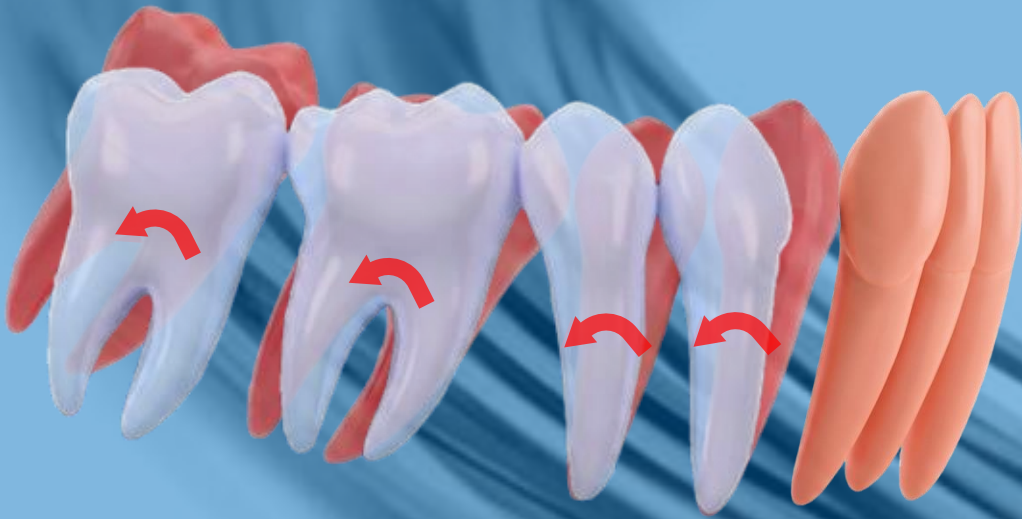


“en bloc” movement with GUMMETAL for Short-Term, Non-Extraction Treatment



“en bloc” movement



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Division of Periodontology, SHOWA Medical University

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Initial Records



Severe crowding



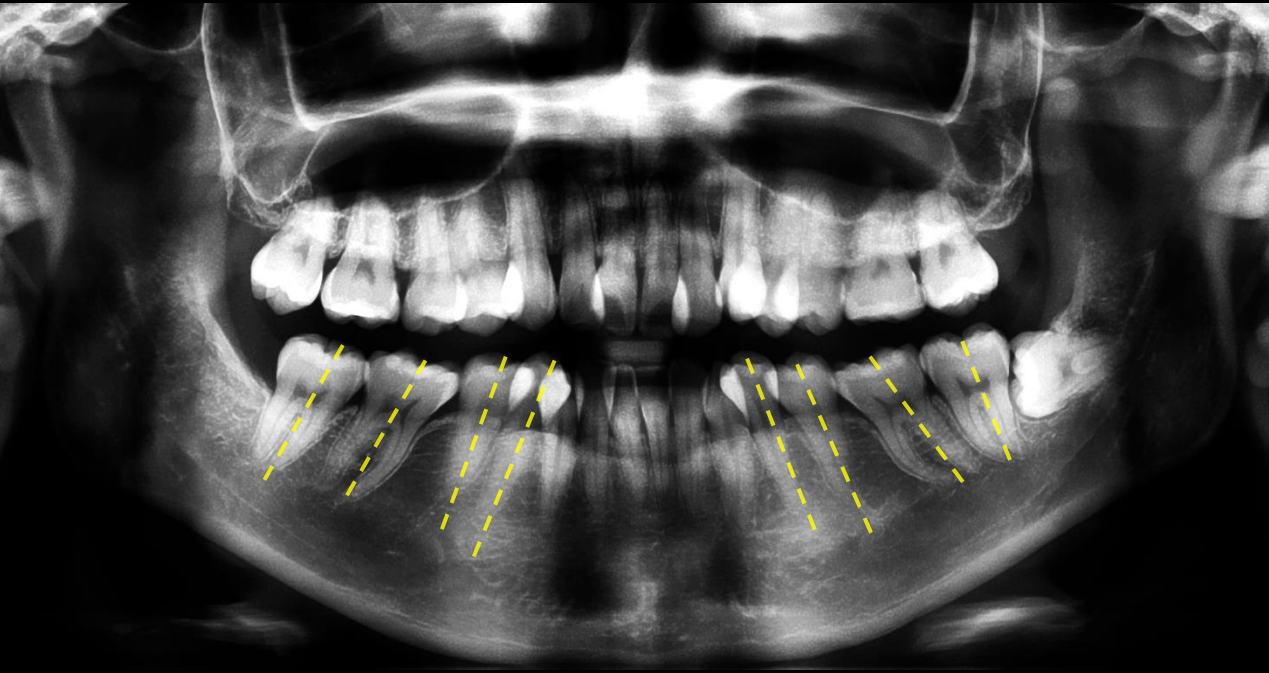
Angle Class III



Constricted arches

Non-extraction possible?

Initial Radiographic Findings



Mesial tipping of the molars



SKELETAL (Horizontal)

SNA	81.08	3.7	83.5
SNB	79.17	3.8	76.7
ANB	2.46	1.8	6.8

SKELETAL (Vertical)

Mandibular plane angle	21.9	5.0	32.9
Y-axis	59	6.0	64.7
Gonial angle	124.31	5.4	112.2

DENTAL

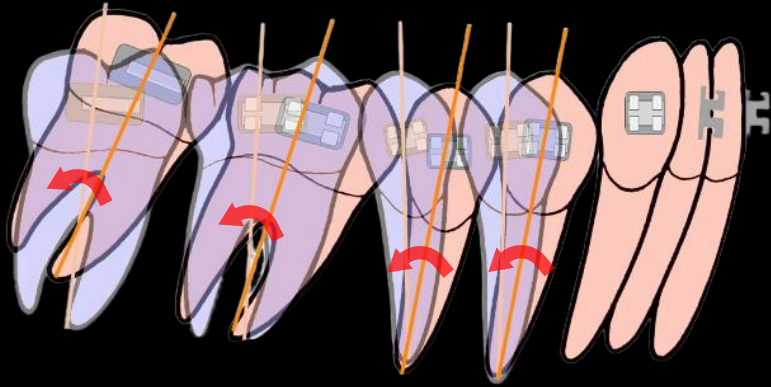
U1 to A-Pog(deg)	28	4.0	42.3
U1 to A-Pog(mm)	3.5	2.3	15.0
L1 to A-Pog(deg)	22	4.0	32.2
L1 to A-Pog(mm)	1	2.0	7.9
Cant of occlusal plane	9.3	3.8	11.4
Overbite	2	2.0	1.8
Overjet	2	2.0	7.0

Skeletal Class I
Dolichofacial Type

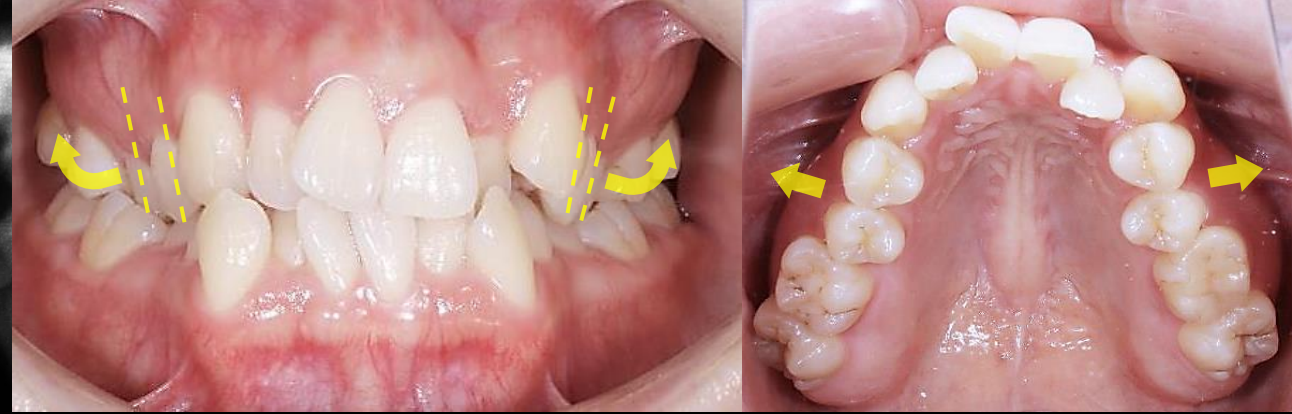
Space-gaining strategy for non-extraction treatment



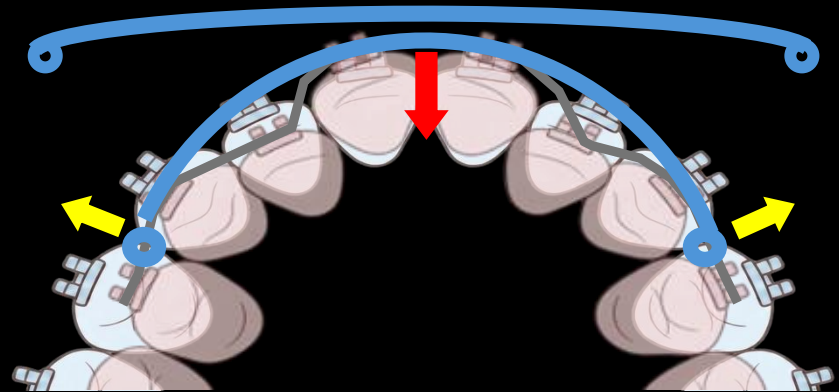
Molar uprighting (15°)
→ about 10 mm space gain



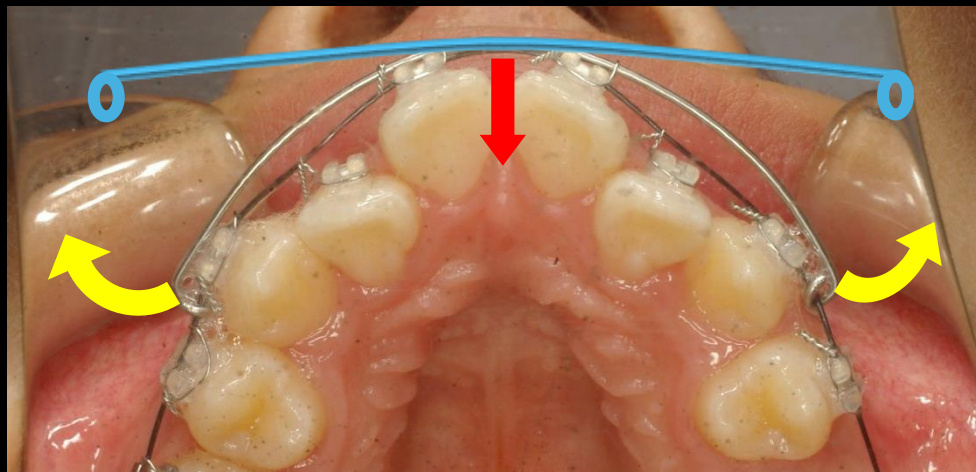
→ Non-extraction treatment



Arch expansion
→ $\sim 2/3$ expansion as space gain



Arch expansion with the Mulligan overlay arch



Start



1 month



2 months

Posterior flattening during leveling with NiTi wires

Start



NiTi .014

1.5 months



NiTi .016

3 months



NiTi .018

For early insertion of .018 × .022 GUMMETAL wire

Molar uprighting via “en bloc” movement with GUMMETAL

3 months



Uprighting with
tip-back bends

4 months



Improved
occlusal settling

5 months



Space gained
for alignment

Finishing and settling

7 months



9 months



11 months



Final Records

Active treatment : 11 months



Treatment Outcomes



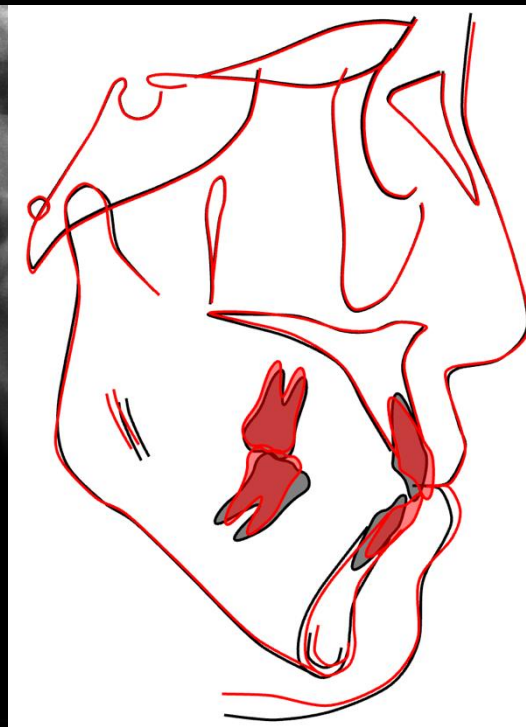
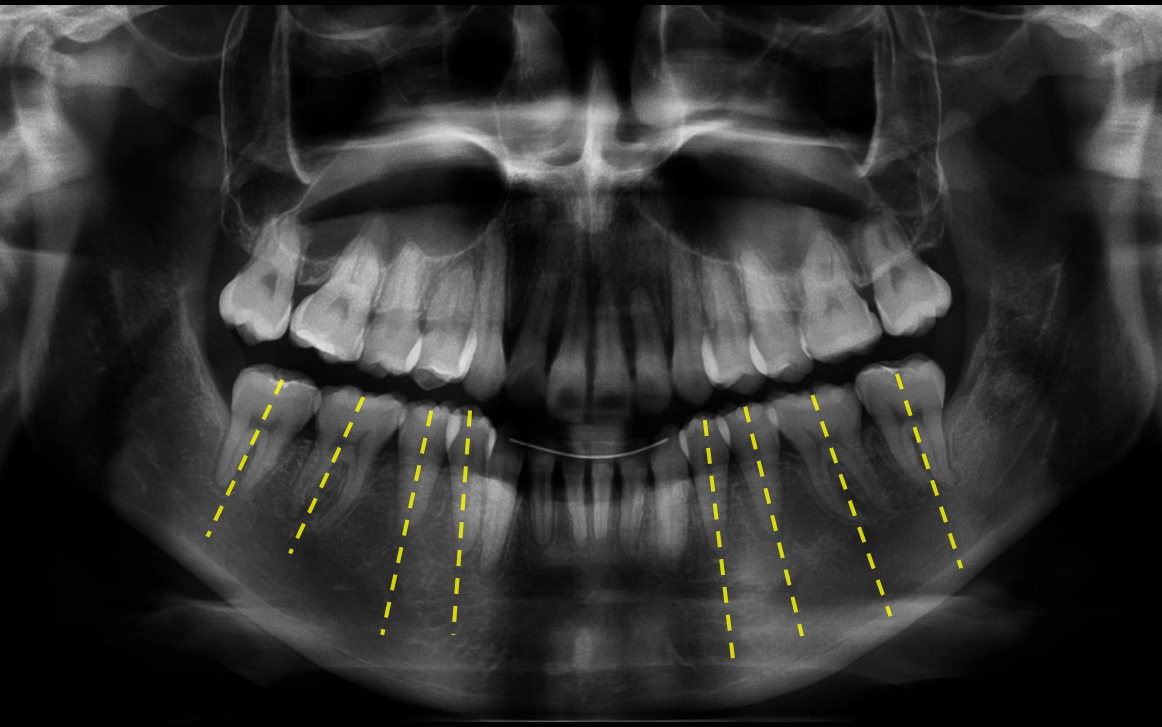
Before



After (11 months)



1-Year follow-up



- Shorter treatment
- Non-extraction
- Functional finish