

Question 1

What do you see on the radiograph?

Radiolucency associated with the D and P root apices. Short fill in D root, possible broken file in P root, no apparent MB2 found in M root.

whole bunch of sealer in the sinus

Short filling of the Distal root. I am wondering what the filling material was. Was it gutta-percha or resinate or resilon?

At the palatal apex, there appears to be the remnants of a separated file.

incomplete cleaning on db and pal root, radiolucency db canal

Short-filled and instrumented disto-buccal canal, Only one of two MB canals filled, inadequate instrumenting of palatal canal (especially at apex where abundance of sealer still present beyond apex has not demonstrated a full 'fill' at the palatal apex).

Question 2

What is the differential diagnosis of this case?

Recurrent infection, caused by one or more of the mentioned issues above.

phoenix abscess
sinus infection

I believe that it is a recurrent endodontic infection caused by residual bacteria left inside the canal with original treatment.
Vertical root fracture on palatal root is possible.

Vertical root fracture 16

2. Failed endo with instrument separation in apex of palatal root.
3. Failed endo with DB root short filled.

infected canals, cracked tooth, necrosis 17

Recurrent caries producing re-infection of the root-canal system.

A second angle radiograph or cone-beam CT should be taken to establish that the radiolucency on the palatal mid-root is related to inflammatory bone loss due to a re-infection of the root canal system rather than an external resorption process. The palatal root looks a little suspicious.

A second radiograph at a more mesial angle will also give some insight as to whether there is actually an MB 2 canal. The tooth was not restored with a crown and there appears to be caries under the distal part of the restoration (a BW would help here), and likely there would have been coronal leakage after 5 years without a crown.

Inadequate instrumentation and cleaning of the initial treatment possibly also with a missed MB2 canal.

Possible external resorption (impossible to tell with only one radiograph...).

Possible fracture of the tooth even though probing results are WNL. If retreatment is indicated, microscopic investigation of the pulpal floor would be prudent once the access had been cleaned.

Inadequate bio mechanical preparation and obturation. In short the diagnosis is piss poor endo.

failure to seal the apex of distal root and the palatal root , not enough sealer and poor disinfection

cracked tooth

infected roots

PA of Q#1 shows tooth #1.6 with adequate obturated three canals. Perhaps DB canal is a bit short or calcified.

1 vertical root fracture secondary to previous trauma or not related

significant findings: RL area well circumscribed around DB with a RL line along the DB root; suggesting a possible fracture to the root. Apically to tooth # 1.6 there is a radiopaque object that resembles a screw and part of a manipulator that further suggest Hx of Trauma to the area.

2 persistent infection from an inadequately cleaned and shaped DB canal.

3 possible missed canal

Under obdurately P & DB canals. Bone plate. & screw ? above the tooth apex used to fix bone – previous surgery.

Failed endo tx. , vertical fracture

Incomplete obturation/instrumentation

Failed rct

Periapical Abscess

If there is sinus tract to the palatal root there is no differential diagnosis, it is a periapical infection.

Symptomatic apical periodontitis. Separated lentulo at apex of palatal root. Orthopedic fixation screw at plate apical to #16. Short and in adequate root canal obturation

Acute alveolar abscess, previous rct.

Periapical lesion on the M, D root and Palatal root
Opaque material in the sinus (unsure if related to the pain)

Periapical periodontitis
Fx of D root

Radiolucency on the palatal root (possible internal resorption???)

root resorption

16: apical radiolucencies of all roots. Possibly short fill of 16 palatal root

17: potential MB root radiolucency

Plate and screw in UR side maxilla

-failed endo (short fill on palatal root or maybe missed MB2 canal?)

-cracked root 16

-complication due to history of trauma to area? (as evidenced by plate/screw)

-complication due to placement of plate/screw?

Root fracture

cracked distal root

Root fracture

Mesial root radiolucency #17, radiolucency #15, same on distal root #16, poor fill on palatal and maybe 2nd canal MD on #16

Loss of apices due to extreme ortho?

Poor endo fill #16
#17 ?

There appears to be a mini-fixation plate and screw evident apical to # 16 and # 15 which means the patient had either orthognathic surgery to segmentalize the maxilla or she had a traumatic injury with fracture of the maxilla requiring reduction and fixation of the fracture. This surgery or injury may well have devitalized the # 16

DD..... 1. vertical root fracture of one or more roots

2. Chronic infection from the plate and screw

3. Radicular cyst or granuloma

DB canal short fill
possible ext resorption as well

incomplete tx

It would appear there is a bone screw and plate above tooth 16. There is also apical root resorption on teeth 14 and 15.

My differential diagnosis would be failed endodontics from tooth 16. My secondary diagnosis is sepsis from the bone plate and screw.

RL around the apex on the d,p and m root

Missed mb2

Evidence of possible previous orthognathic surgery in the sinus area apical to 16. Blunted root apices of 14, 15 are also an indication of a history of orthodontics.

Recurrent draining periapical abcess

The palatal and diso-buccal roots of 16 demonstrate incomplete obturation of the canals.

- 1- Apical resorption of the teeth most likely due to previous Orthodontic treatment.
- 2- Failed RCT on palatal and distal roots.
- 3- Questionable 4th canal.
- 4- Radiopacity on the palatal or maxillary sinus area to be investigated.
- 5- Pariapical radiolucency around medial root of #17.

Parl's 1-7MB 1-6 DB MB. Lefort 1 bone fixaton screws. Dense bone island distal 1-7.

Failing endo 1-6, possible root facture related that isn't probing. 1-7? Possible false positive 1-7? treat 1-6- consider CBCT for 1-7 1-6 to confirm and r/o other path.

endo filling short on the DB canal and the lingual canal. periapical abscess requiring retreat, or if fractured extraction would be necessary

looks like some occlusal trauma resulting in a vertical fracture(compounded with a large composite.)
periapical abscess requiring retreat, or if fractured extraction would be necessary

incomplete obturation distal root and palatal root iatrogenic damage to palatal root during surgical maxillary repositioning, or periapical periodontitis due to incomplete instrumentation and obturation

shortened roots on bicuspids indicating previous orthodontic treatment

incompletely filled DB canal, a potentially incompletely filled MB canal system (missed MB2?), abnormal morphology DB root-possible vertical root fracture, surgical screw/plate Maxillary sinus, root resorption #15,#14 periapical abscess associated with trauma and/or surgery

Incomplete root end fillings DB and P roots. Only one canal on MB root but seems in the centre. Surgical fixation plate/screw close to apex #1.6. Periapical radiolucency #17. Separated instrument palatal root apex? Short/resorbed roots #1.4/1.5. Possible furcal perf?

1. missed MB2 canal and incomplete endo, possible separated instrument
2. furcal perforation
3. vertical root fracture
4. trauma from surgical plate/screw fixation?

Tx options: 1. access and retreat 2. extract, +/-bone graft, +/-implant/crown or other prosthetics

Periapical decrease in density
Distal root possibly incomplete fill (anatomic apex?)
Blunted roots possibly from orthodontics
Appears to be hardware apical to tooth 16 likely from orthognathic surgery or Surgery from trauma

Bacterial infection secondary to...
Sinus connection from surgery
Periapical periodontitis secondary to bacteria (systemic)
Failure of RCT (disinfection issue vs. 4th canal??)
cracked tooth

Screwed plate at apex of 16
Radiolucency at apex of 16

Healing Scar at apex of 16
Odontogenic Infection of 16
Cracked Root of 16

Poorly defined periapical unilacunar radiolucency

1. Peri apical granuloma
2. Peri apical cyst
3. Other rare conditions like sinus diseases,malignancy

PARL at distal and palatial root
Possible crown/old restoration fracture

Periapical abscess
Radicular cyst
Apical Granuloma

periapical pathology. Incomplete filled of canals especially DB

sinus infection

recently fractured tooth

obturation short of apices dbu and palatal roots of 1-6, radiolucencies mbu and dbu roots of 1-6, mbu root of 1-7, and unknown radiopacity in sinus area apical of 1-6

periapical infection 1-6 due to incomplete obturation of dbu and palatal canals of 1-6, and possible untreated 4th canal mbu root

mbu radiolucency 1-7.....?
radiopacity in sinus area.....?

Inadequate DB and palatal canal preparations with incomplete apical seals. May be a separated instrument in the palatal root or a carrier based obturation in it along with white apical extrusion of may be
A sealer from the palatal root tip! No MB2.

Vertical root fracture/cracked tooth.

I see radiopacity apical to the 6 4x4mm that extends beyond scope of xray as well as 17.
I would have cone beam scan of the area to further investigate.
I see distal and lingual canals appear short and no evidence of 2nd MB canal.

Infection possibly related to sinus or sinus area as well as periodical area of 16

db root not filled to apex, p root fill appears to lack density. premolar roots appear short possible ortho tx, possible orthognatic surgery (what is in sinus above 16?)

Too many variables to diagnose. Need to eliminate sinus as a source of infection. Then retreat 16 if necessary.

Besides endodontic related issues, maybe the tooth is cracked even though probing depths are WNLs.

14,15: blunted & shortened roots.

16: MB apical lucency, only one MB root filling visible. DB short-filled, widened PDL. Furcation: slight lucency? Palatal canal: possibly broken instrument in apical third, apex close to sinus and radiopacity (fixation screw/apparatus?)

17: MB canal(s) not clear and and small MB apical lucency

Fracture of the DBu root.

- 1) Inadequate RCT
- 2) broken file (?) at the apical end of palatal root
- 3) lesions (?) at the all apices. On palatal root it is located laterally to distal
- 4) A radiopaque object, like screw and plate in the malar process area
- 5) Apical lesion at the MB apex of 17, however it tested normal with cold.
- 6) blunting of 14 and 15 apices, more likely because of previous braces.
- 7) A shadow on the middle third of palatal root, may be b/c of fracture as the tooth was not capped.

Sorry, not enough information for me.

I would want:

1. a more complete Hx re (sinuses, ortho, orthognathic surgery?),
2. off-angle PA(s)

3. eliminate non-dental aetiology (oral-antral communication involving fixation hardware)

Traumatic instrumentation of the DBu root resulting in fracture

- 1) Previous RCT+ chronic apical abscess
- 2) Subacute or chronic sinusitis
- 3) Vertical root fracture

Short fills on DB and P roots, MB root may have a second canal

16 does not have complete coronal coverage so root fracture of one or more roots is possible

1) Missed MB2 canal combined with incomplete cleaning and shaping of DB and P canals—do conventional retreat

2) Root fracture—extract and restore in future with implant supported crown as 17 and 15 appear to be virgin teeth

1- Incomplete RCT, esp. on the DB and P canal.

2- What is that thing up in the sinus above the palatal root apex?

Possible excess material in sinus cavity

Palatal canal shows incomplete obturation or possibly looks like this because of a vertical fracture

Periodontal abscess

Failed endodontic treatment

Vertical root fracture

Sinus infection

Radiolucency around all roots of 16, and DB root looks to have more pronounced radiolucency directly on the root. GP appears short of apex on DB and P roots in my opinion

incomplete cleaning/shaping and obturation at time of RCT, resulting in infection and PA pathosis

missed canal (MB2)

root fracture DB root

I see what looks to be a simple failure of a previous endo which is short in all three roots and possibly inadequate in the treatment of the mb2 canal. However, I also detect a radiolucency involving the mb root of 17. I also not blunting of the roots of 15 and 14 which indicates previous complicated or possibly aggressive ortho. There is also a rigid fixation device in the sinus area above 16.

- 1) Failure of endo in 16, 2) Partial necrosis of 17 leaving,
- 3) Infection involving the rigid fixation device

I see a db root that is incompletely filled, palatal root doesn't look to be completely filled. Possibility of an untreated mb2. Tooth 17- mb root has a widened periodontal ligament space and should be tested further. In addition there is a radiopaque lesion apical to the palatal root. The lesion is superimposed on the sinus but may be inside the sinus. Blunted Apices of the premolars tell me this patient may have had orthodontic therapy. Radiograph also shows a large composite restoration, leading one to be wary of a possible vertical fracture.

- 1) failed RCT
- 2) vertical fracture
- 3) foreign body infection related to palatal root-sinus

Loss of lamina dura at mv root of 17. Sealer on the dv canal of 16 is not to the apex, with the apical area wide open, and a possible dv root fracture. There is an opaque mass above the palatal root apex and the roots of 16, 15 and 14 are shorter than normal

Failed endo with a strong indication of a root fracture

Over fill apical root inadequate fill distal canal

Peri apical infection due to inadequate rci fill

Incomplete filling of the canals. Broken file at apex of palatal root. No crown on the restored treated tooth.

Periapical abscess infection resulting from incomplete obliteration of the canal an a broken file leftin the canal indicating incomplete cleaning of the canals.

Its short root canal filling with periapical radiolucency.
Possibility of missing canal.

Chronic periapical prriodontitis. Possibility of some nerve still alive .

under filled distal and palatal canals, some type of bar with fixation screw in the area of the zigoma

peri-apical abscess failing endo treatment , infection around the fixation plate

- 1) Under obturation of distobuccal canal
- 2) Under obturation of Palatal canal & failure to obtain apical seal. It could be due to chronic perapical infection (at time of RCT) of palatal canal.
- 3) Missing second mesiobuccal canal. It may be not present at all
- 4) Vertical fracture of distal of crown & distobuccal root.(To be ruled out)

Perapical abscess of palatal root
Vertical fracture of distal root & crown

The root configuration of the teeth looks abnormal. Makes one suspect the abnormal apical anatomy of 1.6. The gutta percha fill on the palatal root looks inadequate.
The other teeth have no restorations and the tooth 1.6 looks like a big access on the occlusal. One questions how 1.6 ended up with endo treatment.

One can say that it is an endodontic failure. It can also be a case of mesial/distal fracture perhaps as a result from severe bruxism.

It does not appear as the initial endodontic treatment was successful. The palatal and buccal distal canal do not seem to be adequately sealed to the apex. The gutta percha looks well short of the apex. I do not see MB2. I am not sure but was there a file separated at the apex of the palatal root?

Chronic periapical lesion due to failed endodontic treatment

Incomplete cleaning and shaping of db and palatal roots, no evidence of mbll, possible root resorption of db apex

incomplete RCT treatment with periapical infection, possible root resorption

Underfilled DB, One canal filling in MB possible missed MB2, Voids and underfilled Palatal root. Periapical Radiolucency.

Some sort of bone plate with screws in the sinus. A jagged outline of the palatal root, and large diffuse radiolucent area in the middle of the palatal root. Incomplete fills of the palatal root and the distobuccal root. Radiolucency around the MB root of 17. Possible PA radiolucency @ 15 also. All is suggestive of a past history of trauma, or, perhaps, orthognathic surgery. The jagged outline of the palatal root on 16 suggests a possible root fracture here. No history has been given, so I am guessing from the image on the radiograph.

Fractured root 16. External resorption of palatal root 16. Perforated/stripped palatal root 16. Perforated pulpal floor/furcation 16.

Recurrent infection due to the incomplete filling of the distal and palatal canals and the possible missed second mesial canal.

Possible root fracture, but I am suspicious as to whether the root canal was performed pre or post Othodontic procedure?

Relative radio opacity superior to palatal root apex. Possible foreign body. Tooth 16 Poor density obturation. No full coverage restoration on 16. Possibly missing mb2 obturation. MB root apical relative radiolucency Palatal obturation short of apex and thin. DB root has either fracture at apical half or superimposed relative radiolucently. MB apex 17 has relative radiolucency with pdl widening. Teeth 15 & 14 appear without pathosis other than rounded/blunted roots apices

17 chronic periapical periodontitis secondary to pulps pathosis. mb root, rest of tooth vital. 16 CAP previously nsrct. Possible root fracture DB root.

Peri apical granuloma.
Radiolucency NYD

A separated instrument at the apical tip of the palatal canal

Failure of endodontic treatment

Vertical root fracture

There appears to be a vertical root fracture of the distal-buccal root. Because the tooth has a root flg Hemisection of that root is contraindicated. Best treatment would be extraction of tooth 16 followed by Time for the bone to heal 5-6 months. The missing tooth should be Temporarily replaced by a removable prosthesis. Following this healing time the patient should be given a choice Of an implant, a fixed bridge prosthesis or continue with the removable prosthesis

1. Root fracture
2. Insufficient root fill of the palatial root

Micro fracture of roots
Leaking restoration
Cracked crown
Unfilled canals

Incomplete cleaning and filling of both the distal and the lingual canals

The patient has a plate and screw located just apical to the 16 palatal root, perhaps as a result of past orthognathic surgery or trauma. Likely an incidental finding and not related to the symptoms. Otherwise the 16 palatal root appears to have some resorption, perhaps on the buccal aspect of the palatal root. Could this be due to a root fracture or zipping?

Periapical periodontitis recurrent. Based on integrity of resin restoration, may have leaked. Root resorption on inner (buccal, furcation side) aspect of palatal root perhaps caused by a zip or perforation.

Interesting radiopacity at top of film: surgical fixation d/t ortho or trauma? or artifact? If surgical fixation, was it pre or post rct on 16?

Infection related to surgical fixture

Broken file tip in palatal canal. Short seal in distal canal, and possibly an unsealed mesial canal.

Persistent infection of rct d/t short fill, and endo file piece

Possible internal or external resorption of the palatal root.

Root fracture

Further imaging is needed to determine if source of infection is related to surgical fixation and/or root fracture.

Root resorption

There is not enough information for me to proceed with treatment. More data needed.

Next step: Off angle periapical X-rays.

And the radiopacity in close proximity to the palatal apex and sinus floor needs to be investigated. Could this be a fixation device? Might there be an oral-antral fistula? (easy to check)

endo retreat is obvious answer for initial attempt at fixing it, but seeing the cost of retreat, then core, then crown, just take it out, let heal, throw in a implant and restore,, done,, retreats fail as well

There may be a separated instrument in the palatal canal of 16. The distobuccal root filling appears to be short of the apex. I do not detect evidence of a filled mesiolingual canal. The short roots appear consistent with orthodontic-related apical resorption but the patient history would need to confirm this. I think that there is bone loss in the furcation region by extension.

Sure looks like a broken file at the apex of the palatal canal. Is it? What are the chances of success if retreated?

Pulpal floor perforation is possible cause for failure, if so extraction is the treatment

I don't believe this is "just" a simple failed endo due to underfill or missed canals. There are bone screws and a plate superimposed on the sinus, and the jagged outline of the palatal root, and diffuse radiolucency of the mid palatal root, suggest a fractured root, or trauma, or surgery (orthognathic?) in the past. There may also be a subsequent resorptive process going on here. If it is confined to the palatal root, a retreatment of the buccal canals and root amputation of the palatal root might be possible. If not, then extraction and replacement with a prosthetic alternative would be in order.

Send the patient out for a CbCt scan of the area and treat accordingly.

Potential for complete re treatment exists, but need more diagnostic information.