EXTRACTION

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Extractions are performed as a part of general plan of treatment.

THE GREAT EXTRACTION CONTROVERSY

- In 1920's
- Two school of thoughts

1. EDWARD ANGLE

Non-extraction

Advocated Arch Expansion to create space

2. CALVIN CASE

Suggested that extraction is needed

- In late 1940's

  CHARLES TWEED has reintroduced the extraction.

  He observed that Post-Treatment occlusion was more stable in patients treated with extractions of premolars.

NEED OF EXTRACTIONS

1. Arch Length – Tooth Material discrepancy

   Arch length & tooth material should be in harmony with each other.

   In case of arch length-tooth material discrepancy, when it is not possible to increase the arch length, there must be Reduction in Tooth material.

2. Correction of Sagittal Interarch Relationship

- Angle's Class 1

  extraction of teeth from both arches is advised.
- Angle's Class 2

  extraction from Upper arch is advised.
- Angle's Class 3

  extraction from lower arch is advised.

3. Abnormal size & form of teeth

anamolies like Macrodontia, Hypoplastic tooth, Dilaceration etc.

DIFFERENT TYPES OF EXTRACTIONS

- Therapeutic extractions
- Serial extractions
- Wilkinson extractions
- Balancing extractions
- Compansating extractions
- Phased extractions
- Enforced extractions

THERAPEUTIC EXTRACTIONS

- MAXILLARY INCISERS
  - Unfavourably Impacted.
  - Totally bloked – buccally or lingually.
  - In case of one lateral is congenitally missing, the other may be extracted to maintain symmetry.
  - Trauma/irrepairable damage to Incisors by fracture.
  - Grossly Carious.

- Malformed incisors that can not be restored.
- Dilacerated incisors

- MANDIBULAR INCISORS

  It is often tempting to extract a lower Incisor to relieve Crowding, particularly when it is confined to Anterior segment.

But its extraction should be avoided AS FAR AS POSSIBLE because it causes,

Remaining Anterior teeth to imbricate.
Although crowding may be relieved in short term, Forward movement of Buccal teeth leaves incisor contacts & positions less than ideal.
Deep Bite.
Relocation of lower incisors.
It is not possible to fit 4 upper incisors around 3 lower incisors, either an increase in overjet or upper incisor crowding have to be accepted.

INDICATIONS

- When 1 incisor is completely excluded from the arch & there are satisfactory approximal contact between other incisors.
- Poor prognosis as in case of Trauma, Caries, bone loss.
- Severely malpositioned incisors.
- Lower canines are severely inclined distally & lower incisors are fanned.
- In Bolton's mandibular anterior excess > 4 mm.

CONTRAINDICATIONS

- Deep Bite cases with horizontal growth.
- All cases which require upper 1st premolar extraction while canines are in Class 1 relationship.
- Bimaxillary crowding cases with no tooth size discrepancy in incisor area.
- Cases having anterior descrepancy due to either small lower incisors or large upper incisors.

- CANINES

  - Ectopically erupted or unfavourably impacted.
  - Totally blocked buccally or lingually.
  - Deciduous canine extracted as part of Serial Extraction.

- FIRST PREMOLARS

  It is the tooth MOST COMMONLY EXTRACTED

as a part of Orthodontic Therapy, especially for the relief of crowding Because,

- It is positioned near the center of Arch & is therefore near the site of crowding, that is, space gained by their extraction can be utilized for correction of both, in anterior & posterior region.
- 1st premolar extraction is least likely to upset molar occlusion & is the best altenative to maintain vertical dimension.
- Contact betwwen Canine & 2nd Premolar is satisfactory.

- 1st premolar extraction leaves behind posterior segment that offers adequate anchorage for retention of 6 anterior teth.

INDICATIONS

- Teeth of choice for extraction to relieve moderate to severe anterior crowding.
- Correction of moderate to severe anterior proclination as in Class 2 Div 1 or Class 1 bimaxillary protusion.
- As a part of Serial Extraction.

- In high anchorage cases, 1st premolar takes precedance over 2nd Premolar as the teeth to extracted.

- SECOND PREMOLARS
  - To relieve mild crowding & proclination, where anchorage is less desirable.
  - Unfavourablly impacted.
  - In open bites, they are preferred over 1st premolars as deepening of bite is encouraged.
  - If grossly decayed or has a large filling with questionable prognosis, then they are

extracted instead of 1st premolars.

- When one wishes to maintain soft tissues, profile & esthetics.

- FIRST MOLAR
  - Minimal space requirement to correct mild crowding or proclination.
  - Grossly decayed or heavily filled.
  - In Open bites as their extraction enchorages deepening of bite.

It should be avoided because,

- Does not adequate space to relieve anterior crowding.
- Deepening of bite.
- Poor proximal contact between 2nd premolar & 2nd molar.
- Mastication is affected.

- SECOND MOLAR

Mandibular Second Molar

- To relieve impaction of 2nd premolar.
- To relieve impaction of mandibular 3rd molar.
- To relieve lower incisor crowding.
- To prevent lower incisor crowding.
- To correct mild to moderate arch length deficiencies existing with good facial profiles
- Severely carious, ectopically erupted or severely rotated 2nd molar.

Maxillary Second Molar

- In mildly crowding cases, where less than 3-4 mm is required for the labial segments, good results can be obtained after retraction on buccal segments.

- THIRD MOLAR
  - Not extracted for orthodontic purpose. May be extracted for other reasons such as caries, malformed or impacted tooth.

SERIAL EXTRACTIONS

A procedure that includes the planned extraction of certain deciduous teeth & later specific permanent teeth in an orderly sequence & pre-determined pattern to guide the erupting permanent teeth into a more favourable position.

INDICATIONS

- Class 1 malocclusion showing harmony between skeletal & muscular system.
- Arch length deficiency as compared to the tooth material is the most important indication for serial extraction. Arch length deficiency is indicated by the presence of the following features :
    1. absence of physiologic spacing.
    2. Unilateral or bilateral premature loss of deciduous canines.

3. Malpositioned or impacted lateral incisors that erupt palatally out of the arch.
4. Markedly irregular or crowded upper and lower anteriors.
5. Localized gingival recession in the lower anterior region is a characteristic feature of arch length deficiency.
6. Ectopic eruption of teeth.
7. Mesial migration of buccal segment.
8. Abnormal eruption pattern & sequence.
9. Lower anterior flaring.
10. Ankylosis of one or more teeth.

- Where growth is not enough to over come the descrepancy between tooth material and basal bone.
- Patients with Straight profile & pleasing appearance.

CONTRA INDICATIONS

- Class 2 & 3 malocclusion with skeletal abnormalities.
- Spaced dentition.
- Anadontia / oligodontia.
- Open bite & deep bite.
- Midline diastema.
- Class 1 malocclusion with minimal space deficiency.
- Unerupted malformed teeth e.g. dilaceration.
- Extensive caries or heavily filled teeth.

3 Popular methods :

1. DEWEL'S METHOD :

STEP 1 - deciduous canines are extracted to create space for the alignment of incisors.
- At the age of 8-9 years.

STEP 2 - deciduous 1st molars are extracted so that erution of first premolars are accelerated.

STEP 3 – extraction of erupting 1st premolars to permit the permanent canines to erupt in their places.

2. TWEED'S METHOD

STEP 1 - extraction of deciduous 1st molars
- at the age of 8 years.

STEP 2 - extraction of 1st premolars.

STEP 3 – extraction of deciduous canines.

3. NANCE'S METHOD

Same as Tweed's method.

WILKINSON EXTRACTION

- Wilkinson has advocated extraction of all four 1st Permanent molars between the age of 8 ½ years to 9 ½ years.
- The basis for such extraction is that the 1st molrs are highly susceptible to caries.
- The other BENEFITS are :
  - this extraction provides additional space for eruption of 3rd molars.thus impaction of 3rd molars can be avoided.

- In general, crowding of arch is minimized. Thus the other teeth have a low risk of caries.

DRAWBACKS

- The extraction of 1st molar offers limited space to relieve crowding.
- The 2nd bicuspids & 2nd molars rotate & may tip into extraction spaces.
- The removal of 1st molars deprives the Orthodontist of adequate anchorage for any orthodontic appliance.

BALANCING EXTRACTIONS

- Removal of teeth from both sides of dental arch.
- Removal of tooth from one side of dental arch results in tendency for rest of teeth to move towards the extraction space.

midline shifts towards the side of extraction space

to avoid this, extraction from opposite side of arch is done.

COMPENSATING EXTRACTIONS

- Removal of tooth from the opposite jaws.
- Eg – Class 1 relation

PHASED EXTRACTIONS

- It may be possible to effect a change in molar occlusion by extracting in one arch only, or a few months earlier than in the other.

- This effect is particularly marked after premature loss of deciduous teeth & should be borne in mind when considering enforced extraction of these teeth.

ENFORCED EXTRACTION

- These extractions are carried out because they are necessary as in case of
  - grossly decayed teeth.
  - poor periodontal status.
  - fractured tooth.
  - impacted tooth.