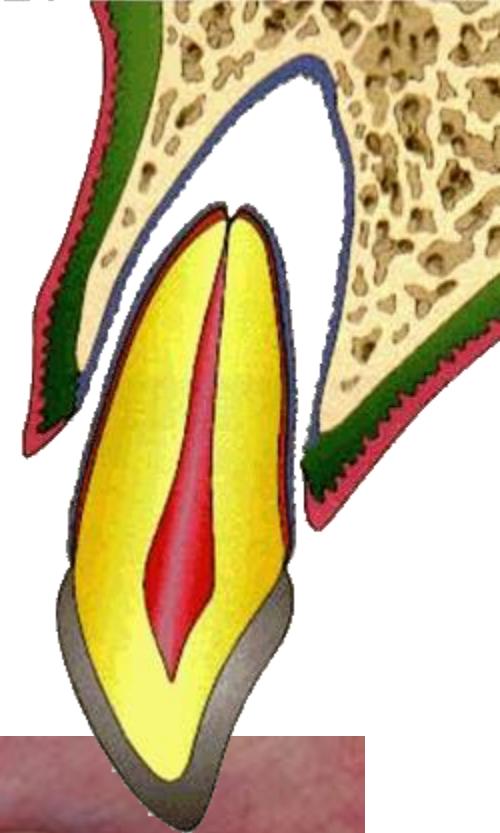


قَالُوا سِجَانُكَ لَوْلَمْ نَأْتِ
إِلَهٌ مَا عَلِمْتَنَا كَيْمَ
إِنَّكَ أَنْتَ

Avulsion

1. Concussion
2. Sub-Luxation
3. Extrusive Luxation
4. Lateral Luxation
5. Intrusion
6. Avulsion



Avulsion or Intrusion?

**Ask your X-
ray machine**



**Exposing a child to radiation is
indicated ONLY when there is a
question to be answered**

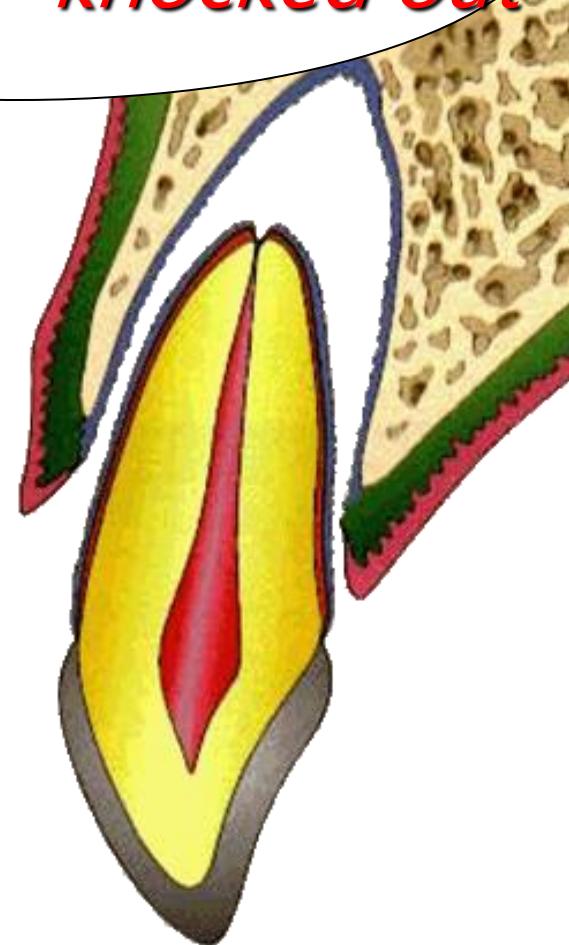


**Wake up.. Wake up Doc...
...My tooth is "*knocked out*"**

Avulsion (total separation)

1- **Periodontal ligament cells** away from blood supply.

2- **Pulp tissue cells** away from blood supply.





1. Don't touch periodontal ligament cells.
2. Try immediate replantation.
3. Prevent dehydration of ligament cells.
4. Keep in normal saline if replantation fails.
5. The use of water as transport medium
will cause hypotonic lysis of ligament cells.

*@%\$!+##?





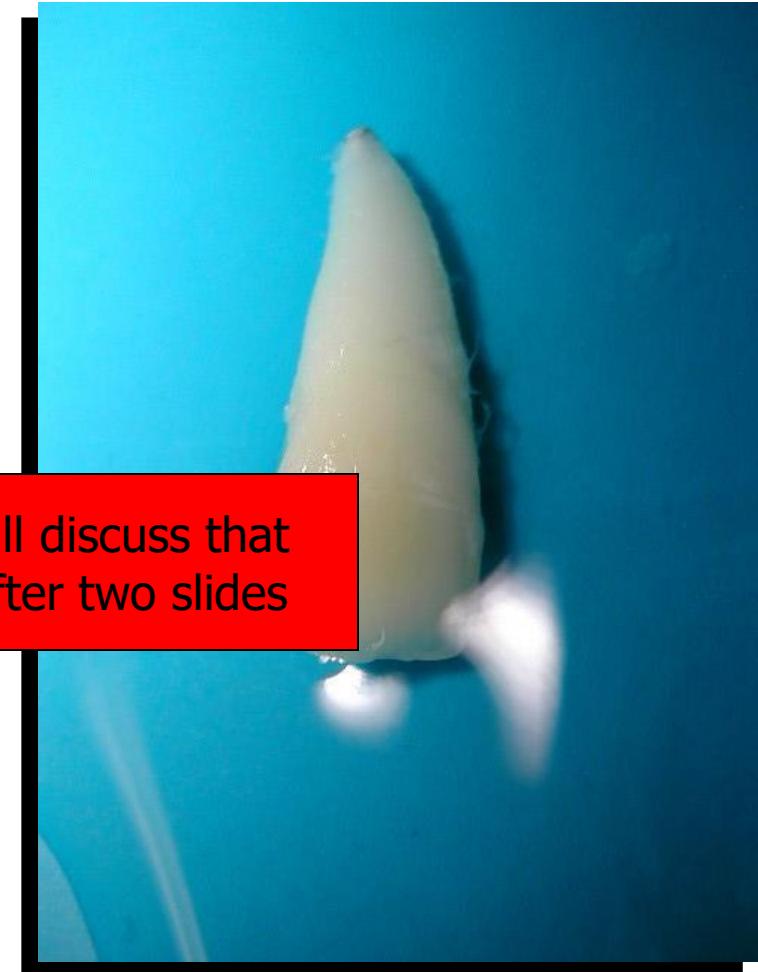
1. Don't touch **periodontal ligament cells**.
2. Try immediate **replantation**.
3. Prevent **dehydration of ligament cells**.
4. Keep in **normal saline** if **replantation fails**.
5. The use of water as **transport medium** will cause **hypotonic lysis of ligament cells**

1. Hold the tooth by the crown. Avoid touching the root.
2. If the tooth is clean, try to put it back.
3. If the tooth is dirty, don't wash it.
4. Put the tooth in milk, contact lenses solution or under the child's tongue.
5. Don't wrap it in cotton or tissue.
6. Visit dental facility ASAP.

You can think in
"Dentalese language"
but
**Please when you
speak to a patient in
emergency,
Use his/her language**

Immediate Replantation

- If the site is assumed clean, instruct parent to put it back.
- When in doubt, instruct parent to put it in special preservative, milk, under child's tongue or saline, and seek help ASAP.
- Water will kill PDL.



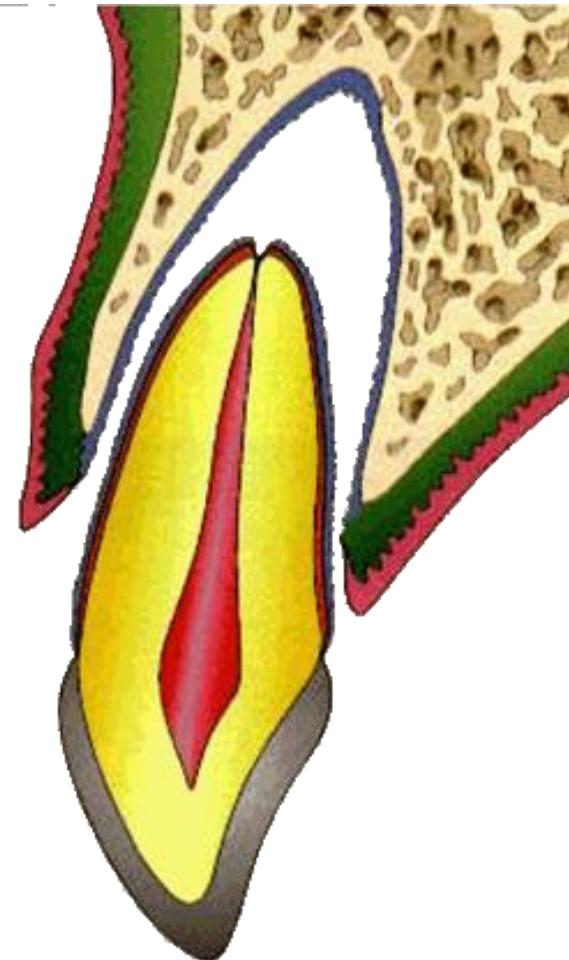
Will discuss that
after two slides

Avulsion (total separation)

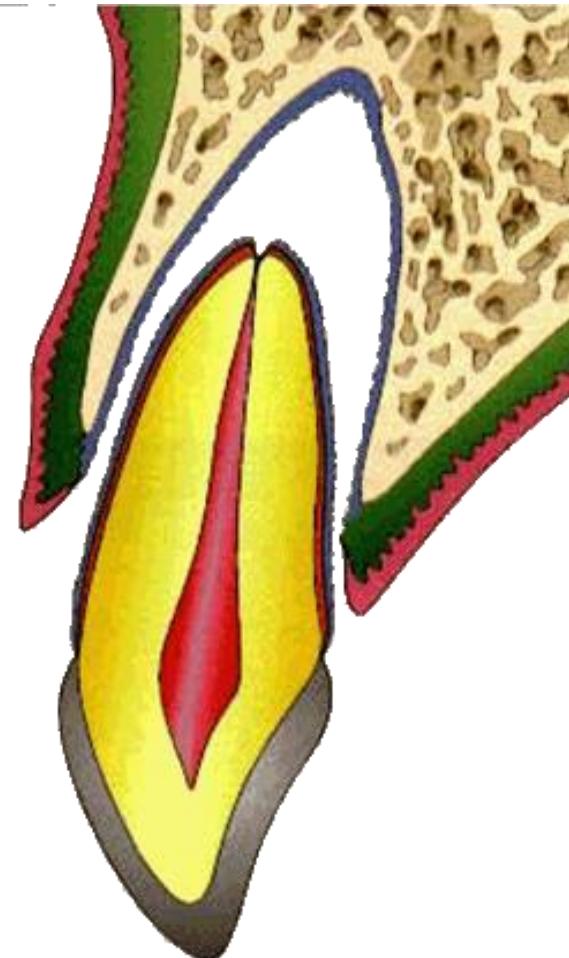
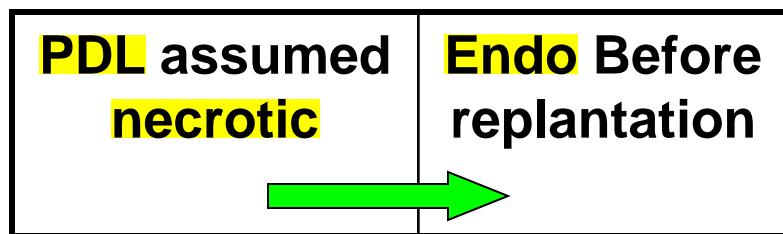
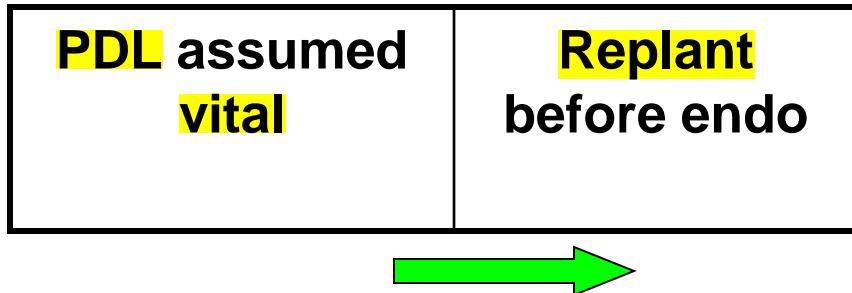
- Periodontal Ligament Death.
- Pulp Tissue Death.



**Which problem
has the priority?**



Time dependent answer.



PDL assumed vital when kept in

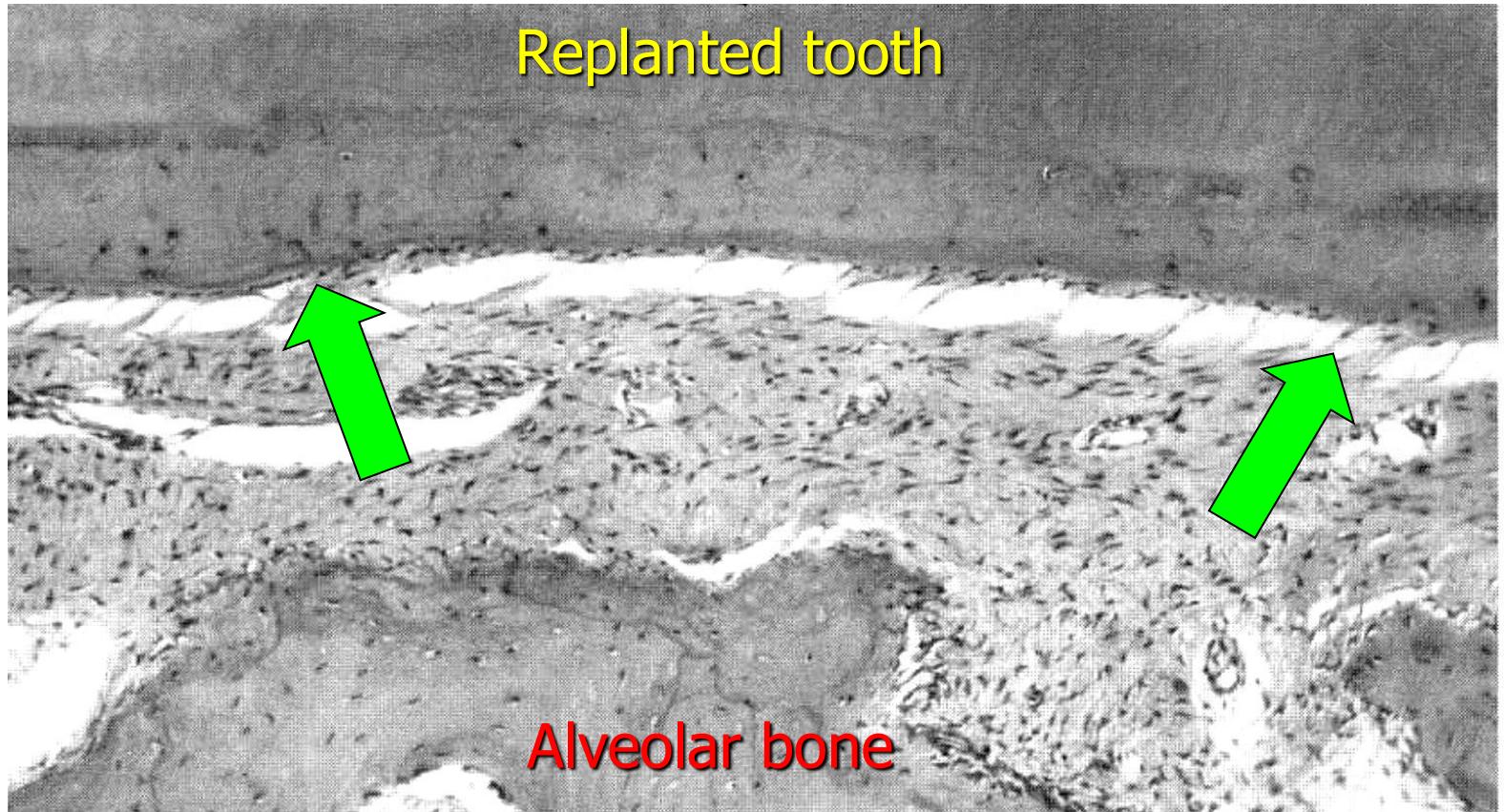
.....



- Tissue culture medium. Hank's balanced salt solution. **24 Hours.**
- Milk **6 Hours.**
- Saliva **2 Hours.**
- Saline **1 Hour.**
- Nothing **30 minutes.**



Why PDL vitality is important

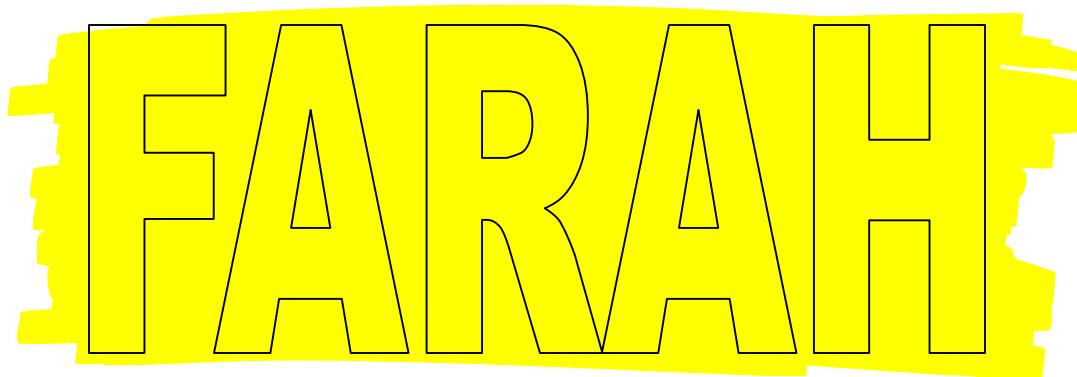


Three possibilities upon child's arrival to your office....

- Tooth replanted onsite of injury by parents or by an adult in the vicinity (immediate replantation).
- Tooth brought to your clinic with “assumed” vital PDL (early replantation).
- Dry tooth (late replantation).

Immediate Replantation

- Debride the mouth and congratulate the parents for a well done job.
- Then go for



FARAH

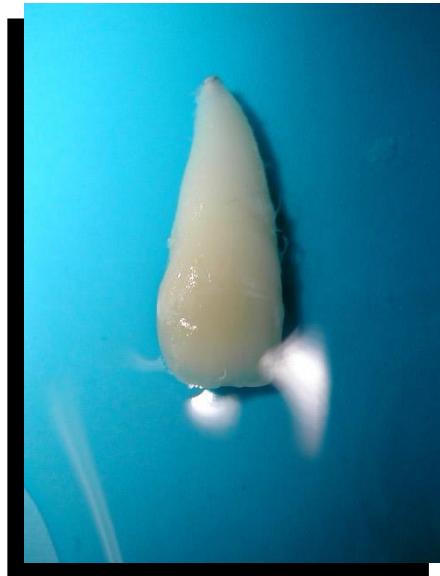
Early Replantation

- Debride the tooth gently.
- Debride the socket gently.
- Re-insert the tooth gently. If the bone is sound, you may hear or feel a click that it's in the exact right position.
- Splint
- Then go for



PLS. remember what's meant by early replantation?

- Tissue culture medium. Honk's balanced salt solution. **24 Hours.**
- Milk **6 Hours.**
- Saliva **2 Hours.**
- Saline **1 Hour.**
- Nothing **nutes.**



Late replantation

- Gently remove necrotic PDL.
- Rinse tooth with 2% NaFl solution to help minimize possible **ankylosis**.
- Exirpate pulp tissue. Then fill root canal with Ledermix paste.
- Gently debride the socket.
- Gently insert the tooth back.
- Splint
- Then go for

NaFl – ankylosis

FARAH

Who (What) is Ledermix?



- Triamcinolone
- Tetracycline
(discoloration!!!)

Who is FARAH?

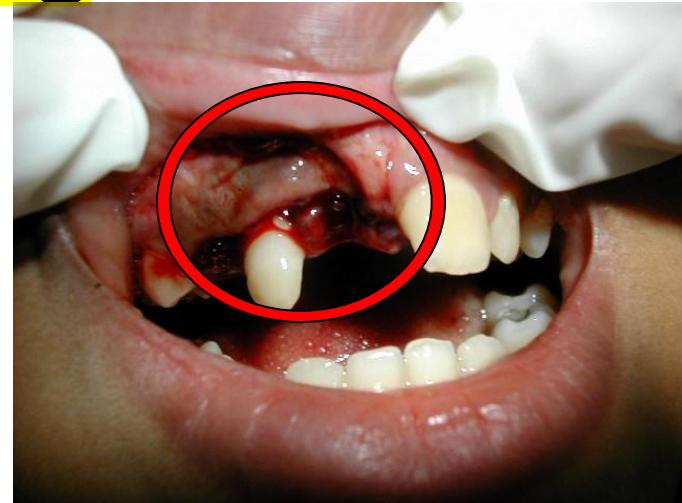
- Fix (splint) the tooth.
- Attend for any tooth fragment (chest X-ray).
- Repair (suture) damaged soft tissue.
- Antibiotic and NSAID's. **4 Right's**
- Home care instructions.

NSAID is a non steroid anti-inflammatory drug

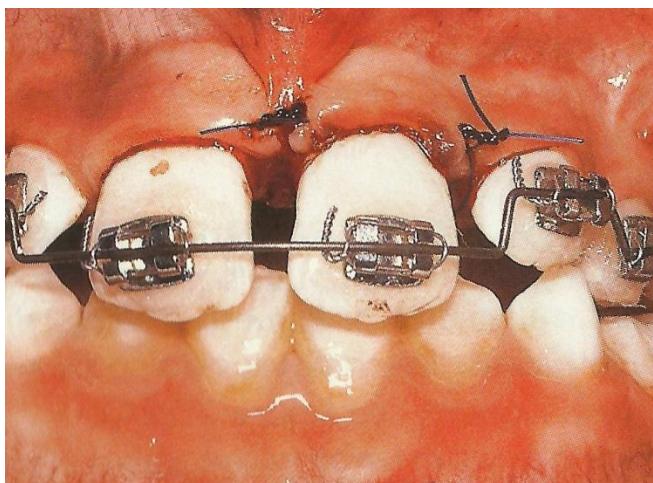
the 4 rights for a drug are 1. right drug 2. right patient 3. right dose 4 right route

Splinting....

- Could be **rigid** which **will** not allow for physiologic movement.
- Composite with orthodontic wire.
- Indicated When there is **Avulsion with alv.bone damage**. And guess what???? (remember lat luxation).



Splinting with no alv.bone damage.

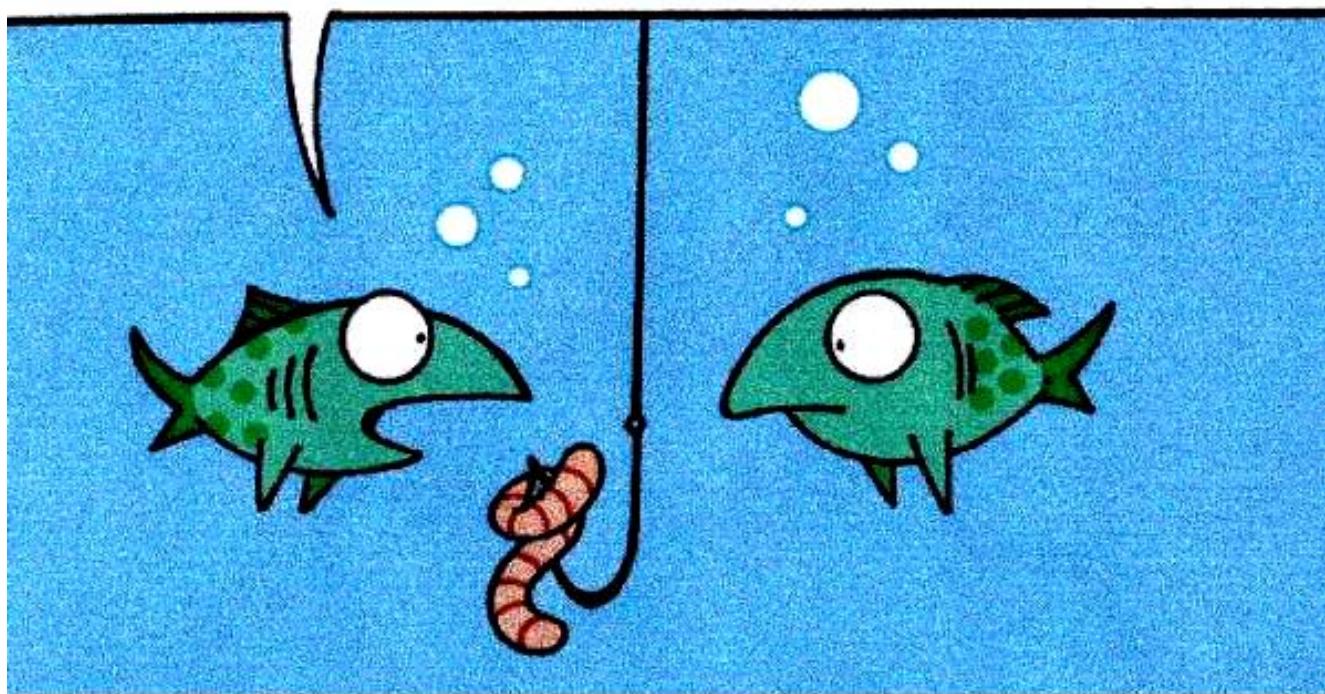


- Non-rigid to allow for physiologic movement.
- Composite with Nylon thread or wired orthodontic bands.
- This may minimize possibility of **ankylosis.**

+ 2% NaF I

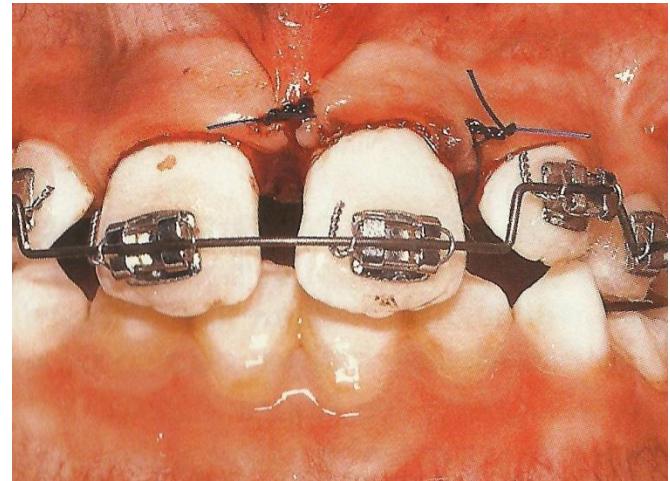
Where to get the Nylon thread?

YOU EAT THE WORM, THEN YOU FLOSS WITH THE STRING.



Splinting duration.

- Minimum 14 days.
Then evaluate if a
3rd. Week is needed
(advantage for
ortho splints).
- Alv.bone damage
may indicate long
duration (3-4
weeks).



Now going for our 2nd. Concern.... RCT

- Teeth that are replanted immediately or early with open apices (>2MM) might not need RCT.
- They need the magic word...

Careful observation and watchful follow up!



18 months



3 Years

RCT is indicated when

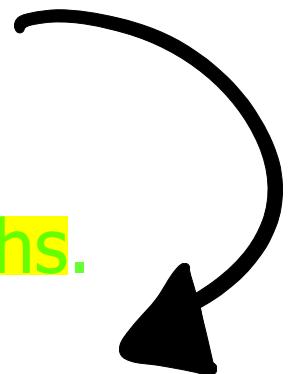
- There is evidence of infection in a replanted tooth with open apex.

Fill the canal with Ledermix for 3 months.

Followed by repeated CaOH canal

medication every 3 month Until apical

calcification is evident by x-ray.



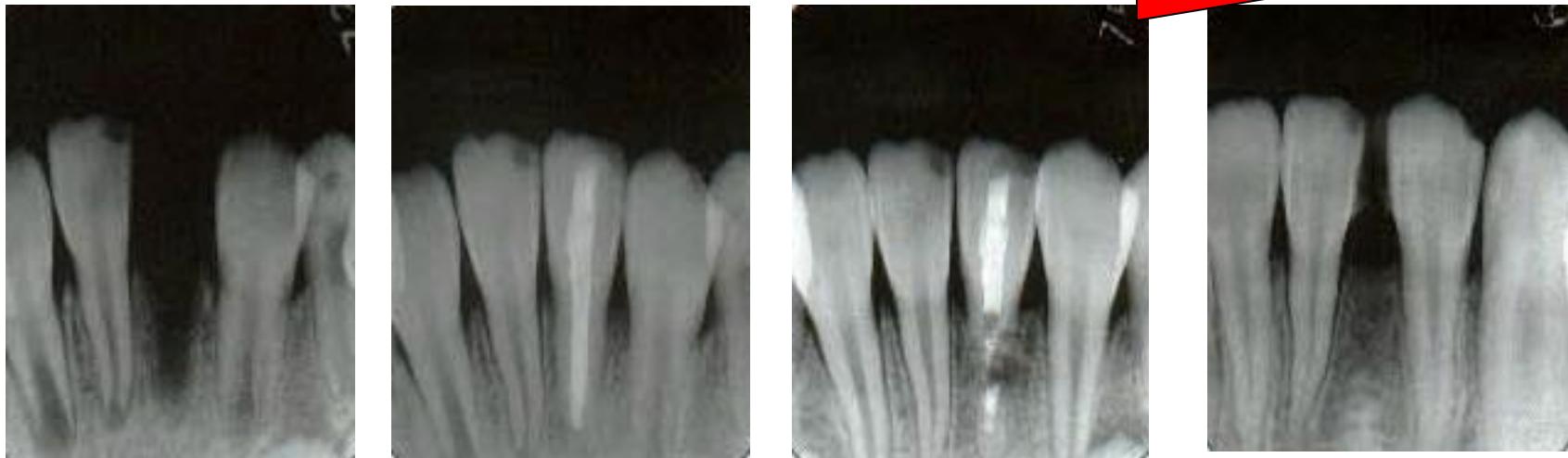
BTW This is called Apexification and will discuss it on our next lecture !!!!

RCT is indicated when...

- A replanted tooth has mature Apex.

Start treatment within 2 weeks. Fill the canal with Ledermix for 3 months. Followed by CaOH for another 3 months then proceed with RCT.

Complications



- **External replacement root resorption.**

12 Months

24 Months

Do you consider this as a big failure? The answer is no because the root was replaced by bone so we could prevent alveolar bone loss with subsequent looseness for the adjacent teeth. This new bone may serve for future support for an implant.

Complications



Tooth # 9 is replanted.



CaOH RC
temp filling



Two years later
Ext. resorption
Arrested.

- External inflammatory resorption.

About Ankylosis.



- We don't like it in young children because it presents an orthodontic problem.

How to minimize the possibility of ankylosis?



1. Extra alveolar time and storage media.
2. Handling.
3. Splinting.—Non-rigid splinting
+ 2% NaF

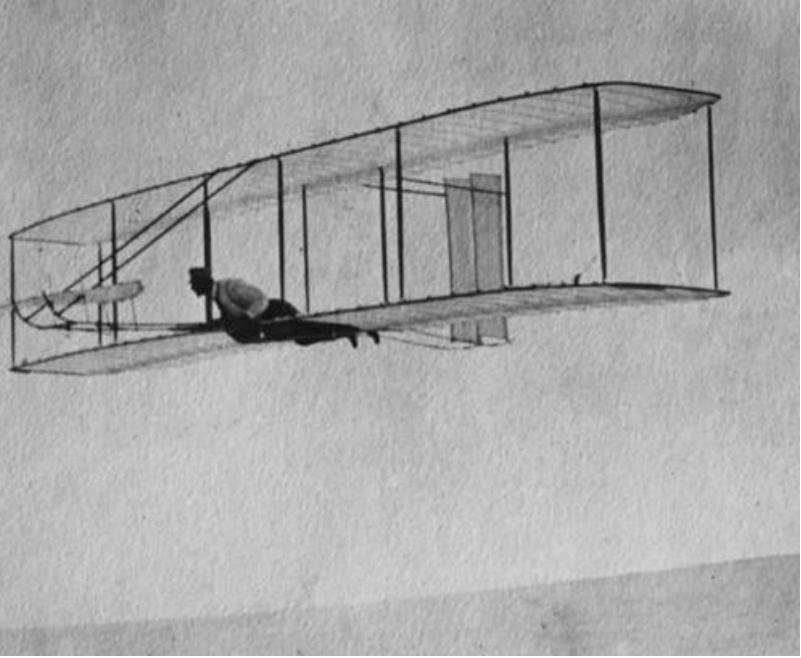
New Horizons



Abbas Ibn Farnas tried to imitate birds



Baghdad, Iraq



National air & space museum, Washington. USA

Later on 1909, we succeeded to fly like birds then it took us only 60 more years to set foot on the moon. May be if we try to imitate other animals here on earth, we can achieve better outcome.

New Horizons



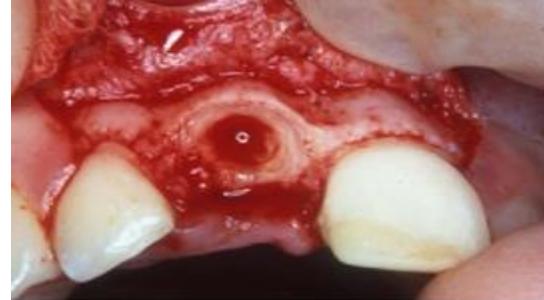
A shark usually experience 20,000 sheddings of teeth. It doesn't have to worry about AVULSION.

A star fish never worry about loosing an arm because it will regenerate .

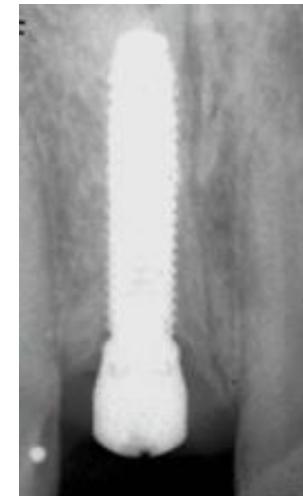
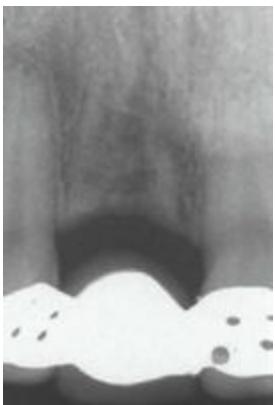


New Horizons Decoronation

Two lectures ago, we mentioned decoronation

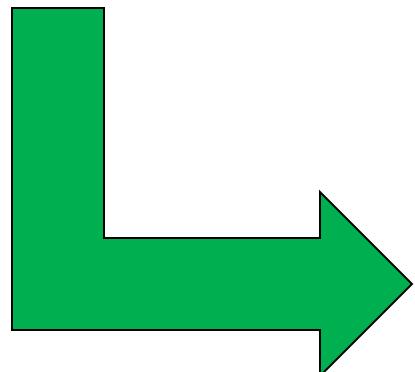


10 Years later



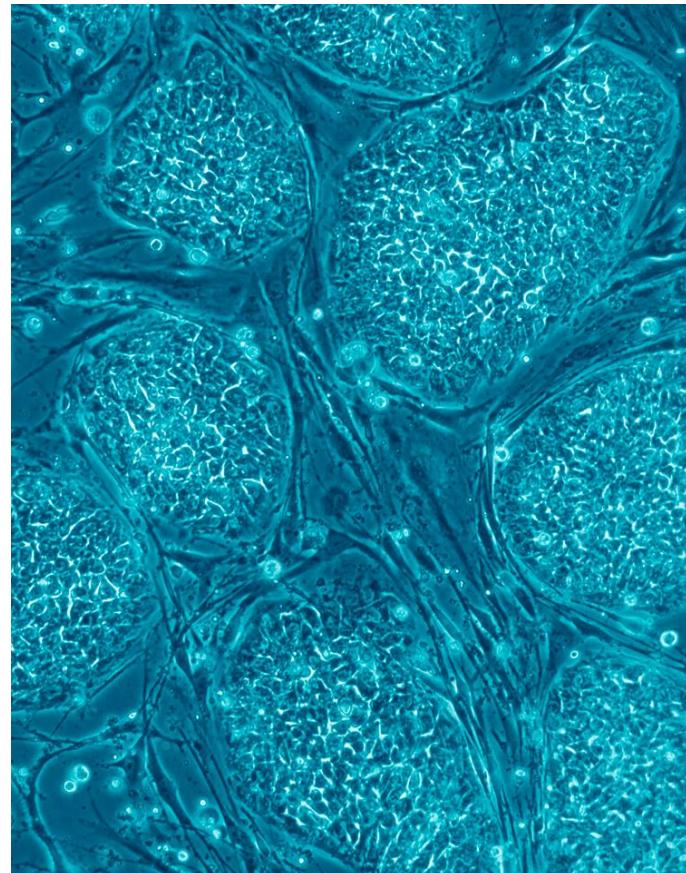
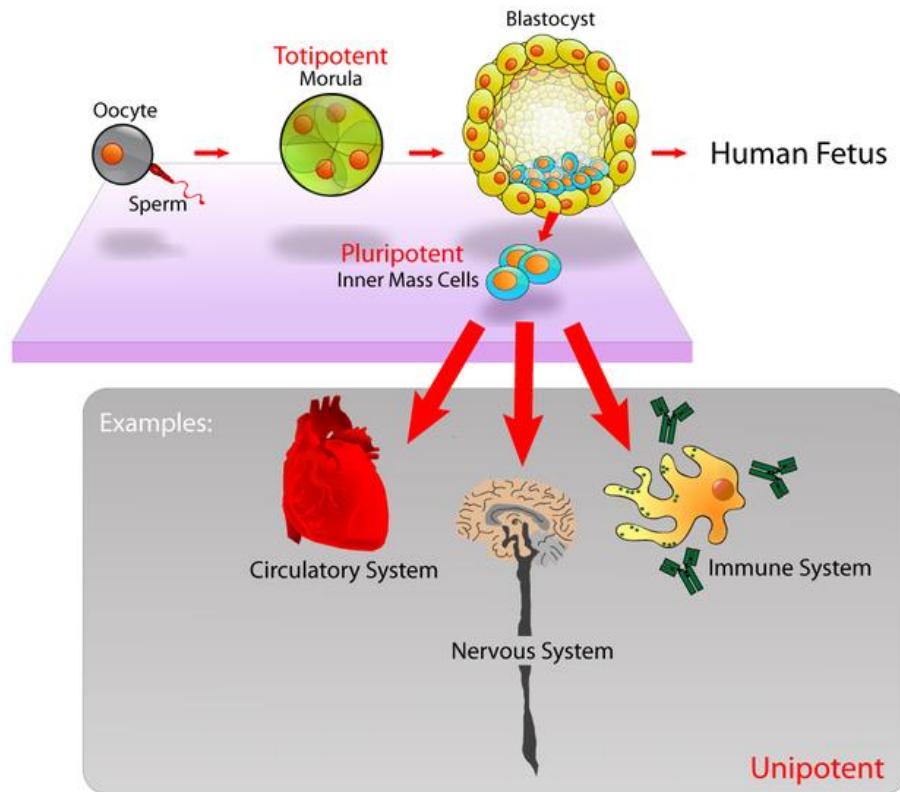
Ankylosis treated by decoronation happy ending ☺

Amputation of the crown, intentional trauma to the periapical region to establish a healthy blood clot which will develop into healthy bone suitable to support an implant.



New Horizons

Regenerative Medicine (stem cells) capable of developing into new organs including new tooth germs



Regenerative Medicine

- **Emdogain**
enamel matrix derivative. May mediate
cementum formation.
- **Alendronate**
inhibits odontoclastic activity.

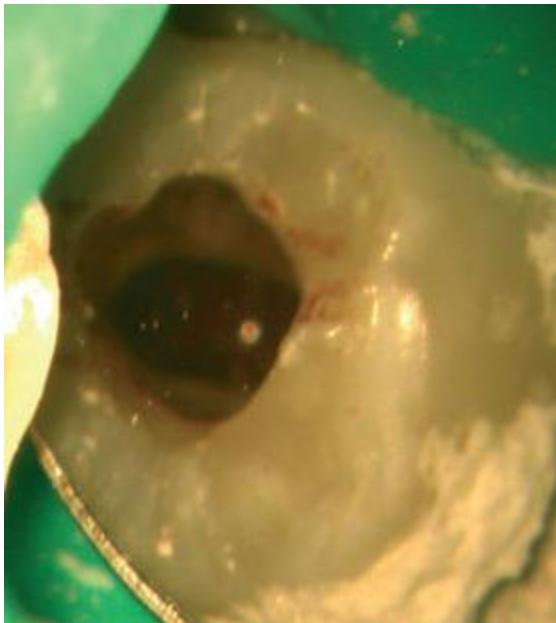
using blood to induce Apixification a case report



Root canal was opened, Antibiotic paste inserted for 3 weeks.

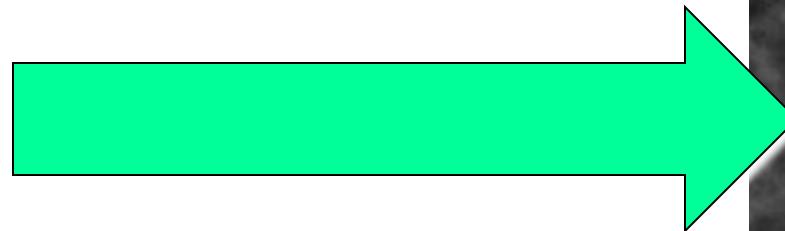
The Ab paste used here consisted of a powder of 20 mg each of metronidazole, ciprofloxacin and amoxicillin mixed with 1 mL of sterile water. (instead of LEDERMIX).

Then... after another 3 weeks



Bleeding was deliberately
Provoked then canal was
sealed with MTA (remember
What is MTA?)

After 6 months...



After 18 months...

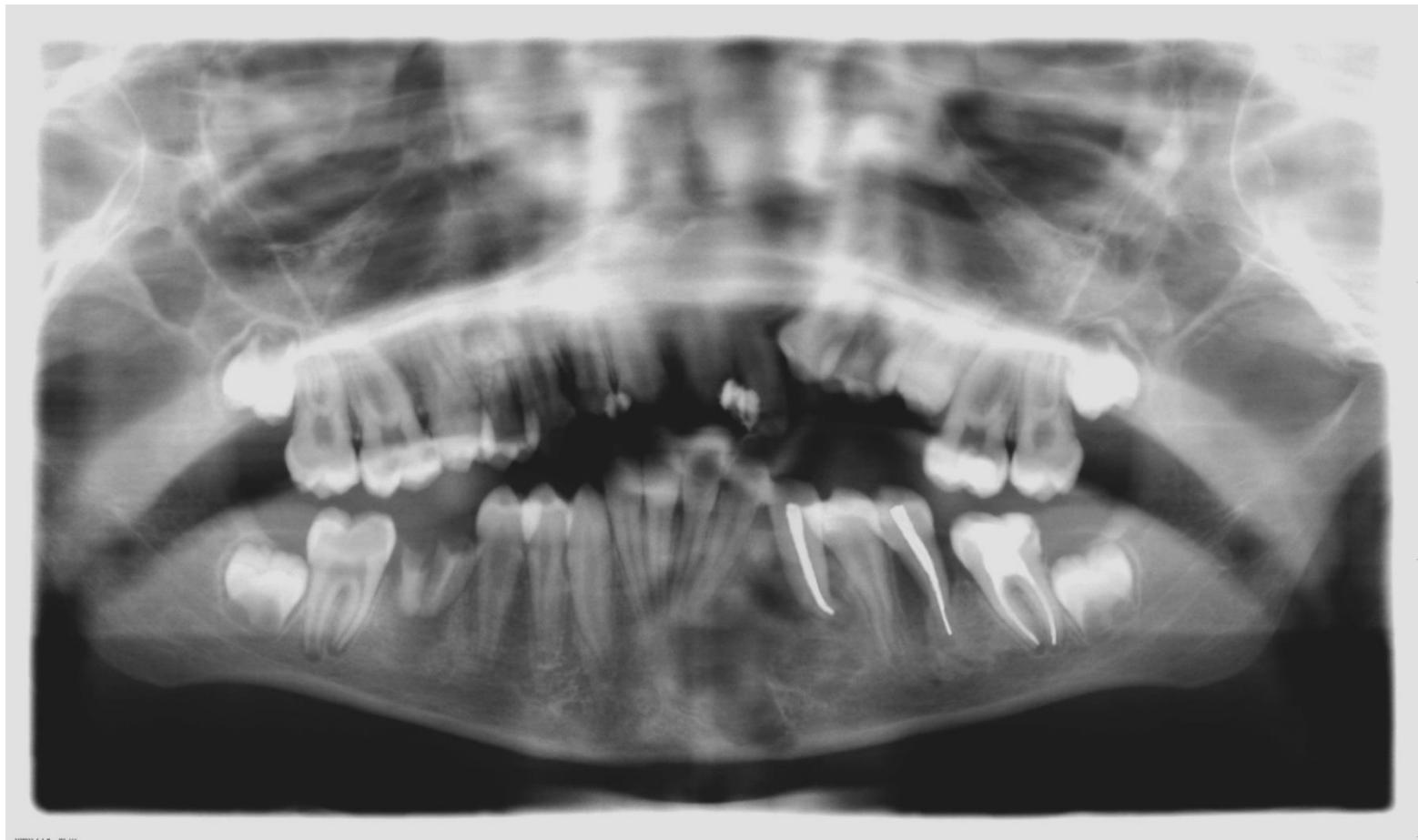


Autotransplantation



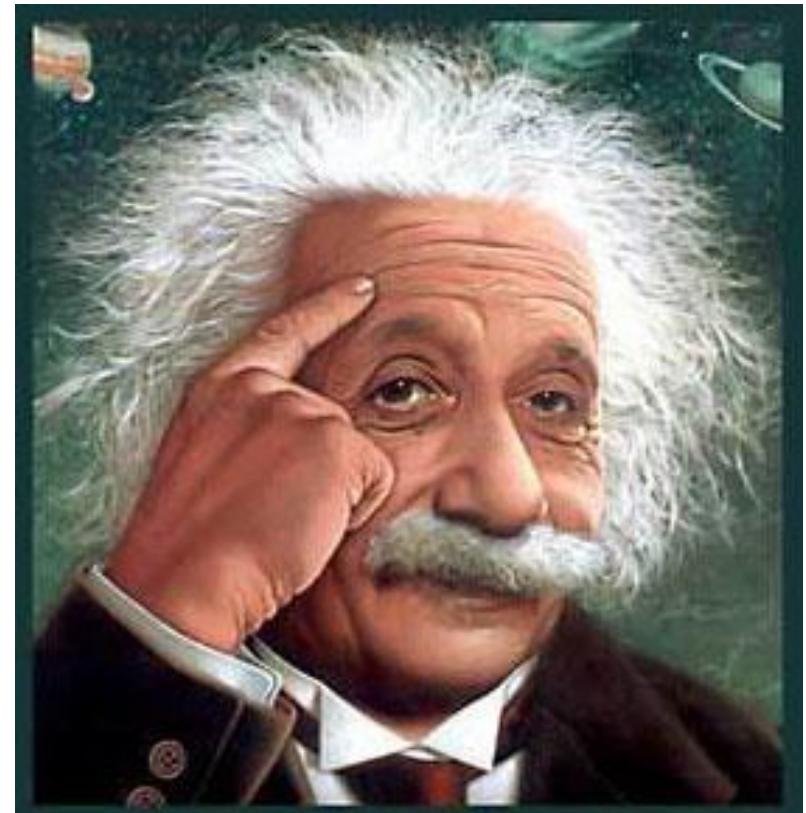
Here I was lucky to remove the 36, replant the 34 in its place and replant an impacted canine (33) in place of 34... opposing teeth were shedding deciduous teeth so I removed them to relieve occlusion and allow for the lower replanted teeth to re attach. Autotransplantation can utilize impacted or supernumerary teeth to replace avulsed teeth.

Autotransplantation



Thank you!

*“A person who
never made a
mistake never
tried anything
new”.*



Albert Einstein