



## Diagnostic and Predictive Importance of the Oral Exam

Palo DE\*

Department of Oral and Maxillofacial Surgery, Womack Army Medical Center, USA

### Abstract

This article will review the importance of the oral exam, demonstrating its clinical significance in oral surgery and dentistry. An appropriate method of conducting an oral exam properly will be reviewed. The importance of the oral exam with the inclusion of appropriate supplemental diagnostic studies will be discussed. Correct ICD-10-CM diagnostic codes, CPT medical descriptive codes and CDT dental procedural codes are incorporated in three case examples shown. Conducting an oral exam is absolutely essential in order to arrive at an accurate pre operative diagnosis and then formulating an appropriate treatment plan in oral surgery and dentistry.

### Materials and Methods

A review of the literature pertaining to the oral exam in oral surgery and dentistry was conducted from 1985 to the present. The significance of the oral exam is shown with three patient surgical cases that will be discussed. The International Statistical Classification of Diseases and Related Health Problems, 10<sup>th</sup> revision, Clinical Modification (ICD-10-CM) "clinical" diagnostic codes, Current Procedural Terminology (CPT) - American Medical Association (AMA) descriptive codes, and Code on Dental Procedure and Nomenclature (CDT) - American Dental Association (ADA) procedural codes were reviewed and incorporated into the discussion in these three patients surgical cases to validate the essential importance of the clinical oral examination, diagnosis, and reasoning for the surgical procedures performed. This is all further enhanced by application of the ADA principals of ethics and code of professional conduct.

### Case Examples

#### Case #1

An anxious, healthy 61 year old male was referred by his general dentist for removal of tooth #12. The referral included the recent 2-dimensional (2D) periapical X-ray image shown in Figure 1. The X-ray was concerning since tooth #13 shows radiographic evidence of caries and loss of coronal structure. Tooth #12 appears healthy radiographically. The buccal and palatal roots of tooth #12 can just be seen superimposed on each other as is consistent with the routine anatomical development of the maxillary 1<sup>st</sup> premolars. Loss of Periodontal Ligament (PDL) space, Condensing Osteitis, and Osteosclerosis is demonstrated radiographically around the radicular alveolar bone of tooth #13 and to a lesser extent with tooth #12.

The history and exam were conducted next. The patient reported that his dentist is planning on restoring "the back tooth," tooth #13, with a crown. He then stated that "the tooth next to the last one is painful and loose," tooth #12. On oral exam, the first clinical step is Inspection: Tooth #12 visually seen as shown in the pre operative photo (Figure 2).

The next three steps of the clinical oral exam are Palpation, Percussion and Auscultation [2,12]. Tooth #12 is painful and demonstrates a vertical mesial distal oriented crown fracture seen in Figure 3. This is confirmed by the mobility of the palatal segment on Palpation and Percussion with a Woodson #1 periosteal elevator. Listening closely, the patient winces mildly in pain and a "gritty crunchy like" sound is heard on Auscultation as Percussion was performed. Inflammation and cellulitis is seen during this process. The preoperative diagnosis confirmed clinically by the oral exam and supplemental periapical (2D) X-ray image is that tooth #12 is painful, fractured, non-restorable and non-salvageable.

Tooth #12 was surgically removed in pieces as seen in the post operative photo (Figure 4). Excerpts from the procedure: A sulcular crestal alveolar full thickness mucoperiosteal envelope flap was created with the "sharp pointed end" of the #1 Woodson periosteal elevators without the need for a vertical releasing incision. The envelope flap was elevated and reflected conservatively towards the buccal to adequately expose and allow direct vision of the site. While attempting to

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#### \*Correspondence:

Palo DE,

Presque Isle Oral Surgery, 100 State  
St. B102., Erie, PA. 16507, USA,

E-mail: teampalodsb@aol.com

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Figure 1: Periapical X-ray image, pre op.



Figure 2: Photo image, pre op intraoral, teeth #10, #11, #12 and #13.



Figure 3: Photo image, pre op intraoral fractured tooth #12.



Figure 4: Photo image, post op tooth #12.

carefully luxate tooth #12 with a #303 elevator, the crown further fractured into multiple pieces and completely off at the roots and alveolar bone level. The radicular and interproximal alveolar bone was found to be (osteosclerotic with condensing osteitis, dense, hard, inelastic and unyielding). As a result, in order to get to sound tooth #12 structure, some radicular alveolar bone required removal and the roots were sectioned manually towards the buccal and interproximal using a "sharp" #301 "ossisector" elevator, "sharp" #2 Coupland bone gouge hand chisel elevator, and Blumenthal Rongeur forceps [3,15,5]. An adequate amount of bone was removed and roots sectioned to enable safe unimpeded luxation and elevation along the relevant lines of withdrawal. Efforts were made to avoid dislocation of the mandible, damage to the Temporo Mandibular Joint (TMJ), maxillary sinus, adjacent teeth and remaining alveolar bone with the

"sharp" #301 "ossisector" elevator and delivery of the tooth roots with the Blumenthal Rongeur forceps. The procedure was performed with local anesthesia and supplemental inhalation of N<sub>2</sub>O+O<sub>2</sub> anxiolysis. The patient tolerated the procedure very well. Application of the ADA principals of ethics and code of professional conduct ensured patient safety, a good surgical outcome and coding accuracy.

Correct ICD-10-CM codes: (F41.9) Anxiety, (KO2.9) Tooth Caries, (KO8.8) Tooth Pain, (KO3.81) Tooth Fracture, "cracked" tooth, (LO3.90) Inflammation and Cellulitis, (M27.3) Osteosclerosis, "Hardened" alveolar bone, and (M85.38) Condensing Osteitis.

Correct CPT codes: (99201) Problem focused exam, (94781) Pulse oximetry, (2000F) Blood pressure monitoring, and (41899) Unlisted procedure - dentoalveolar structures.

Correct CDT codes: (D0140) Limited oral evaluation-problem focused., (D7210) Extraction, erupted tooth requiring removal of bone and/or sectioning of tooth, and including elevation of mucoperiosteal flap if indicated., and (D9230) Inhalation of nitrous oxide/analgesia, anxiolysis.

### Case #2

An anxious, healthy, petit, 13 year old female was referred by her orthodontist to remove multiple retained deciduous "baby" teeth in order to surgically expose the impacted unerupted adult teeth. The orthodontist suggested that an "optional" decision was to be made by the oral surgeon with respect to amount of exposure of the impacted unerupted adult teeth and the status of the developing wisdom teeth. This allows the surgeon the flexibility to make real time practical surgical decisions that would minimize complications, morbidity and the need for additional or possibly preventable surgeries. On physical exam she is noted to be healthy, petit at 4 feet 11 inches tall and weighs 89 pounds. She was very anxious about having surgery. The oral exam was clinically significant for microstomia, a small oral opening that limits access to the oral cavity (Figure 5). Also, the over retained deciduous teeth were found to be non-mobile with palpation, and dull sounding during percussion and auscultation. These important clinical exam findings confirm that the deciduous teeth were ankylosed, firmly fused with the alveolar bone. Causes of impacted permanent teeth include systemic and local factors. Systemic factors include the hereditary form of cleidocranial dysplasia, endocrine deficiencies (hypothyroidism and hypopituitarism), febrile diseases, Down syndrome and irradiation. Local factors, however, are more commonly the cause of permanent tooth impaction. These factors include prolonged deciduous tooth retention seen with ankylosis, malposed tooth germs, arch length deficiency, supernumerary teeth, odontogenic tumors, abnormal eruption pathway, cleft lip and palate [16]. Ankylosis of the over retained deciduous teeth constitutes the



Figure 5: Photo image, pre op right profile.



Figure 6: Photo image, pre op frontal occlusion.

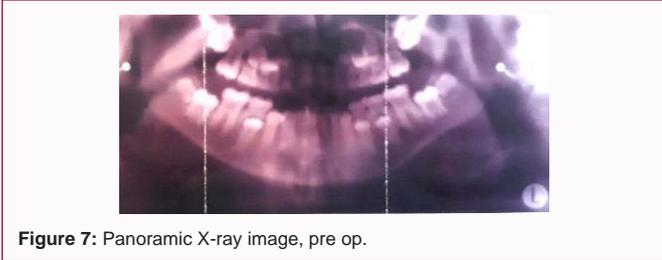


Figure 7: Panoramic X-ray image, pre op.

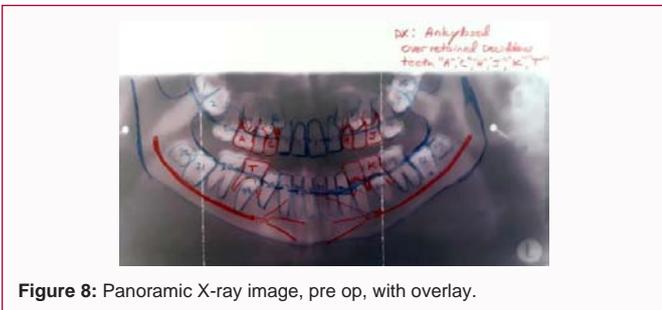


Figure 8: Panoramic X-ray image, pre op, with overlay.



Figure 9: Panoramic X-ray image, pre op.

preoperative diagnosis and is the local factor cause of the impactions involving the unerupted adult teeth. The careful execution of the surgical operation was then performed successfully. The "optional" decision was invoked appropriately based on the preoperative exam, supported by the clinical findings of the oral exam and confirmed during the course of surgery. The complete bony impacted wisdom teeth were left intact as the surgical risks associated with a difficult and limited access to the surgical sites was determined by the surgeon to be very high. Dr James R. Hupp, DMD, MD, JD, MBA the Dean and Professor of Oral and Maxillofacial Surgery at East Carolina University clearly reminds us that the surgeon should look for the presence of abnormal root morphology or signs that the tooth may be ankylosed [4]. He further states that the surgeon should consider surgical approaches to removing teeth in such cases to prevent or limit the magnitude of complications. Careful surgical extraction of the ankylosed deciduous teeth with complete removal of their roots and conservative removal of the associated redicular alveolar bone covering the unerupted impacted adult teeth was performed. General anesthesia via Total Intravenous Anesthesia (TIVA) was utilized for safe patient management of her anxiety and to allow optimal control

of the surgical field. Full thickness mucoperiosteal flaps were elevated with the "sharp pointed end" of a #1 Woodson periosteal elevator. No stryker hand piece was used as the risks of injury to the patient from thermal and mechanical causes were deemed too great [4]. The careful removal of alveolar bone with the deciduous teeth and exposure of the unerupted impacted successive adult teeth was conducted exclusively with a "sharp" Coupland #3 bone gouge hand chisel elevator and Blumenthal Rongeur forceps [3,15,5]. The crowns of the unerupted teeth were surgically exposed in the direction to allow their natural eruption [16]. During surgery access in the oral cavity was limited due to microstomia and the position of the tongue. Surgical difficulty was complicated by the relationships of the ankylosed deciduous teeth roots with some having dilaceration and all were intimately situated with the crowns of their impacted adult teeth successors (Figure 6 and 7). She tolerated the procedure very well.

Correct ICD-10-CM codes: (F41.9) Anxiety, (Q18.5) Microstomia, (M26.4) Malocclusion, (K00.6) Retained [persistent] primary/deciduous teeth, (K00.6) Disturbances in eruption of teeth, (K01.1) Impacted teeth, (K03.5) Ankylosed teeth, and (K00.4) Dilaceration of teeth roots.

Correct CPT codes: (99201) Problem focused exam, (94781) Pulse oximetry, (2000F) Blood pressure, (3120F) EKG monitoring, and (41899) Unlisted procedure-dentoalveolar structures.

Correct CDT codes: (D0140) Limited oral evaluation problem focused, (D7210) Extraction, erupted tooth requiring removal of bone and/or sectioning of tooth, and including elevation of mucoperiosteal flap if indicated, (D7280) Surgical access of an unerupted tooth, and (D9220) Deep sedation/general anesthesia.

Note: D7280 was performed for each of the successive unerupted impacted adult teeth but not reported for office billing or as charges on the ADA Dental Claim form. It is the surgeon's belief and choice that during the course of the surgical procedure enough alveolar bone was removed performing the "odontectomies" of the ankylosed over retained deciduous teeth to justify only the use of CDT code (D7210) in this situation. This case demonstrates the effective use of applying the ADA principals of ethics and code of professional conduct. This is shown by appropriate use of Section 2, Non maleficence "does no harm"; Section 3, Beneficence "do good"; Section 4, Justice "fairness"; and Section 5, Veracity "truthfulness" [17].

**Case #3**

A 25 Year old, anxious male was referred by his general dentist. The 2D Panoramic X-ray image (Figure 9) and written referral (Figure 10) were provided prior to the consultation and examination.

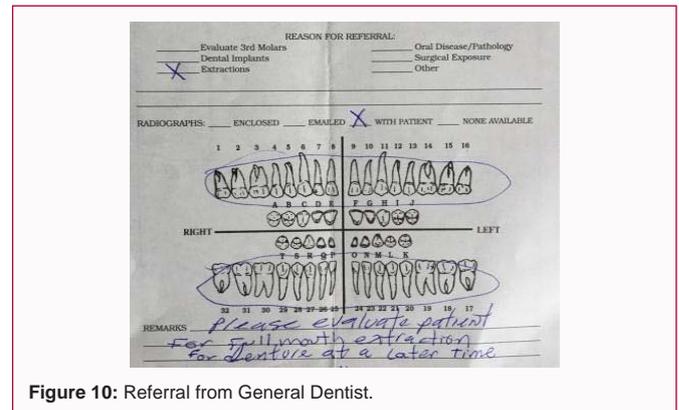


Figure 10: Referral from General Dentist.



Figure 11: Photo image, pre op intraoral frontal.



Figures 12: Photo images, pre op intraoral right lateral.



Figures 13: Photo images, pre op intraoral left lateral.

Initially, it was thought that the referring dentist was mistaken by the request for such extensive surgery.

This patient also underwent a preoperative History and Physical exam, prior to scheduling surgery. The patient reports a history of "severe" teeth pain. He was accompanied by his Mother and was also very anxious. He is recovering from a drug addiction to Crystal Methamphetamine. His oral exam is profound and clinically diagnostic. See his intraoral photo series in (Figures 12-14). Severe attrition, erosion and caries is seen on inspection throughout his dentition. Inspection, Palpation, Percussion and Auscultation confirm the following clinical findings of adequate access to the oral cavity, teeth pain, lack of teeth mobility, buccal alveolar bony prominences and undercuts, inflammation and cellulitis of the gingiva. The preoperative 2D Panoramic X-ray image (Figure 9) does not come close to inferring an accurate pre operative diagnosis or treatment plan.

The patient and his mother were financially unable to support and provide for optimal dental care. I humanitarily performed the dentoalveolar surgery in order to remove the extensive dental disease and alleviate his pain and suffering. He underwent general anesthesia via TIVA, full mouth extraction of his 32 teeth with four quadrants of alveoplasty, in preparation for complete maxillary and mandibular

dentures. This case is another example of applying the ADA Code's ethical principles found in Section 3, Beneficence "do good"; Section 4, Justice "fairness"; and Section 5, Veracity "truthfulness" [17].

Correct ICD-10-CM codes: (F41.9) Anxiety, (KO2.9) Tooth caries, (KO3.O) Attrition of teeth, (KO3.2) Erosion of teeth, (KO8.8) Tooth pain, (LO3.90) Inflammation and cellulitis, Buccal maxillary (M26.71) and mandibular (M26.72) alveolar ridge hyperplasia with undercuts.

Correct CPT codes: (99201) Problem focused exam, (94781) Pulse oximetry, (2000F) Blood pressure, (3120F) EKG monitoring, and (41899) Unlisted procedure - dentoalveolar structures.

Correct CDT codes: (D0140) Limited oral evaluation-problem focused, (D7140) Extraction, erupted tooth or exposed root (elevation and/or forceps removal), (D7210) Extraction, erupted tooth requiring removal of bone and/or sectioning of tooth, and including elevation of mucoperiosteal flap if indicated, (D7311) Alveoplasty in conjunction with extractions- 1 to 3 teeth or tooth spaces, per quadrant, (D9223) Deep sedation/general anesthesia.

## Conclusion

In OMS and dentistry an oral exam must be performed to derive at an accurate preoperative diagnosis. This can be further supported by appropriate supplementary studies such as: Radiology (2-D X-ray radiographic images, 3D CT or MRI scans) and Laboratory (Micro-pathology, Chemistry studies, Micro-biological cultures and sensitivities). The final post operative diagnosis is then made by the OMS or dentist after the actual experience and outcome of procedure(s) performed. The resolution of infection, trauma and pathology can be confirmed with post operative physical re-examination; evidence of the procedure(s) performed and post operative conformational studies such as: a final pathological diagnosis and or follow up radiology. The ICD-10-CM, CPT, HCPCS, CDT code(s) and corresponding descriptive narrative(s) are accurately chosen by the dentist or physician based on Evidence Based Dentistry (EBD). This is then accurately documented in order to reflect the final diagnosis and treatment involving all of the procedure(s) performed with that specific patient encounter. Also, applying the ADA principals of ethics and code of professional conduct will ensure patient safety, coding accuracy and better surgical outcomes. The internationally well respected Oral and Maxillofacial Surgeon, Dr Daniel Waite, DDS, MS, said the following: "Of the many principals of surgery, only two are accurate 100 percent of the time: Do no harm and know thy patient... Surgical care is based on doing unto others as you would have them do unto you" [5]. Therefore, only after completing a thorough oral exam can an oral surgeon or dentist "Know thy patient" and "Do no harm" by formulating an accurate pre operative diagnosis then delivering safe and effective treatment.

## Discussion

It is well established that prior to any surgical procedure, a preoperative focused physical examination and evaluation of the patient is an essential component in the provision of care for that patient. An appropriate patient assessment is the critical component of Evidence Based Dentistry (EBD) and for an Oral and Maxillofacial Surgery (OMS) Practice. The proper method of obtaining and documenting a patient's medical history, physical examination findings, as well as the use of appropriate diagnostic tests, are an absolute requirement for ascertaining an accurate pre

operative diagnosis and developing a safe and effective treatment plan. In addition, a thorough patient evaluation provides the basis for determining the surgical and anesthesia risk of each patient, thus minimizing morbidity and avoidable complications [1]. Before initiating any oral surgical procedure, an accurate dental diagnosis must be made based on the patient's chief complaint, history of present illness, a clinical dental and oral examination, appropriate use of recent supplemental diagnostic imaging to include Intraoral periapical or extra oral panoramic radiographs [2-5]. The oral exam incorporates the same methods as the physical exam and is accomplished by: Inspection, Palpation, Percussion, and Auscultation [2-5]. Inspection involves the direct visual and indirect dental mirror assisted appearance of the oral structures to include soft tissues and teeth and restorations. The visual observation of signs generally contributes more information pertinent to a potential diagnosis than any other physical technique, particularly in oral examinations [3]. Inspection provides both the quantitative data of measurement and the qualitative data of description. Palpation occurs when touching with gloved hands the oral structures being examined. It reveals the consistency, mobility, and character of oral structures. Percussion utilizes the handle of a dental mirror to assess tooth pain and the possibility of "loose" mobility or a lack of mobility "Ankylosis" with teeth firmly anchored in alveolar bone. Auscultation involves listening to the differential transmission of sounds that occur during the examination often supplemented with the assistance of a stethoscope as is routine during a "TMJ" exam.

In August 2000 the Code on Dental Procedure and Nomenclature (CDT) was designated by the federal government as the national terminology for reporting dental services on claims submitted to third-party payers, in accordance with the Health Insurance Portability and Accountability Act of 1996 (HIPPA) [6,7]. The CDT is reviewed and updated annually by the ADA. CDT has been integral to dentistry for several years as a standard of the procedural codes used to report dental services as defined by the ADA. An accurate recording of a treatment plan requires not only the procedure that is planned, but also the associated diagnosis, as it is essential to identify the reason(s) for the procedure that is performed [8]. These decisions are made through Evidence Based Dentistry (EBD). EBD is defined by the ADA as: "An approach to oral health care that requires the judicious integration of systematic assessments of clinically relevant scientific evidence, relating to the patient's oral and medical condition and history, with the dentist's clinical expertise and the patient's treatment needs and preferences [7,9,10]. The dentist who is treating the patient is the person who can best determine the appropriate treatment and what codes will best describe it [13]. The International Classification of Diseases, 10<sup>th</sup> Edition, Clinical Modification (ICD-10-CM) is the most current diagnosis coding in use for all U.S. health care settings. ICD-10-CM affects the diagnosis and patient procedure coding for everyone covered by the Health Insurance Portability Accountability Act (HIPPA) [12,13]. Current Procedural Terminology (CPT) is a medical coding system similar to the CDT dental coding system. CPT

is a listing of descriptive terms and identifying codes developed by the AMA for the reporting of practitioner services and procedures to third party payers [14]. Those codes not covered in CPT are found in the Health Care Common Procedure Coding System (HCPCS) Level II Codes which comprise the fourth governmentally recognized system of medically related codes [12].

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