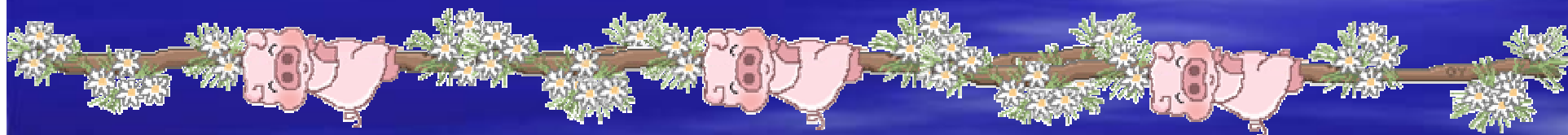




Management of the poor first permanent molar



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** โรงพยาบาลปากท่อ จ.ราชบุรี

Problems of First Permanent Molars

- The first group of permanent teeth erupt in the oral cavity.

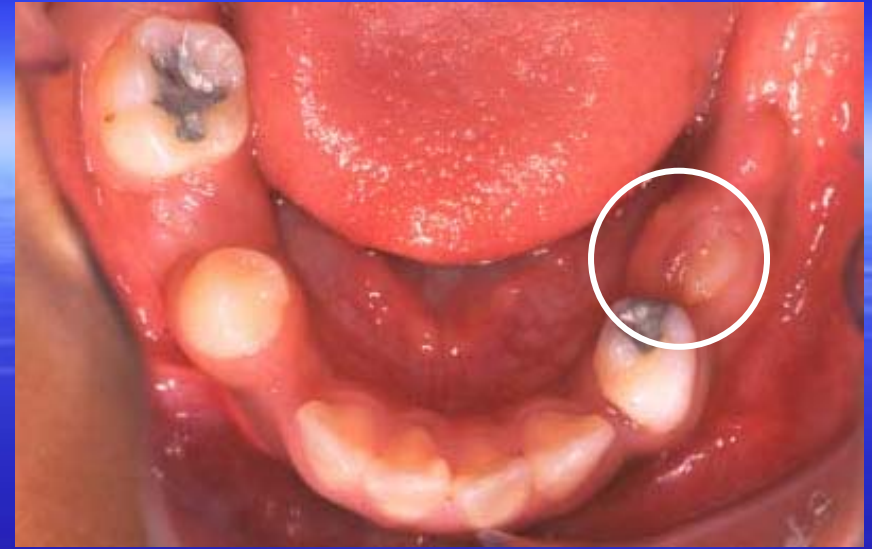


- Deep groove and pit

Problems of First Permanent Molars



- **Abnormal Enamel Structure**
- **Difficult to clean**
- **Misunderstand**
- **Mastication**
- **Development of
functionally occlusion**



Extracted



Premature loss



**The effect of premature loss
of the first permanent molar**

THE *EFFECT* OF *PREMATURE LOSS*
OF
THE *FIRST PERMANENT MOLAR*

THE EFFECT OF PREMATURE LOSS
OF
THE FIRST PERMANENT MOLAR

- **Diminished local function**
- **Drifting of teeth**
- **Mid line deviation**
- **Continued eruption of opposing teeth**

THE EFFECT OF PREMATURE LOSS

OF

THE FIRST PERMANENT MOLAR

- **Diminished local function**

Drifting of teeth

Mid line deviation

Continued eruption of opposing teeth

Diminished local function

- **Result in a reduction in chewing efficiency as great as 50%.**
- **Shifting of the load of mastication to the unaffected side .**
- **An unhygienic condition of the unused side.**





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THE *EFFECT* OF *PREMATURE LOSS*
OF
THE *FIRST PERMANENT MOLAR*

Diminished local function

- **Drifting of teeth**

Mid line deviation

Continued eruption of opposing teeth

Drifting of teeth

- **The second molar drift mesially.**
- **The premolars and all the anterior teeth to the space may show evidence of movement.**



- **The second molar drift mesially.**



- **The premolars and all the anterior teeth to the space may show evidence of movement.**

**THE EFFECT OF PREMATURE LOSS
OF
THE FIRST PERMANENT MOLAR**

Diminished local function

Drifting of teeth

- **Mid line deviation**

Continued eruption of opposing teeth

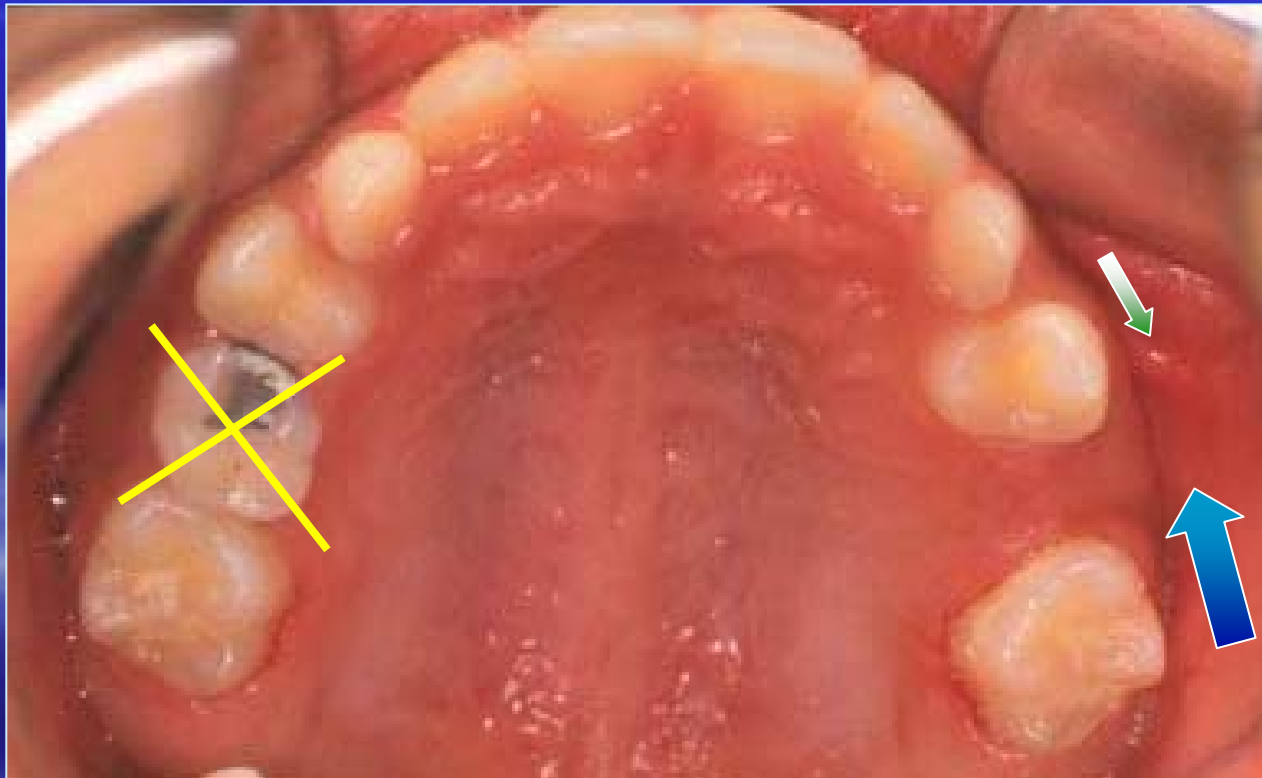
Mid line deviation



**BALANCING
EXTRACTION**



**MID LINE
DEVIATION**

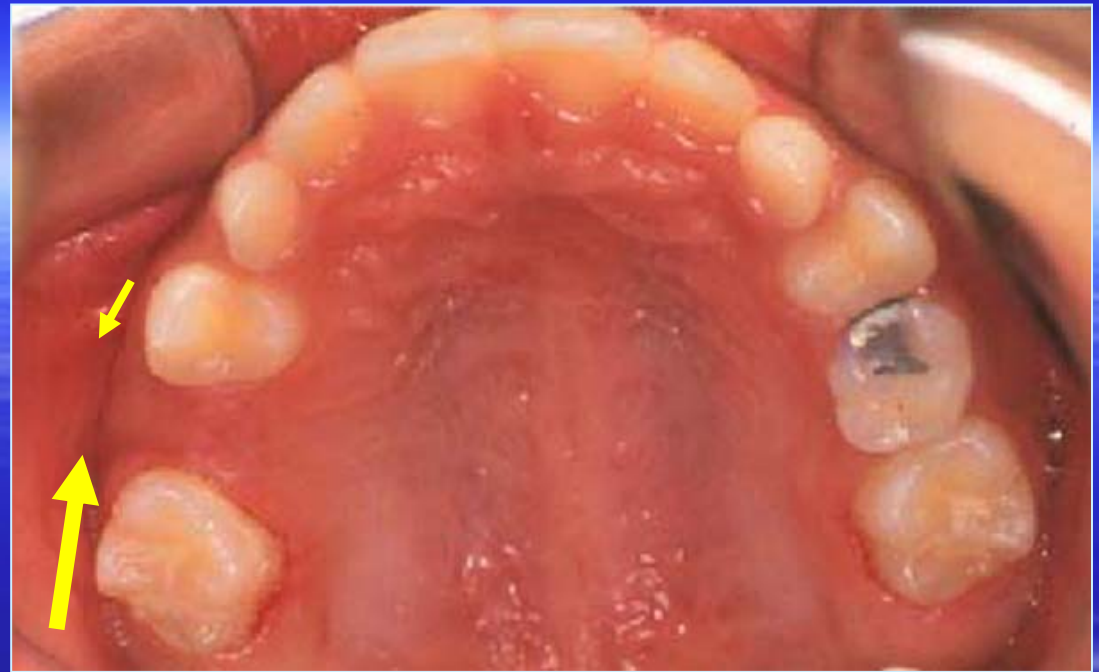


Balancing extractions are not required where

- The dentition is **space**.
- A **previous extraction** in the same arch was balanced.

A previous extraction





Balance extraction

Prevent midline deviation

THE EFFECT OF PREMATURE LOSS

OF

THE FIRST PERMANENT MOLAR

Diminished local function

Drifting of teeth

Mid line deviation

- **Continued eruption of opposing teeth**

Continued eruption of opposing teeth

- The occlusal tables of **the lower molar teeth are wider than** the occlusal tables of the upper molar teeth.

Continued eruption of opposing teeth



Preventing the mesial drift of the second molar

Compensation extraction

VS

Continued eruption of opposing teeth





Orthodontic Considerations before extraction the first permanent molar

- Long term prognosis.
- Congenital absence of teeth
- Hypoplasia of premolars
- Type of malocclusion and degree of crowding
- Stage of dental development

Assessment of long term prognosis

- **Large amalgam restorations already present**
- **Abnormal enamel structure**
- **Endontically tooth**
- **Unfavourable attitudes of the child and parent regarding dental care**
- **Poor oral hygiene**
- **Poor patient cooperation**

Orthodontic Considerations

Long term prognosis	Success rate
Pulpotomy(Formocresol)	71-97%
RCT	90%
Apexification	80%
Preformed crown	95%
Final post and crown	95%

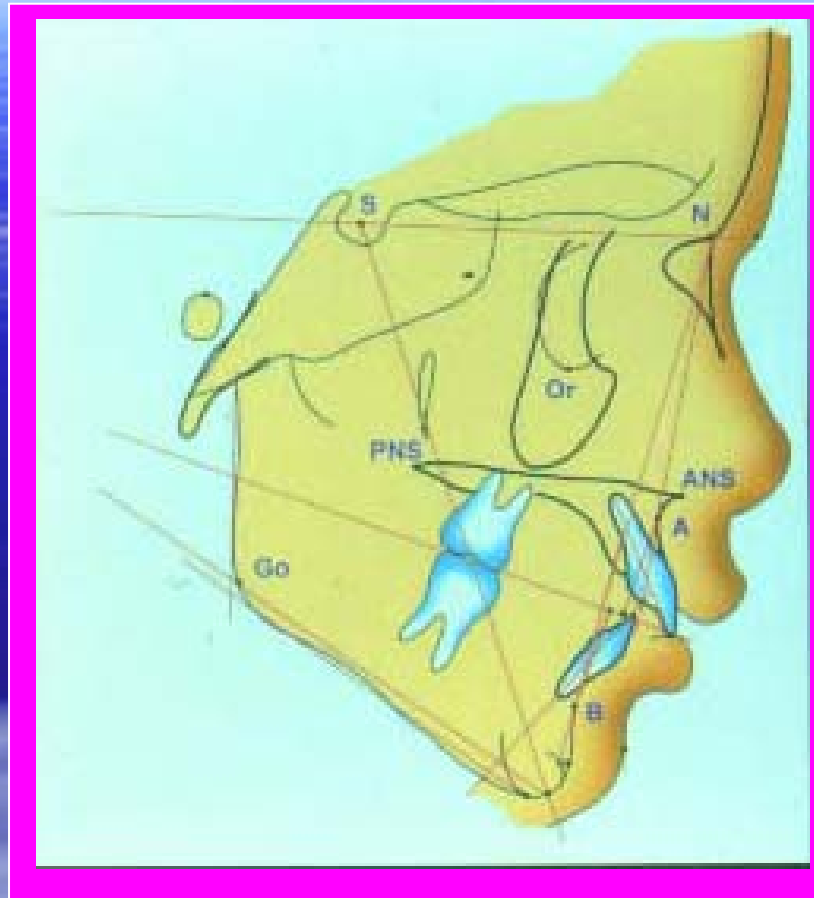
Orthodontic Considerations

Type of malocclusion

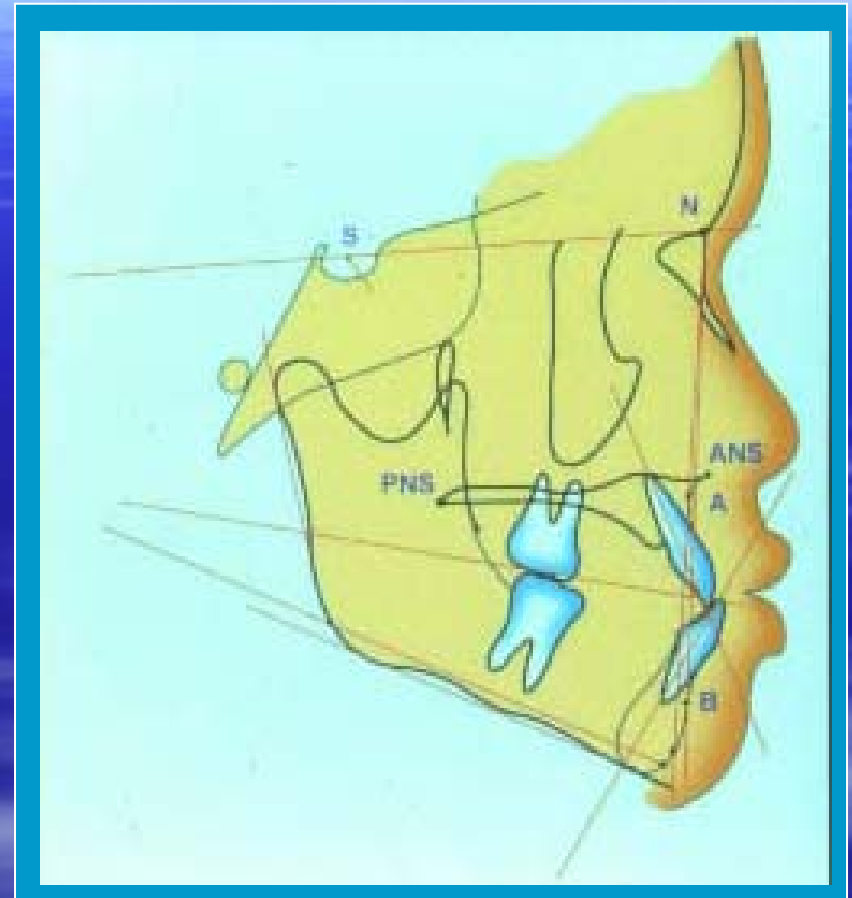
Class II and III Malocclusions

Consult orthodontists

Orthodontic Considerations



Class II



Class III

Orthodontic Considerations

Degree of crowding

Consult orthodontists

Orthodontic Considerations

Lengthy appliance therapy

- **Treatment lasts longer than with extraction of first premolars**
- **Requires carefully management to avoid tipping the second molar**
- **Reinforcement of the anchorage**

Lengthy appliance therapy



Orthodontic Considerations

Dental age of the patient

- **The early mixed dentition.**
- **The mid mixed dentition.**
- **The late mixed dentition.**
- **The early permanent dentition.**

Dental age of the patient

The early mixed dentition.

- **The ages of 7-8.5 years**



Dental age of the patient

The early mixed dentition.

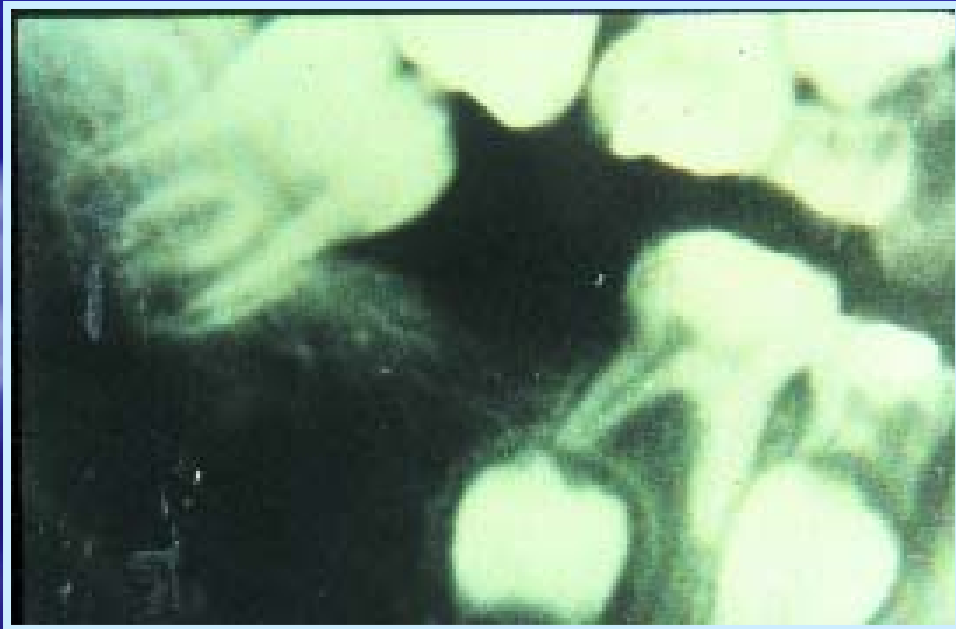
- **The presence of the second premolars relatively apical to the fully - formed apices of the primary second molars.**



Dental age of the patient

The early mixed dentition.

- **Upper arch- extract**
- **Lower arch - delay**



**The lower second
premolar may
distally displace
to the extracted
site**

Dental age of the patient

The mid -mixed dentition

- **The aged of 8.5-10 years.**



Dental age of the patient

The Mandible

- **Ideal time to extract mandibular first molar is 8.5-10 years**
- **Earlier extraction : mandibular second premolar have a tendency to drift distally**
- **Delayed extraction : the second molars will show less bodily movement and more tilting**

Dental age of the patient

Ideal conditions for extraction

- **8.5-9.5 years, mild crowding or uncrowded arches.**



Dental age of the patient

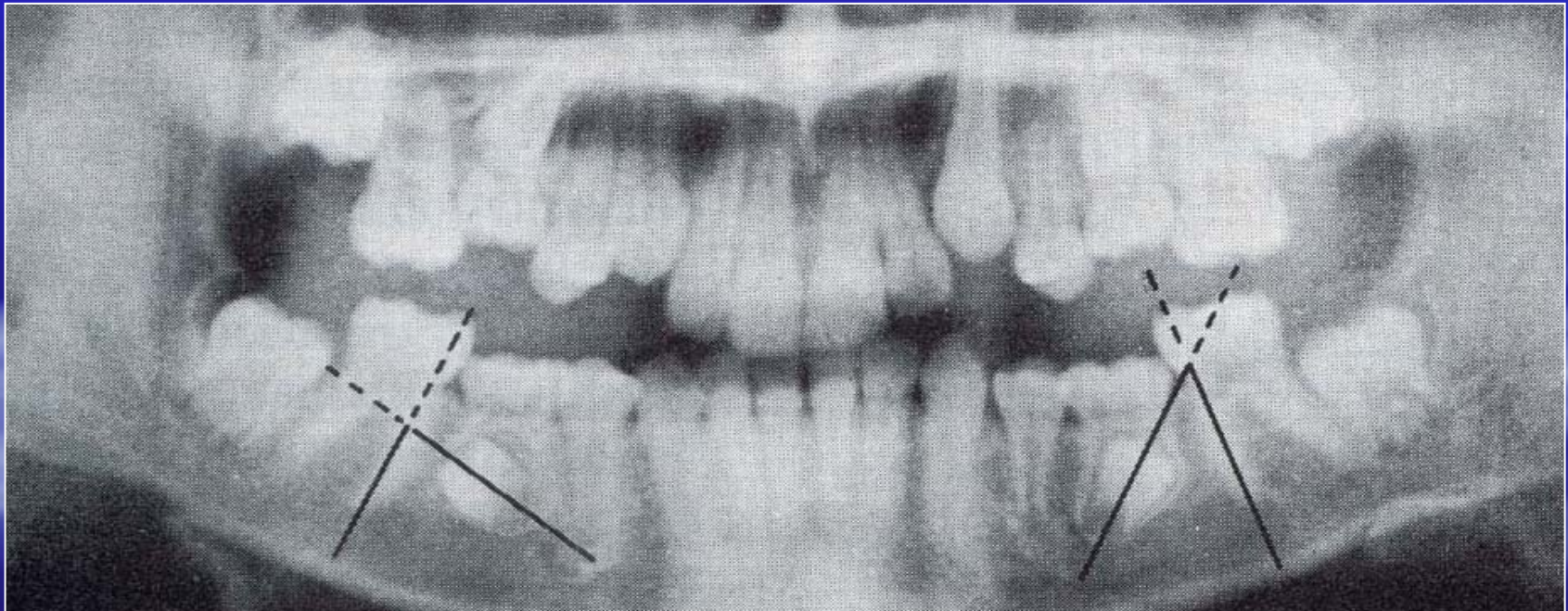
Ideal conditions for extraction

- The unerupted lower second premolar should **not** be distally incline.



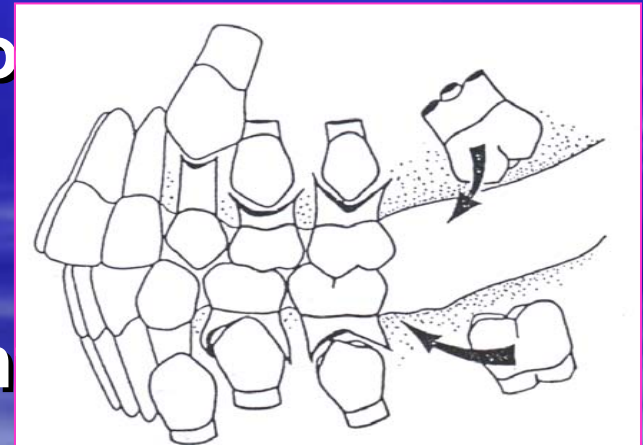
Dental age of the patient

Ideal conditions for extraction



Ideal conditions for extraction

- **Unerupted canines, premolars and second molars are visible on a radiograph and show no evidence of abnormality**
- **There is mild buccal segment crowding**



Dental age of the patient

Ideal conditions for extraction

- Having **all** the permanent teeth.
- The first permanent tooth should be dubious.
- **Angle class I.**
- The overbite should be normal or reduced.



Dental age of the patient

Ideal conditions for extraction

- **A third and half of the second premolar root has developed , these teeth are **sit** between the roots of the second primary molars.**
- **Root development of **the second permanent molar** has **not exceeded one -third.****

Ideal conditions for extraction

The root formation of the mandibular second molar



Dental age of the patient

The Maxilla

- **Unerupted second molars tend to be distally inclined, especially in a crowded arch**
- **They readily drift mesially by moving into more upright positions**
- **Extraction of maxillary molars can often be delayed until about 10-11.5 years of age without affecting the final occlusion**

**Permanent
first molar(s)
to be
extracted**

**Class I adequate
space for
canines/premolars**

**Class I inadequate space
for canines/premolars**

Mandibular
One

Compensate
Do not balance

Compensate
Possibly balance

Both

Compensate

Compensate

Maxillary
One

Do not compensate
or balance

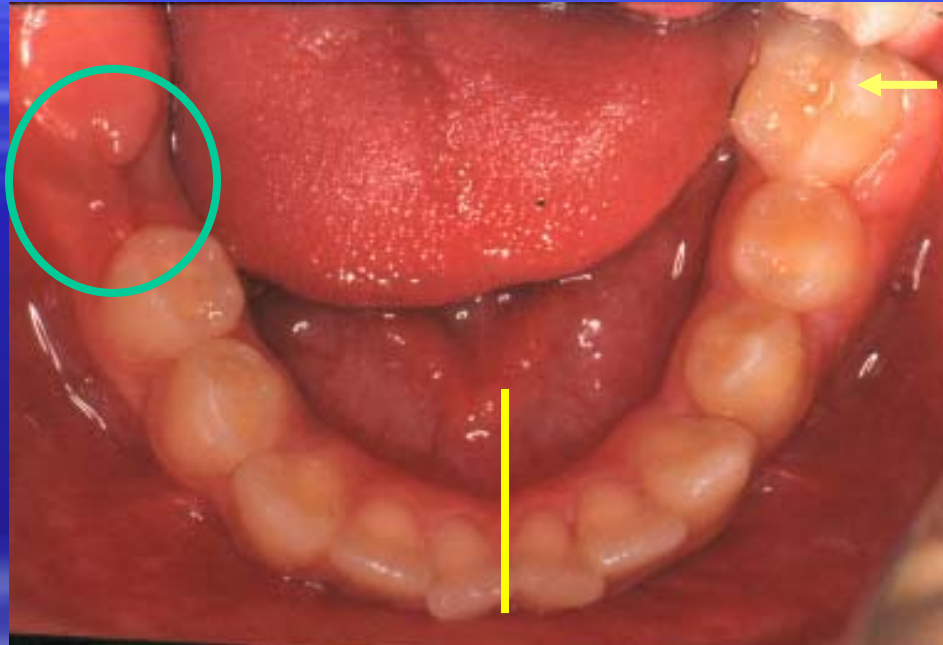
Do not compensate
Possibly balance

Both

Do not compensate

Do not compensate

Loss one of first permanent molar and the others in good prognosis



good condition

~~**Balance extraction**~~

A mandible first permanent molar with a poor prognosis and the opposing first permanent molar with good prognosis

- ***Remove the opposing maxillary first molar***

or

- ***Space maintainer***



Compensation extraction



Space maintainer





**If the space
maintained is
used
the other
maxillary molar
should be
occluded**

A *maxillary* 1st permanent molar with poor prognosis and the opposing first permanent molar with a good prognosis

- ***Only this first molar need to be removed.***

Case 1









Before treatment



After treatment

Case II



Unilateral opposing first permanent molars with a poor prognosis

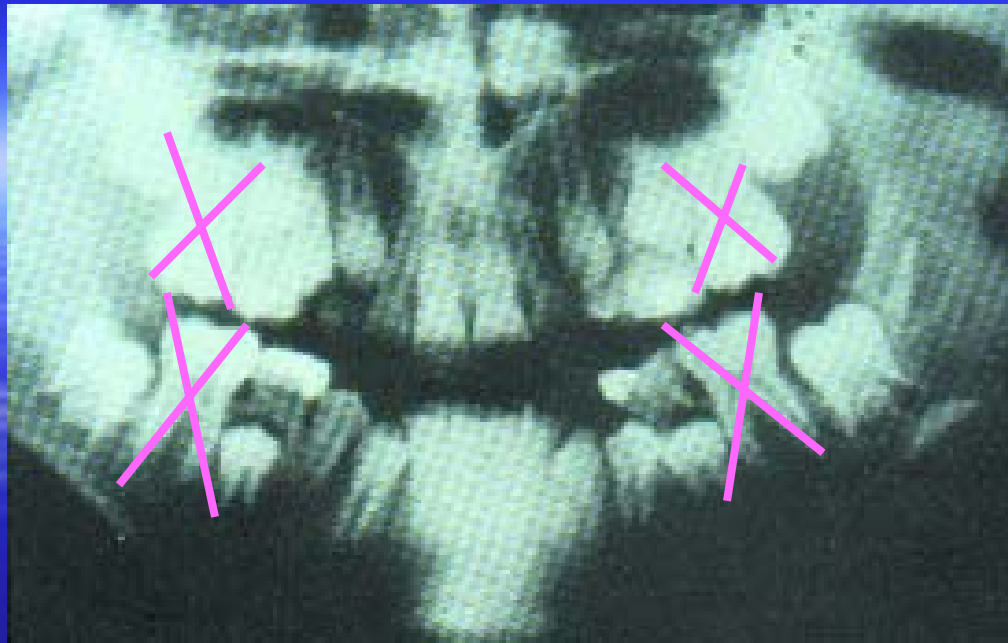
- **Balance the extractions** by removing the second deciduous molars on the other side.



Three first permanent molars with a poor prognosis



Four first molar need to be removed



Early Extraction of Four first permanent molars

Report of case

Martin Rayman

Journal of Dentistry for Children 1979 ;May-June:234-237

8 year girl; Angle Class I molar relationship, Canine Class I

The lower left first and second primary molar

Lower right and left first permanent molar



After extraction of the mandibular primary teeth and first permanent molars



3.2 years after extraction of the first permanent molars





4.5 years after extraction first permanent molar



Dental age of the patient

The late mixed dentition

- **The dental ages of 10-11.5 years.**
- **The primary second molars of both archs remain.**
- **Before the eruption of the second permanent molars.**

Dental age of the patient

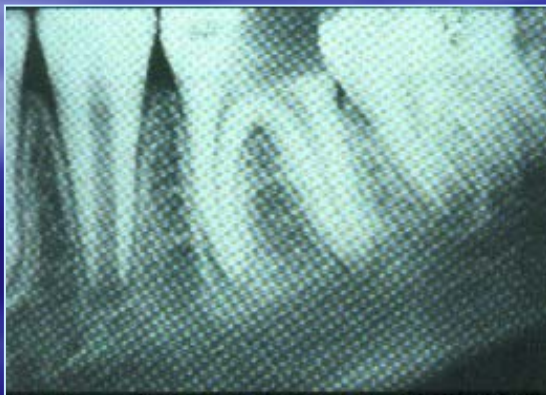
The late mixed dentition

- **The upper maxillary molar = extracted**
- **The lower mandibular molar = no extracted**

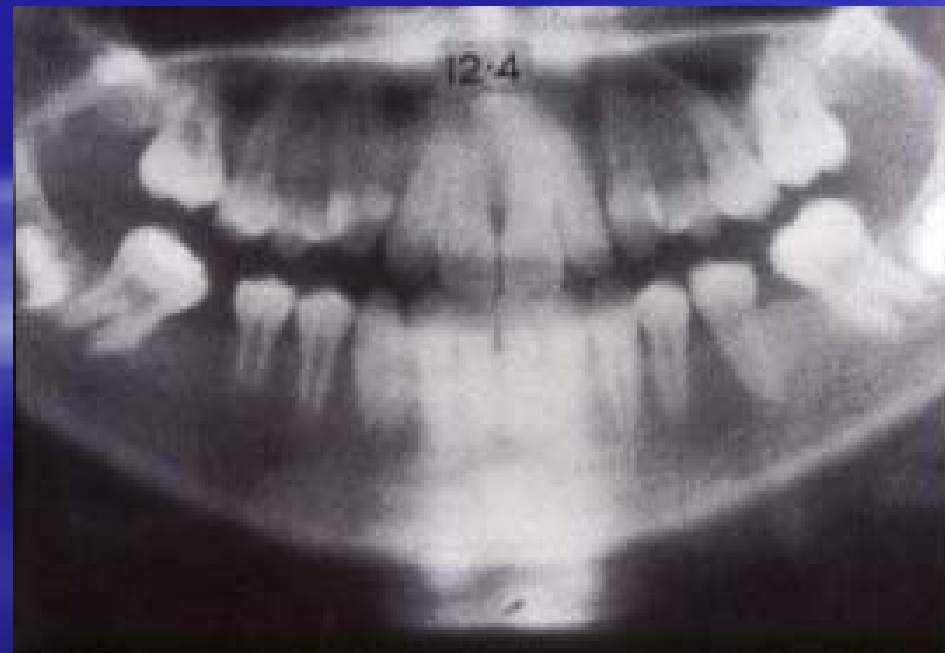
**The long axis of the
maxillary molar is
distally inclined**



**The long axis of the lower mandibular molar is
mesial inclined**







The early permanent dentition

- **The dental age is 11.5-12.5 years.**
- **The recent eruption of the second molars and second premolars.**

Dental age of the patient

The early permanent dentition

Upper Arch

and

Lower Arch

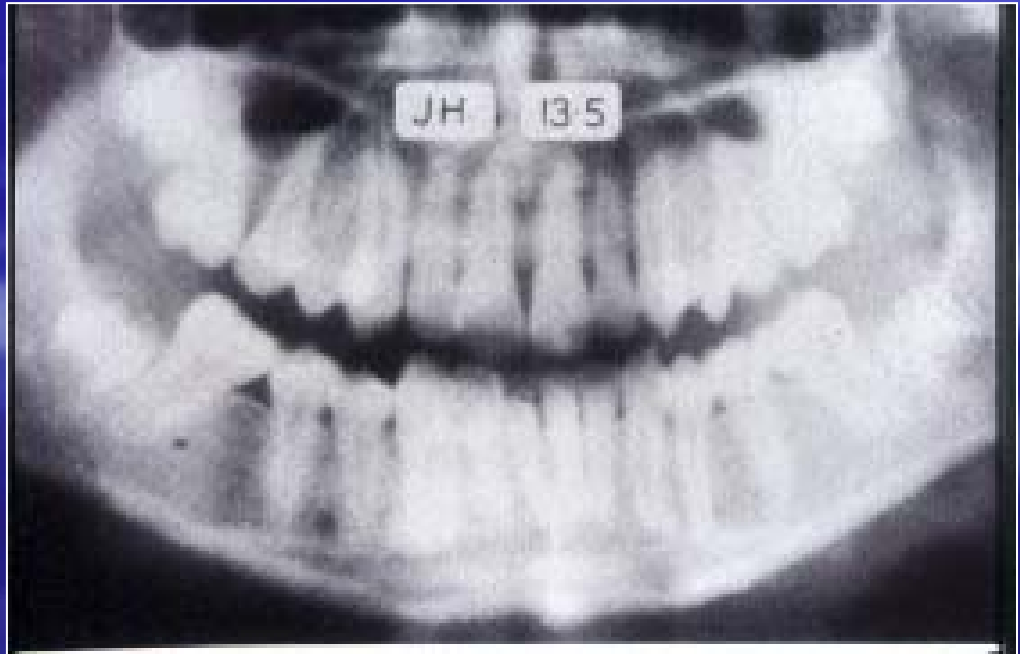
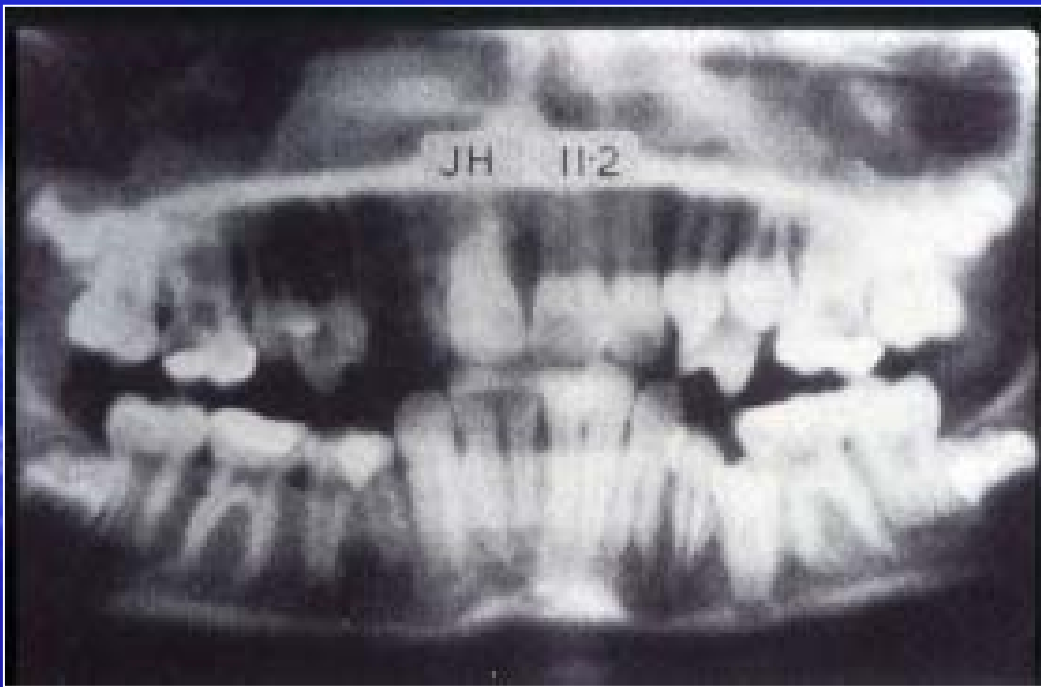
No extract



Dental age of the patient

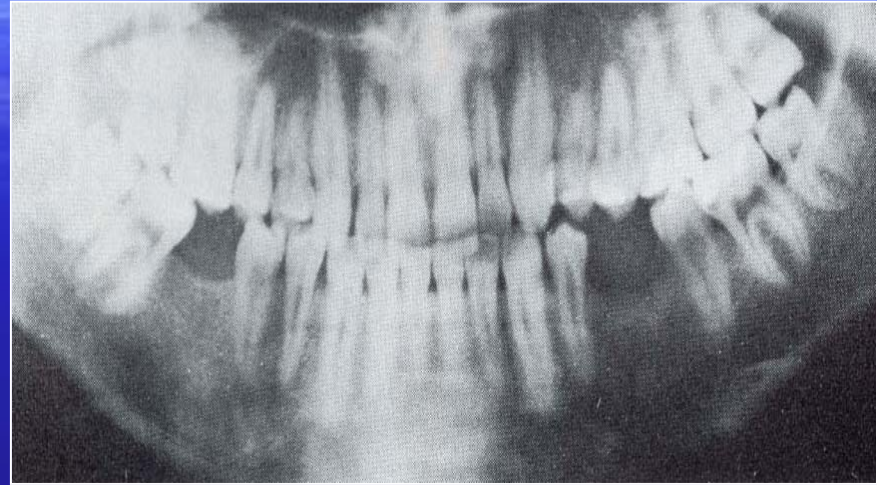
Lower Arch

- **No extract except**
- The unerupted lower second premolar should **be distally incline.**
- **Crowding** has become **concentrated in the premolar region** following the premature loss of the primary molars.



Conclusion

First mandibular permanent molar



**Heavily decayed
first permanent molar**

Unrestorable

Extract

**Restorable
Prognosis-questionable**

**Restorable
Prognosis-good**

Restore

**Early mixed
7-8.5 years**

**Normally related
uncrowded**

**Max; Ext.
Mand; No ext.**

**Mid mixed
8.5-10 years**

**Normally related
uncrowded**

Extract *

**Late mixed
10-11.5 years**

**Normally related
uncrowded**

**Max; Ext.
Mand; No ext.**

**Early permanent
10-11.5 years**

**Normally related
uncrowded**

No extract

Absent third molars

In patients with **crowding**, the absence of third molars should **not affect** the decision

Contraindication for extraction

- **Spacing**
- **Missing of the second premolar.**

REFERENCES

- **Richard J, Elderton. (1987). Positive Dental Prevention, The prevention in childhood of dental disease in adult life ,pp 96-112.**
- **Penchas J, Peretz B, Berker A. The dilemma of treating severely decayed first permanent molars in children: To restore or to extract. *J Dent Child* 1994; 199-205.**
- **Shaw WC. (1993).Orthodontic and Occlusal Management, pp118-121.Wright, London.**

REFERENCES

- Crab JJ, Rock WP. Treatment planning in relation to the first permanent molar. *Br Dent J* 1971;131:369-401.
- Thailander B, Skagiues S. Orthodontic sequelae of extraction of first permanent molars.: A longitudinal study. *Trans Eur Orthod* 1970;429-42.
- Martin Rayman. Early Extraction of Four first permanent molars, report of case. *Journal of Dentistry for Children* 1979 ;234-237
- Gill D.S., bee R.T. and Tredwin C.J. Treatment planning for the loss of first permanent molars. *Dental update*, 2001;304-308

ขอขอบคุณ

- คุณทัศนีย์ ไสกระจ่าง
- ทพ.นพวัฒน์ ประเสริฐชัย
- คุณมาลัย บัววัฒนา
- ภาควิชาทันตกรรมสำหรับเด็ก คณะทันตแพทยศาสตร์

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