

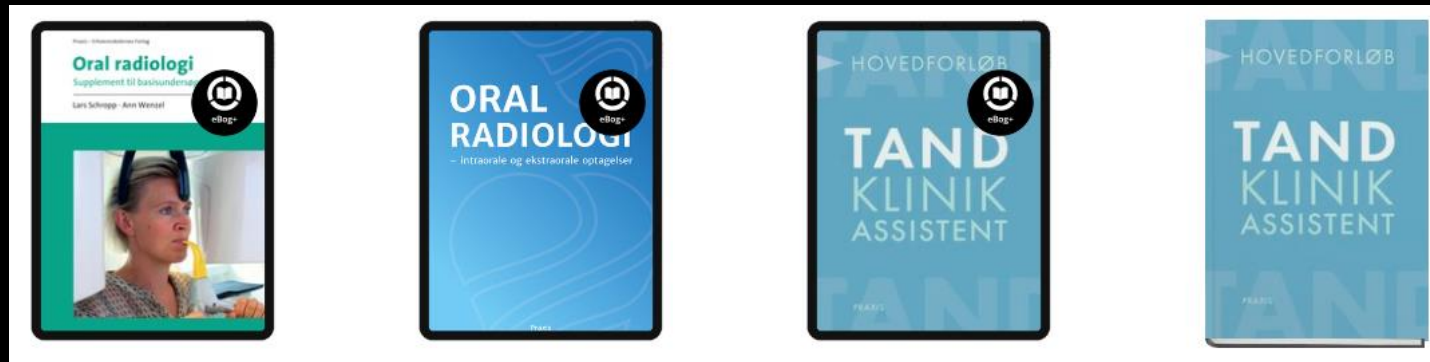
Røntgenkursus

Randers Kommunale Tandpleje

- "Det gode enorale rtg billede"
- Forskellige rtg teknikker
- Placering af patient for at opnå den bedste optagelse af OTP
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Litteratur

E-bog
pakke



Link: <https://praxis.dk/soeg/radiologi>

”Stråle-biblen” 2019


SUNDHEDSSTYRELSEN
Strålebeskyttelse

2019

Intraorale røntgenoptagelser

Anvendelse af røntgenstråling i odontologisk
praksis

Vejledning



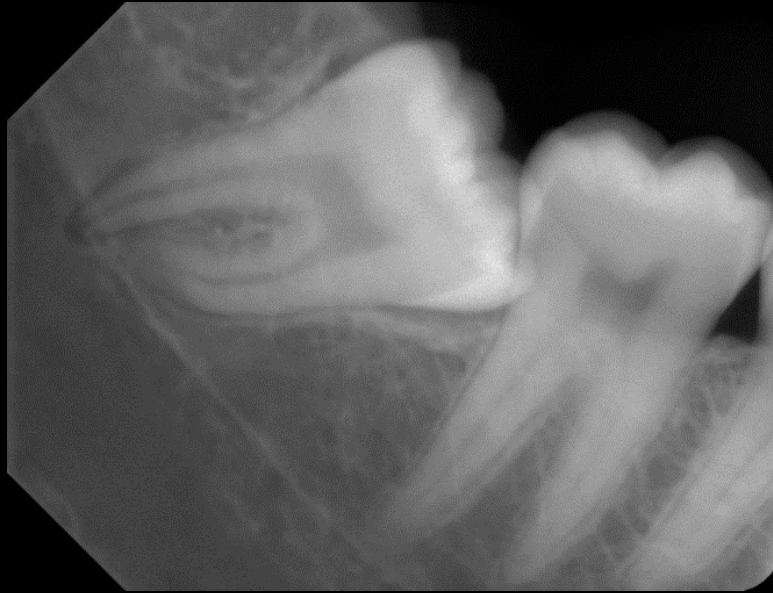
Sundhed for alle ♥+●

Eksempel på en god tubus



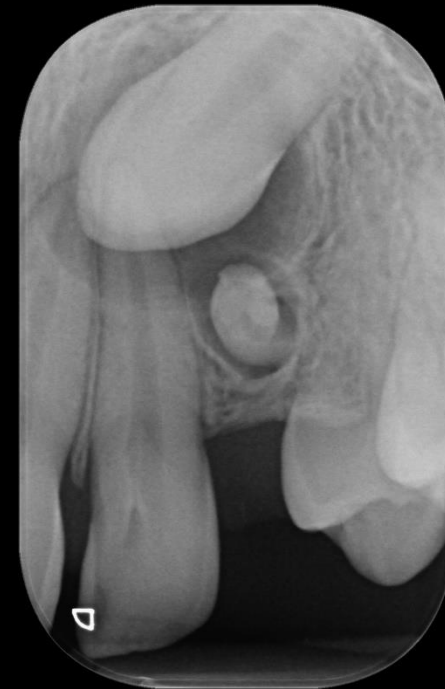
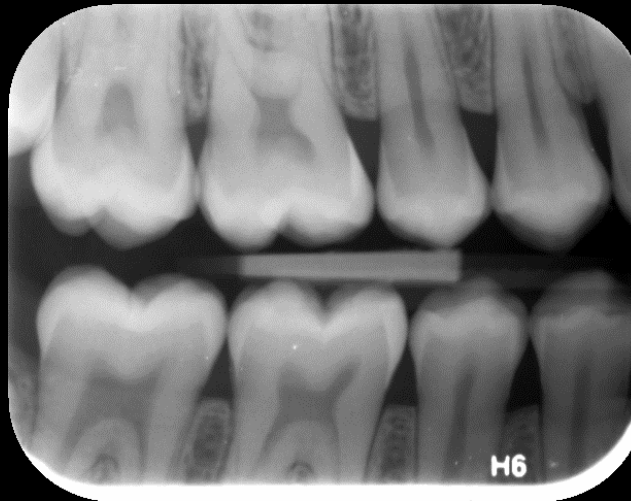
Det gode intraorale røntgenbillede

Afbilder tand/tænder "naturligt"
Afbilder hele tanden og 2-3 mm periapikal knogle



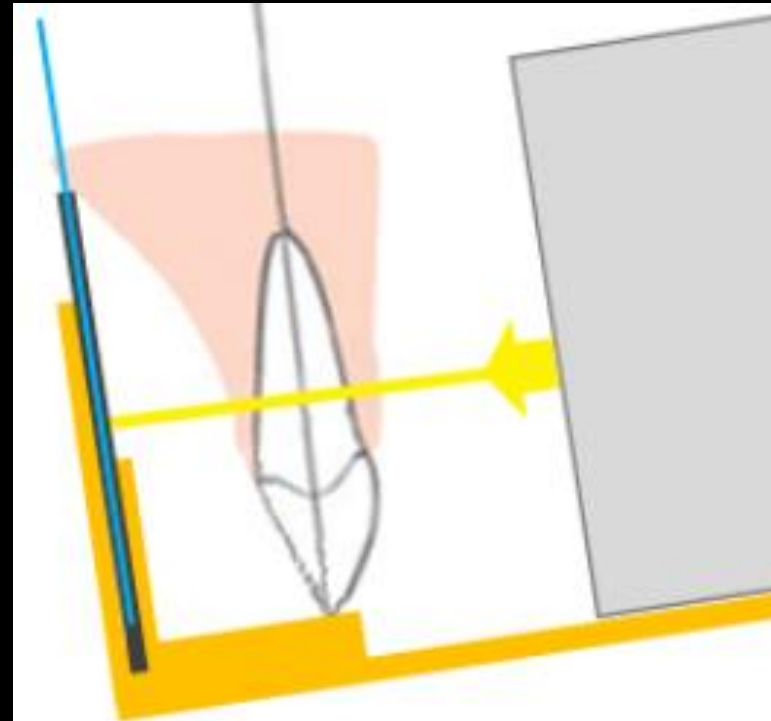
Det gode intraorale røntgenbillede

- Anvend en passende receptorstørrelse
- Anvend en holder



Parallelteknik

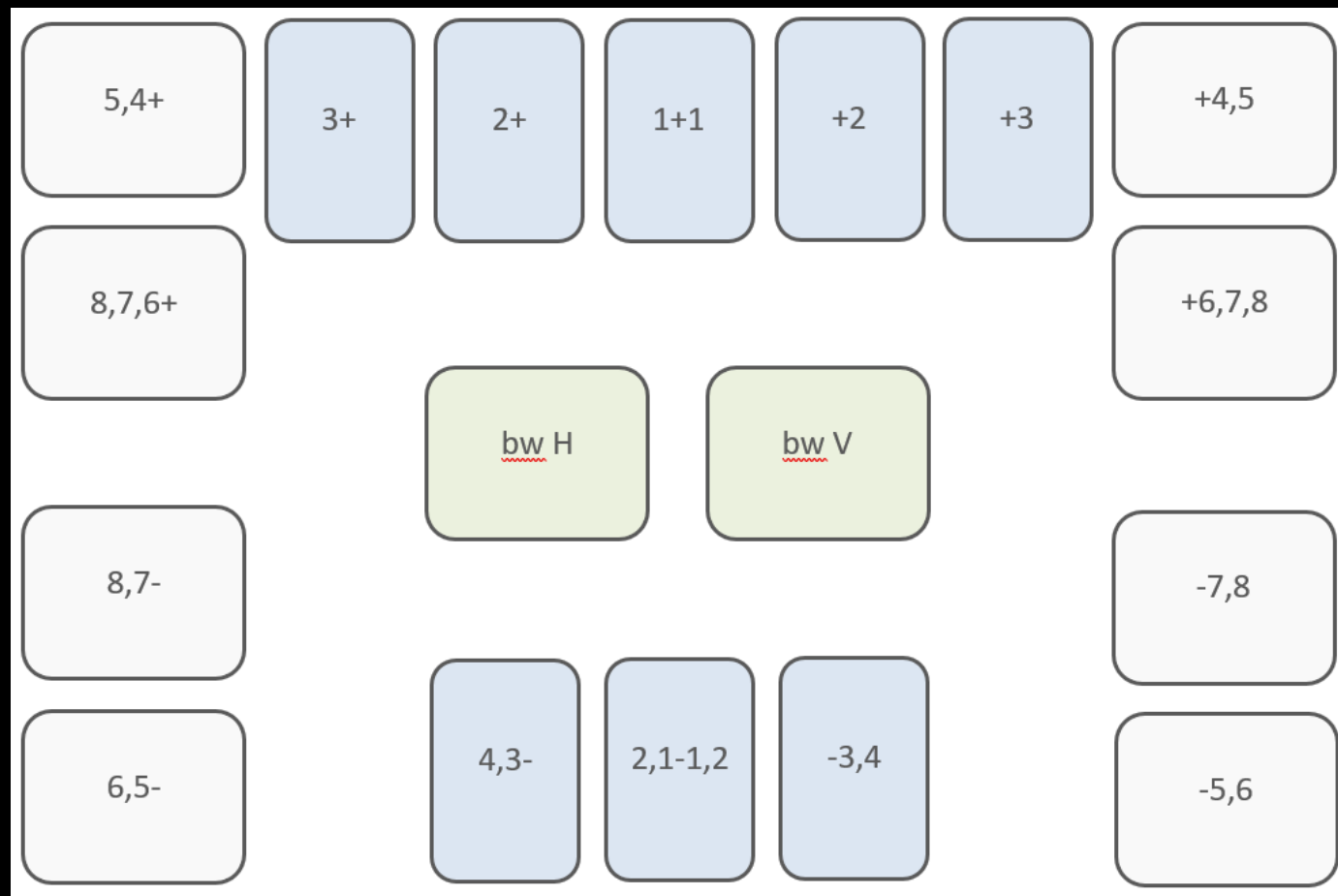
- Receptoren står parallelt med tandens længdeakse
– sigter vinkelret på receptoren



Hvilke receptorer til hvilke optagelser?

(barn / voksen)

Fronten benyttes str 0
markeret med blå
BW og posteriort benyttes
str 2
Str 1 benyttes fx ved en lang
hjørnetand eller til BW på
de små børn

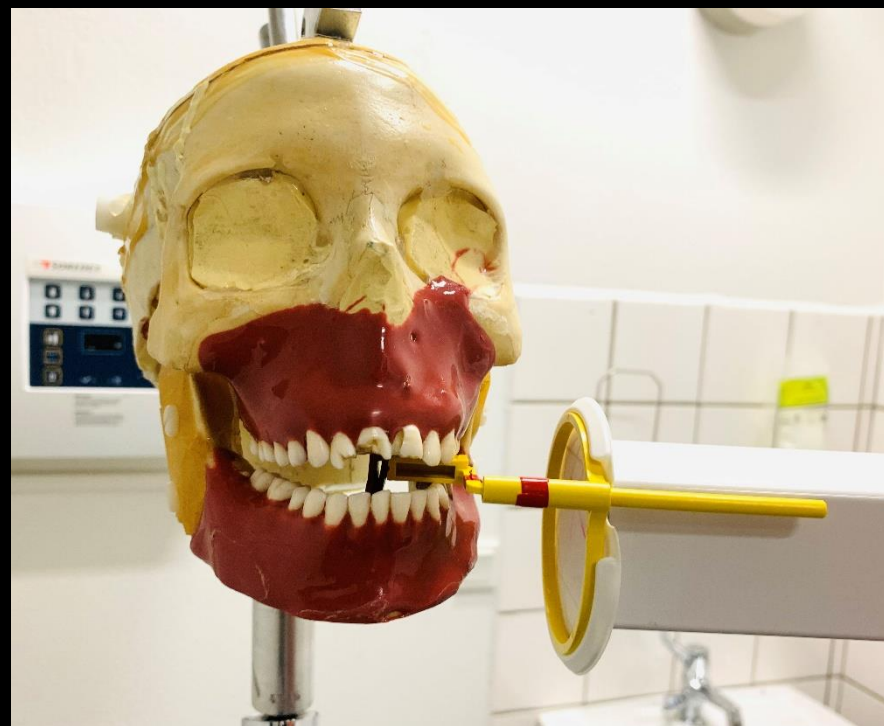


Benyt de holdere
der ligger godt i dine
hænder



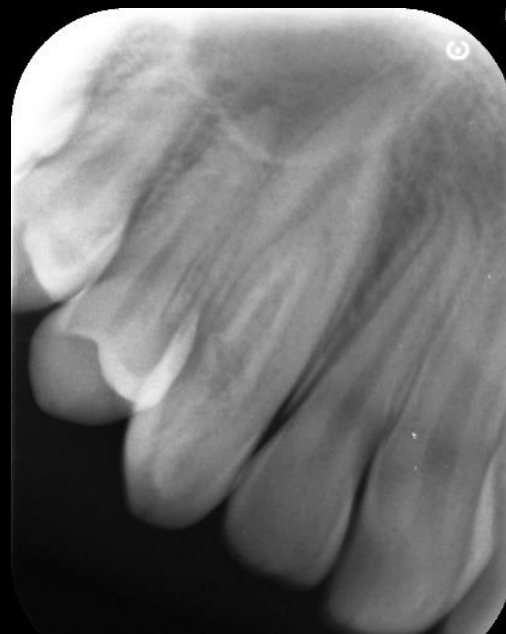


Man kan benytte en sigtering, hvis man har udfordringer med at "ramme" receptoren



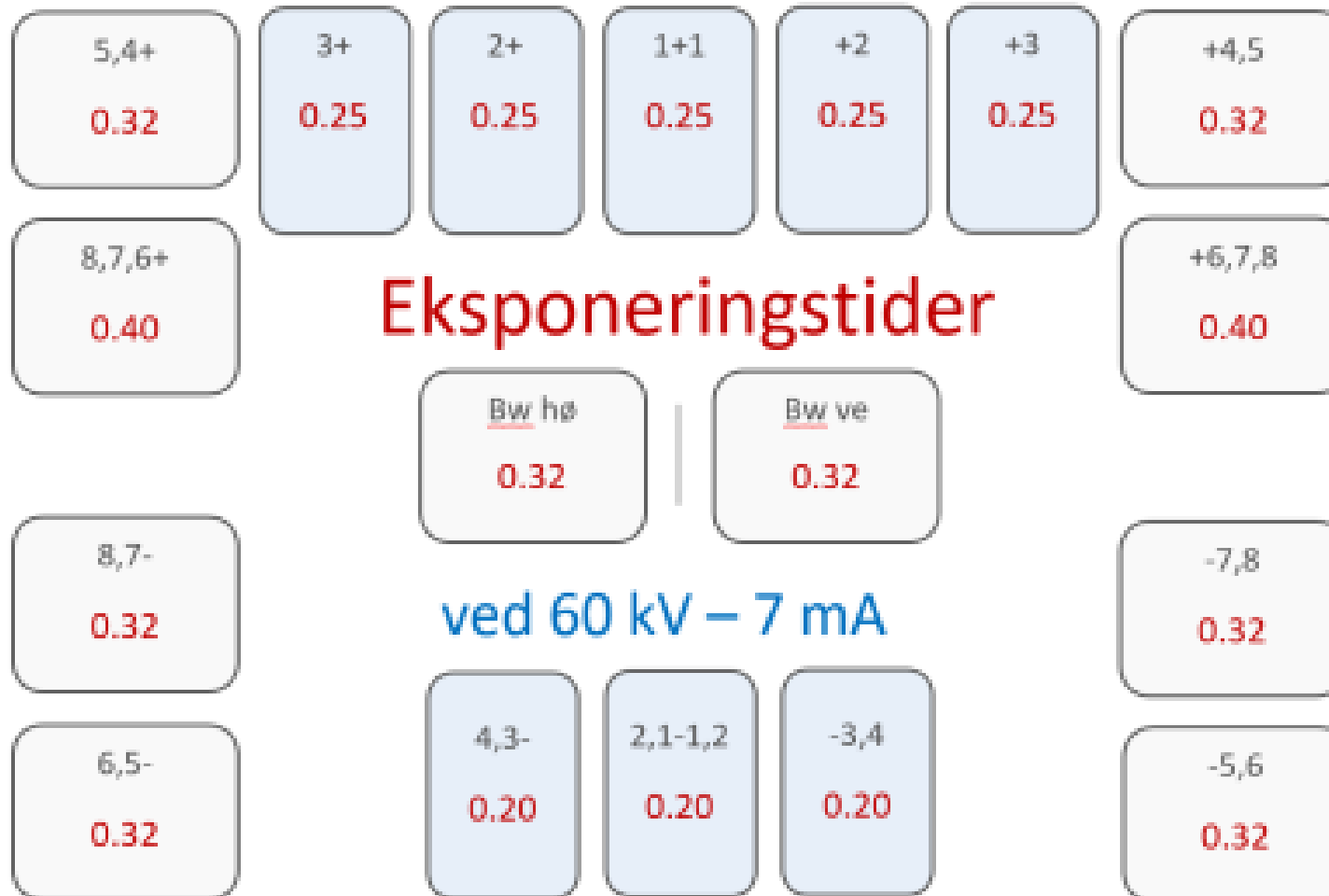
Hvad går oftest galt?

- Tænderne er ikke afbildet "naturligt"
 - For lange eller for korte tænder
- Patienten har ikke bidt sammen på holderen
 - Luft over okklusplanet
 - Manglende apices og periapikal knogle
- Blændeafskæring
 - Mangler information
- Approksimale overlap
- Receptoren ikke i kontakt med tænderne
 - Uskarpe billeder



Individuelle eksponeringsparametre

MixRay



Vær opmærksom på?

- Accepter at det ikke kan gøres hurtigt
- Brug en passende receptorstørrelse
- Brug en receptorholder med sigtepind
- Sigt på den tand der er "vigtig"

Du skal kende stråledoser for de apparater, I har på klinikken i tilfælde af, at en patient eller pårørende spørger. Som reference anbefales det at bruge baggrundsstrålingen.

	Den gennemsnitlige baggrunds dosis i Danmark	8 μSv
PÅ EN DAG		
	Intraorale (små billeder)	
	1 BILLEDE	1-1,5 μSv 3-5 timers baggrunds dosis
	STATUS (16-18 billeder)	20-30 μSv = 3-4 dages baggrunds dosis
	Panorama	6-8 μSv
	eller Cephalogram	= 1 dages baggrunds dosis
 	CBCT scanning	35-190 μSv = 4-24 dages baggrunds dosis
	Lille felt (5x5 / 6x6 cm) ENKELTE TÆNDER	35-69 μSv = 3-6 Pano+Ceph = 4-9 dages baggrunds dosis
	Større felt (8x15 cm) KÆBELED (BEGGE)	141 μSv = 9-12 Pano+Ceph = 12-18 dages baggrunds dosis
	Stort felt (16x18 cm) HELT KRANIE	190 μSv = 12-16 Pano+Ceph = 16-24 dages baggrunds dosis
		

Estimated effective dose in μ Sv (6h in dose rate) with standard parameters

Panoramarøntgen



Anvendelsesmuligheder

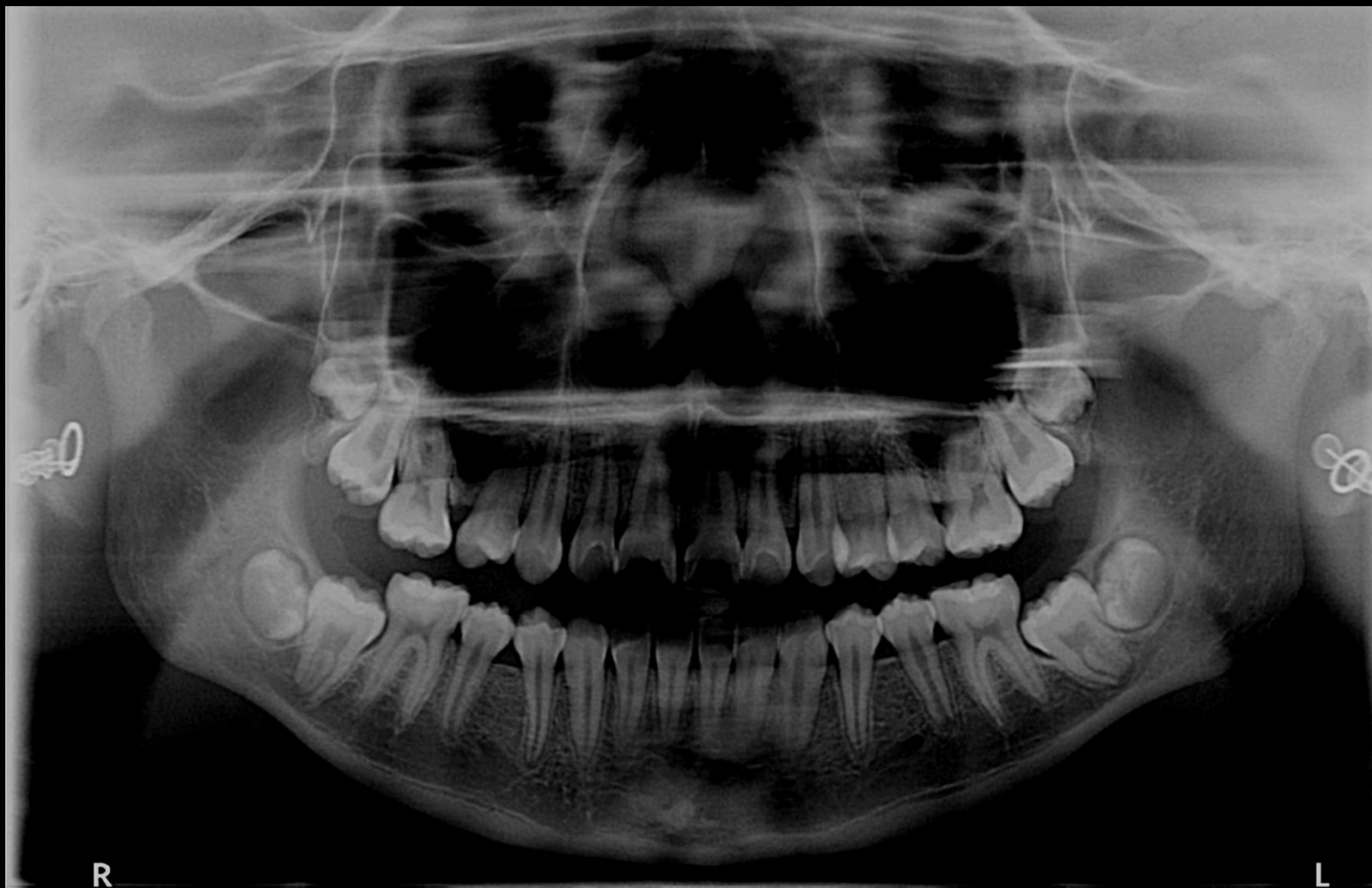
- Indikationer:
 - Oversigtsbilleder af tænder og kæber
 - Eksempelvis forud for OR
 - Første valg til visdomstænder
 - Diagnostik af større processer
 - Cyster og tumorer
 - Infektiøse processer
 - Tanddannelsen hos børn
 - Retinerede tænder
 - Eruptionsforstyrrelser
 - Kæbeled
 - Traumer
 - Kæbefrakture
 - I stedet for intraorale optagelser
 - Nedsat gabebevne
 - Voldsom svælgrefleks

Pænt panoramabillede



Ikke pænt panoramabillede





Positionering: hagen sænket, tungen ikke i ganen, smykker ikke fjernet.

Panoramabilledet

- Overblik
- Ikke så skarpt/detaljeret som intraorale billeder
- Forskellig forstørrelse og distorsion i billedet
- Hvis man har en fuld status giver panorama sjældent yderligere info
 - For patienter, der blot skal almindelig tandbehandling

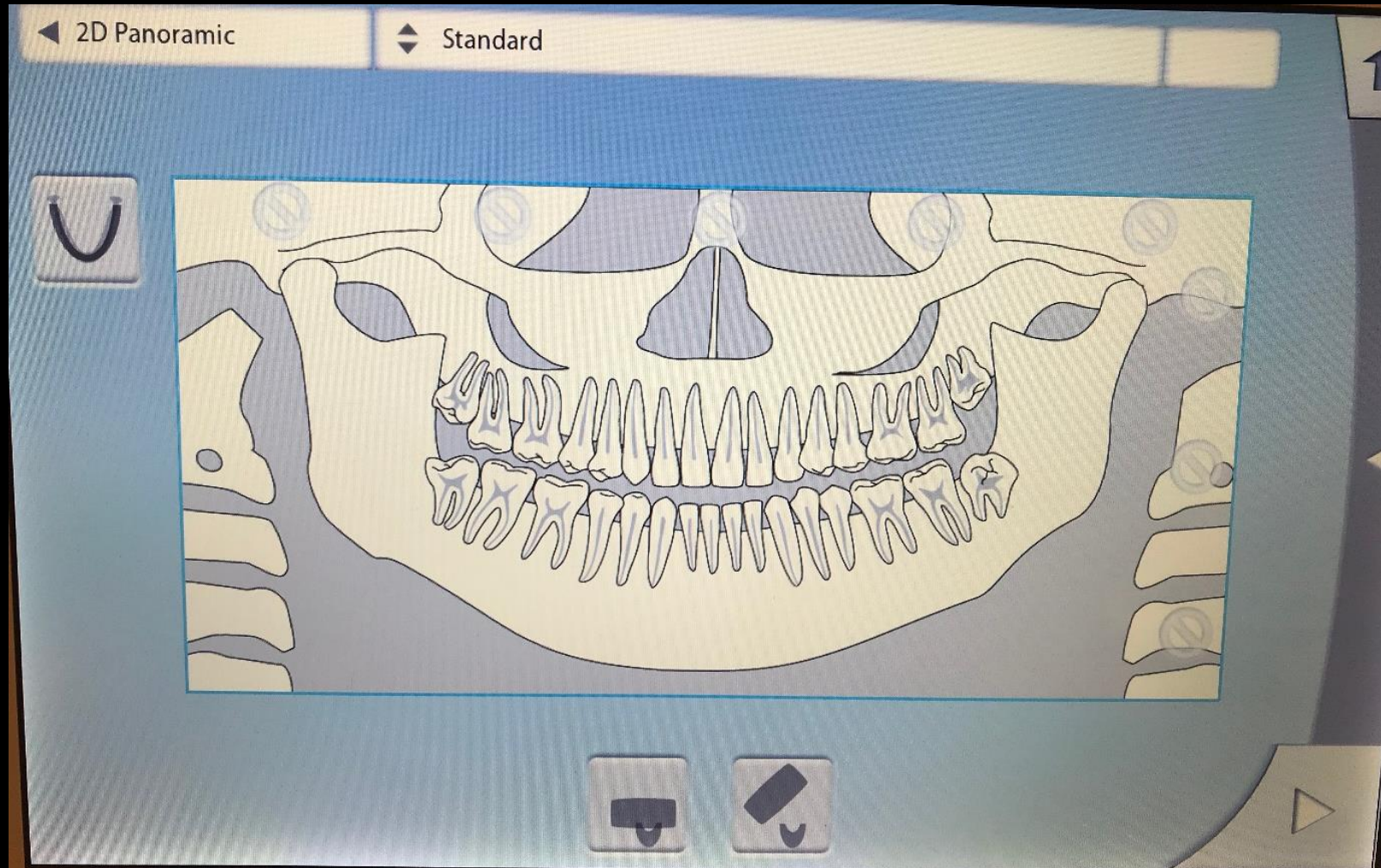
Instruktion

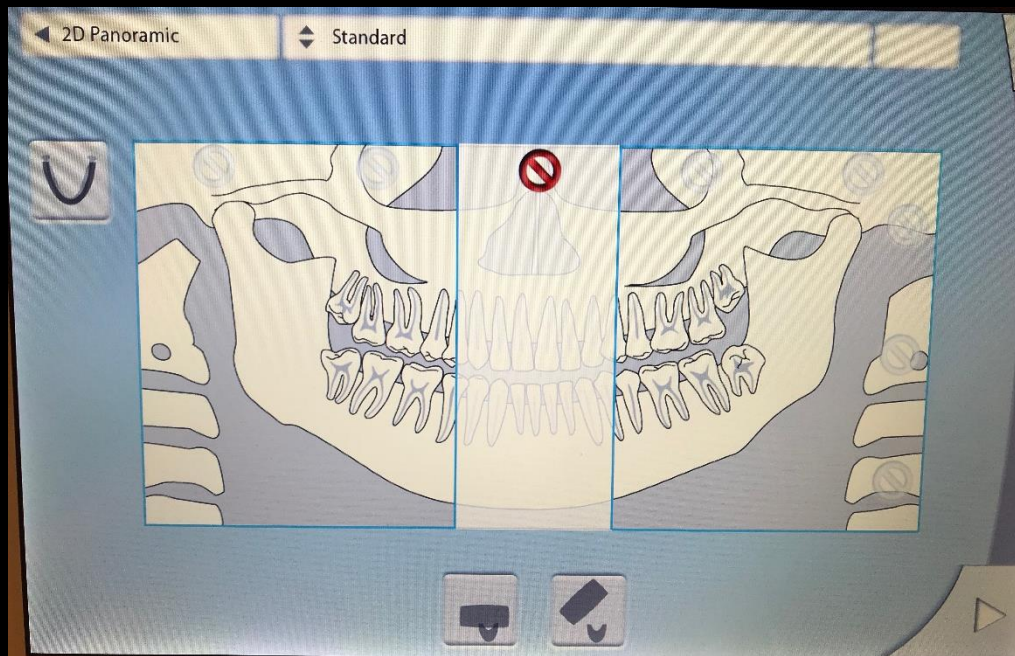
- Fortæl patienten om optagelsen
- Fjerne
 - Øreringe, hårnåle, hårelastikker m. metal, piercinger
 - Høreapparater, proteser, briller
- Indstil program
- Nakken skal være strakt og tungen i ganen
- Stå stille i 15-16 sekunder

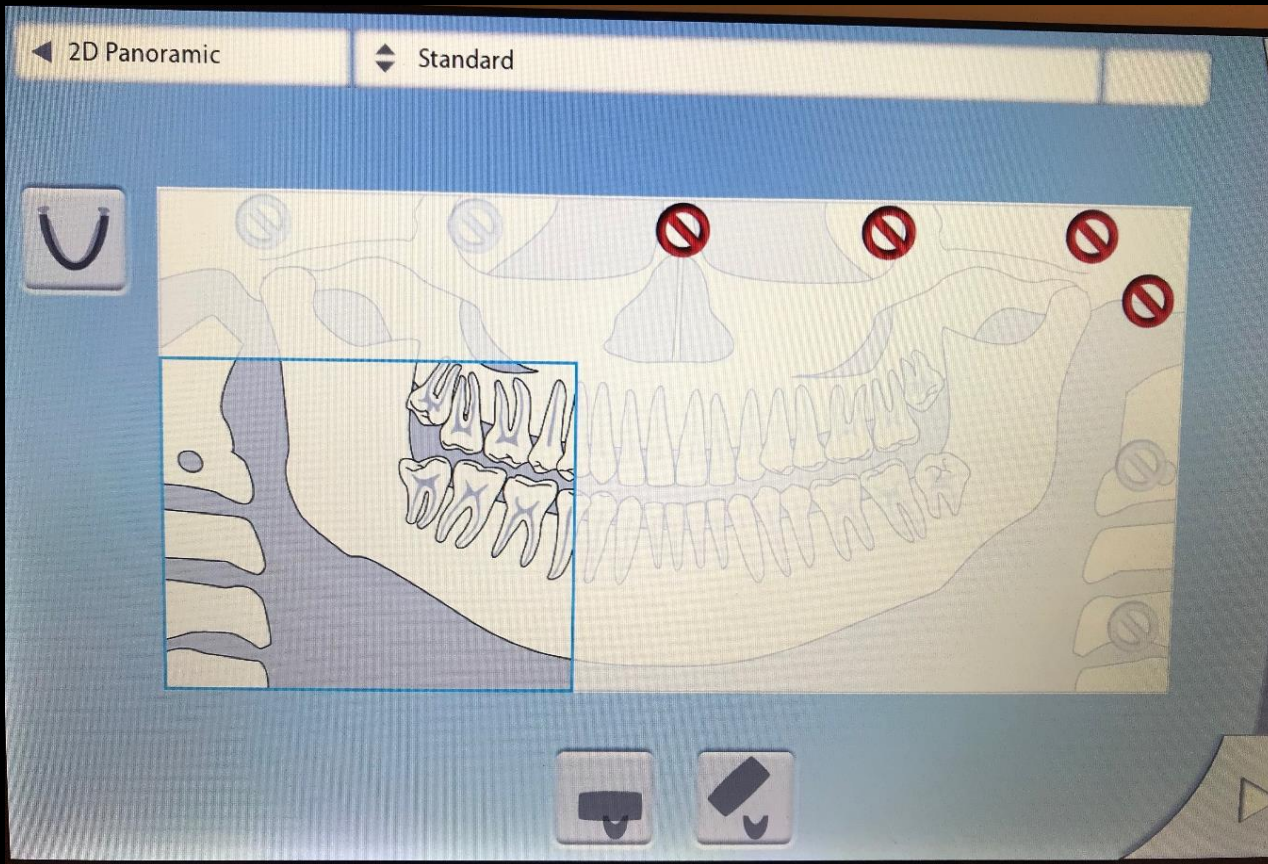
Patientpositionering

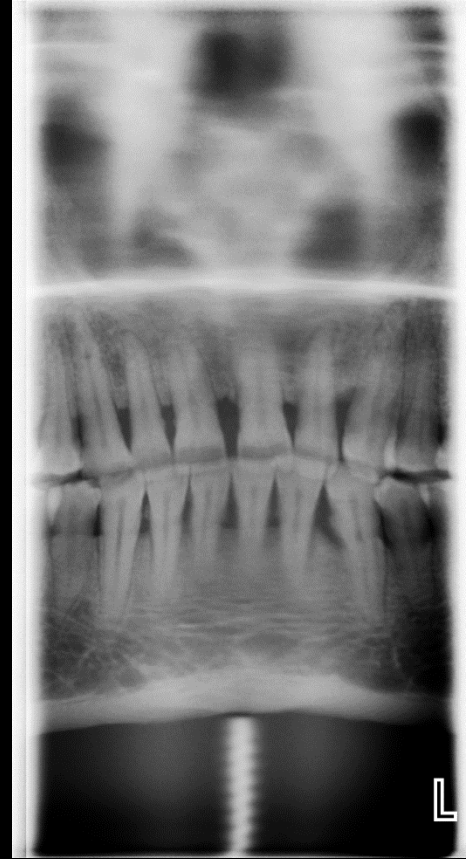
- Ingen smykker, briller osv.
- Lige Frankfurter-horisontal plan
- Strakt nakke
- Lige midtlinje
- Skarphedsplan/hjørnetandslys
- Tungen i ganen
- Ingen bevægelse

Mulighed for at lave indblænding









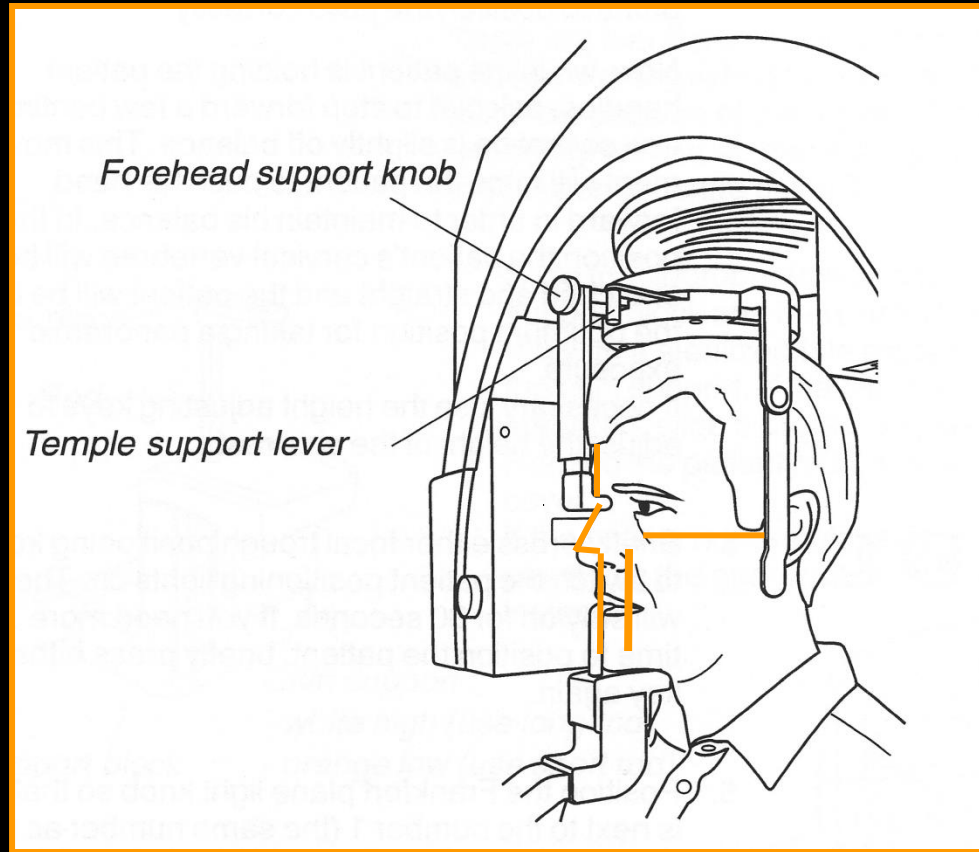
Positionering af patient

Lysvisiret viser 3
hjælpelinjer:

1 Midtlinje

2 Frankfurterplan

3 Skarphedsplan



Tungen har ikke ligget i ganen



Artefakter

- Smykker og andet metal
 - "ghost-billeder" i modsatte side
 - højere oppe på grund af stråleretningen



Vurdering af optagelsens kvalitet

- Har patienten haft strakt nakke
- Har tungen været i ganen
- Har patienten stået korrekt ifht. Skarphedsplanet, uskarp front
 - Bredde fortænder (bagved)
 - Lange smalle fortænder (foran)
- Har patienten stået korrekt med hagen, smilelinje
 - Positiv smilelinje (hagen sænket)
 - Negativ smilelinje (hagen løftet)
- Har patienten stået symmetrisk (drejning af hovedet)
 - Bredden af ramus og størrelsen af kindtænder
 - Overlap af molarer og præmolarer (operatørens positionering)
- Fremmedlegemer/artefakter

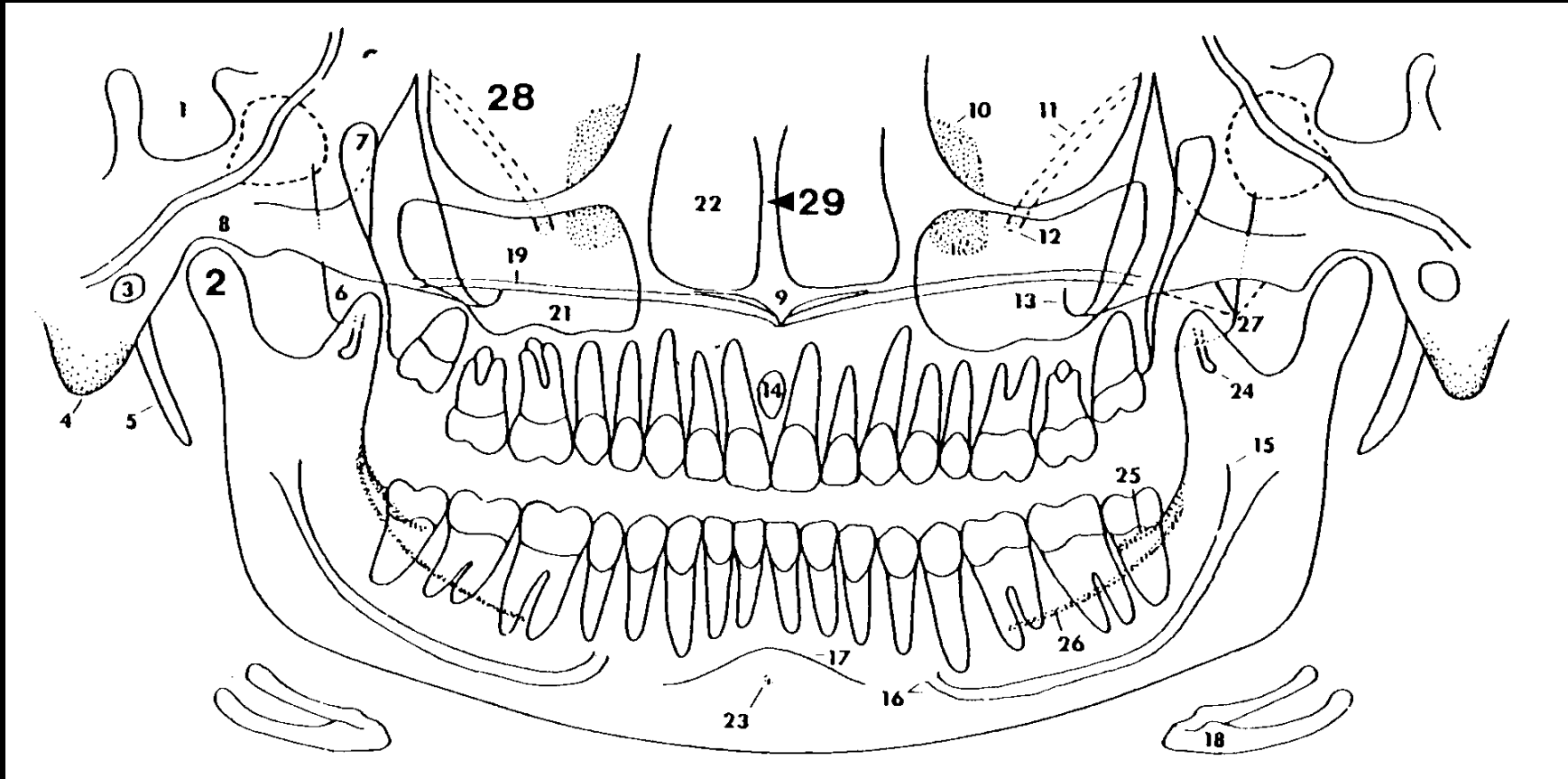
Vær opmærksom på?

- Korrekt positionering af patienten i apparatet
- Hvad er normalanatomie og hvad er patologi
- Systematisk tilgang, så intet bliver overset – heller ikke forandringer i knogle og blødtvæv

- Du kunne komme ind på indikationer for optagelse af otp i børne unge tandplejen.
- Desuden kunne vi godt tænke os en brush-up på hvad er det vi ser på OTP. Vi har et meget stærkt samarbejde med nogle bestemte tandplejere om beskrivelse af OTP.

Panorama – anatomi

tænder, kæber, kæbeled, kæbehuler



- | | |
|---------------------------|-------------------------|
| 1. Sella tursica | 16.Can. og for. mentale |
| 2. Kondyllen | 17.Mental fremspring |
| 3. Ydre øre | 18.Tungeben |
| 4. P. mastoideus | 19.Hårde gane |
| 5. P. styloideus | 20.----- |
| 6. Lat. pterygoideus | 21.Sinus max |
| 7. Fis. pterygomaxillaris | 22.Fossa nasalis |
| 8. Tub. articulare | 23.Spina mentalis |
| 9. Ant. spina nasalis | 24.Hamulus |
| 10.Sin. ethmoidale | 25.L. Obliqua |
| 11.C. infraorbitale | 26.L. Mylohyoidea |
| 12.For. infraorbital | 27.Zygoma |
| 13.Os zygoma | 28.Orbit |
| 14.For. incisivum | 29.Næseseptum |
| 15.For. mandibulare | |

Dental Panoramic

RADIOLOGY

Surrounding Structures

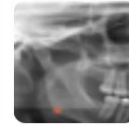


Mandible

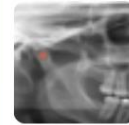
Maxilla

< Back

Mandible



Angle of
the Mandible



Condyle



Coronoid Process



External
Oblique Ridge



Inferior Alveolar
Canal



Inferior Cortical
Border



Mandibular Foramen



Hjørnetænder i OK

- Vi ser mere resorption på CBCT end på panorama og MOD
 - Primært lateraler
 - Også centraler og første præmolarer
- Fund på CBCT ændrer på behandlingen (35%)
 - Primært den første trækretning samt hvilke/om tænder skal fjernes
 - Kan ikke identificere fund på CBCT, der er årsag til at behandlingen ændres
 - 3+3 med stor alfa- og lateralvinkel på panorama ændrer behandlingsplan

REVIEW ARTICLE

Cone beam CT imaging of the mandibular third molar: a position paper prepared by the European Academy of DentoMaxilloFacial Radiology (EADMFR)

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Objectives: Lack of evidence on the use of CBCT for management of mandibular third molars in Radiation Protection guideline no. 172 of the European Commission made the European Academy of DentoMaxilloFacial Radiology (EADMFR) decide to update the recommendations of the guideline.

Methods and materials: A literature search was performed addressing the following questions: (1) does CBCT change the treatment of the patient?; (2) does CBCT reduce the number of post-operative sensory disturbances of the inferior alveolar nerve?; and (3) can CBCT predict the risk for a post-operative sensory disturbance of the inferior alveolar nerve?

Results: Since the European Commission published the guideline in 2012 several high-evidence studies on the use of CBCT before removal of mandibular third molars have been conducted including five randomized controlled clinical trials and one meta-analysis. Present literature allows to propose recommendations with highest level of evidence.

Conclusion: New and up-to-date evidence-based recommendations advocate that CBCT imaging of the mandibular third molar should not be applied as a routine method before removal of mandibular third molars and therefore, CBCT imaging should only be applied when the surgeon has a very specific clinical question in an individual patient case that cannot be answered by conventional (panoramic and/or intraoral) imaging.

Dentomaxillofacial Radiology (2019) 48, 20190039. doi: [10.1259/dmfr.20190039](https://doi.org/10.1259/dmfr.20190039)

Cite this article as: Matzen LH, Berkhout E. Cone beam CT imaging of the mandibular third molar: a position paper prepared by the European Academy of DentoMaxilloFacial Radiology (EADMFR). *Dentomaxillofac Radiol* 2019; 48: 20190039.

Keywords: molar, third; CBCT, surgery

Background

In 2012, the European Commission issued Radiation Protection guideline no. 172, an evidence-based guideline on the use of CBCT for dental and maxillofacial radiology.¹ This guideline was a result of the SedentexCT project. This SedentexCT project (2008–2011) was supported by the seventh Framework Programme of Euratom and conducted by six European universities and a company (see also: <http://www.sedentext.eu/>).

One objective of the SedentexCT project was to review the literature on CBCT and to derive guidelines that would clarify those clinical situations in which this imaging technique might be beneficial to the clinician and the patient. The method chose systematic review of the literature. However, the literature available for a formal review was limited in quantity, as Dr Vivian E Rushton, the chair of the Guideline Development Panel, wrote in the introduction of the Guidelines.

At that time, the Panel only found 13 papers about the use of CBCT for pre-surgical assessment of impacted mandibular third molars. Those studies had mostly

Recommendations

Since the SedentexCT workgroup delivered its guideline numerous papers with varying level of evidence have been published on the topic of imaging and management of the mandibular third molar. For this position paper only high quality studies with a good level of evidence were selected, assessing impact and outcome of CBCT on the treatment of mandibular third molars. A review of this literature makes it possible to make more specific recommendations, according to the grading system as used in the SedentexCT report:

- (1) CBCT should not be used routinely when assessing mandibular third molars for extraction (Grade A) or coronectomy (Grade C).
- (2) Great restraint should be shown for the pre-operative use of CBCT imaging for third mandibular molar removal or coronectomy. Panoramic imaging in most cases leads to the same patient outcome, with lower costs and radiation dose.

There is good evidence (several RCTs as mentioned before) suggesting that before full removal of a mandibular third molar, CBCT does not reduce the frequency of post-operative sensory disturbances of the IAN compared to conventional panoramic imaging (Grade A). CBCT does not reduce the operation time, number

of pain-relieving analgesics, or complications leading to contact with the surgeon (Grade A).

For assessment of the risk factors for a post-operative sensory disturbance of the IAN after removal of a mandibular third molar, CBCT does not perform better than conventional panoramic imaging (Grade B).

Overall recommendation

CBCT imaging of the mandibular third molar should only be applied when the surgeon has a very specific clinical question in an individual patient case that cannot be answered by conventional (panoramic and/or intraoral) imaging and goes beyond the recommendations as stated above.

Review of this position statement

This statement shall be reviewed in 5 years, or earlier if the evidence underlying is judged to have changed significantly.

Acknowledgment

The EADMFR working group gratefully acknowledges review and constructive contributions from Keith Horner, Ann Wenzel, Rubens Spin-Neto and Ralf Schulze.

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Ekstern resorption – retineret tand

Visdomstænder i UK

- Vi ser mere resorption på CBCT end panorama
- OBS på horisontalt lejrede og mesioverterede tænder - hvor kronen ligger ved cervixområdet på 7-7

Visdomstænder i OK

- Vi ser mere resorption på CBCT end panorama
- Der er ingen sammenhæng mellem fund på panorama og CBCT
- Over 35% ændrer behandling efter CBCT – ofte resorptioner

Forandringer i kæbeknoglen

- Lokalisation
- Form
- Afgrænsning
- Størrelse
- Struktur
- Tæthed
- Relation til tænder eller andre strukturer
- Effekt på tænder

Typer forkalkninger på panorama

Oversigt over regioner hvor forkalkninger ses

