

## Indications and contraindications

### **2002 Abramovitz Case selection for apical surgery a retrospective evaluation of associated factors and rationale**

A retrospective survey of 200 roots that were referred for apical surgery revealed that 83% of the roots were inadequately obturated.

24.5% of the referred cases nonsurgical retreatment was judged by an endodontist as either impossible or improbable because it might jeopardize the root integrity  
In 45% of the 200 cases in the present study, surgical intervention was justified.

Therefore endodontists should be involved in the decision making before referring a patient to surgery.

Microscopes have reduced the need for surgery

AAE recommends nonsurgical retreatment in cases where a deficiency in the quality of root canal obturation resulted in failure.

AAE accepts endodontic surgery with retrofilling as the appropriate treatment modality in cases of

- (a) persistent symptoms or sinus tract resulting from inadequate seal that cannot be sealed by a nonsurgical approach; and
- (b) peri-radicular symptoms or pathosis and a blocked root canal system that cannot be obturated nonsurgically.

They leave a wide range for clinical considerations and the judgment of the operator that may result in a large gray zone between justified and unjustified surgical interventions.

### **1970 Larato – Alveolar plate fenestrations and dehiscences**

108 adult skulls of Mexican Indian origin – 3416 teeth

4.3% showed fenestrations of the labial plate

3.2% had dehiscences

Therefore 7.5% of all teeth examined showed fenestrations or dehiscences

12.5% of all max incisors, 14.3% of lower incisors had either fenestrations or dehiscences

1. Maxillary and mandibular anterior teeth exhibit more fenestrations and dehiscences than posterior teeth.
2. Maxillary 3s and 6s and mandibular 3s most commonly associated with fenestrations and dehiscences
3. Fenestrations and dehiscences are commonly associated with prominent tooth roots. Often due to a thin plate covering a prominent tooth root – no underlying marrow space, therefore stripping of the periosteum during surgery may encourage further resorption.
4. Fenestrations and dehiscences are also found in young adult.
5. No relationship between number of fenestrations and dehiscences and age

**1974 Ericson, Finne, Persson – results of apicectomy of maxillary canines, premolars and molars with special reference to oroantral communication as a prognostic factor**

314 teeth – OAF noted in 13% of cases

Of those 13% of cases - 54% success, 25% uncertain, 21% unsuccessful. Higher success for cysts

Better results for canines, lowest 1<sup>st</sup> premolars. The presence of an OAF does not affect the outcome of surgery.

Retrograde method is not inferior to the orthograde technique

**1983 Lin, Langeland Periapical surgery of mandibular posterior teeth: anatomical and surgical considerations**

Previous success rates 60-89%

Caution with mand post teeth due to mental foramen and ID bundle.

If not detected on PA then surgery involves access 4mm coronal to estimated apex. Until root located

The endogenous catecholamine secreted into the blood stream by adrenal medulla due to the stress of surgery is added to the ADR in LA. The combined effect may complicate tx of the medically compromised pt causing a circulatory emergency

**1986 Littner Relationship between the apices of the lower molars and mandibular canal – a radiographic study of 46 dry mandibles.**

In the majority of cases the mandibular canal was buccal to the apices of the 2<sup>nd</sup> molar, in the 1<sup>st</sup> molar 50% of cases it was lingual. The upper border of the mandibular canal was located 3.5-4.5mm below the root apices of 6s and 7s.

In no case was the mandibular canal found in close proximity both in the vertical and BL planes to 6s and 7s.

Only 2.4%-7.2% of cases was the mandibular canal apical to the long root axis.

Evidence to say that anatomic considerations are not a contraindication to surgery but this was with v experienced surgeons.

Symmetry between both sides of the same mandible exists. May be sensible to take 2 Pas with one at -20 degrees to the vertical to help determine position of ID canal in B-L plane.

### **1990 Phillipis et al The mental foramen – part I, size orientation and position on relation to lower 5s**

75 adult mandibles. The most common location of the mental foramen was inferior to the crown of the 2<sup>nd</sup> premolar and approx 60% of the distance from the buccal cusp tip of that tooth to the inferior border of the mandible.

Slightly larger on left size. Direction of exit was posterior superior 68.7% of cases, superior 22% of times.

### **1998 Moiseiwitsch Position of the mental foramen in a north American white population**

On average between the premolars.

The vertical position of the foramina as measured from the CEJ of the nearest tooth was 16mm. 10% had unusual positions either being aligned with the 1<sup>st</sup> premolar or 1<sup>st</sup> molar.

### **2005 Jin Buccal Bone Plate Thickness of the Asian People**

Distances from the apex to the buccal bone plate were measured on the computed tomography (CT) images of 1806 teeth from 66 patients.

In the mandible, the mean distance from the distal apex of the mandibular second molar to the buccal bone plate was the largest distance measured, at 8.51 mm, followed by distance from the mesial root to the buccal bone (7.34mm).

In the mandibular first molar, the mean distal and mesial bone thicknesses were 5.18 mm and 4.09 mm, respectively. However, when there were two distal roots, the distance of the disto-lingual root to the buccal plate was found to be 9.52 mm, which constitutes the greatest measured thickness.

In the maxillary buccal roots, the distances from the mesio-buccal and disto-buccal root of the second molar to the buccal bone plate were the largest, at 4.63 mm and 3.61 mm, respectively.

The average distances from the palatal apex of the maxillary first and second molars to the buccal bone plate were 10.69mm and 10.17 mm, respectively, while, from the palatal bone plate, average distances of 3.15 mm and 3.08 mm were measured the thicknesses from the palatal root to the buccal bone plate in the maxillary first and second molars were 10.69 mm and 10.17 mm, respectively.

Therefore, approaching the surgery site via the palatal side appears to be the more feasible choice, unless, of course, anatomical problems appertain, most notably in the greater palatine foramen.

Considering that the present study revealed that 56% of the maxillary first premolar, and 26% of the second premolar, contained two root apices, care should always be taken to not miss the palatal root during apical surgery on the maxillary premolars.