) is useful for bone salivary glands thyroid and lymph nodes
- Technetium 99 - labelled diphosphonates for bone injected IV and after 3 hours or more imaged with Gamma camera and computer
- Disadvantage - small amount of radioactivity.

### **Sialochemistry:**

- Involves analysis of the cellular and chemical constituents of saliva
- Advantages of good diagnostic tool for some salivary gland conditions and systemic conditions, simple, non-invasive and sensitive (early disease detection)

### **Sialography:**

- Radiographic examination to examine salivary glands and demonstrate structural pattern and abnormalities (mucus plugs, calculi, areas of ligation or stricture, chronic inflammatory conditions)
- Disadvantages - small amount of radiation involved and pain on injection of radiopaque fluid into duct

### **PET (Positron Emission Tomography:**

- Radio nucleotides with short half lives (  $^{11}\text{C}$ ,  $^{15}\text{O}$ ) injected IV and will provide information on biochemical functions (eg glucose metabolism, how much energy is used in specific areas { brain or tumour} )

### **Biopsy:**

- Incisional
- Excisional
- Frozen section
- FNA
- Core biopsy

## Diagnosis

### Diagnosis Definition:

**"Function is to offer the safest and effective treatment and therefore an indication of prognosis"**

A clinician can only diagnose conditions known to them. This knowledge is available to the clinician through study, clinical experience, reading current literature, discussion with colleagues, and access to the internet.

Remember a referral to a specialist is always a possibility!!

**"Diagnosis is the determination of the nature of a diseased condition by careful investigation of its symptoms and history"**

As a result of the evaluation of the information and results obtained in the history examination and special tests!!!!

The diagnosis forms the basis for formulating a management regime and considering prognosis

Look at the following link <http://ocw.tufts.edu/data/24/339120.pdf>

### **Common Diagnoses**

#### Pulpal

- Normal
- Superficial pulpitis
- Diffuse reversible pulpitis
- Irreversible pulpitis
- Pulp necrosis with/without infection
- Previous endodontic treatment

### **Periapical**

- Normal
- Localised apical periodontitis
- Diffuse apical periodontitis
- Diffuse suppurative apical periodontitis
- Diffuse persistent apical periodontitis
- Condensing apical periodontitis
- Transient apical breakdown
- Extra-radicular non-endodontic cause

### **Red and White lesions**

- Frictional keratosis
- Fordyce's spots
- Stomatitis nicotina
- Lichen planus
- Lupus erythematosus
- Oral candidosis

### **Oral discolourations**

- Amalgam tattoo
- Nevus
- Drugs
- Localised irritation eg smoking

### **Salivary gland disorders**

- Sialosis

- Viral sialadenitis (mumps)
- Sialolithiasis and sialadenitis
- Sjögren's syndrome

### **Oral ulceration**

- Local causes (trauma, burns)
- Drugs
- Recurrent aphthous stomatitis
- Malignant disease
- Systemic conditions

### **Test Yourself**

- 1. A sign is a "bodily change perceptible to the trained observer".**
  - A) True
  - B) False
- 2. Level II evidence is:**
  - A) Evidence obtained from a systematic review of all relevant randomised controlled trials
  - B) Evidence obtained from at least one properly designed randomised controlled trial
  - C) Evidence obtained from well designed controlled trials without randomisation
  - D) Evidence obtained from well designed cohort or case control analytic studies, preferably from more than one centre/research group
  - E) Opinion of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees
- 3. Which statement is FALSE?**
  - A) An objective of taking a comprehensive history is to establish a good rapport with the patient
  - B) Orofacial pain may have a musculoskeletal, neurovascular, neuropathic or psychogenic origin
  - C) MRI is a non-invasive special test allowing 3D imaging of internal organs, however a small amount of ionising radiation is involved
  - D) Sialochemistry is a special saliva test involving analysis of the cellular and chemical components of saliva
  - E) Diagnosis is necessary for formulating a comprehensive treatment plan and prognosis for the patient

Answers 1. A, 2. B, 3. C

#### References

- Laskin, D. M., Greene, C. S., & Hylander, W. L. (Eds.). (2006). *Temporomandibular disorders: an evidence-based approach to diagnosis and treatment*. Quintessence Publishing Company.
- Kalk, W. W. I., Vissink, A., Spijkervet, F. K. L., Bootsma, H., Kallenberg, C. G. M., & Amerongen, A. N. (2001). Sialometry and sialochemistry: diagnostic tools for Sjögren's syndrome. *Annals of the rheumatic diseases*, 60(12), 1110-1116.