

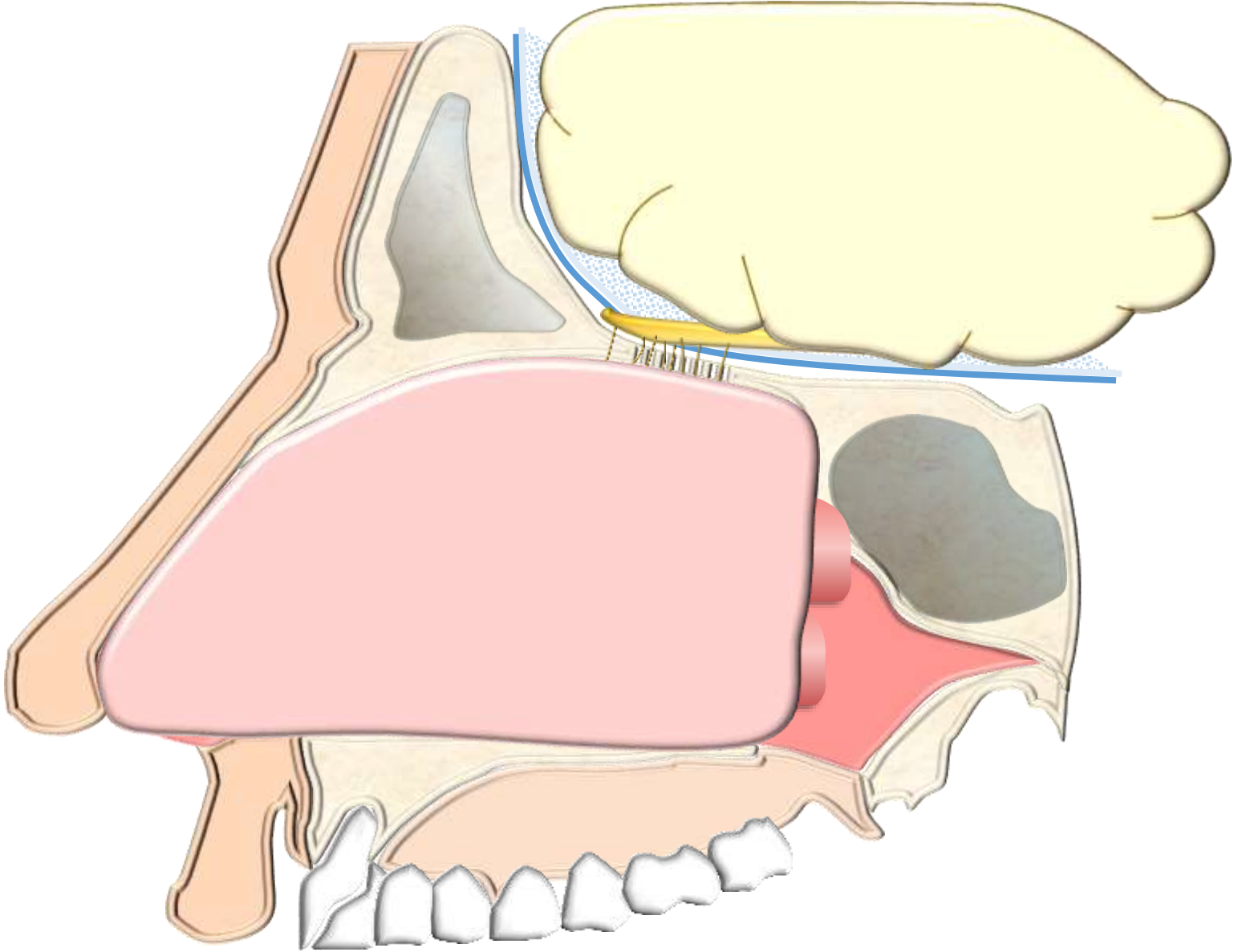
Tetting av CSF lekkasje

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Overlege ØNH-Rikshospitalet

Førsteamanuensis -UiO

Anatomi



Årsak

- **Ikke-traumatisk**

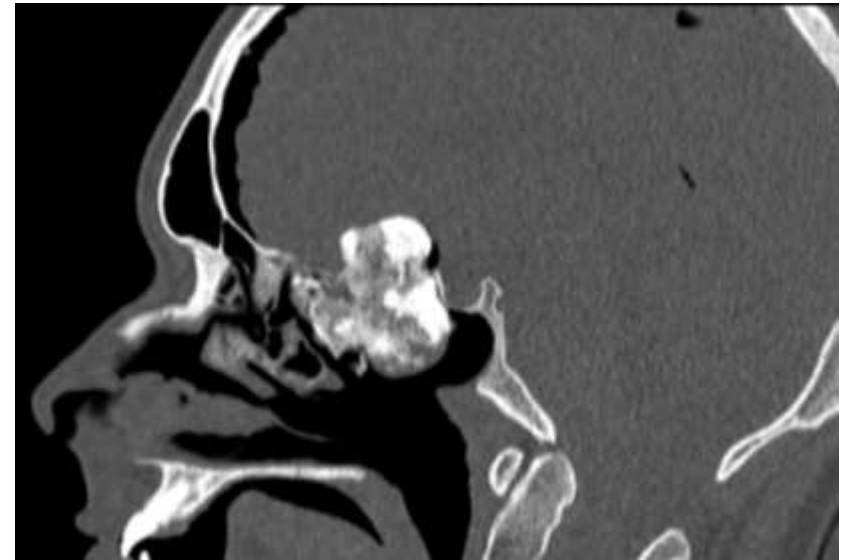
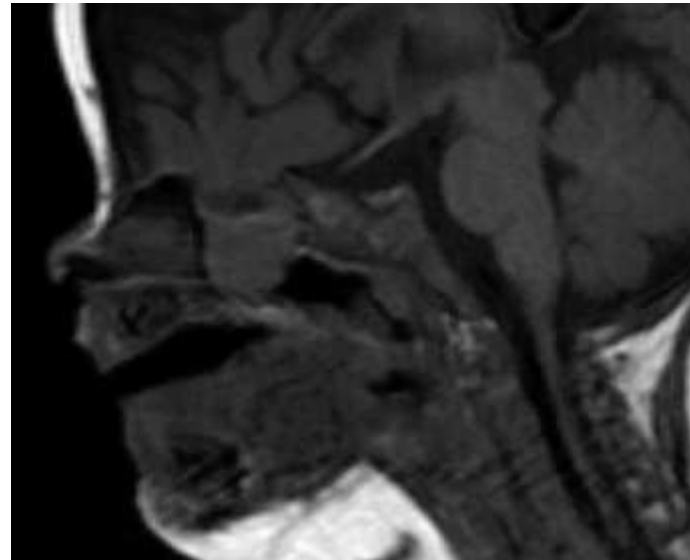
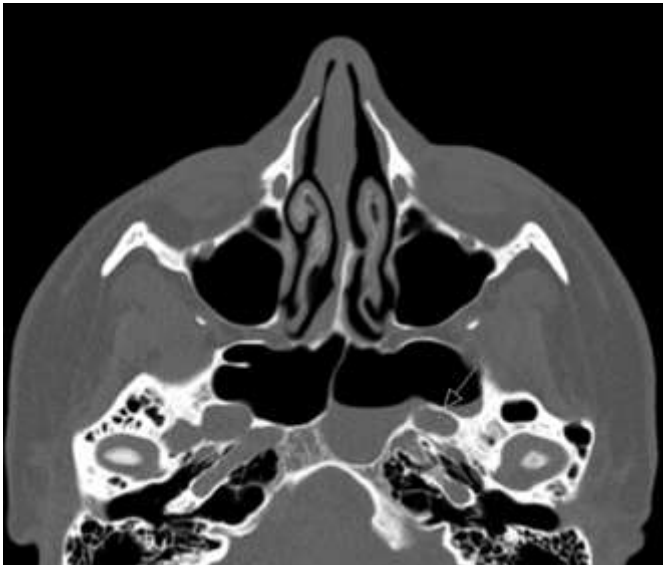
- Spontane
- Medfødt
- Intrakranielle eller skallebasis svulster

- **Traumatisk**

- Iatrogen (FESS)
- Ikke-iatrogent trauma

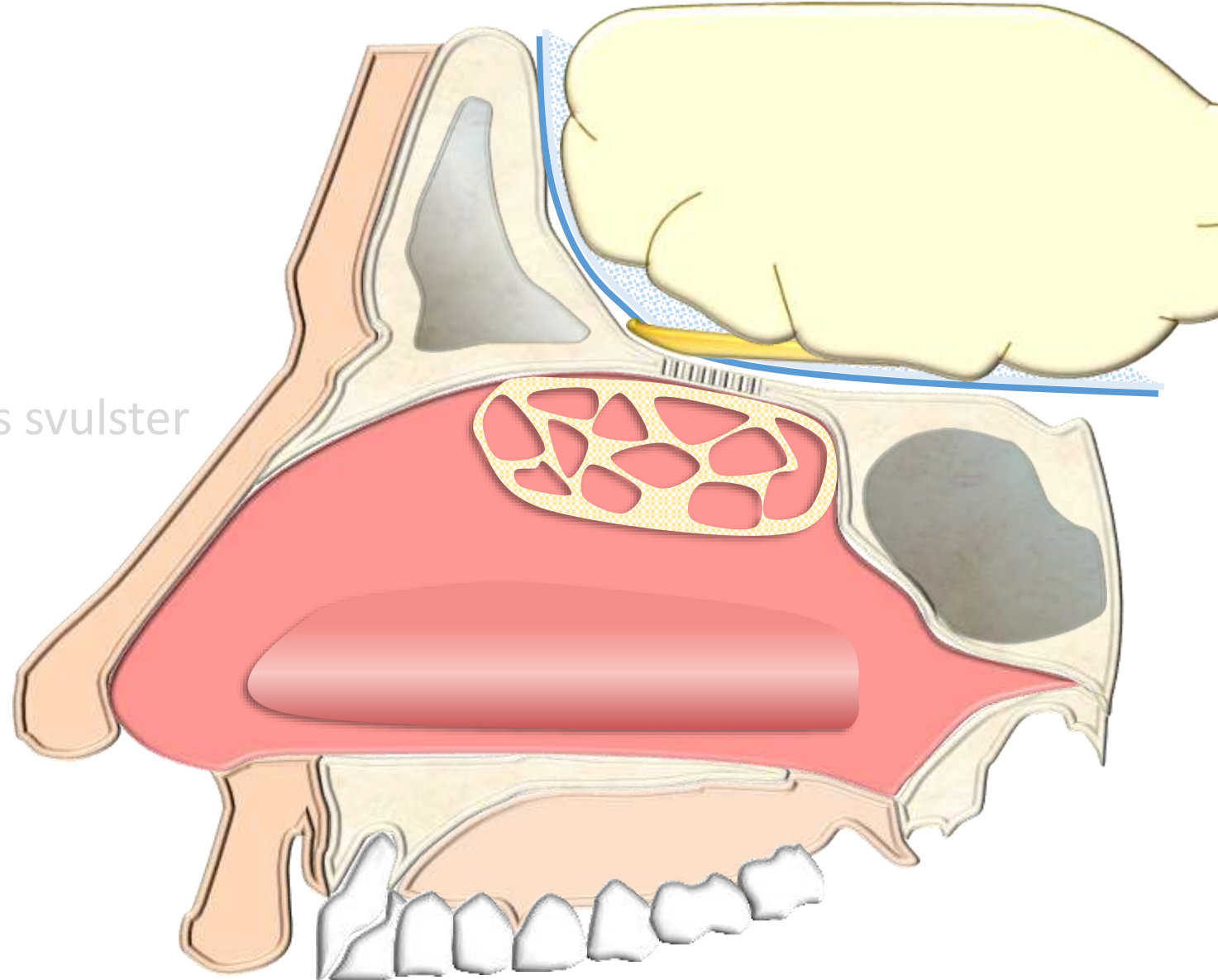
Årsak

- **Ikke-traumatisk**
 - Spontane
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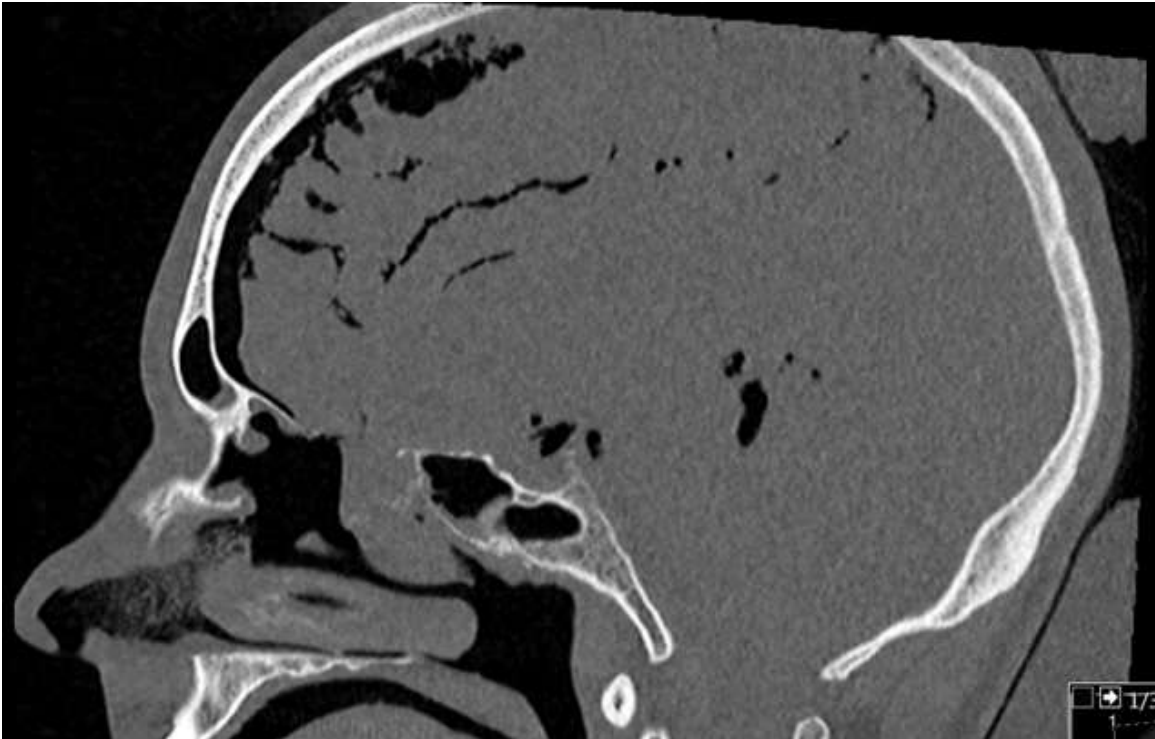
Årsak

- Ikke-traumatisk
 - Spontane
 - Medfødt
 - Intrakranielle eller skallebasis svulster
- Traumatisk
 - Iatrogen (0,17% av FESS)



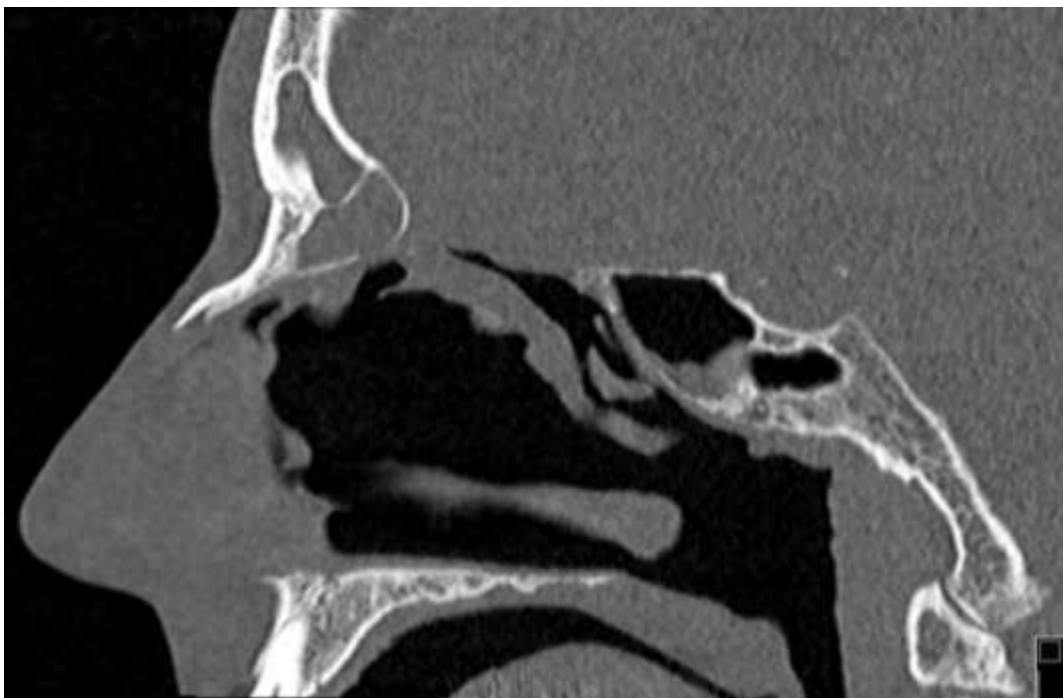
CSF lekkasje ved FESS (1)

- 44 år ♂
- CSF under FESS



CSF lekkasje ved FESS (1)

- 44 år ♂
- CSF under FESS
- 3 mnd etter lukking



CSF lekkasje ved FESS (2)

- 43 år ♂
- CSF ved tampong fjerning 6 dager etter FESS



CSF lekkasje ved FESS (3)

- 53 år ♂
- Nyretrasplanert + broncheaktesi
- CSF lekkasje 5 mnd etter FESS



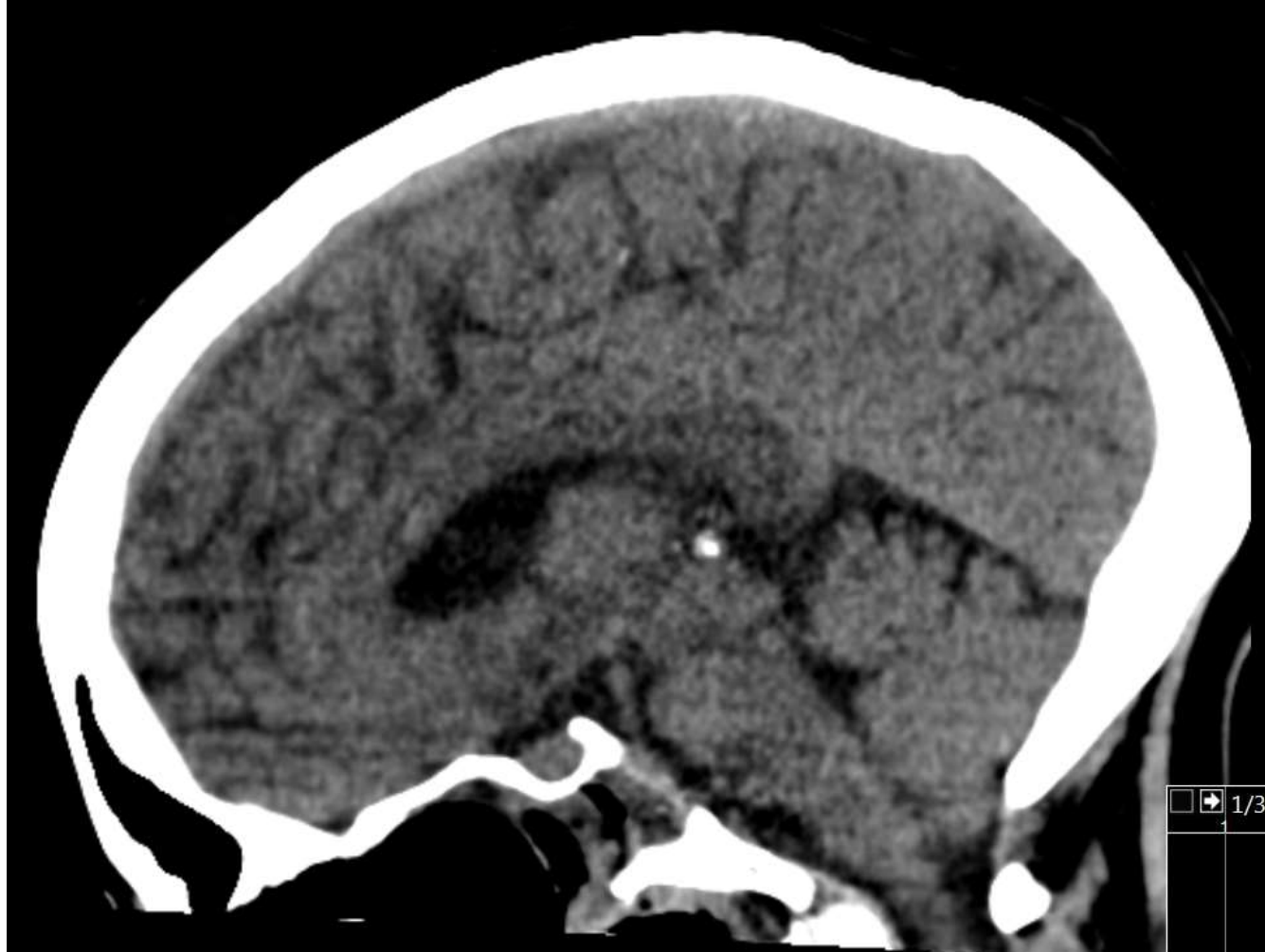
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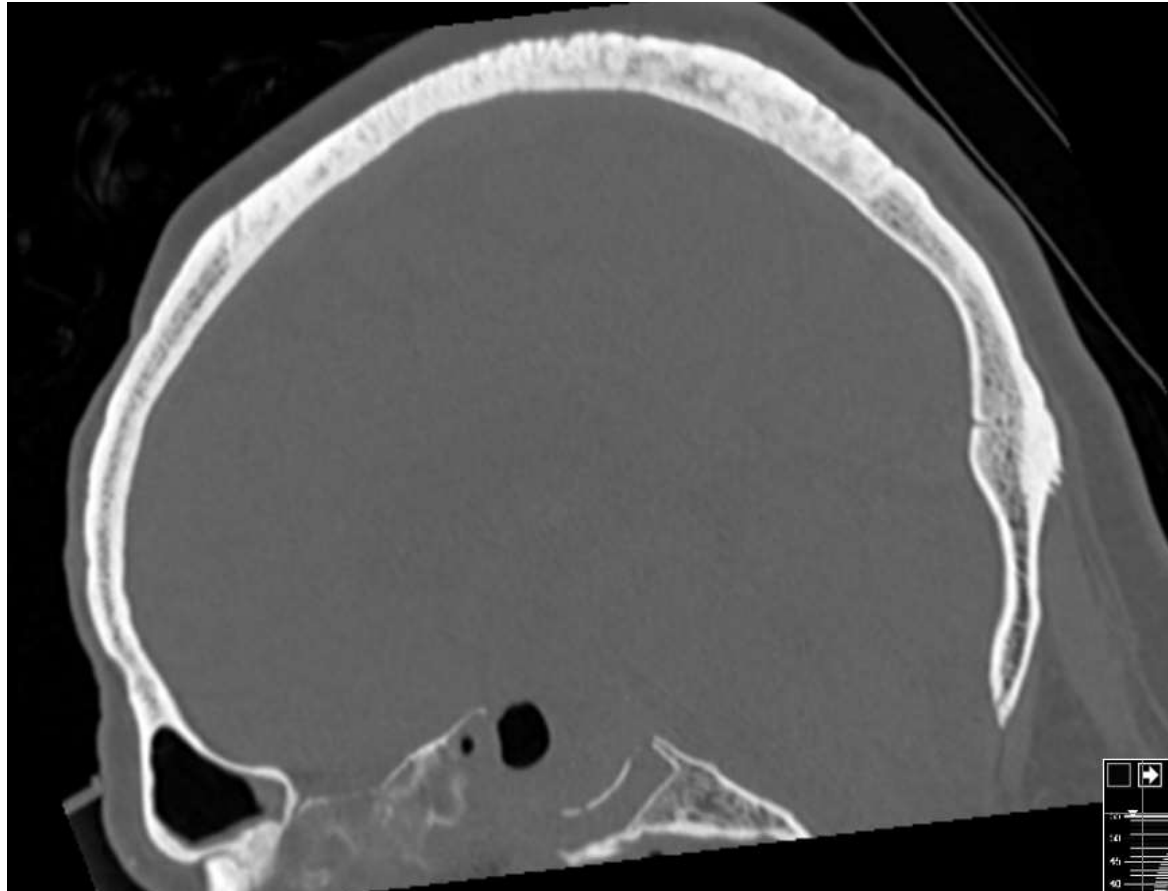


Preoperativ CT

Defekt etter chordom



Etter hypofyse



CSF lekkasje ved FESS

- Insidens: 0,17% - 1%
- Okkult CSF lekkasje etter FESS : 13%

Bucher et al 2018

Komplikasjon er mer vanlig ved:

- Tidligere operert nese
- Massiv polyposis
- Dyp fossa olfactorius (Kero type III)
- Anatomisk variasjon (lateralisert processus uncinatus, lav ethmoid tak, septum deviasjon,...)
- Shaver i meatus media
- Tumor kirurgi

Unngå komplikasjon

- Aldri opererer uten *ny* CT
- Studer CT før operasjon
- Bruk navigasjon ved re-operasjon massiv polyposis
- Bruk true cut instrument
- Job verikalt i meatus media
- Unngå mye medialisering av concha media
- God kunnskap anatomisk landmark
- God hemostase under operasjon
- Øye kompresjon under operasjon
- Hypotensiv anestesi
- *Kadaver disseksjon trening*

Årsak

- Ikke-traumatisk
 - Spontane
 - Medfødt
 - Intrakranielle eller skallebasis svulster
- Traumatisk
 - Iatrogen
 - Ikke-iatrogent trauma



Manifestasjoner

- Ensidig rhinorré
- Hodepine



Diagnose

1. Er dette CSF?

2. Hvor ?

Diagnose

1. Er dette CSF?

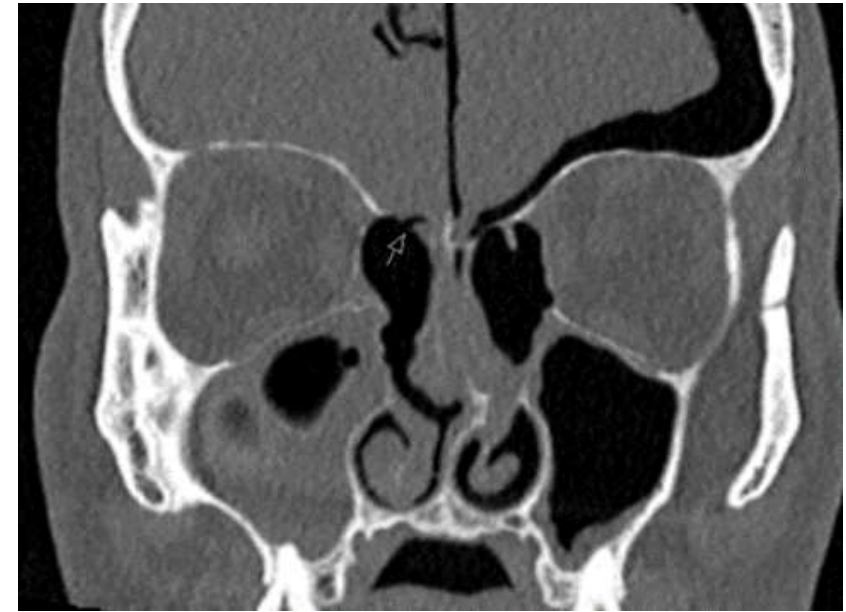
- CSF-markører
 - Beta-2 transferrin
 - Beta trace proteien



Diagnose

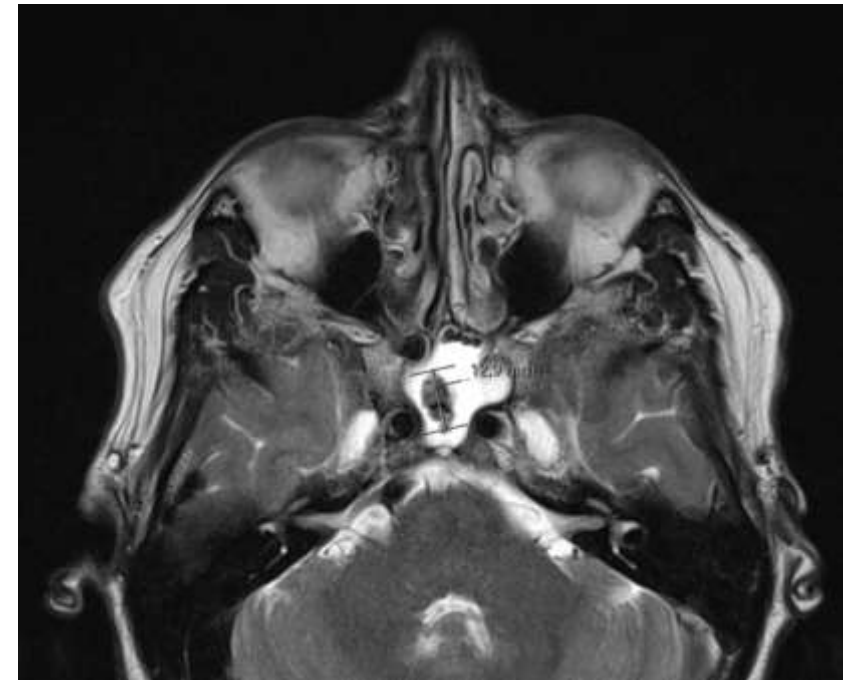
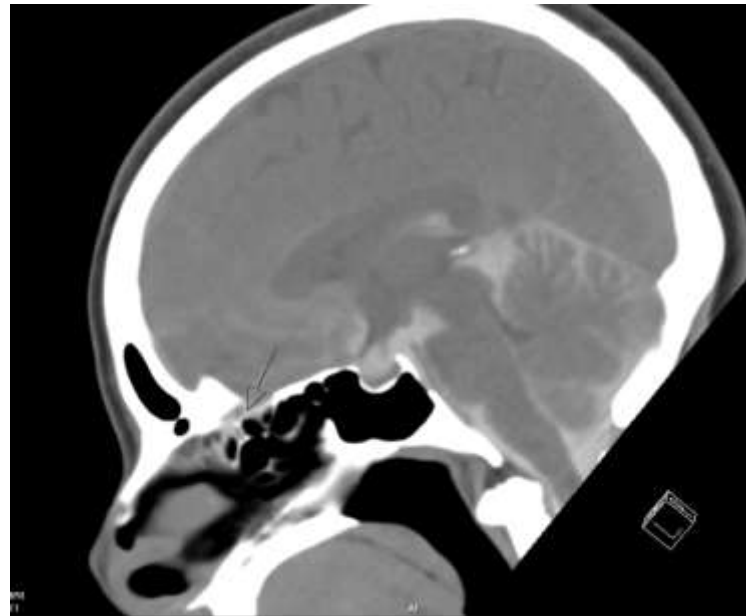
1. Er dette CSF?

- CSF-markører
 - Beta-2 transferrin
 - Beta trace proteien



2. Hvor?

- CT og MR (97% sensitivitet)
 - CT (90% sensitivitet)
 - MR (90% sensitivitet)



Diagnose

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 - Beta trace proteien

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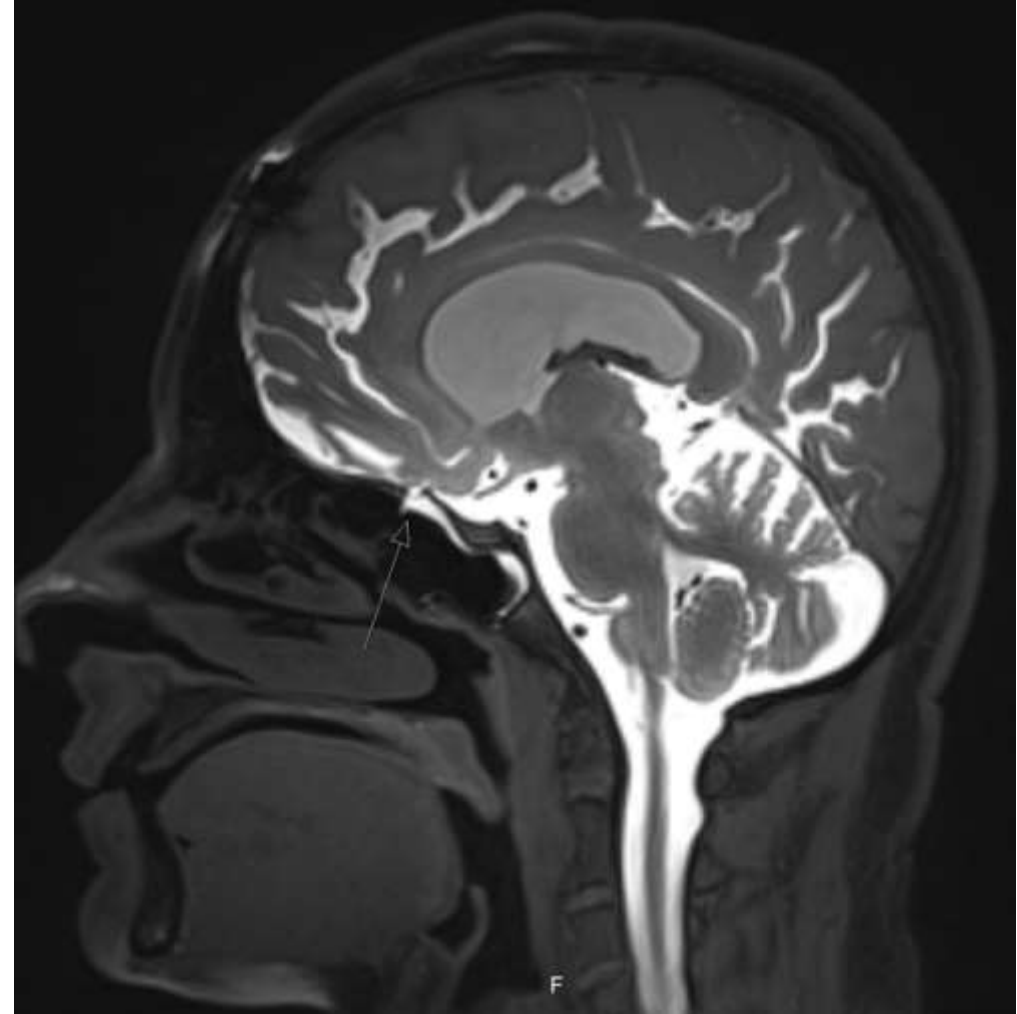
Diagnose

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- CSF-markører
 - Beta-2 transferrin
 - Beta trace proteien

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- CT og MR (97% sensitivitet)
 - CT (90% sensitivitet)
 - MR (90% sensitivitet)
- Intratekal Fluorescein
- **Intratekal kontrast**



T1 med Intratekal kontrast

Behandling

- **Konservativbehandling**
- **Kirurgi**

Behandling

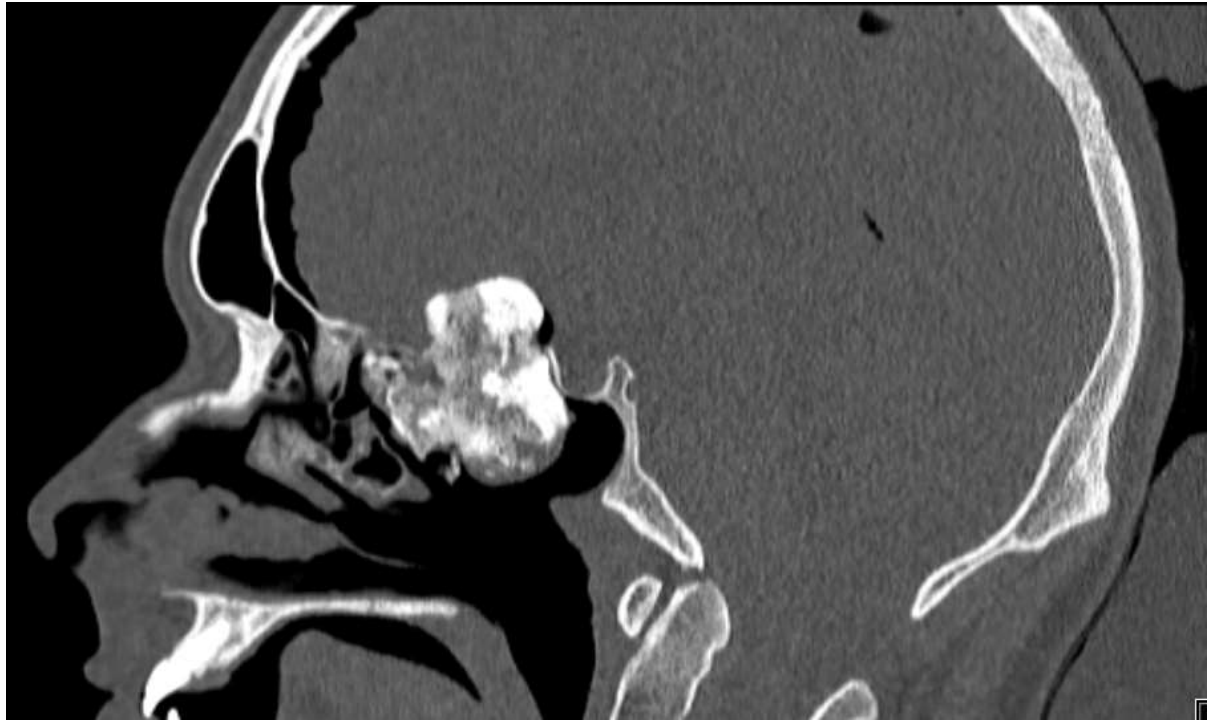
- **Konservativbehandling**

- 7-10 dager sengeleie med sengens hode opphøyd ca. 15-30 °
- Hoste, nysing, neseblåsing og tung løfting bør unngås så mye som mulig
- Avføringsmidler
- Lumbaldren ?
- Antibiotika ?
- ± Diamox (Acetazolamide)



Konservativbehandling

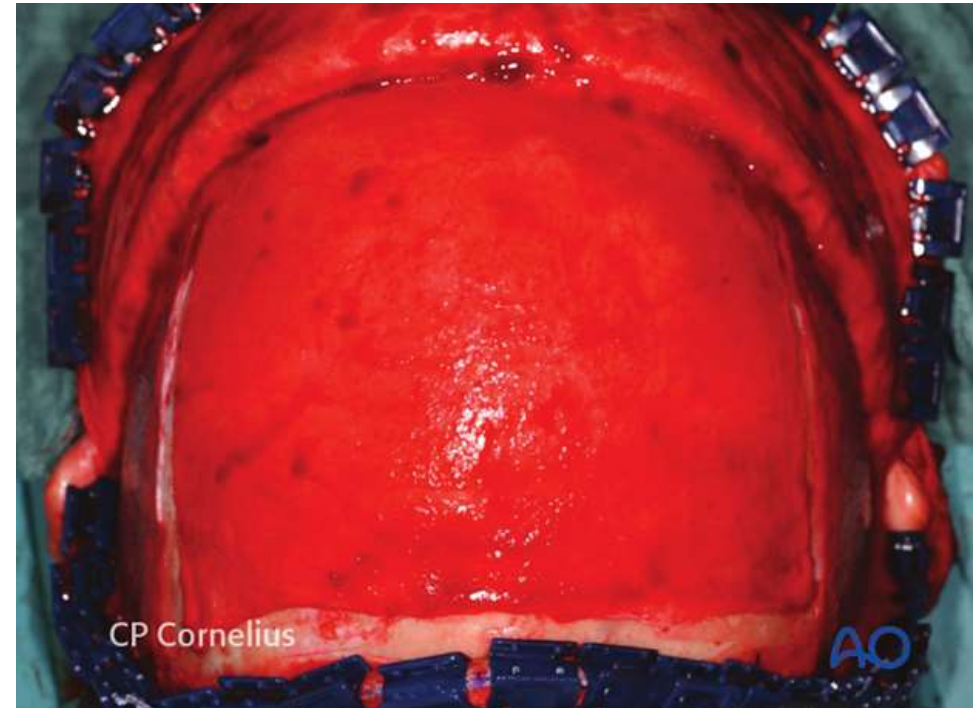
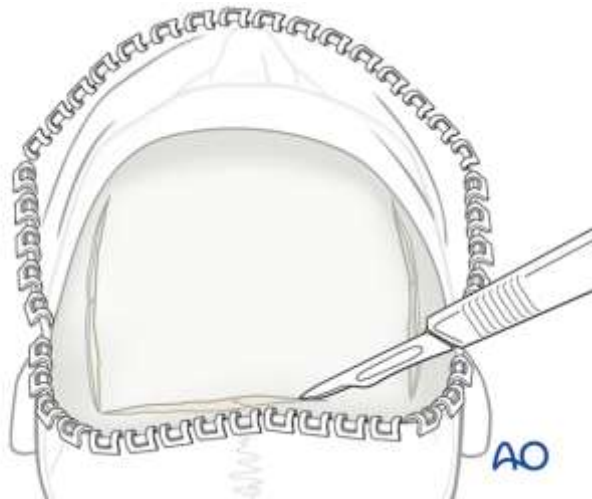
Skallebasis osteom



6 uker etter konservativ behandling

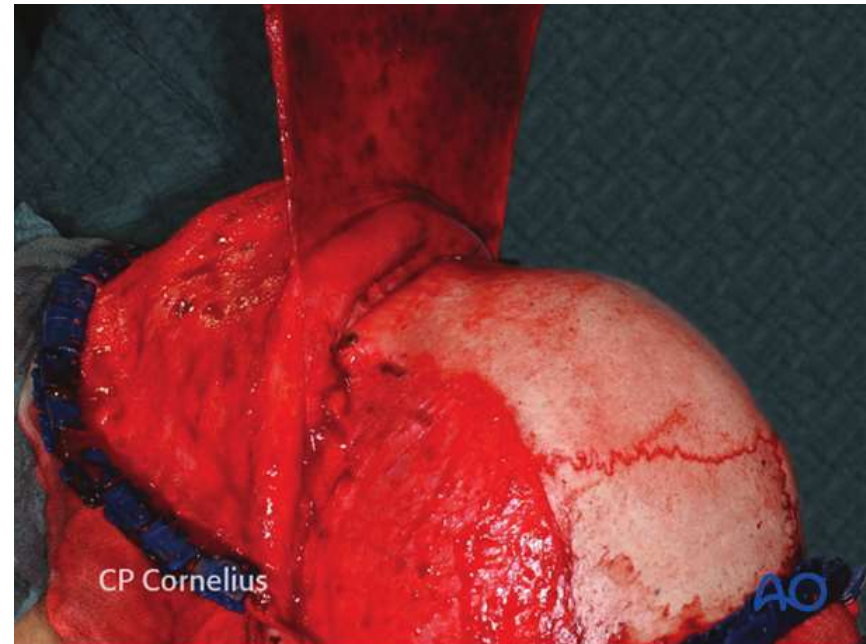
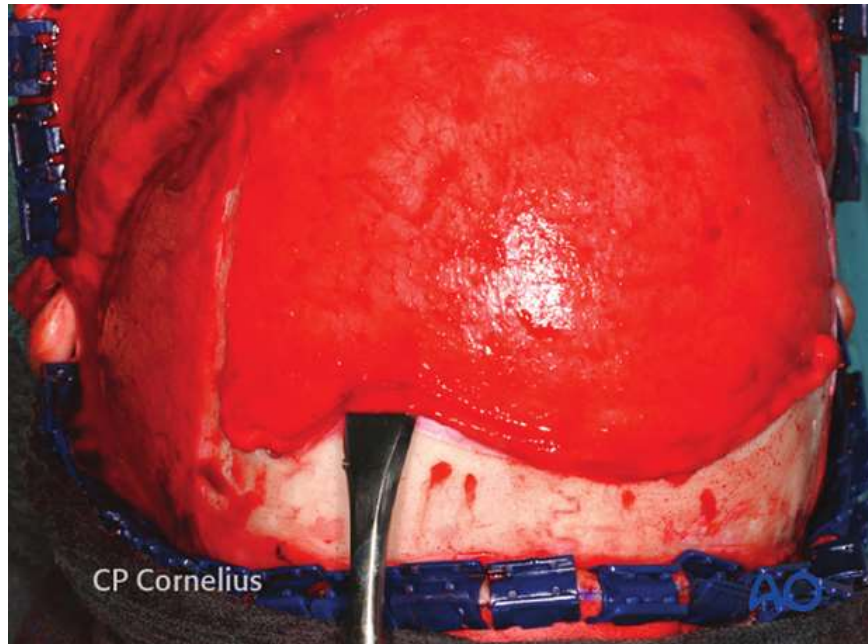
Behandling

- Kirurgi
 - Precranium lapp
 - Craniotomi



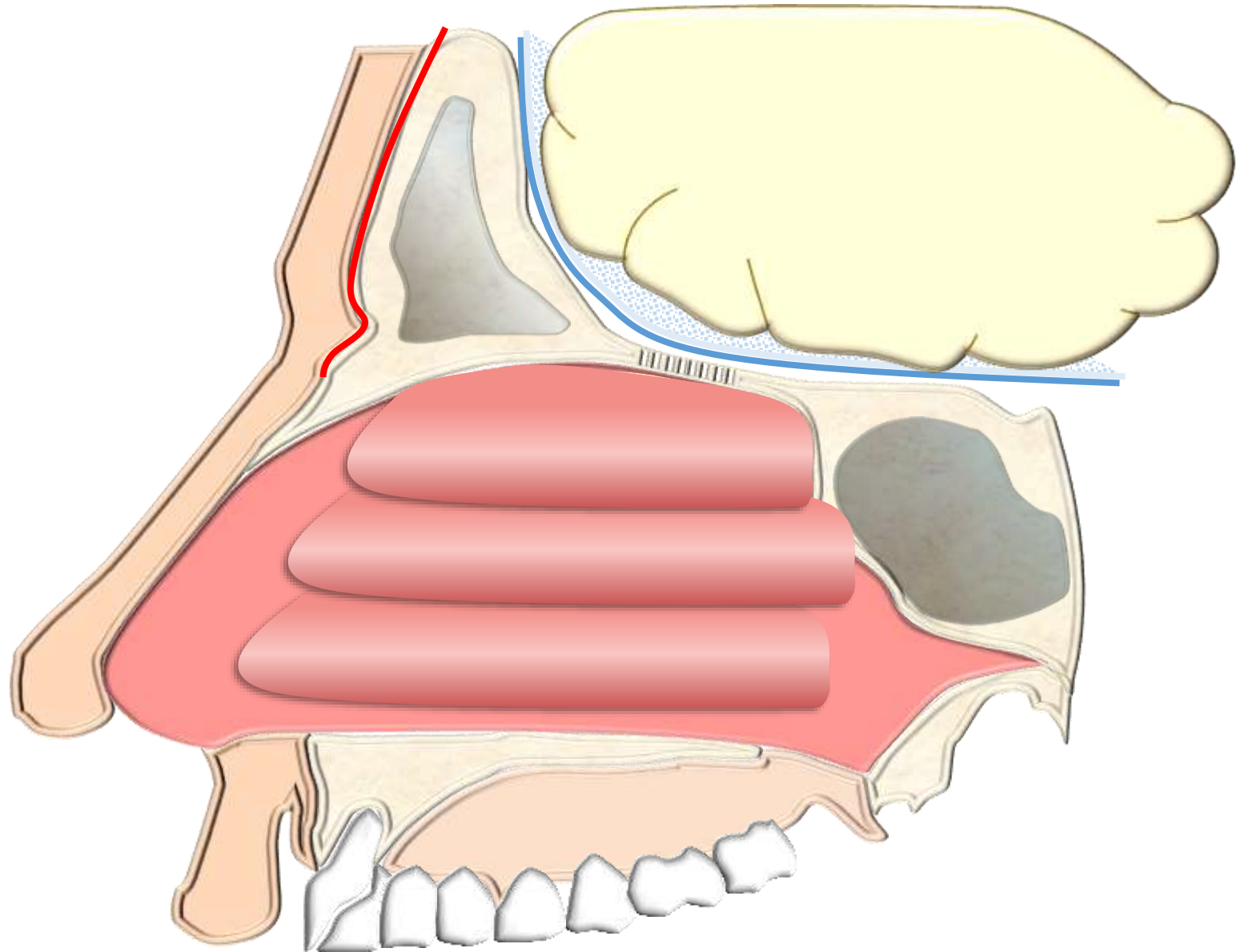
Behandling

- Kirurgi
 - Precranium lapp
 - Craniotomi



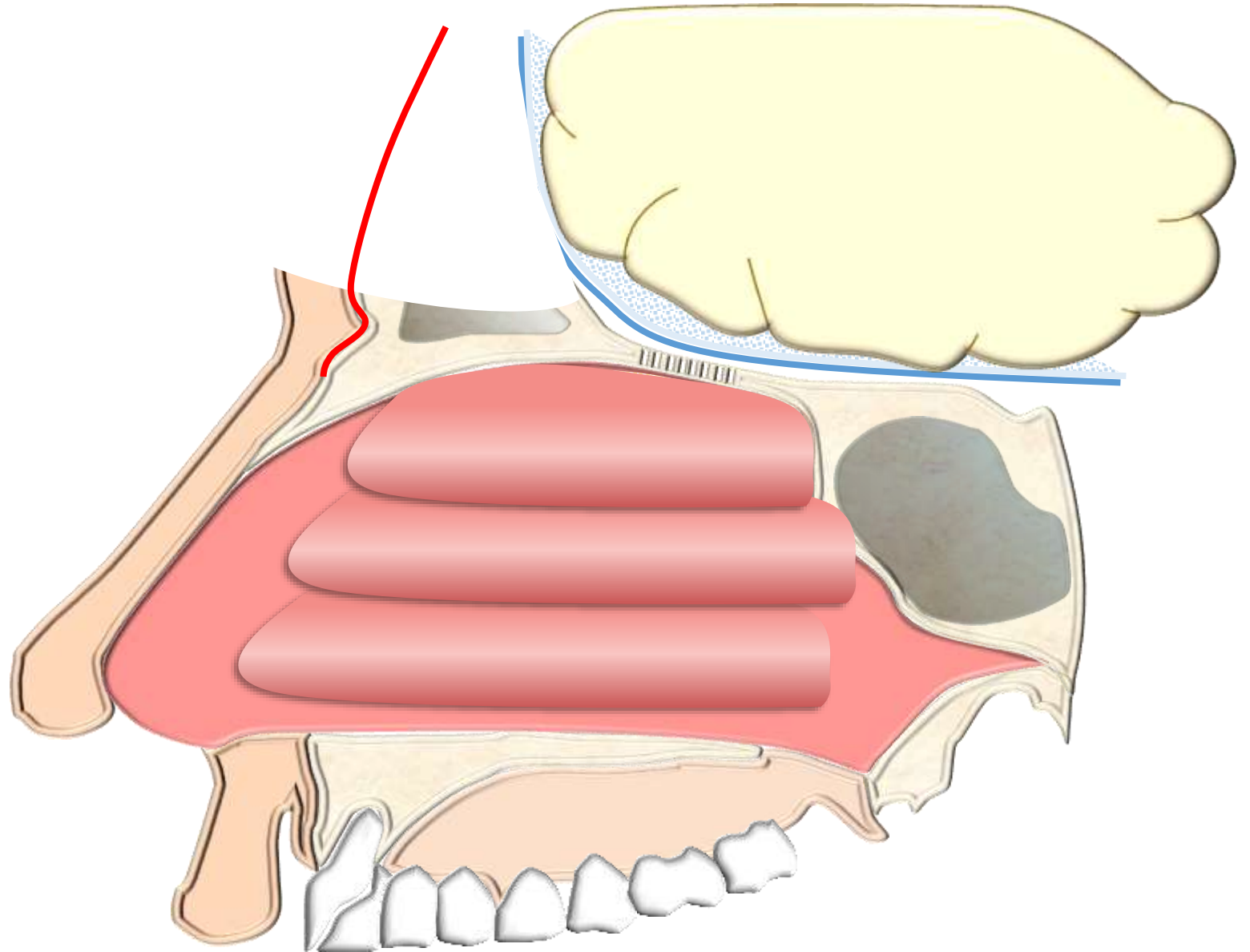
Behandling

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 - Craniotomi



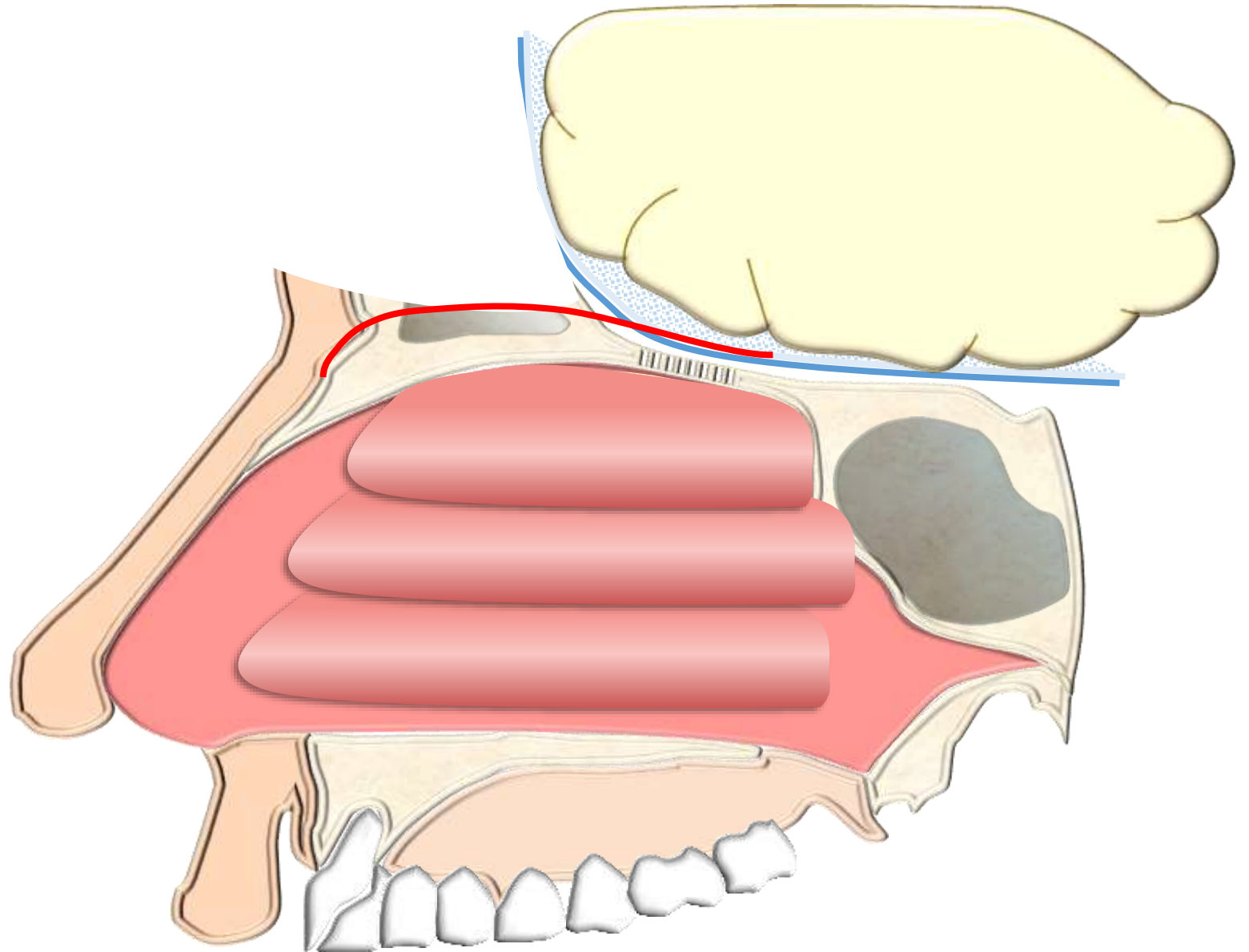
Behandling

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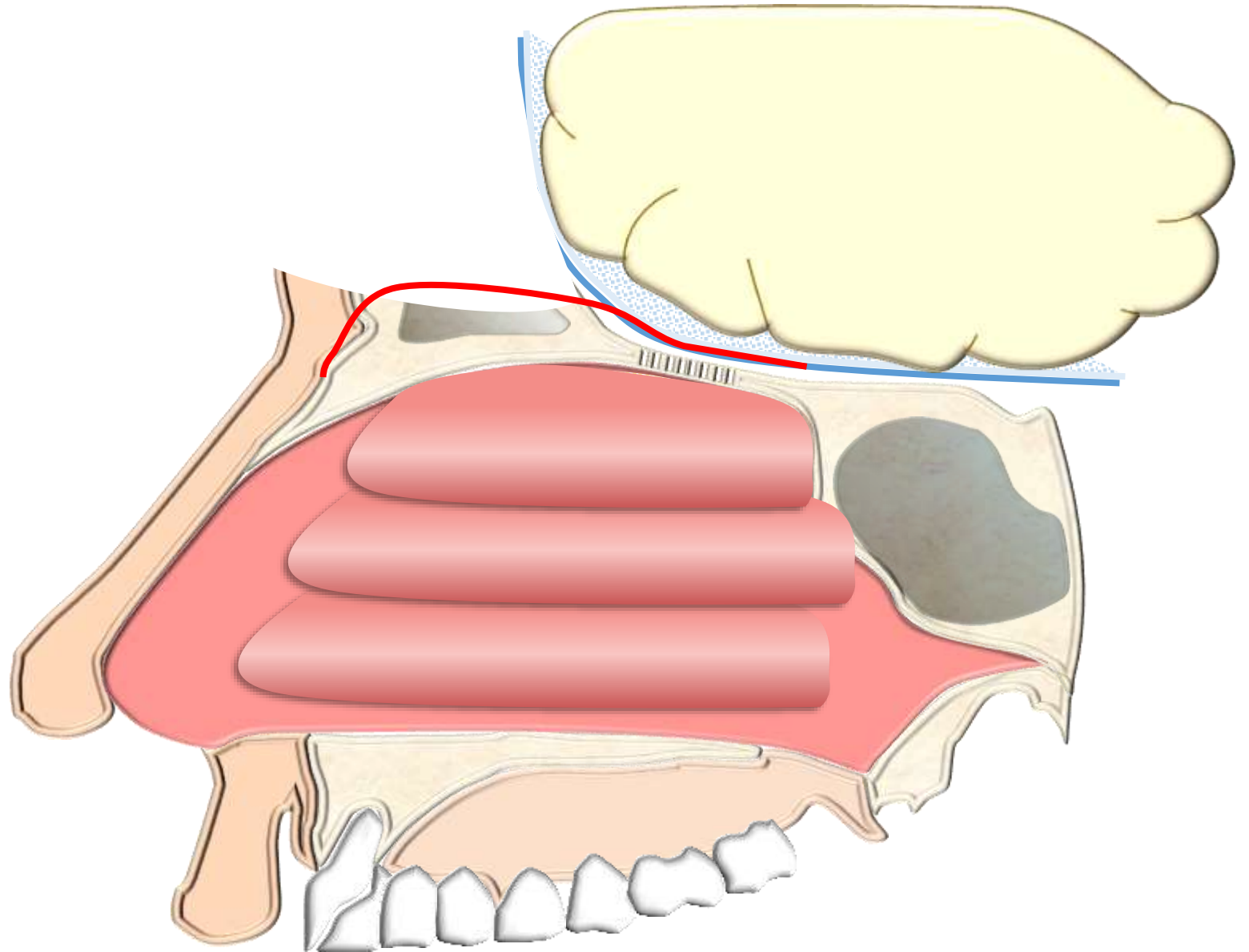
Behandling

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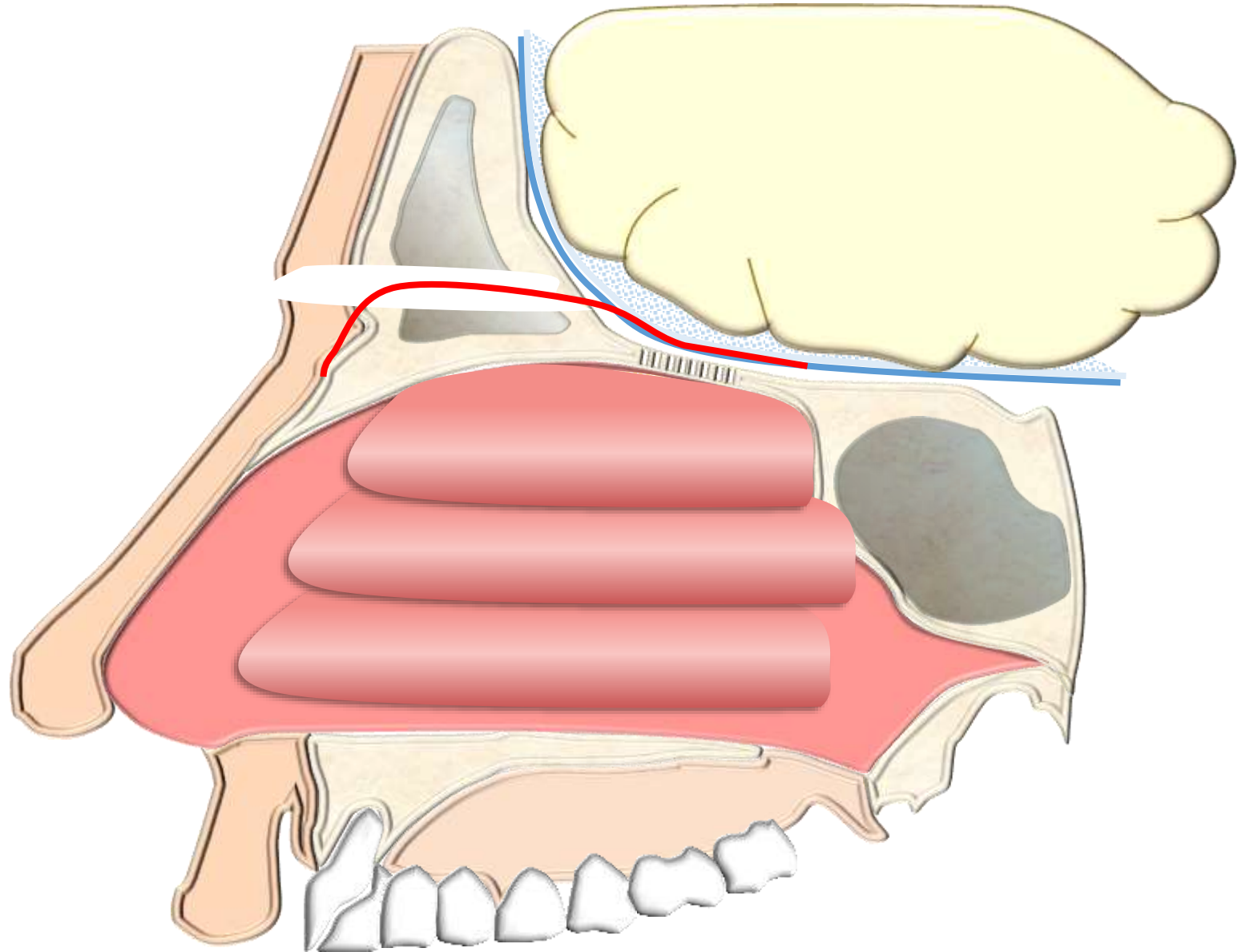
Behandling

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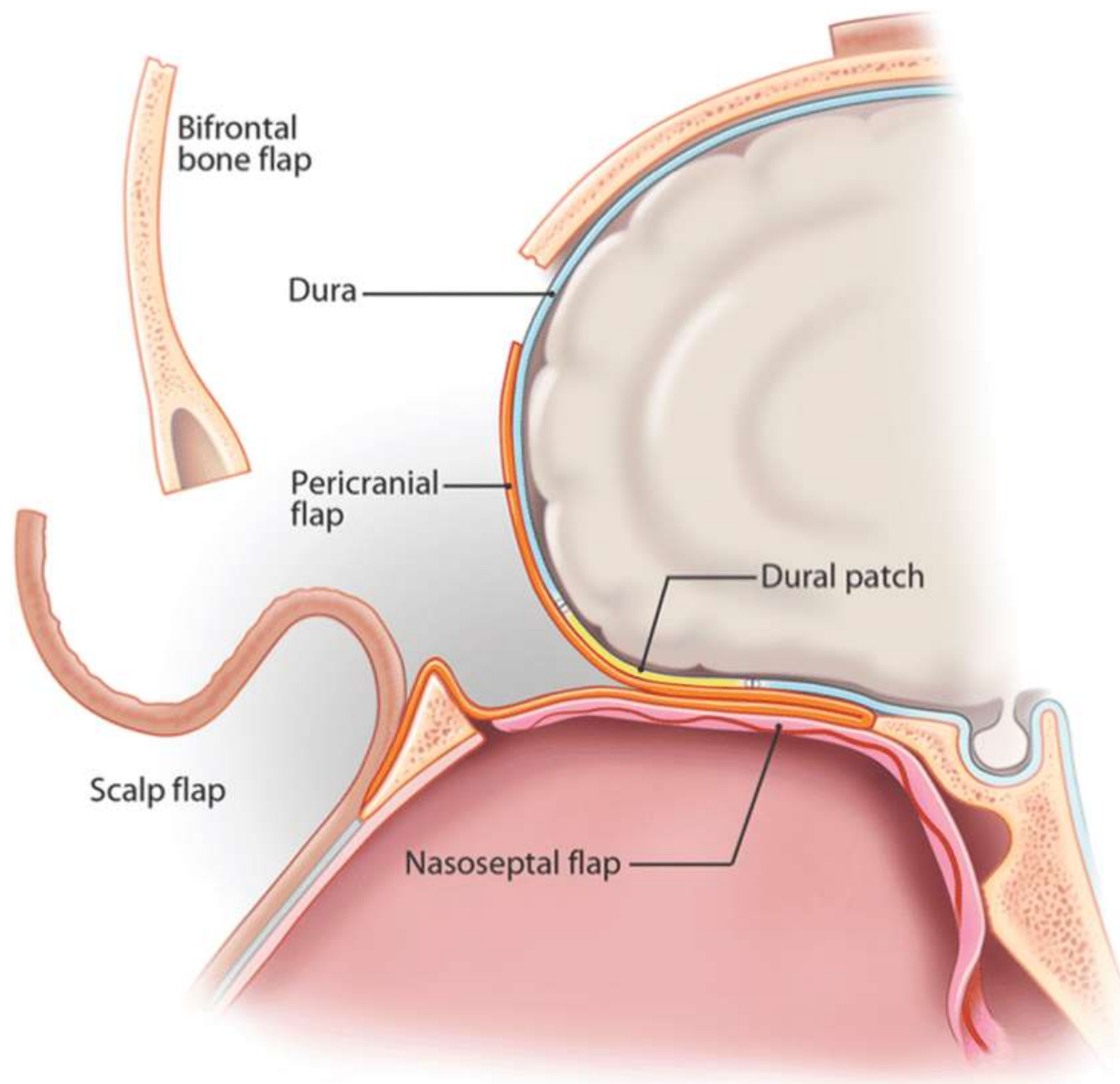
Behandling

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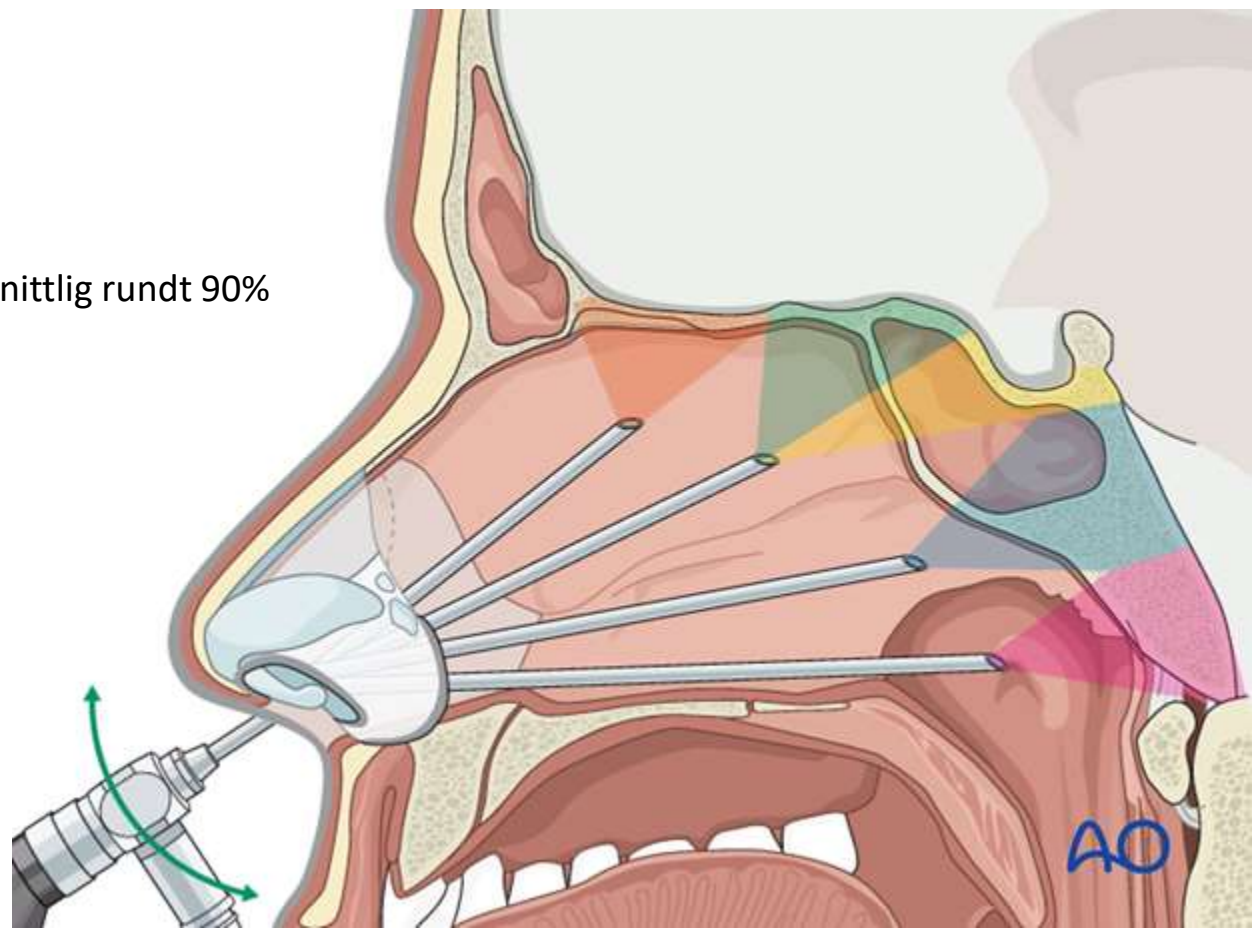
Behandling

- Kirurgi
 - Craniotomi



Behandling

- Kirurgi
 - Craniotomi
- Endoskopiske
 - suksess varierer mellom 60% og 100%, gjennomsnittlig rundt 90%



Endoskopisk lukking av CSF lekkasje

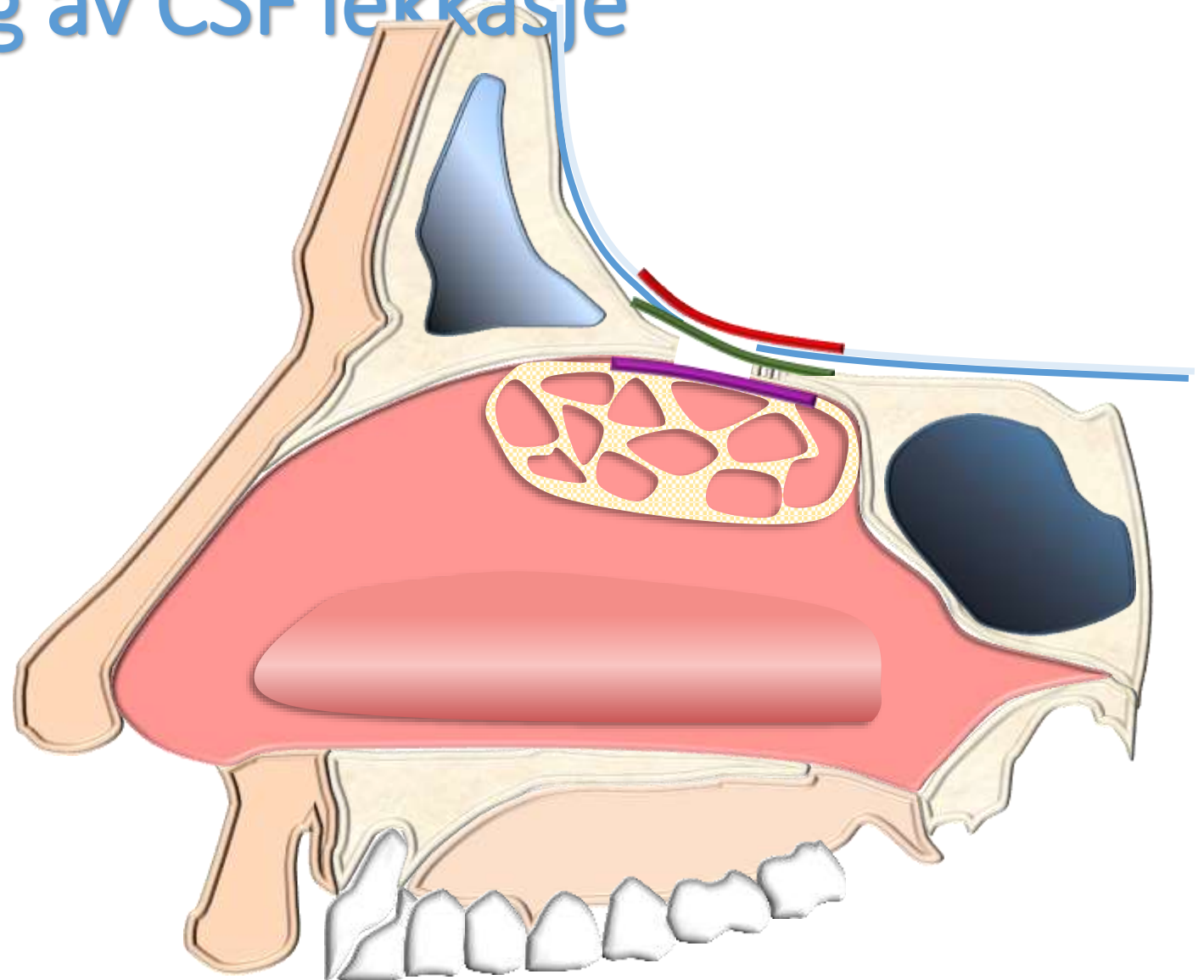
- Tetting
 - Inlay
 - Underlay
 - overnlay
- Material
 - Brusk
 - Fascialata
 - Fett
 - Muskel
 - Duragen
 -
 - 1-3 lag
- Overlay
 - Slimhinne graft
 - Slimhinne lapp
 - Neseseptal lapp
 - Concha media lapp
 - Ethmoidalis anterior lapp
 - Tachosil
 - Underarm fri lapp

Endoskopisk lukking av CSF lekkasje

Inlay

Underlay

Overlay



Endoskopisk lukking av CSF lekkasje

• Tilleggsbehandling:

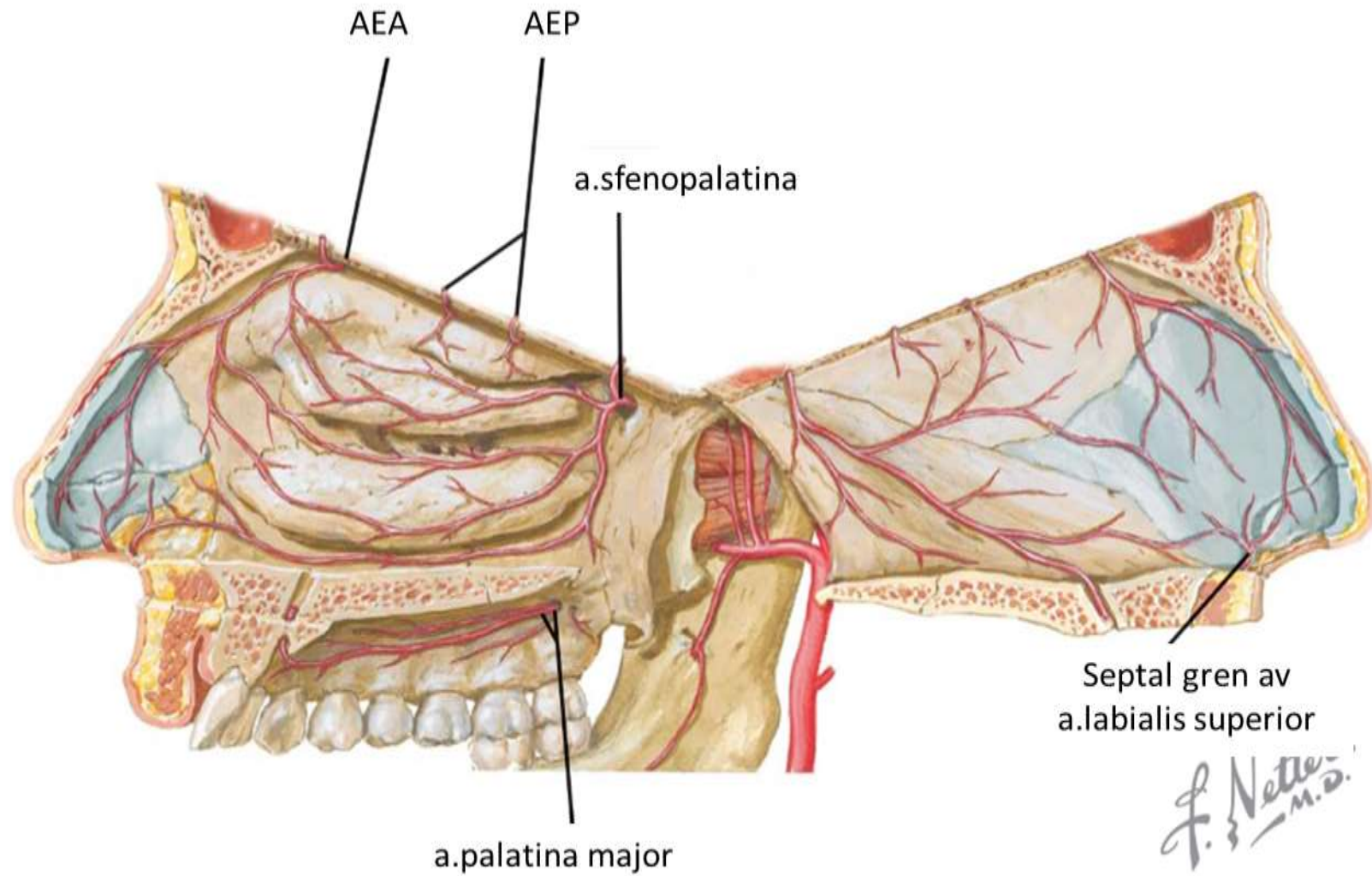
- Lumbaldren ?
- Shunt?
- Antibiotika ?
- Diamox?

• Komplikasjoner:

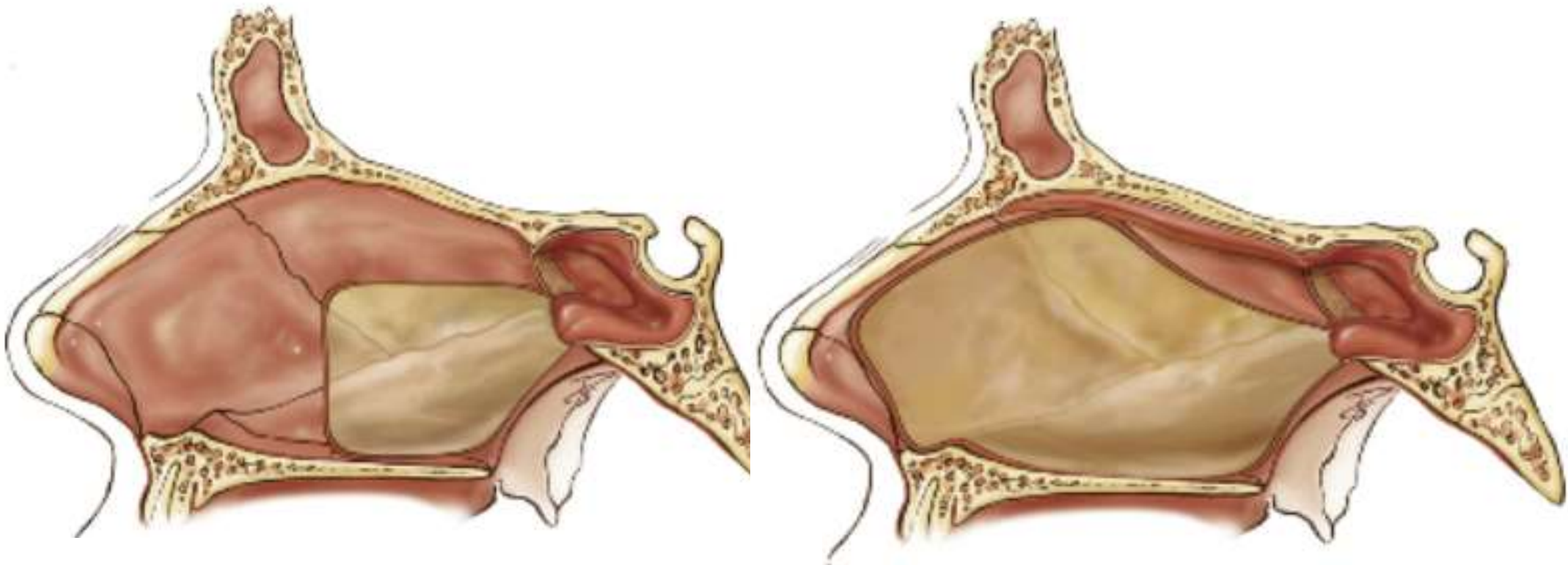
- Meningitt (0.03%)
- Hydrocephalus
- Mucocele
- Intracranial abscess
- Pneumocephalus

Slimhinnelepp

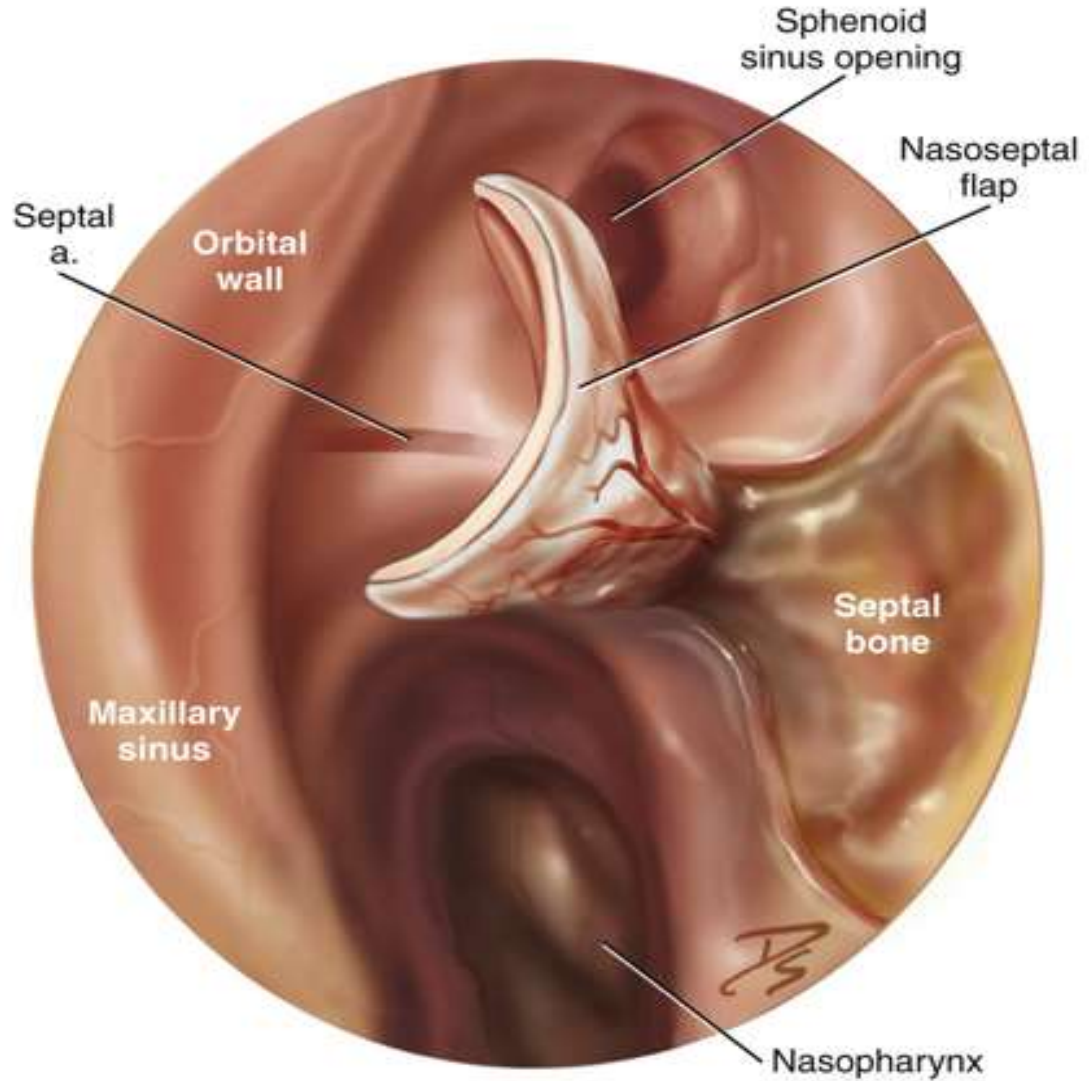
Septal lapp



Septal lapp

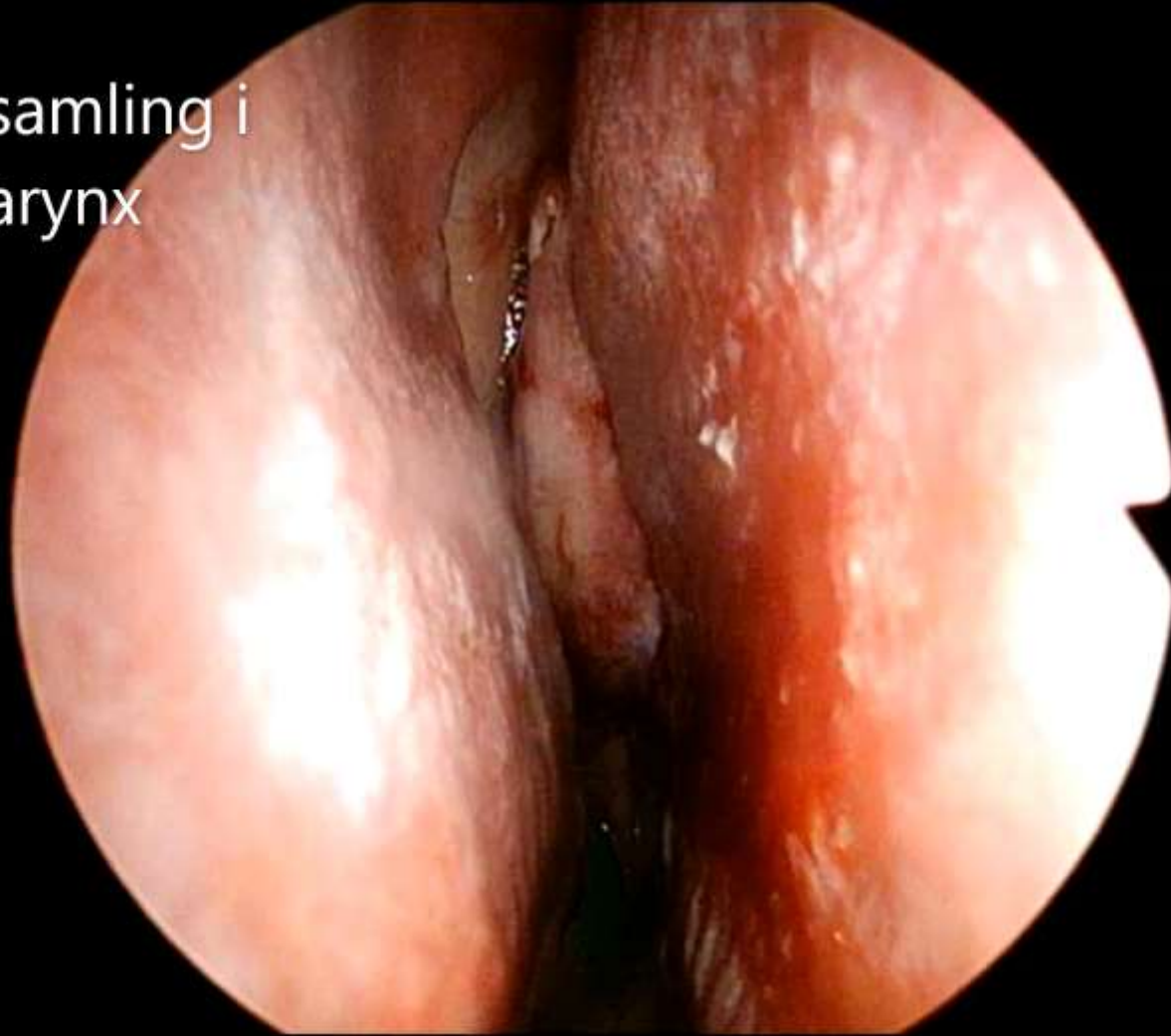


Septal lapp

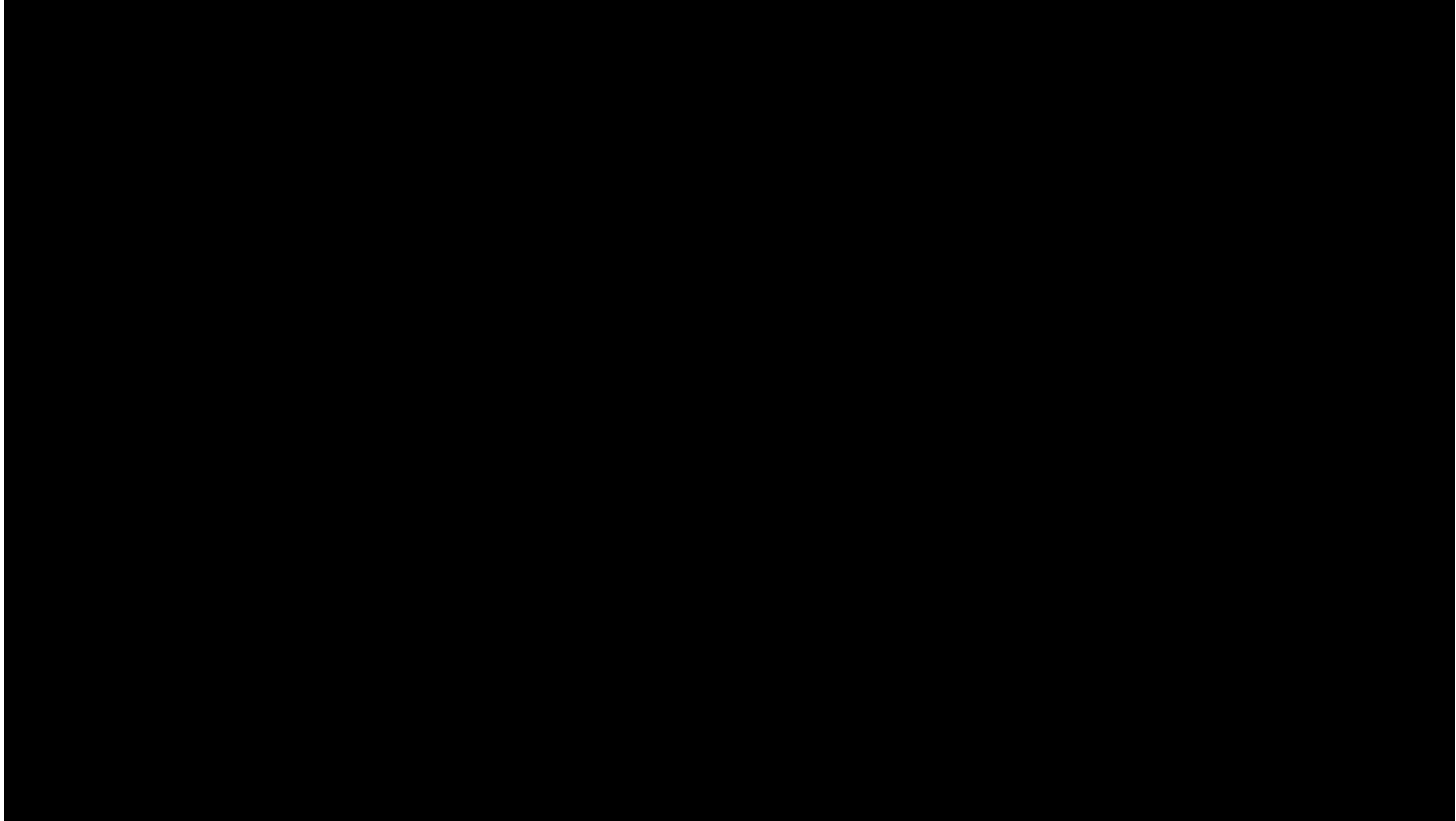


Endoskopisk lukking av CSF lekkasje

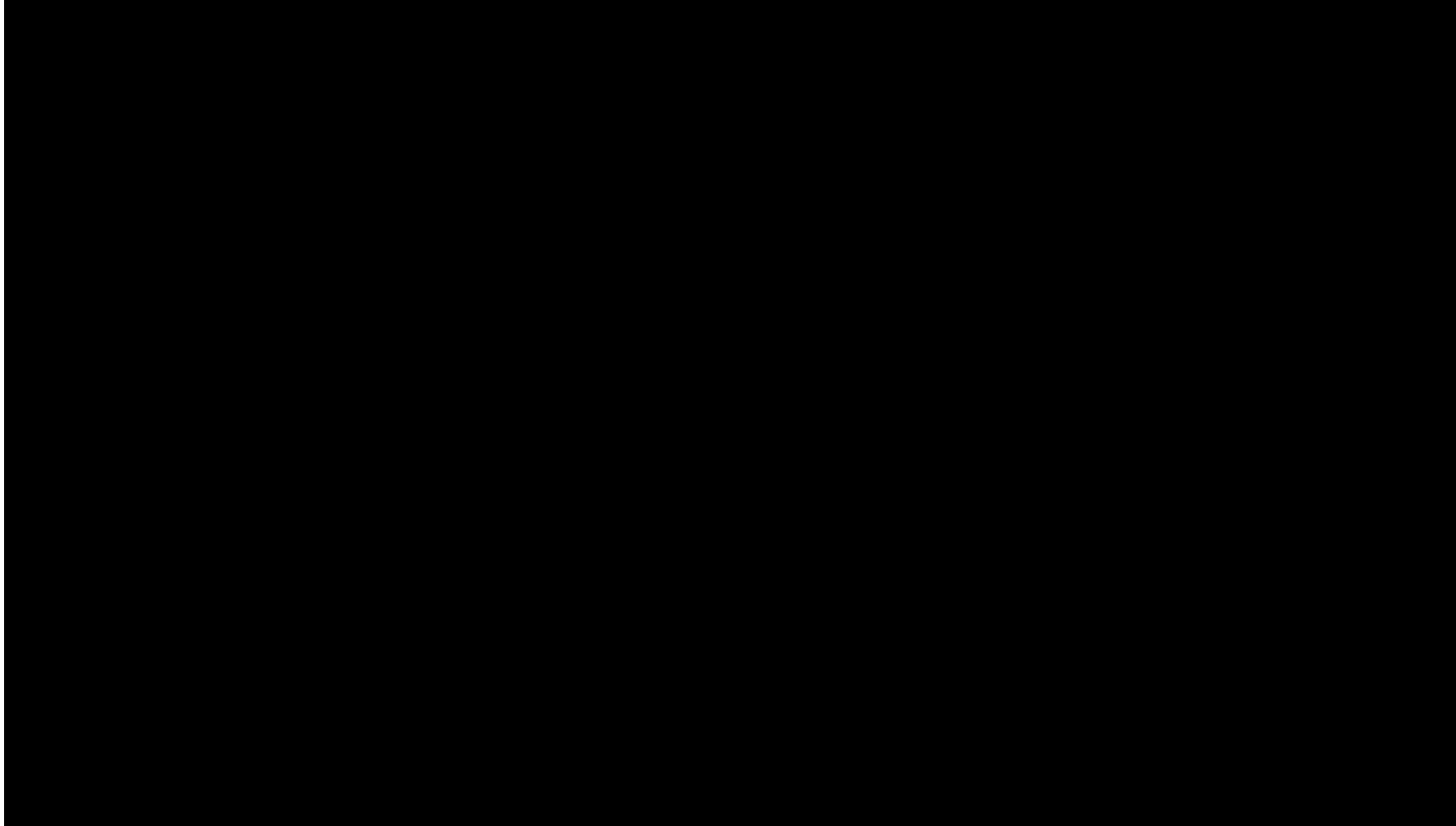
CSF ansamling i
nasopharynx



Septal lapp

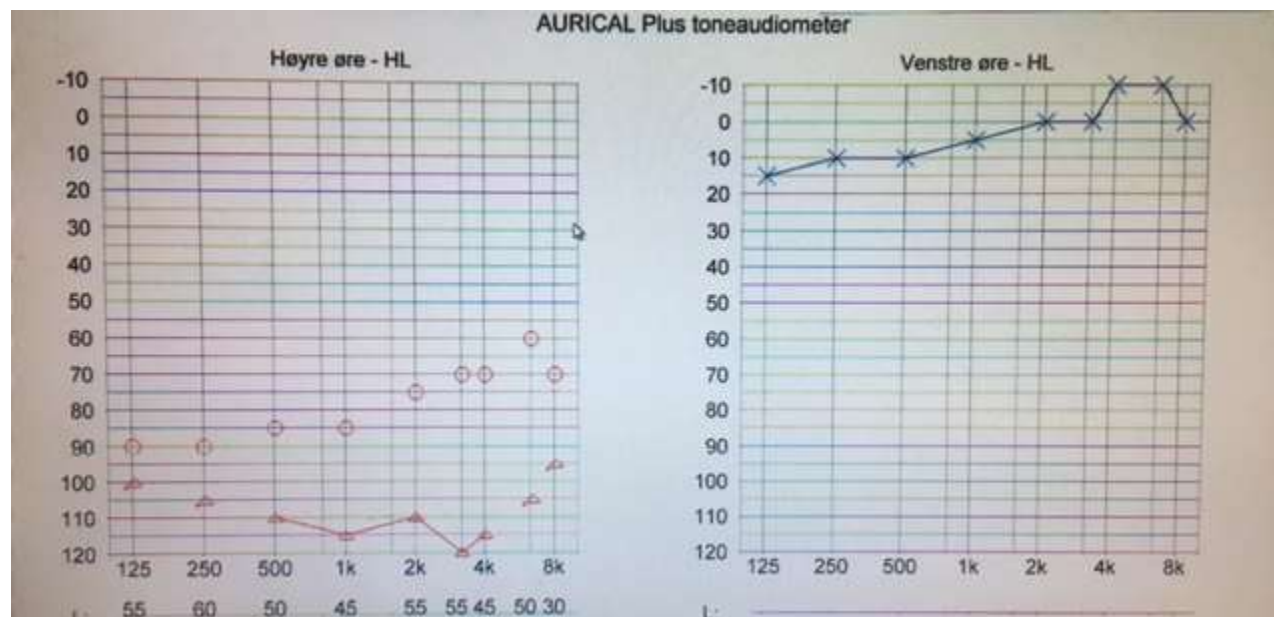


Concha media lapp



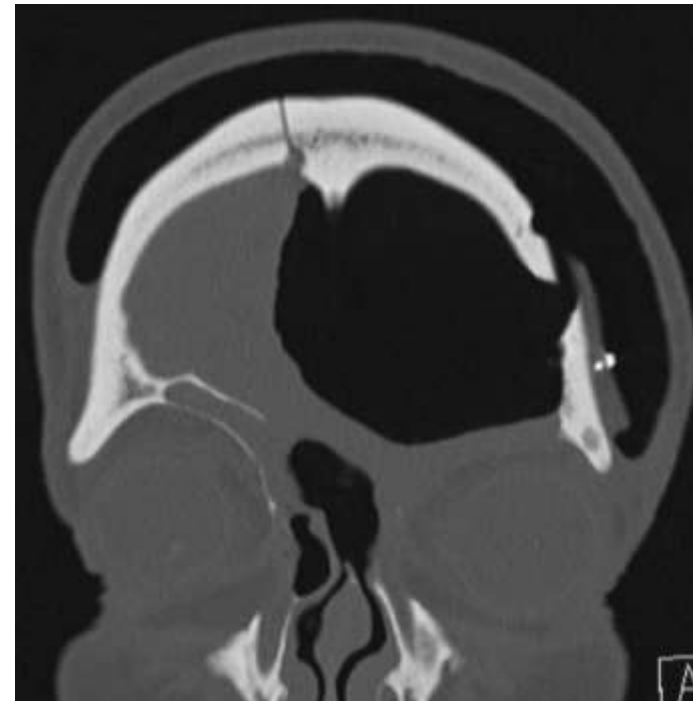
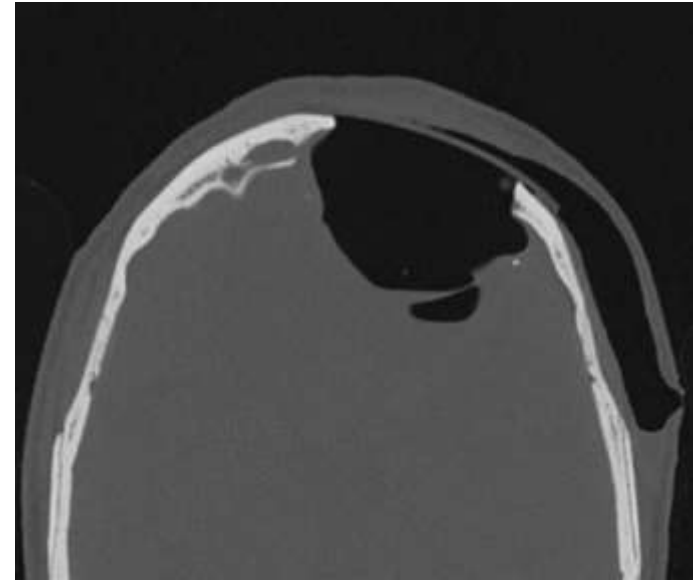
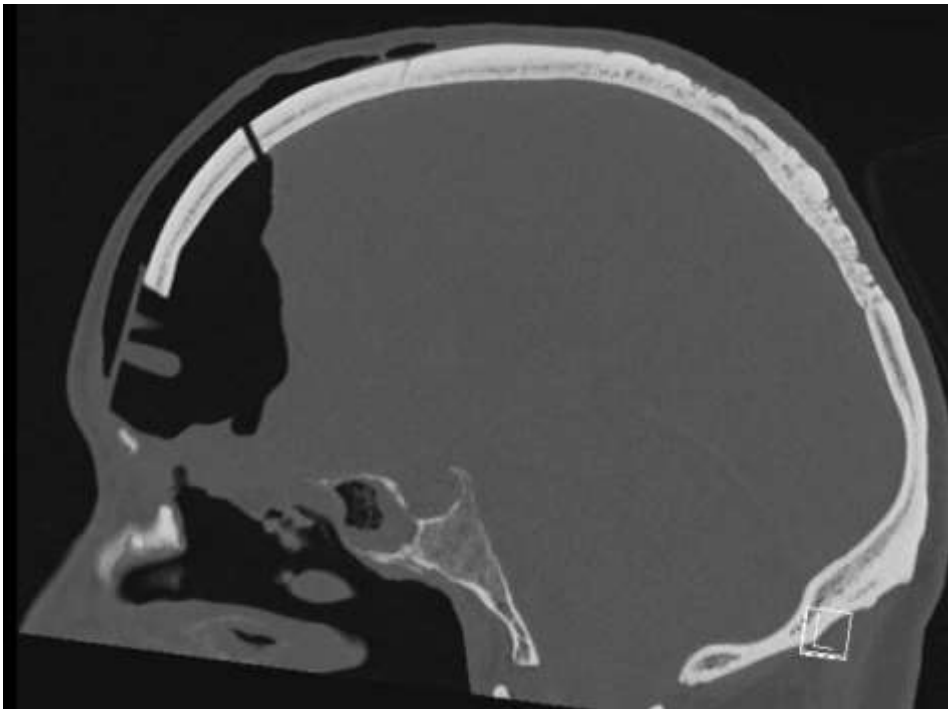
Utfordringer

- Barn



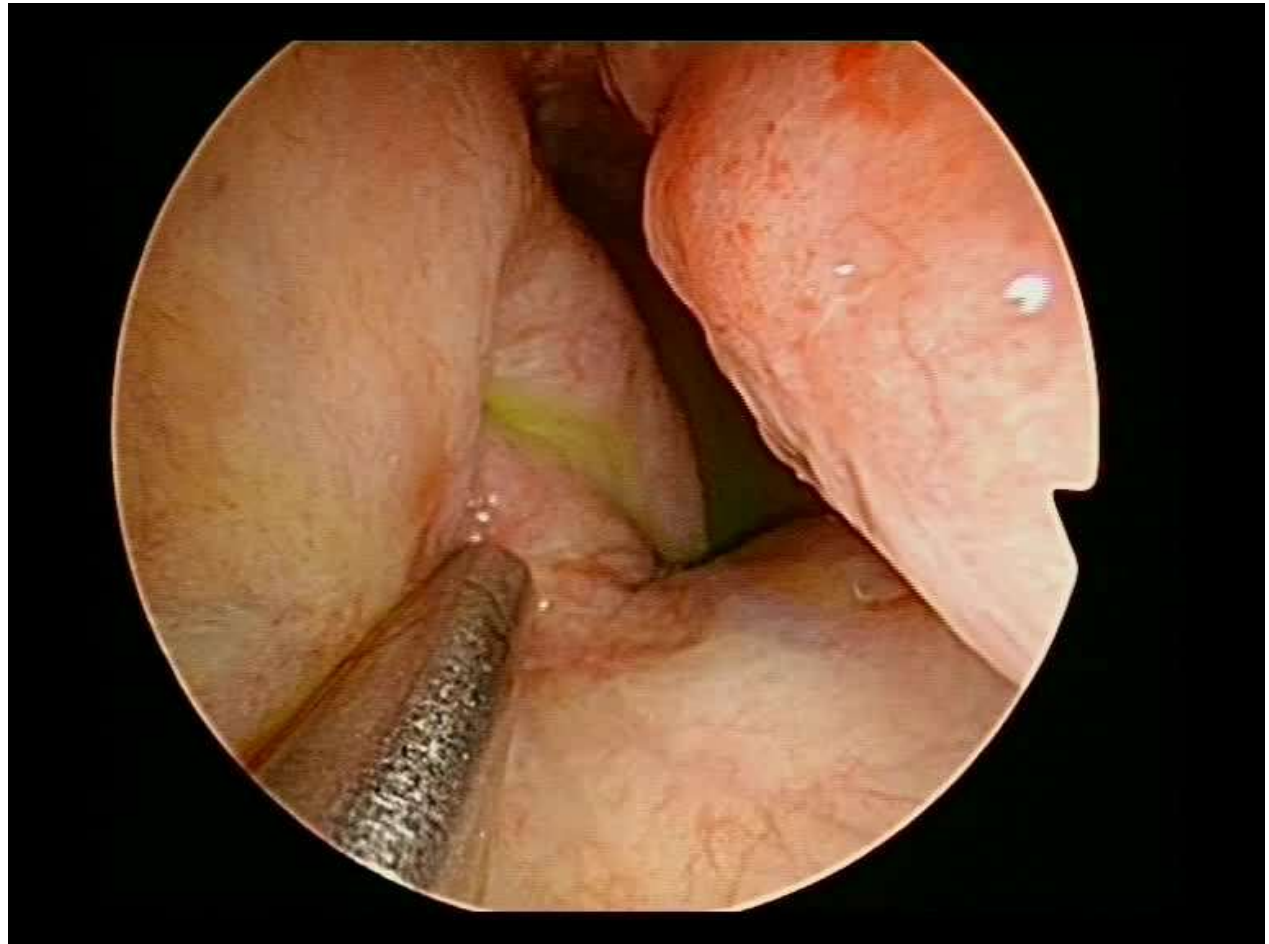
Utfordringer

- Barn
- Frontal sinus



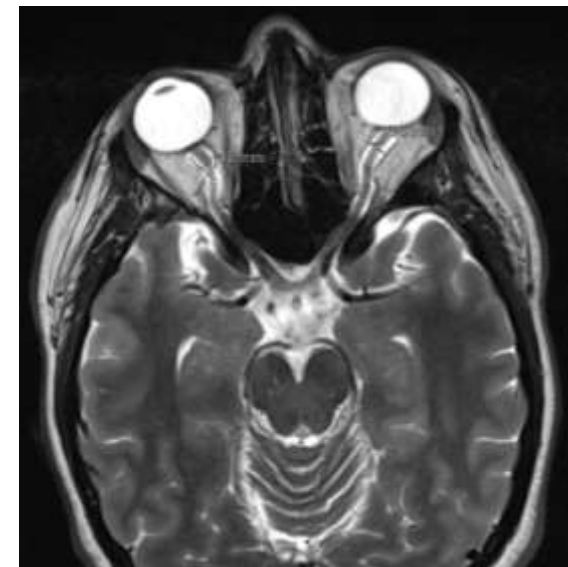
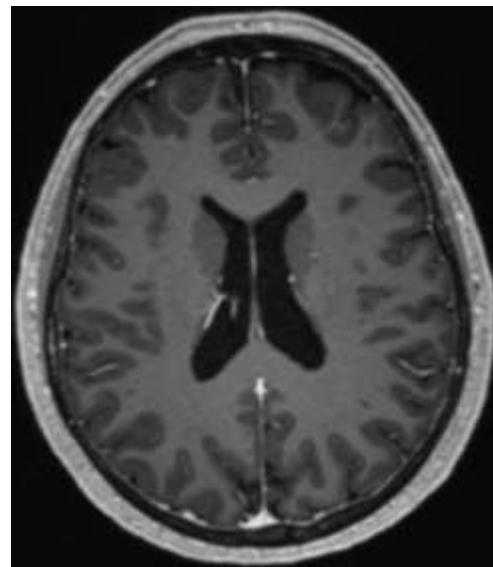
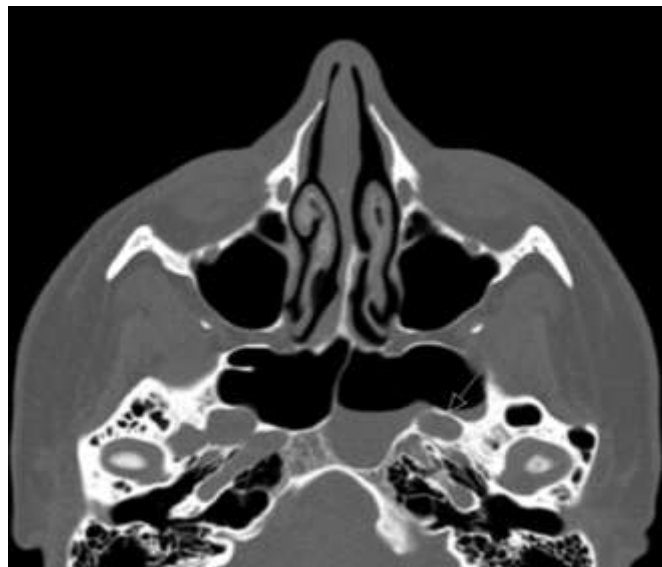
Utfordringer

- Barn
- Frontal sinus
- Mellomøre



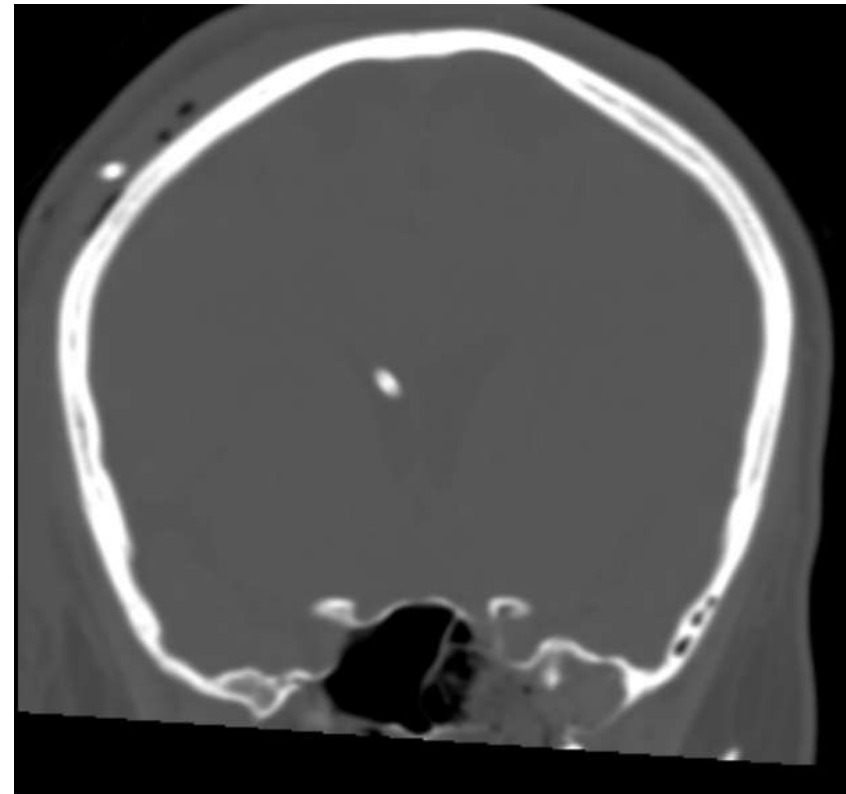
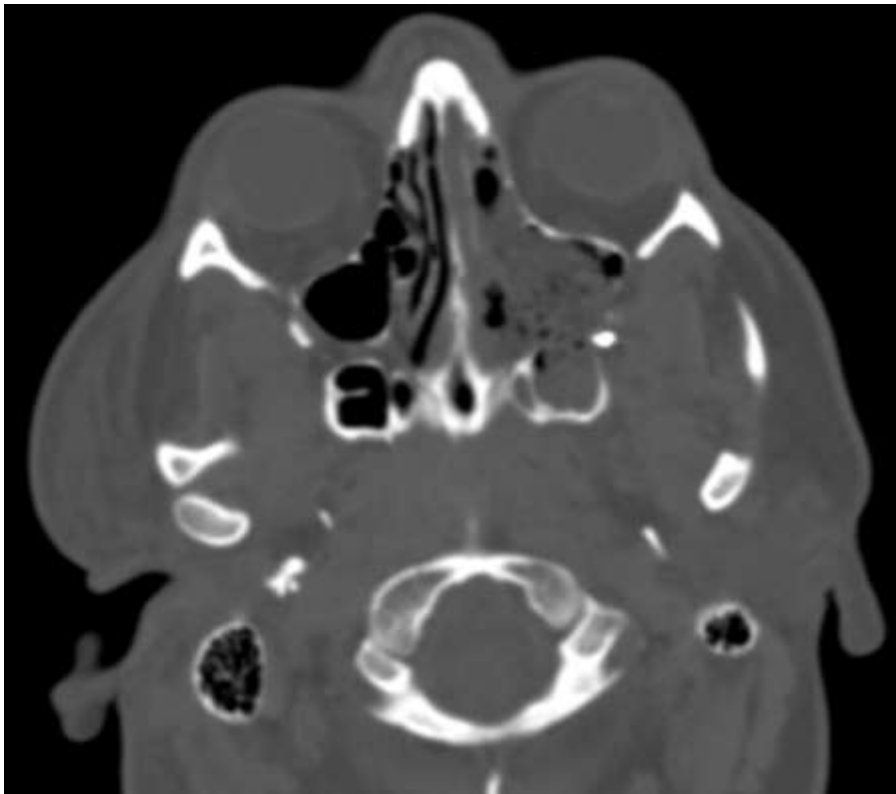
Sternberg's kanal CSF lekkasje (Kassus 1)

- CSF rhinorhe
- CT: stor sfenoidal sinus, 2 defekt i lateral recess Meningocele?
- MR: n.opticus ødem og dilatert ventrikkelsystem



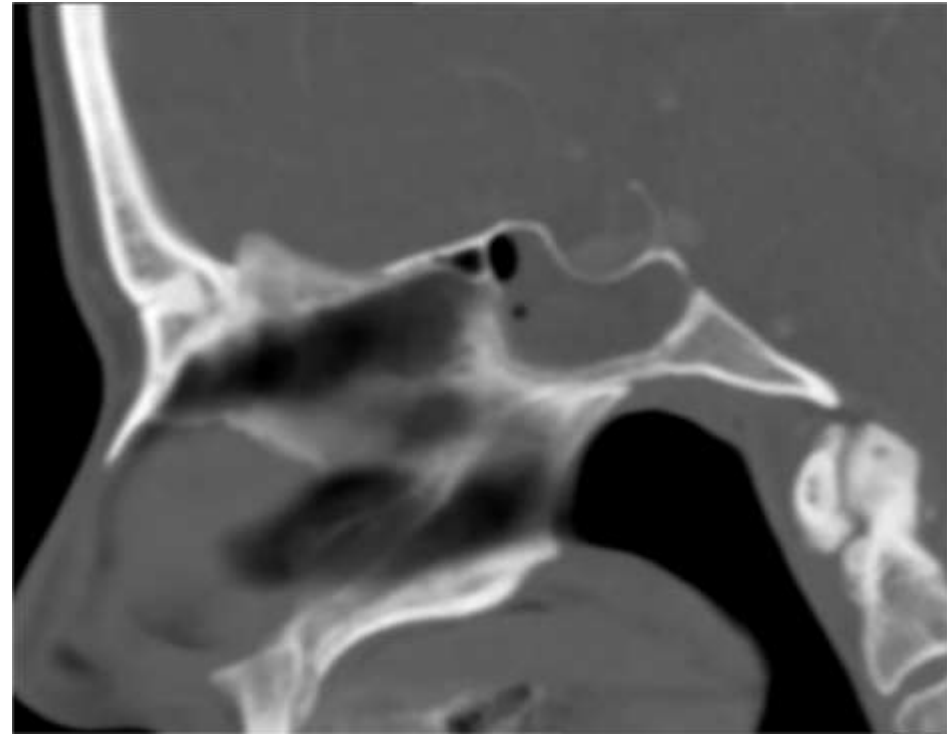
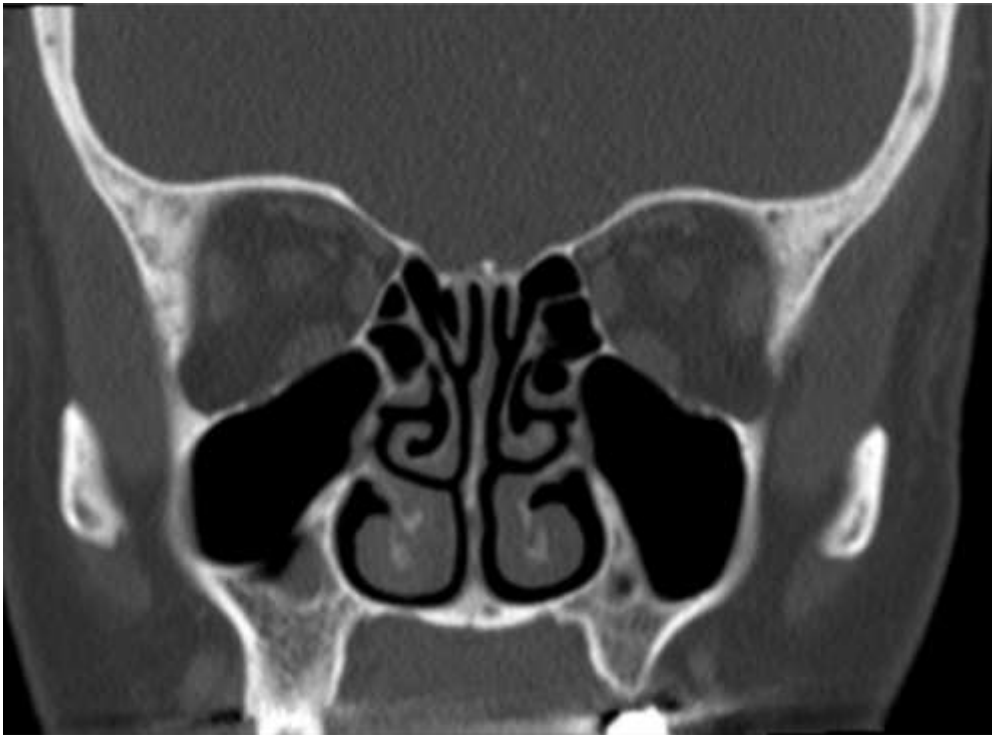
Sternberg's kanal CSF lekkasje (Kassus 1)

- Endoskopisk transptyregoid tetting + VP shunt

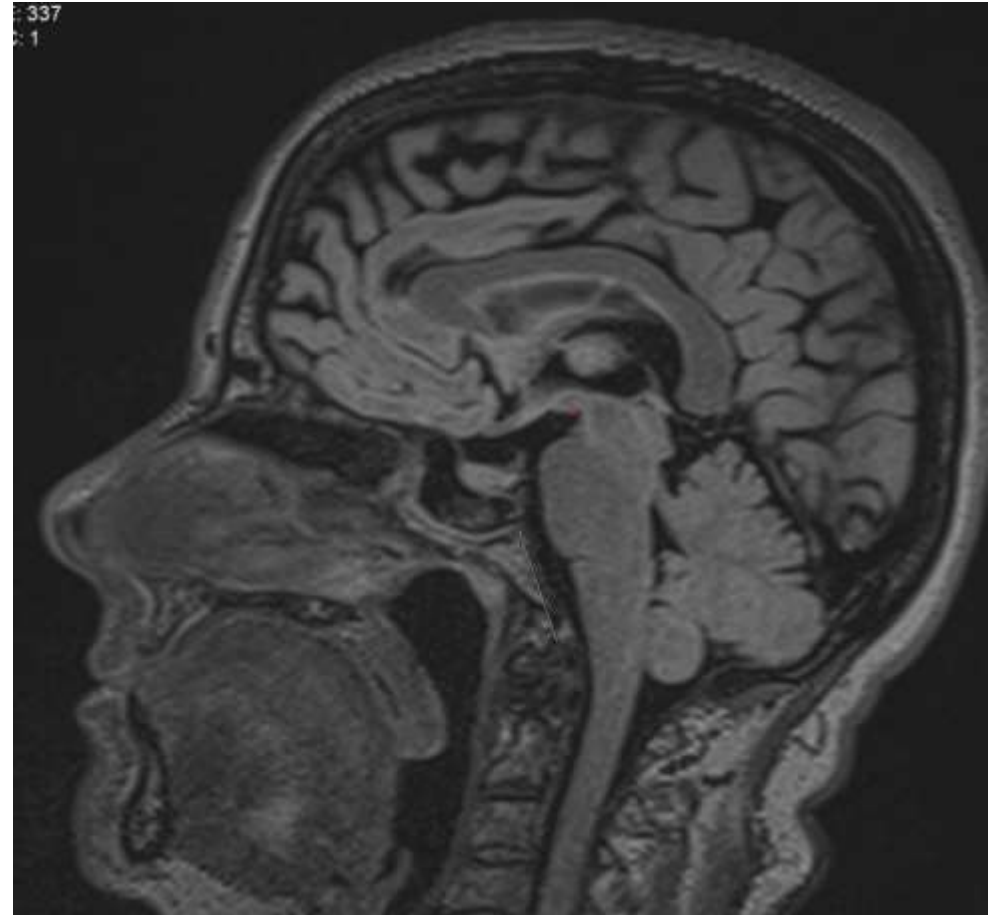
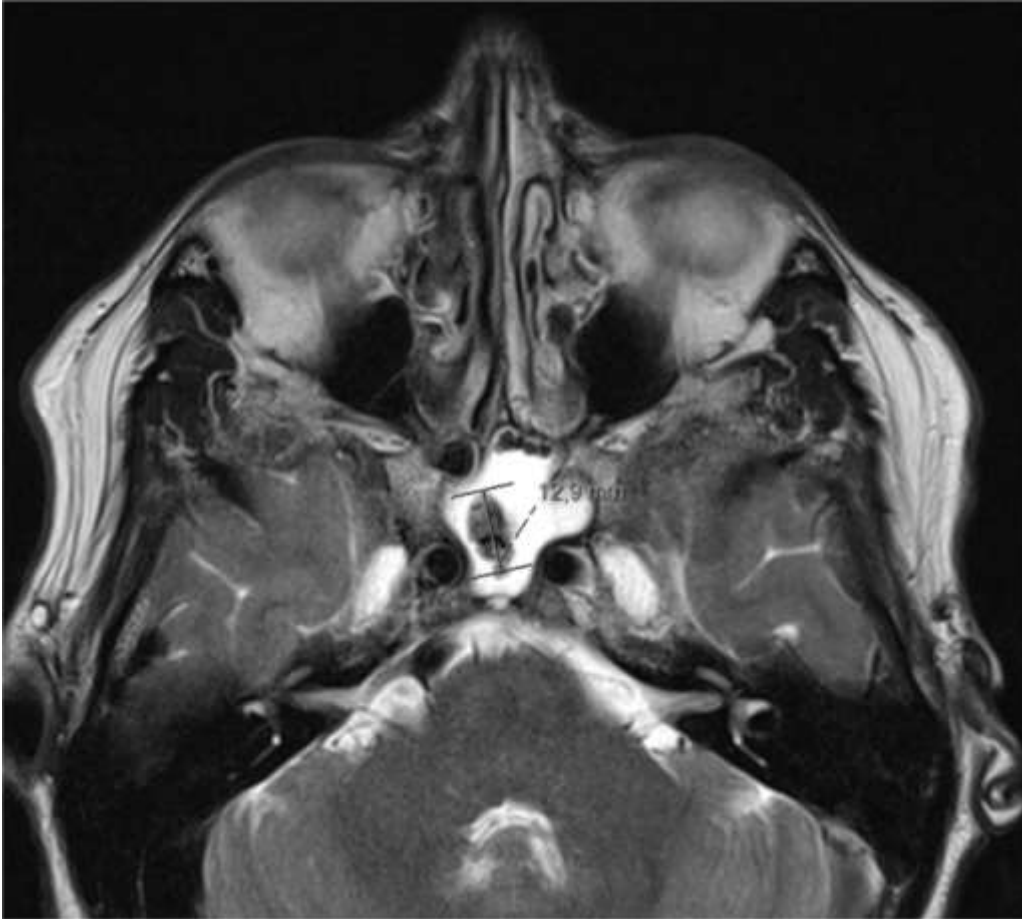


Kassus 2

- 55 år dame
- 2 mnd med intenshodepine og ve side klarveske rhinorre



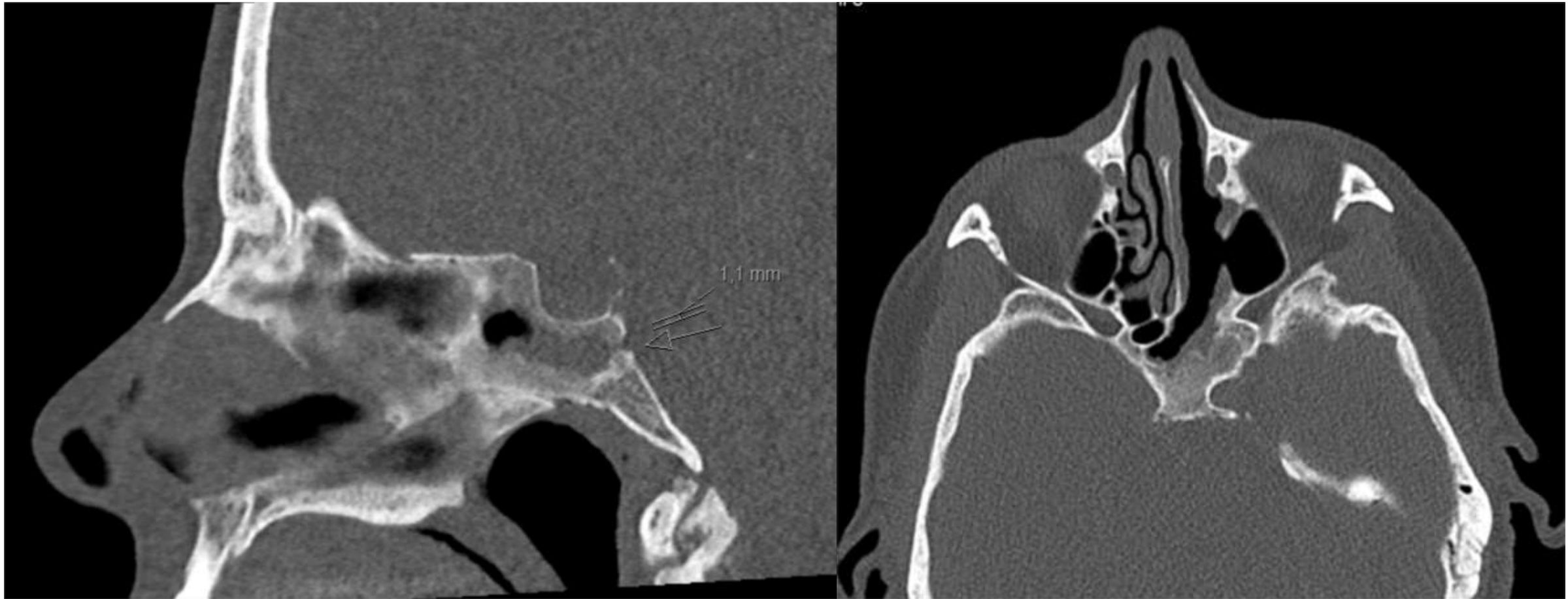
Kassus 2



Kassus 2

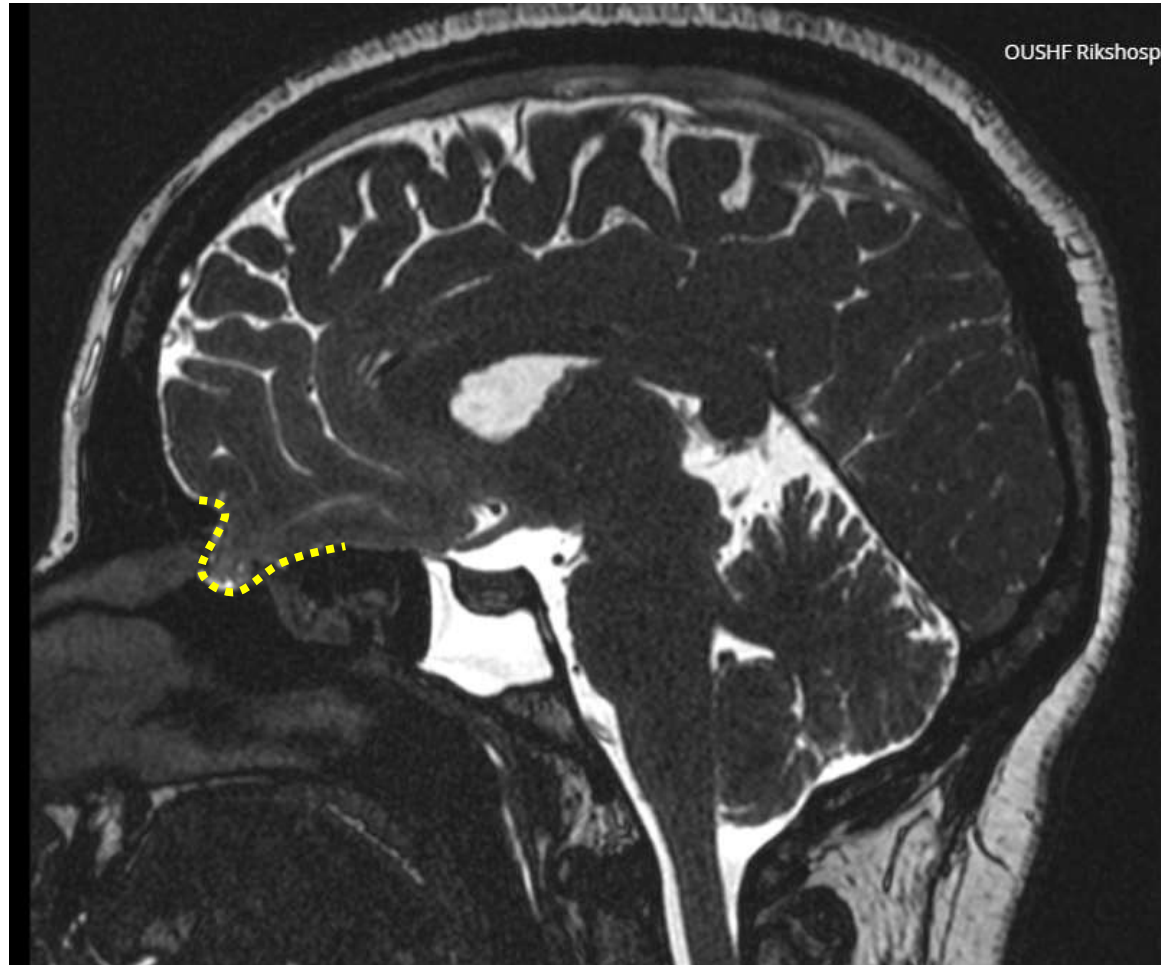


Kassus 2



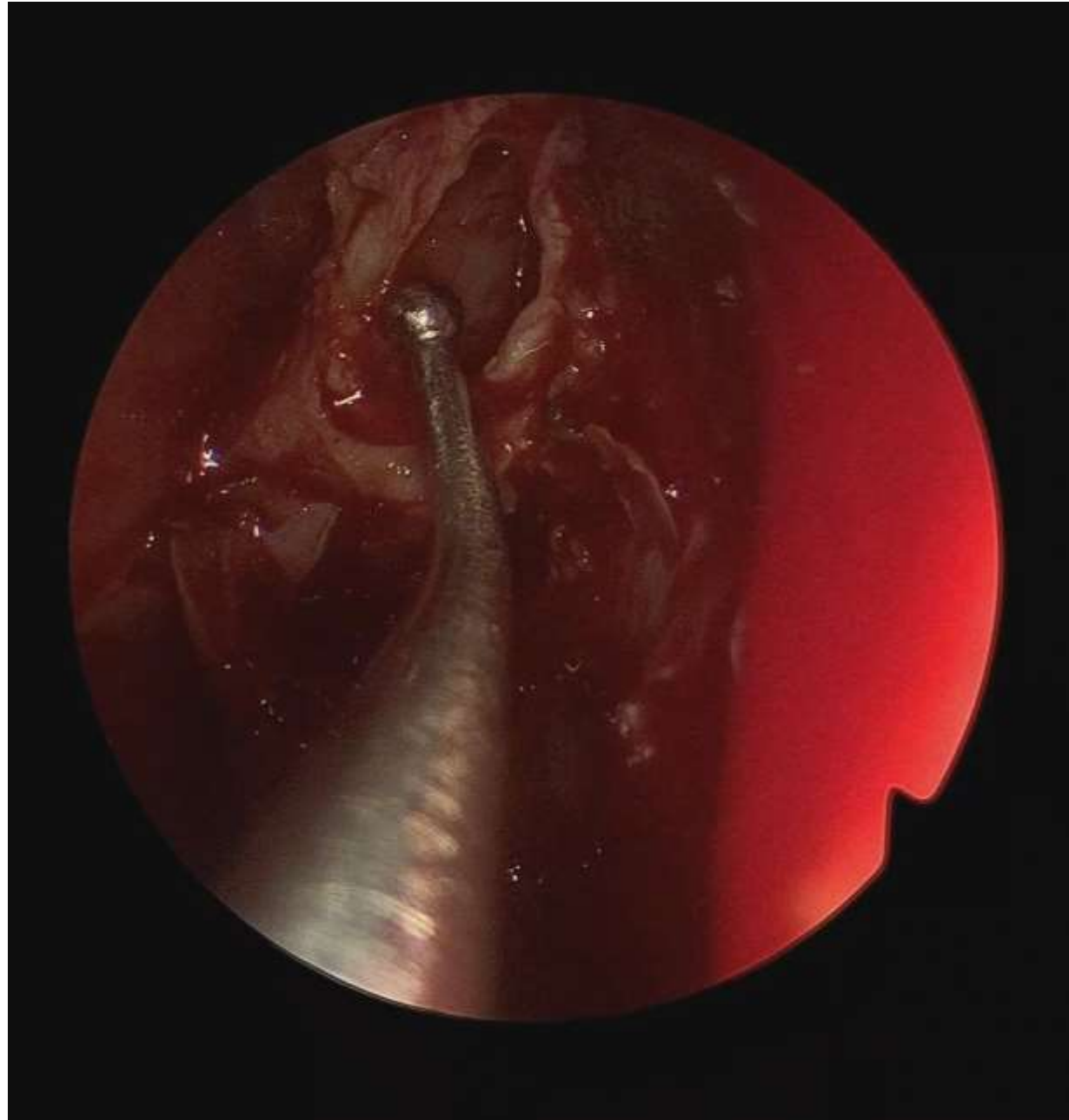
5 mnd post-operativt

Kassus 3

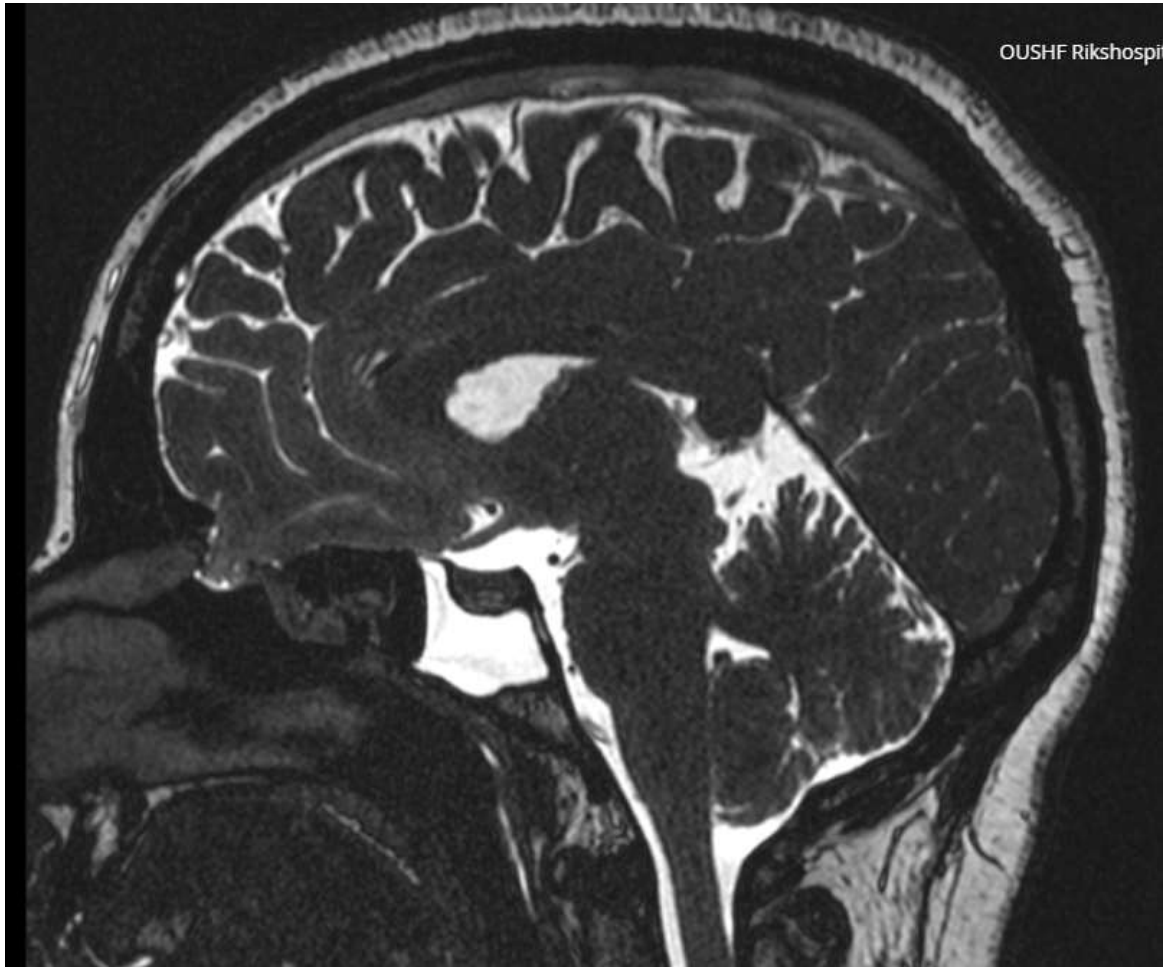


Meningoencefalosele

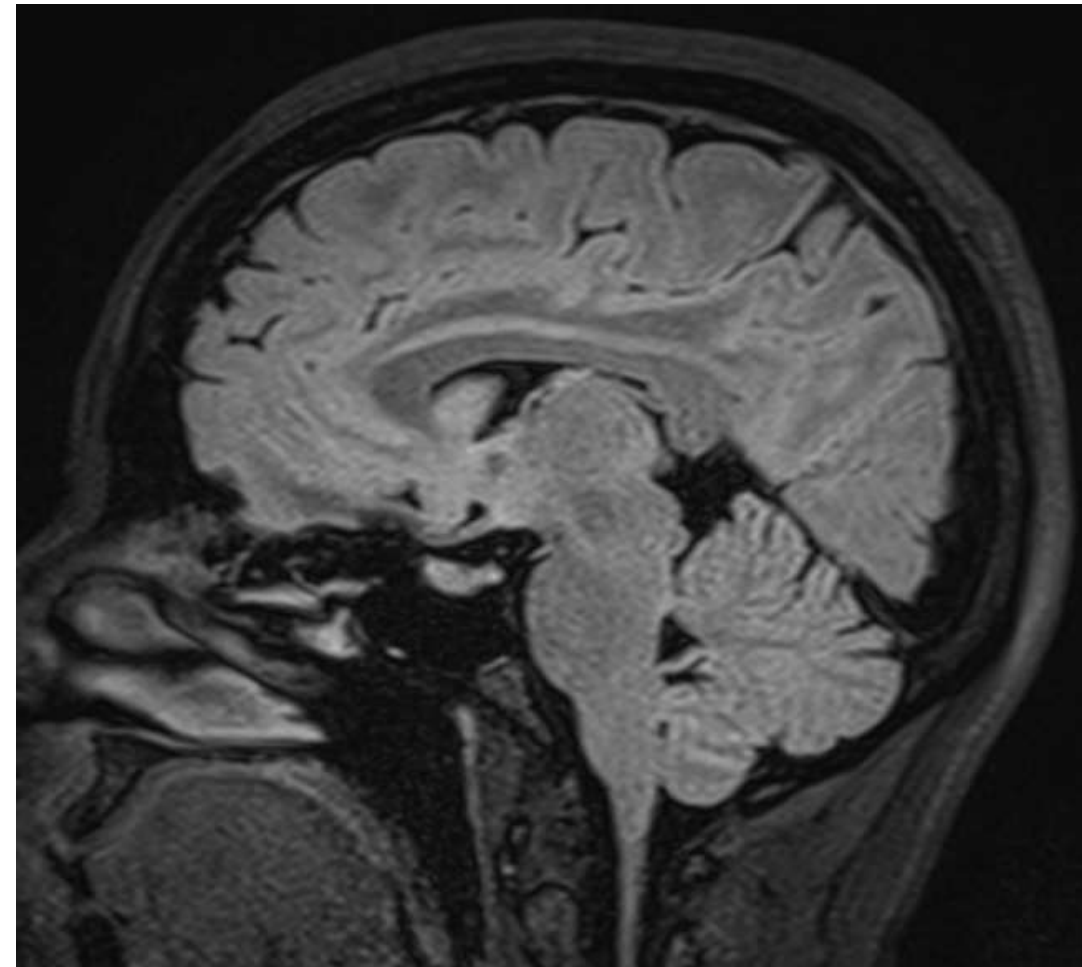
Kassus 3



Kassus 3



Før op



10 mnd etter op

TAKK