ANATOMICAL DOMAIN | LESSON 15 OF 20 | ORTHODONTIST (GROWTH AND OCCLUSION SEAT)

Why the Repaired Midface Grows Backward

Why does a repaired cleft maxilla grow poorly forward, and what does that do to the shape of Mateo's face and the way his teeth meet?

CARRY FORWARD

Alveolar graft timing follows dental development, usually before the adjacent permanent canine erupts, so living bone can support tooth movement.

10-YEAR TAKEAWAY

Cleft-related midface undergrowth can reflect both underlying anatomy and treatment history, so scar alone should not be treated as a proven single cause.

1. Observe the analogy before naming the biology

Illustration: A young tree's shape reflects both its starting form and the ties placed around it

1. Which feature existed before the ties?

2. How could the ties change later direction?

3. What comparison would separate the two influences?

2. Turn observations into rules

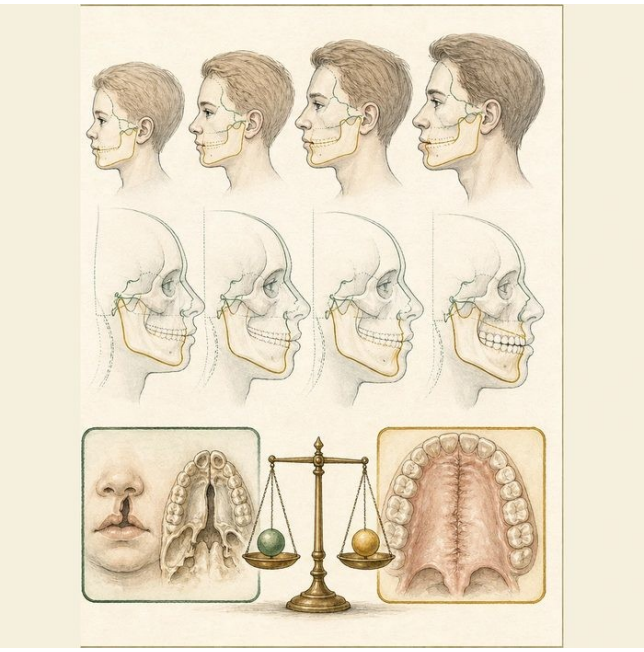
1. Rule 1: Separate baseline anatomy from treatment exposure. Explain it in your own words.

2. Rule 2: Measure growth over time. Explain it in your own words.

3. Rule 3: Use cautious language when evidence cannot isolate one cause. Explain it in your own words.

Where the analogy stops: Facial growth involves sutures, bone remodeling, muscles, teeth, and treatment, not plant growth.

3. Map the rules onto the biomedical example



Biomedical teaching illustration: Interpret Mateo's developing Class III relationship

Analogy step	Biology step	How the relationship stays the same
Starting branch pattern	Intrinsic cleft-related growth pattern	_____
Support ties	Surgical scar and treatment history	_____
Serial photographs	Longitudinal cephalometric growth records	_____

4. Use the case evidence

ID	Finding supplied in the case	Why it matters
ANA15-E1	Mateo's serial records show the maxilla falling behind the mandible during growth.	The result is midface flattening and anterior crossbite.
ANA15-E2	Cleft anatomy and primary surgery both precede the later growth pattern.	More than one plausible contributor is present.
ANA15-E3	Systematic reviews find conflicting or limited evidence that one palate-repair technique determines facial growth.	Scar effects should be discussed without claiming one proven single pathway.

5. Make the clinical decision

You are presenting Mateo's growth conference. A teammate says the palate scar alone definitely caused every millimeter of maxillary retrusion.

A. Report the observed growth pattern and identify both intrinsic and treatment-related contributors.

B. Assign all growth change to scar without comparison evidence.

C. Deny that treatment could influence growth.

Decision. Choose the interpretation and cite longitudinal plus evidence-limit cards.

Claim ceiling: You may describe association and plausible contributors. You may not assign a single cause from this composite record.

Claim. State the choice you can defend.

Evidence. Use these labeled IDs: ANA15-E1 + ANA15-E2.

Reasoning. Explain why the evidence supports the claim and stays inside the claim ceiling.

6. Reduce the lesson to one lasting idea

Take-home. Cleft-related midface undergrowth can reflect both underlying anatomy and treatment history, so scar alone should not be treated as a proven single cause.

1. What bite pattern can maxillary retrusion create?

2. Why is scar alone an overclaim?

Glossary

Term	Plain-English definition
maxilla	The paired upper jaw bone that forms the front of the hard palate, holds the upper teeth, and shapes the middle of the face.
maxillary hypoplasia	Underdevelopment of the upper jaw, leaving the midface small or set back, a frequent late issue after cleft repair.
midface retrusion	A backward position of the middle of the face relative to the forehead and lower jaw, often following cleft palate repair.
Class III malocclusion	A bite where the lower teeth and jaw sit too far forward of the upper teeth, often seen when the midface is underdeveloped.
palatal scar	Scar tissue left on the roof of the mouth after cleft palate surgery, which can restrict upper-jaw growth over time.

Next lesson unlock

We found out why Mateo's midface grows backward and ends up flat, leaving an underbite as a teenager. We can name the problem, but we have not fixed it: the lip, palate, and gum graft are all done, yet his upper jaw still sits too far back. How do we correct the bite and midface later? We chase that next time.

The journal links on the lesson page are optional. Everything required for this guided-notes set is already supplied here and in the case file.