

PÆDIATRISK RAD. A- KURSUS 2013



KAREN DAMGAARD
RAD. KLIN. RH

KLIENDEL OG KLINIK

ANTAL: CA. 650 PATIENTER/ÅR . ALDER: FÅ DAGE TIL 18 ÅR-
1000 gr. til 60 kg

ONKOLOGI

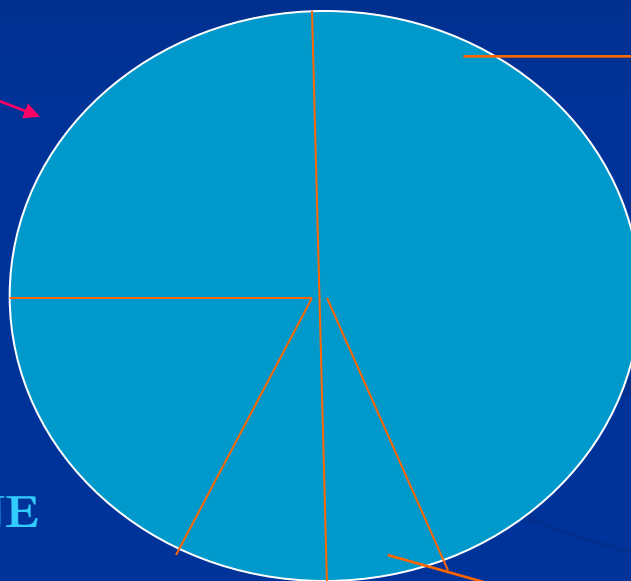
UDREDNING/
KONTROL

THORAX

LUNGER/LUFTVEJE

BLANDET LANDHANDEL

UROLOGI
AKUT ABD.
ANGIOGRAFI



CEREBRUM

TRAUME CT
ORTOPÆDI

TIPS AND TRICKS

KOOPERATION/ HVORDAN?

■ INDIVIDUEL VISITATION :ALDER

SPÆDBØRN : -0 TIL CA 6 MDR MÆTTE/SVØBNING -EVT IV ADGANG

*SMÅBARN: 6 MDR TIL CA 3 ÅR- SEDATION- GA/GA BEREDSKAB-
EMLA PLASTER- ELLER IV -ADGANG*

ONKOLOGISKE PT: HAR GENERELT CVK

FRA 3 TIL 4 ÅR : GENERELT COOPERATION-

SKOLEBARN/TEENAGER: SOM VOKSNE

■ PROBLEMSTILLING: VÆR SPECIFIK -

*TÆT SAMARBEJDE MELLEM RADIOLOG OG RADIOGRAF-SCANOMRÅDE ,
KOOPERATION,*

■ PROTOKOL:

*TILPASSET ALARA-: BILLEDKVALITET- INDIKATION- KONTRAST DOSIS-FASER
REFORMATIONER*

PROTOKOL : IV- KONTRAST

INJEKTION

KONTRAST STOF:

1-2 ml/kg Omnipaque eller Visipaque 320 mg I / ml

RH: MANUEL INJEKTION

UNDTAGELSE: STØRRE BØRN
TIL ANGIOGRAFI

OG CAVE: LONGLINE-
KATETRE MÅ ALDRIG
PUMPESPRØJTES

CVK: KOSTBARE KATETRE

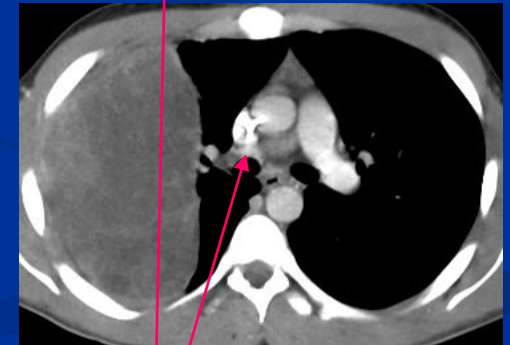
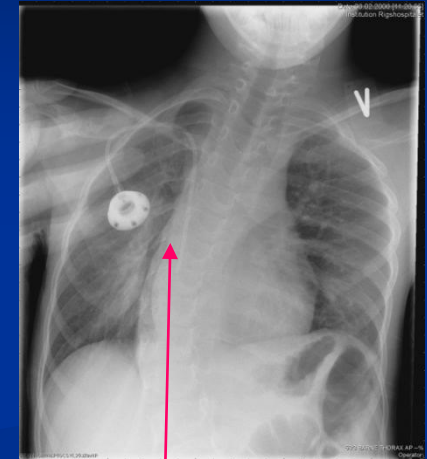
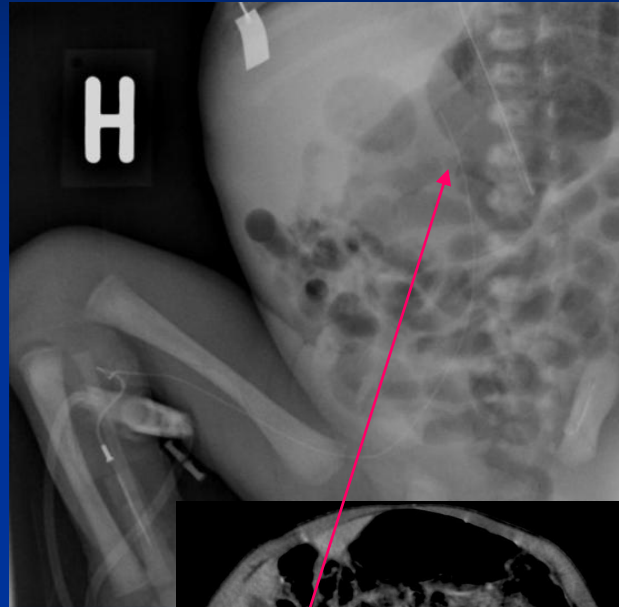
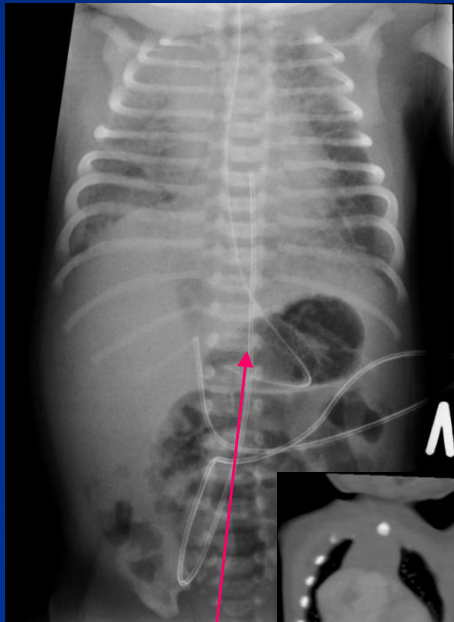
25

21

18



IV VEJE- NEONATALT-ELLER CVK- VEJE OG VILDVEJE!



N
N
A
V
E

AVLE-KATETER
ORGAN PLACERING

LONGLINE
TYNDT KATETER

CVK- KOSTBART
ARTEFARKT-

KONTRASTSTOF I.V. VEJE

TIMING

UDREDNING:

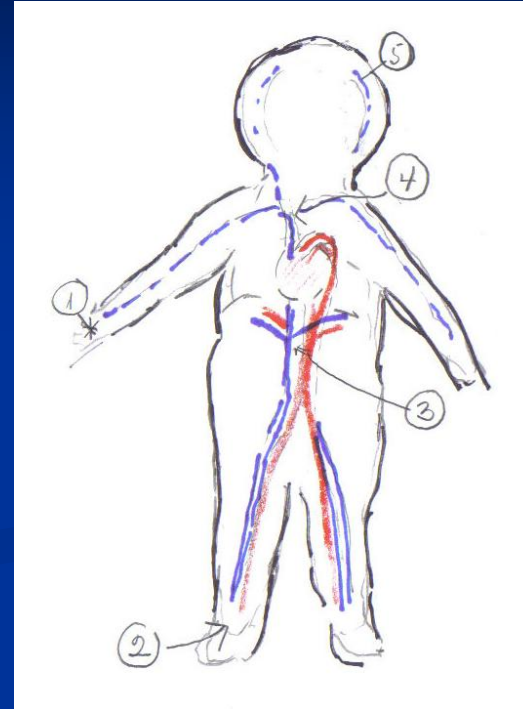
TUMOR/

MALFORMATION/

AKUT ABDOMEN

SAMTIDIG KAR OG ORGANOPLADNING:

”SINGLE RUN”



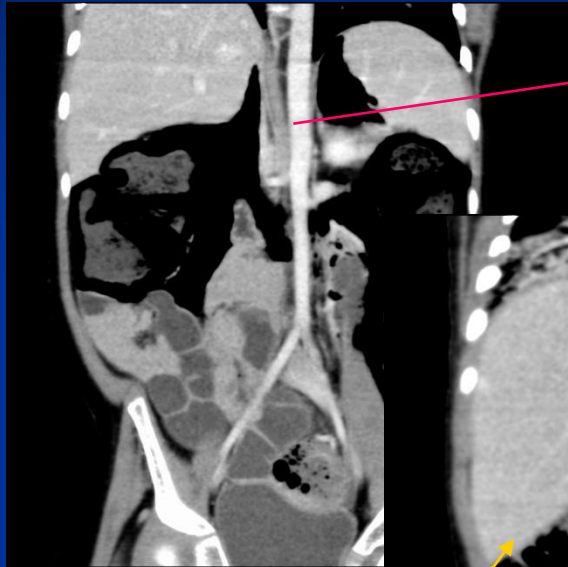
**TILSTRÆB: KONTINUERLIG ARTERIEL
TILFØRSEL (CA. 20 SEK)**

**INDTIL GOD VENØS FASE ER OPNÅET-(40-70
SEK)**

**PORTOVENØS KARFREMSTILLING- (CA 40
SEK)**

**TUMOR OG ORGAN ENHANCE : BÅDE ART. OG
VENØS FASECA. 60 SEK.)**

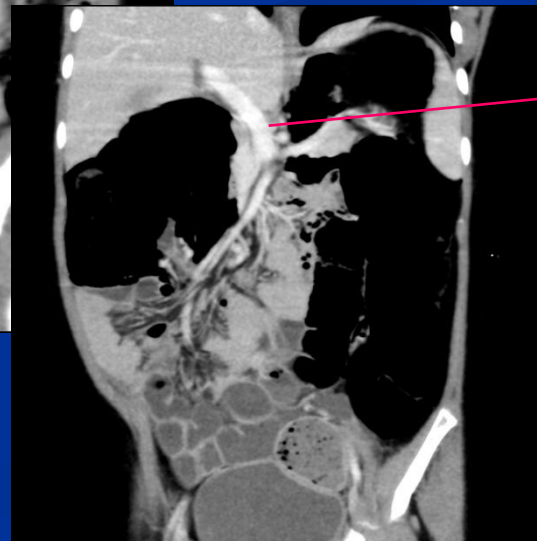
"SINGLERUN" ARTERIEL OG VENØS



AORTA



CAVA



VENA PORTA

ORGAN ER

- 40 SEKUNDER: PARENCHYM
- LEVER – MILT- TUMOR

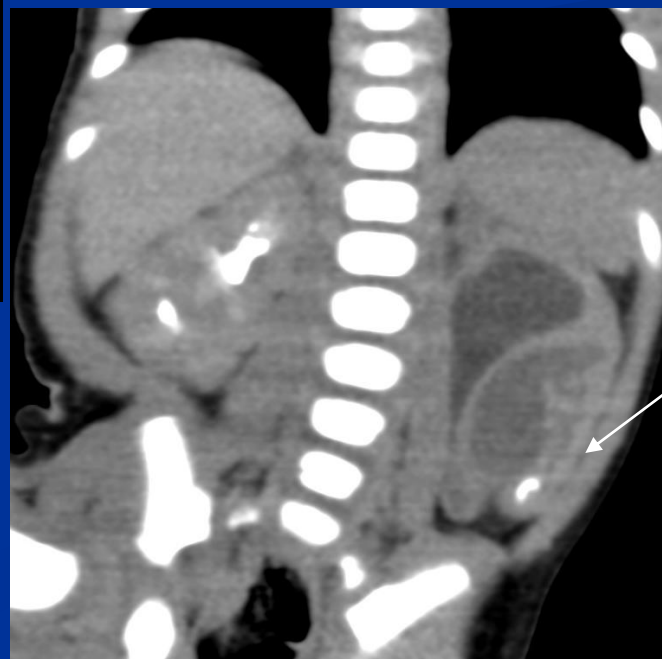
KONTRAST STOF- TIMING



*Tumor udredning
"singlerun"
20-60 SEKUNDER*



*CT- angiografi
EVT: TRIGGER*



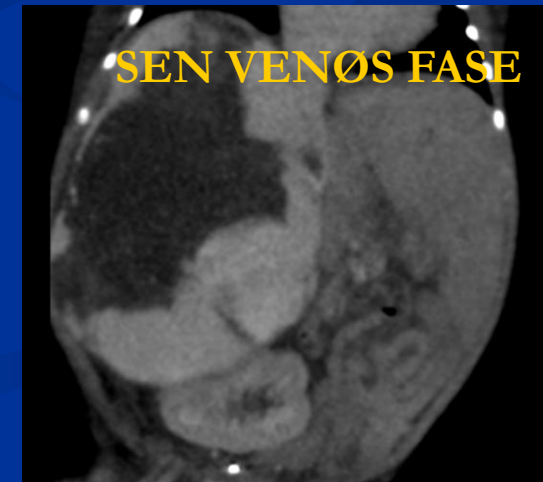
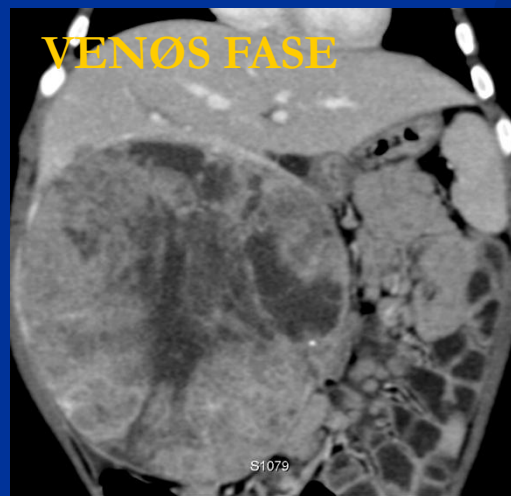
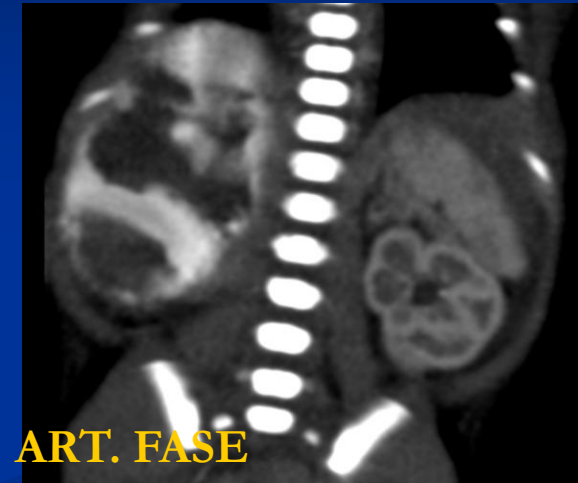
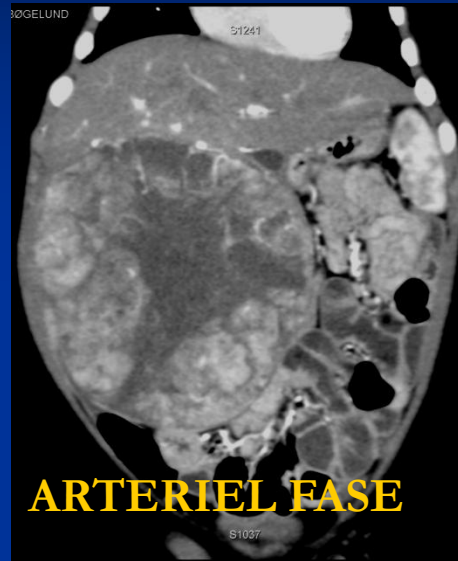
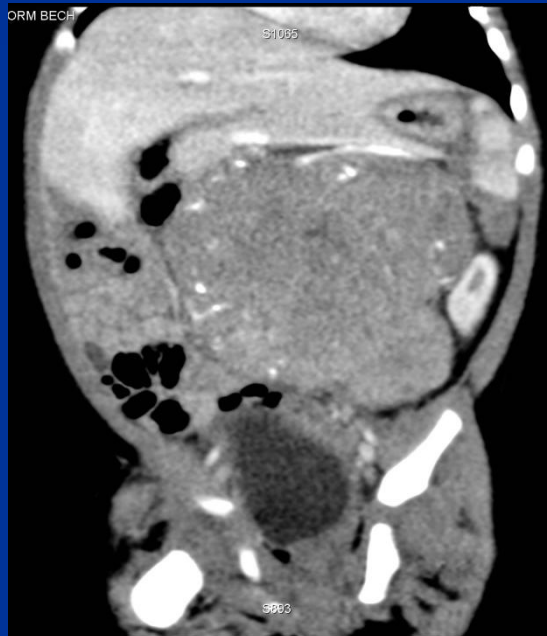
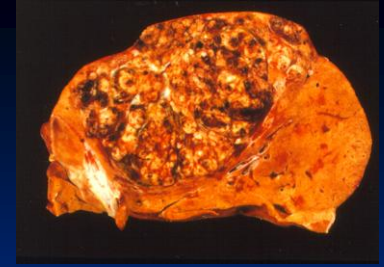
*CT urografi
DELAY:
10-15
MINUTTER*

IV KONTRASTSTOF-FLOW 3 CT ANGIO-



*14 ÅR- 1 ML/KG- pumpeinjektion/flush/trigger
VENFLON- FLOW 1.8 ML/ SEC- ARTERIEL FASE-*

IV KONTRAST – "TUMOR"



ARTERIEL FASE

ART. FASE

VENØS FASE

SEN VENØS FASE

NEUROBLAST. 60 EC

HAPATOBLASTOM

HÆMANGIOM

IV KONTRASTSTOF- 4 CT UROGRAFI SPÆDBARN



*1 MÅNED
4.5 KG
4.5 ML-EVT
TODELT
INJEKTION-*

*HÅNDVENE
DELAY:10
MIN*

LOWDOSE

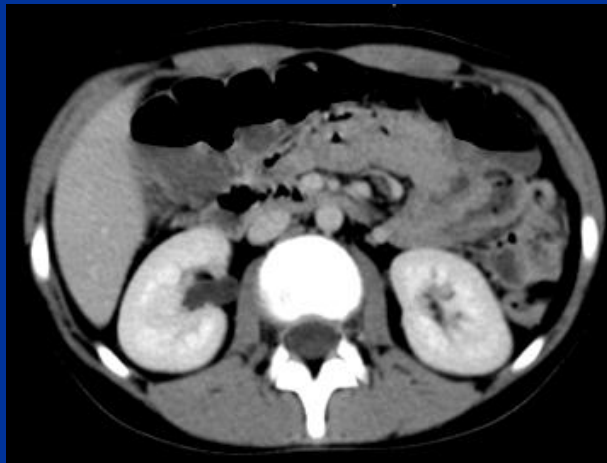
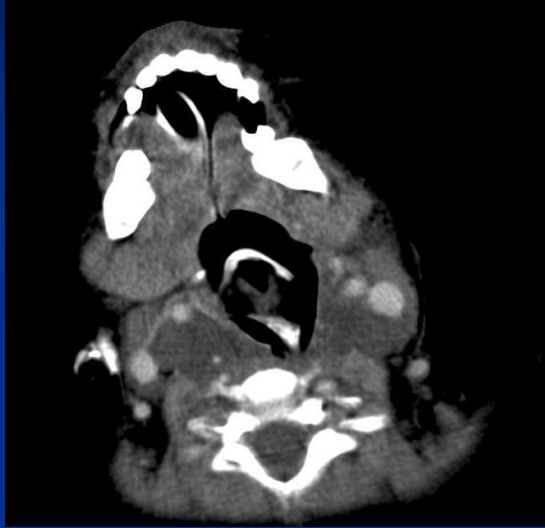
INTRAVENØS KONTRAST

DOSER OG DIAGNOSER!

FORSLAG- 350 mg/I ml- OVERSIGT

- *Tumor-udredning- og kontrol : 1 ml-1.5 ml/ kg*
- *Akut abdomen- 1.5 ml/ kg*
- *Angio-CT 1 ml/ kg- problemstilling!*
- *Mindre børn (imma/præmature/ neonatale : skema*
- *CT-urografi- 1/2-1 ml / kg- fordelt i 2 doser- enkeltfaset CT*

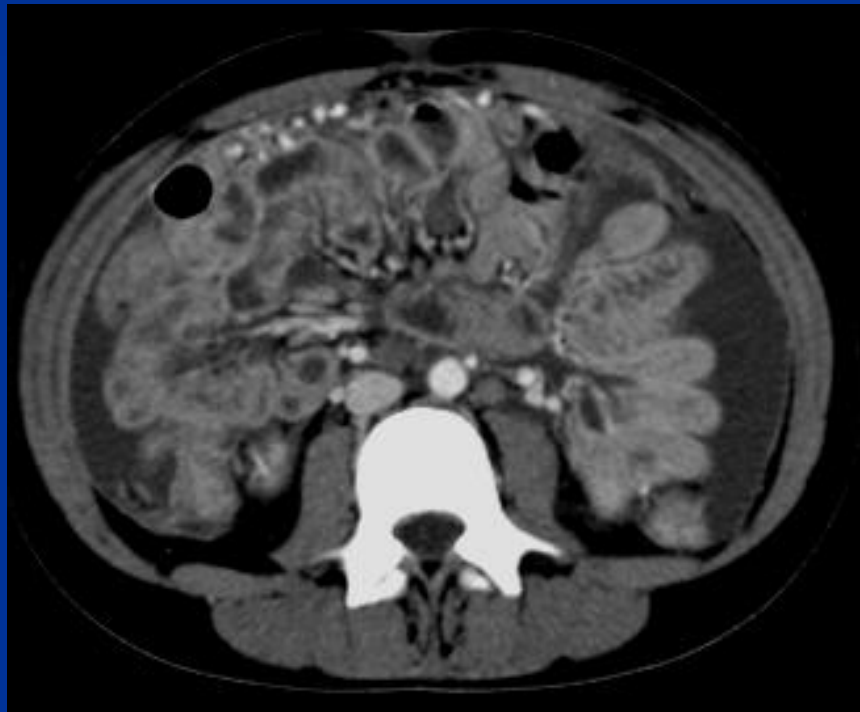
IV- KONTRAST – *EXTRA VASAL INFORMATION*



Tarm-opladning
Organ-opladning
Kar-fremstilling

PERORAL KONTRAST

- GENERELT ALDRIG (FASTE, SUND MODVILJE- KVALME- OG DEN INTRAVENØSE KONTRAST ER SUFFICIENT)



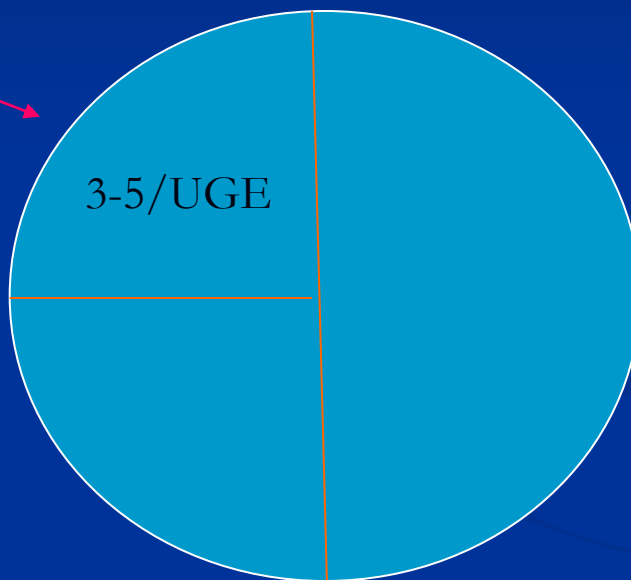
VISITATION- OPSAMLING

- ALDER - SEDATION ELLER GA?
- FORBEREDELSE- FASTE?
- IV-ADGANG- HVILKET FORMÅL?
- KONTRAST DOSIS OG TIMING?
- HVORDAN?
- REFORMATIONER?
- INDIKATION- STRÅLEHYGIEJENE

KLIENDEL OG KLINIK

ONKOLOGI

UDREDNING/
KONTROL



DEN NATIONALE KRÆFTPLAN- "KRÆFT-PAKKEN"
BESTYRKET MISTANKE OM MALIGN LIDELSE- VIDEREVISITERES TIL
CENTRE- MEN HVIS UDREDNING LOKALT: TÆNK STRATEGISK

TUMOR UDREDNING

CT er aldrig first choice. Hals, thorax og abdomen udredes primært med konv. rtg.- og ultralydsscanning

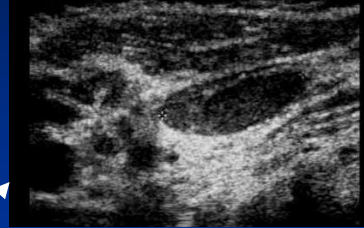
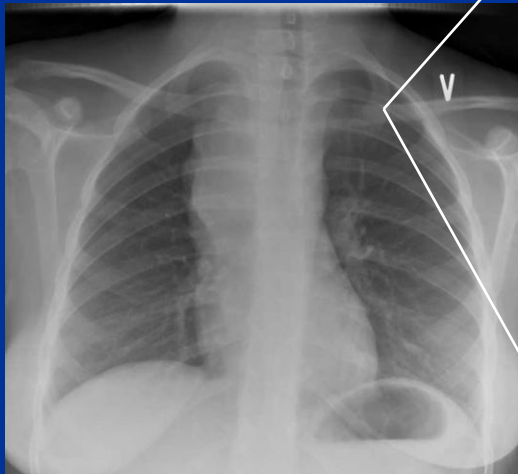
HVIS MISTANKE OM MALIGN TUMOR-

*UDFØRES CT SCANNING HURTIGT EFTER UL.
INKLUDERER LUNGER, LEVER, LILLE BÆKEN*

*LYMFEKNUDER OG KNOGLER-
STATUS FØR
BEHANDLING*

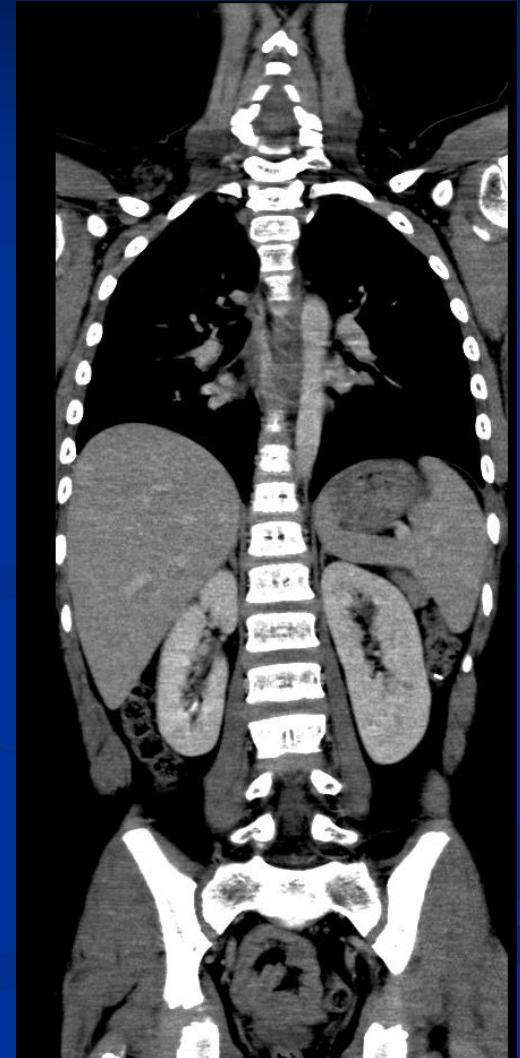
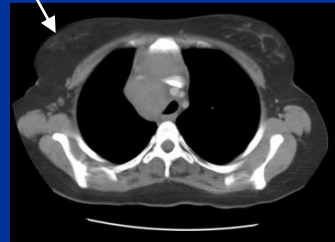
**DEN NATIONALE KRÆFTPLAN: BEGRUNDET
MISTANKE OM MALIG-
NITET- OVERFLYTNING TIL CENTER- NB:
UDREDNING EFTER AFTALE.**

DEN NATIONALE KRÆFTPLAN- EKS:



ALDER
HISTOLOGISK DIAGNOSE
STAGING-
CT- BODY
ELLER PET-CT

NB: STEROID!!



PÆDIATRISK ONKOLOGI

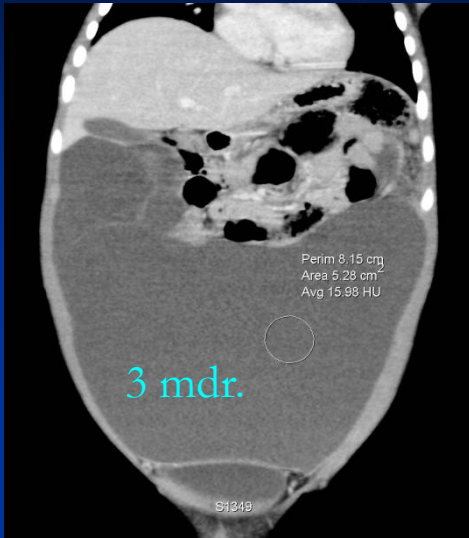
.. De allerfleste tumortyper i barnealderen behandles med kemoterapi- og opereres når tumorer mindsket i størrelse - ønske: radikalitet

Evt. KMT

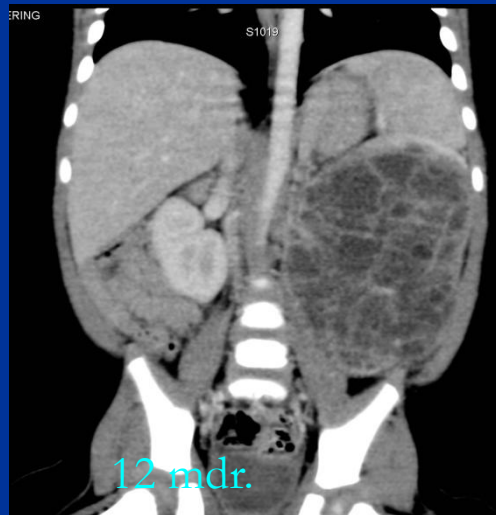
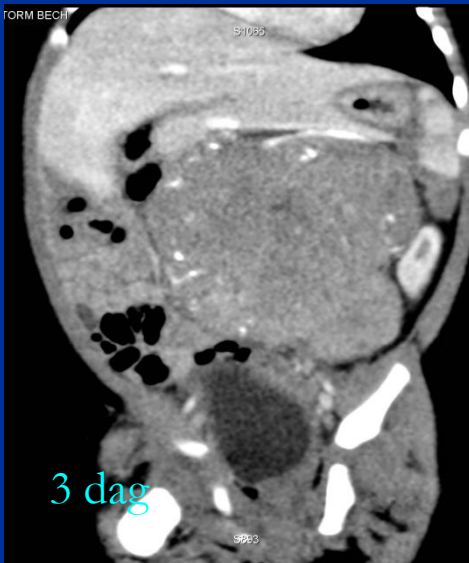
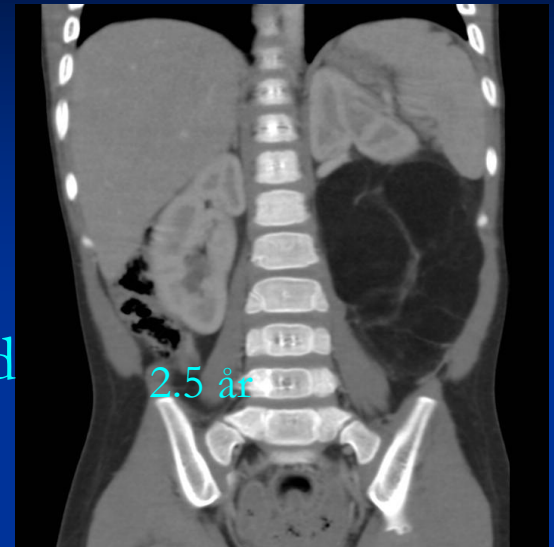
OVERORDENET BLIVER 75-80% AF BØRNENE RASKE



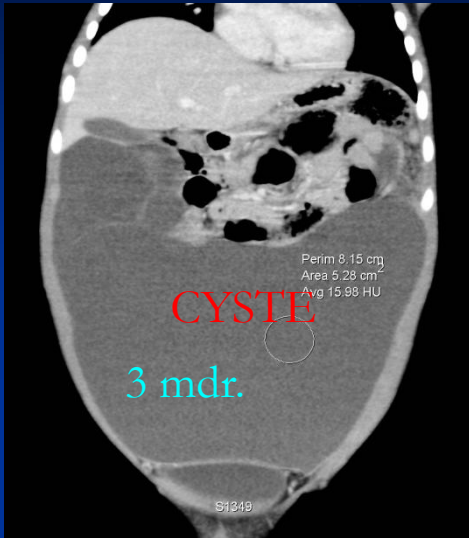
TUMORUDREDNING



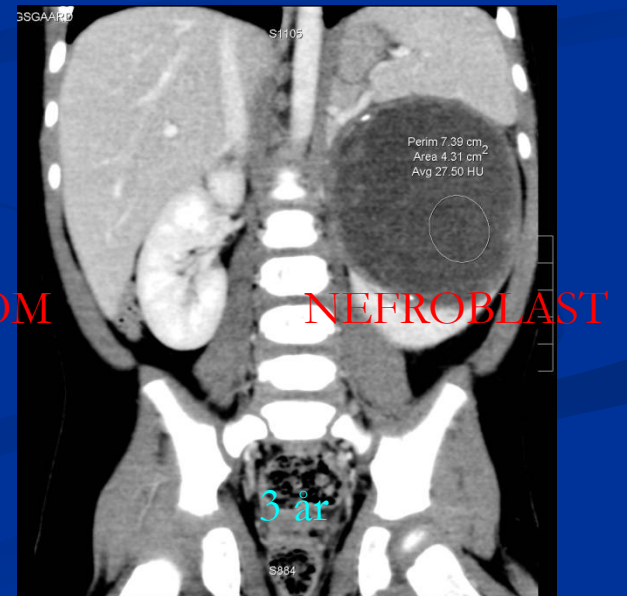
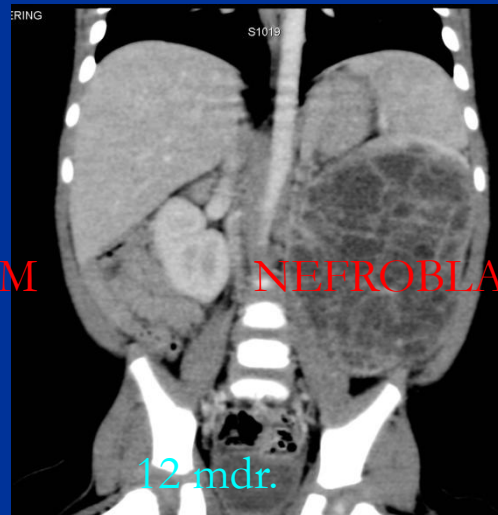
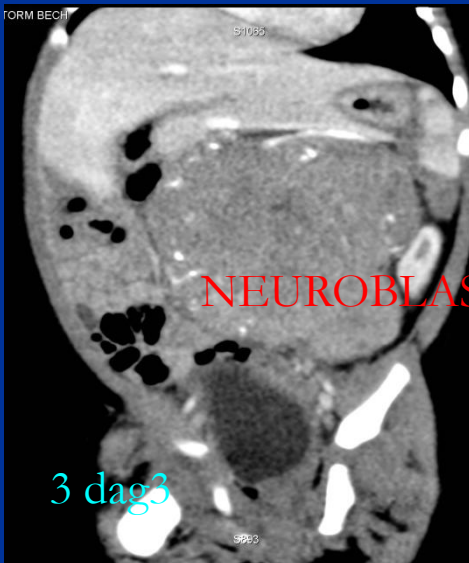
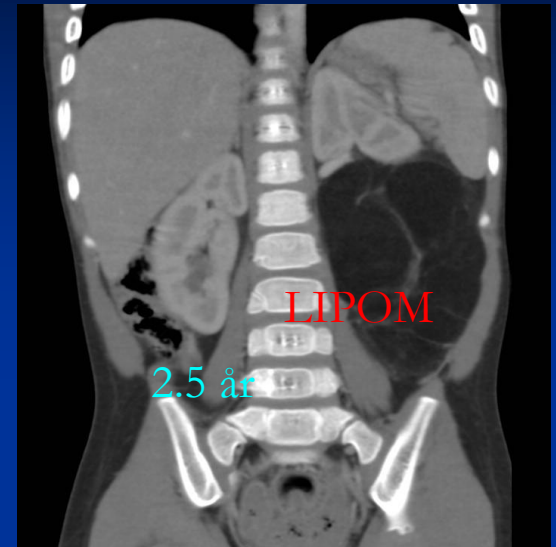
5 børn med stor mave-
SOLID ELLER
BLANDET CYSTISK
SOLID tumor ved ultralyd
scanning



TUMORUDREDNING



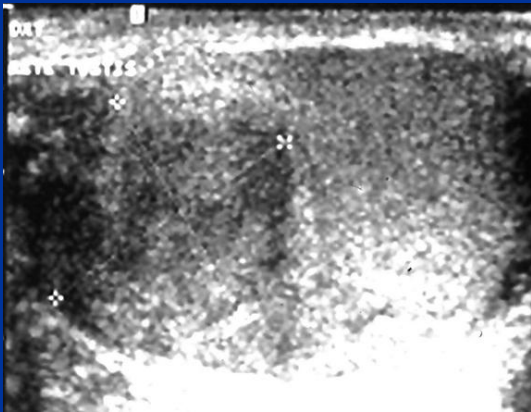
5 børn med stor mave-
Tumor ved ultralyd scanning



CASE 1

- 11 MÅNEDER GAMMEL PIGE-
STOR MAVEN, PJEVSET, TRÆT, INGEN
APPETIT- BLEG.

ULTRALYD:STOR SOLID TUMOR → MDCT



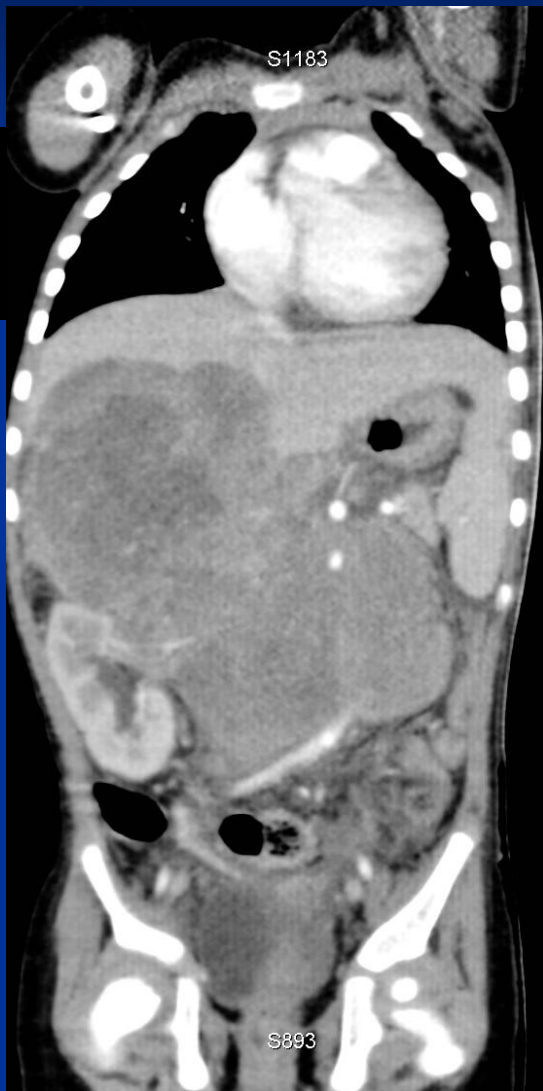
*VISITATION:THORAX OG ABD. RUM 37-
MÆT SOVENDE, INGEN GA-
PLUS IV- ADGANG, 1.5 ML KONTRAST IV/KG
STANDART KVALIETET- SINGLE RUN*

THORACOABD. CT JULI 07

23.07.2007
13:30:05

NB: DAGTID

FFS
TP:-15.3
3mm
kV:120
mAs:40
400msec
W 300 : L 50



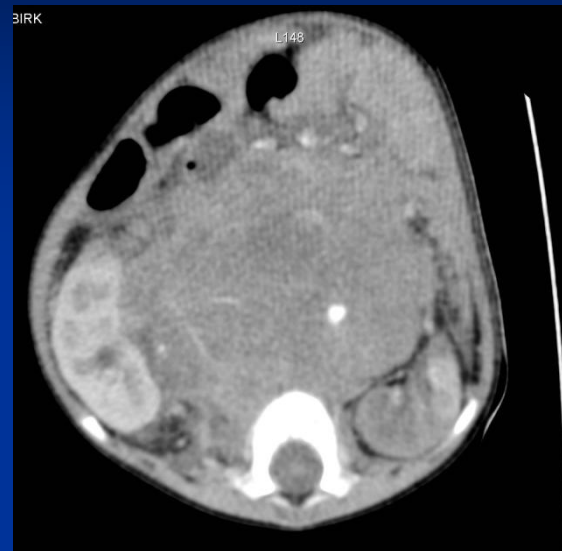
KORRI-
GERET
FOR
HØ.
SIDELEJE



EFTER KEMO : KONTROL



JULI 07

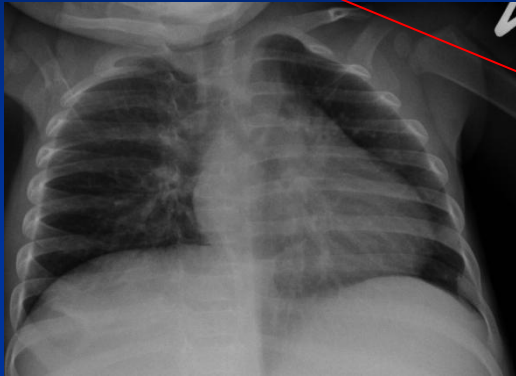


NOV.07

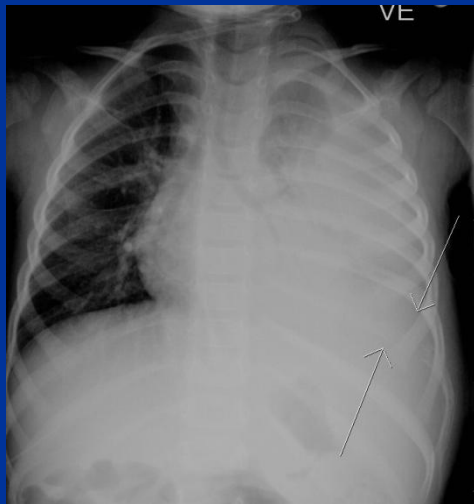
OPERABILITET

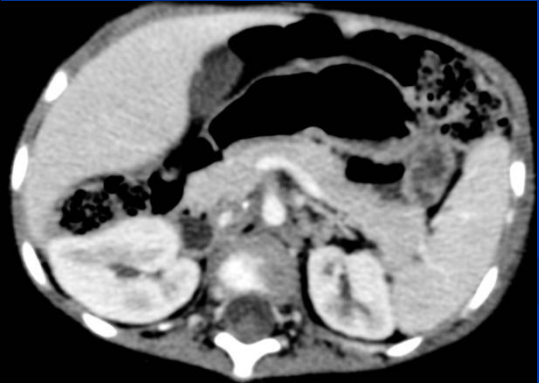
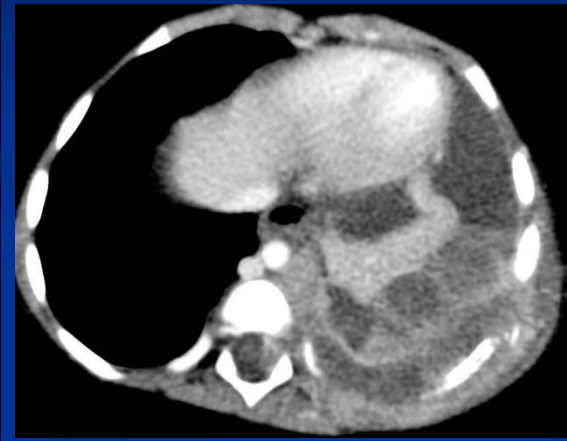
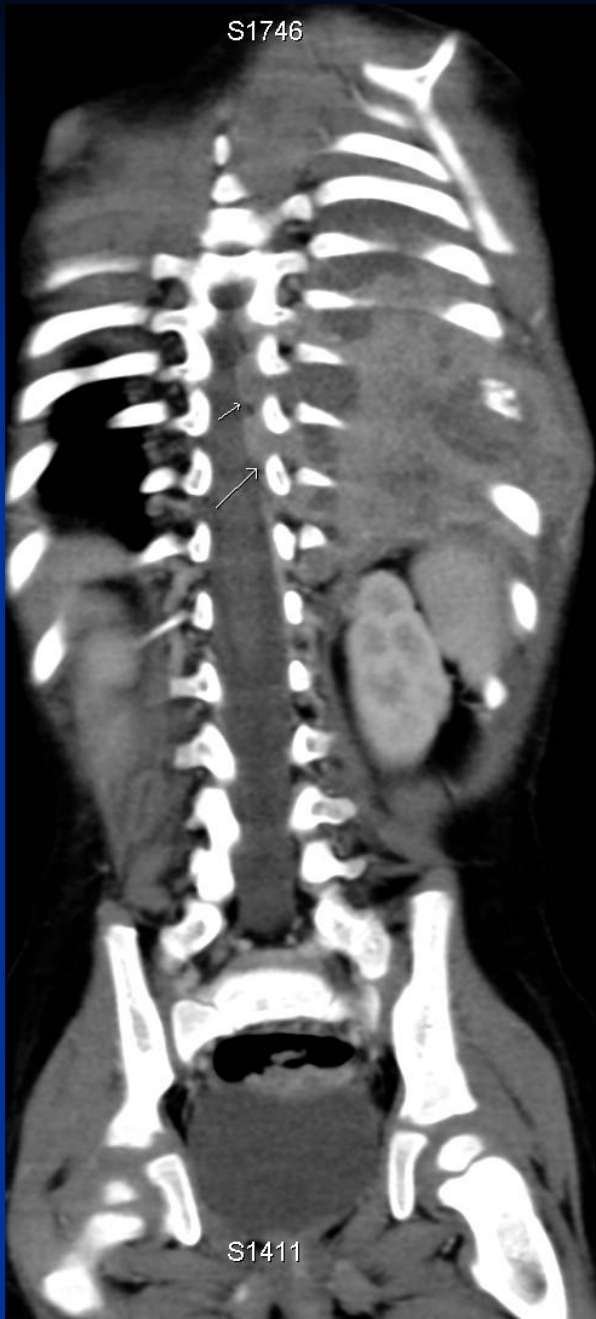
KONTROL MARTS 09 RECIDIV

07.07

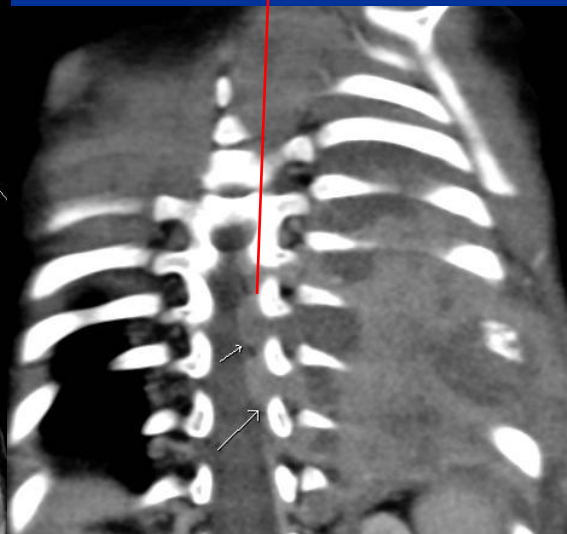
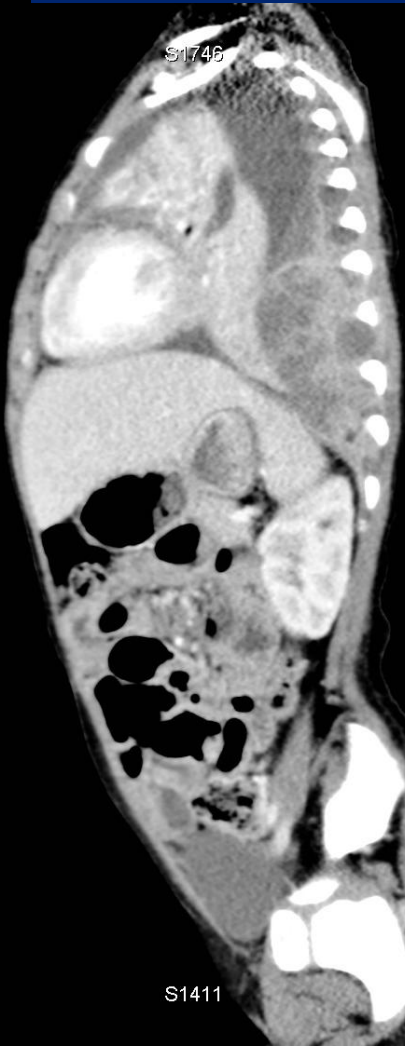
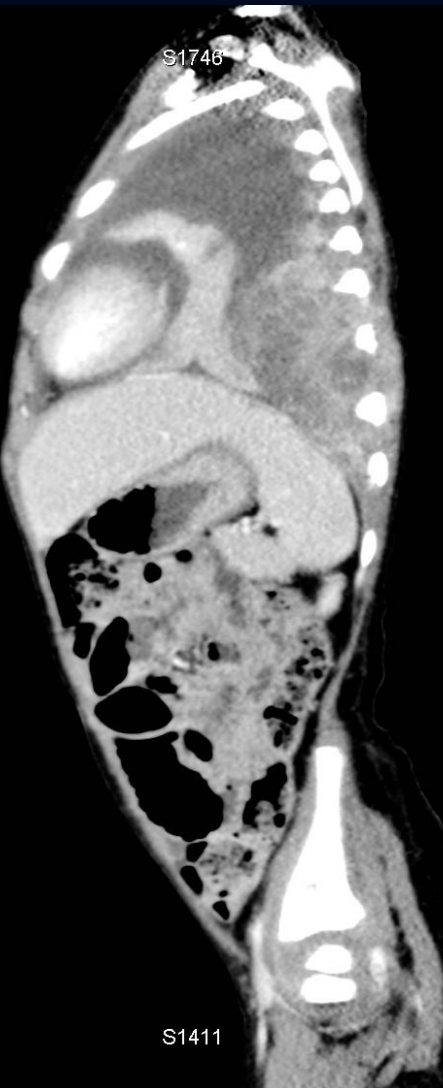


03.09





TUMOR RECIDIV/NY TUMØR
I GRÆNSESTRENGS OMRÅDET THORACALT

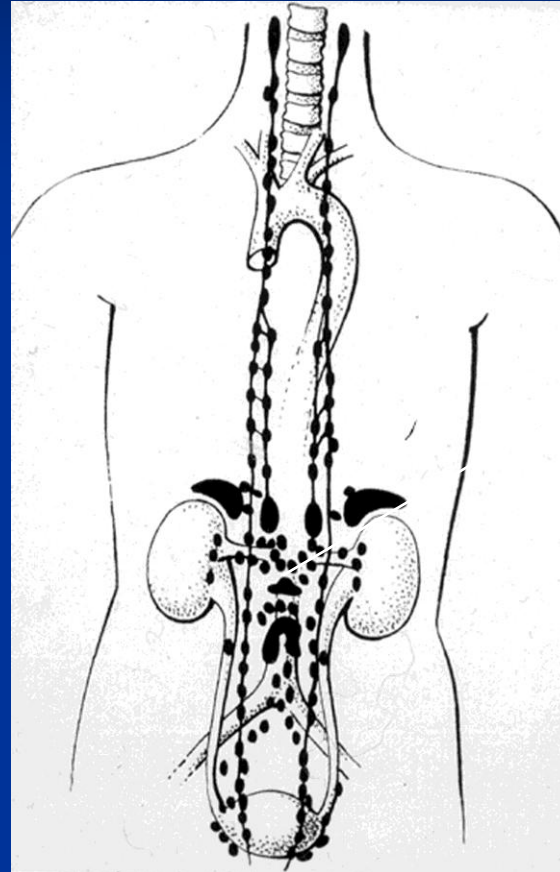


BLASTOMA

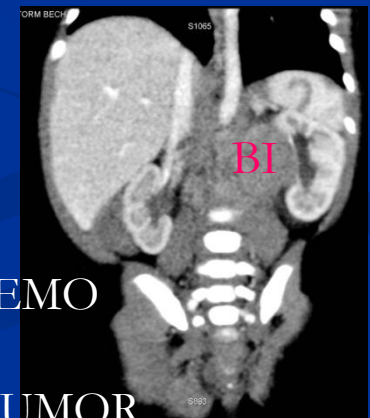
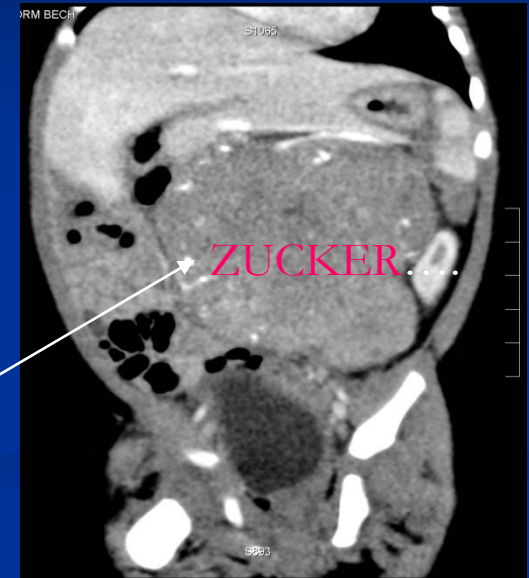
- *Neuroblastom*
- *Neproblastom-“Wilms tumor”*
- *Hepatoblastom*
- *Rhabdomyosarcom*
- *Malignt lymfom*

- *Andre tumores : Ewings sarcom, teratom*

NEUROBLASTOMA



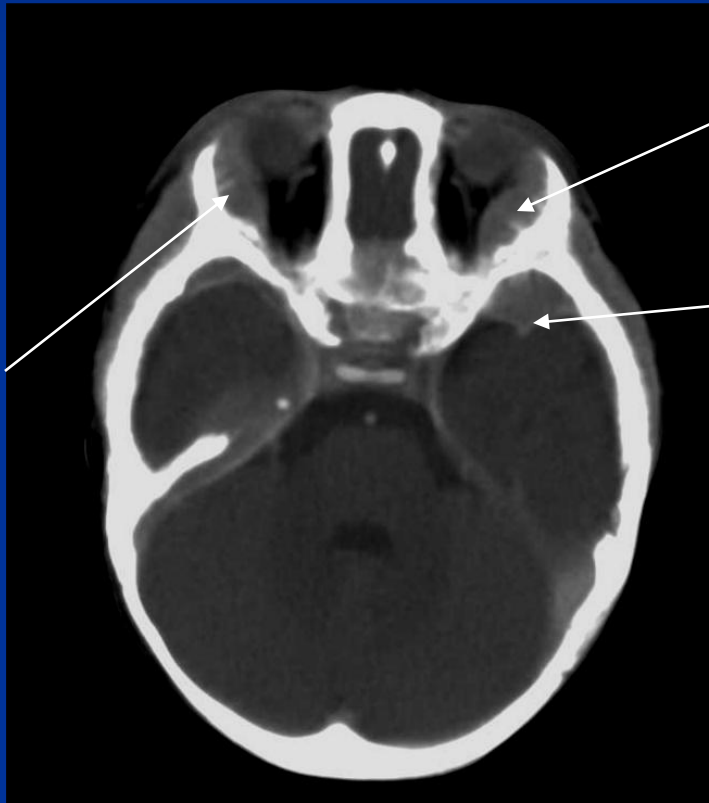
3 DAGE GAMMELT BARN



EFTER KEMO

MATUR TUMOR

Ansigt- orbita- hals

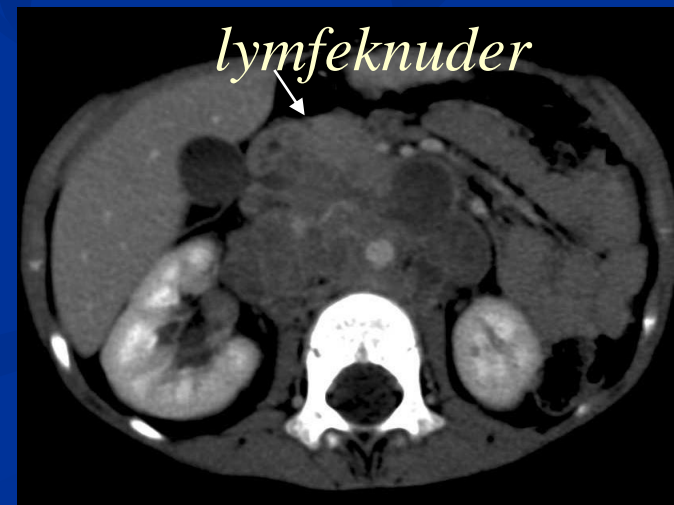
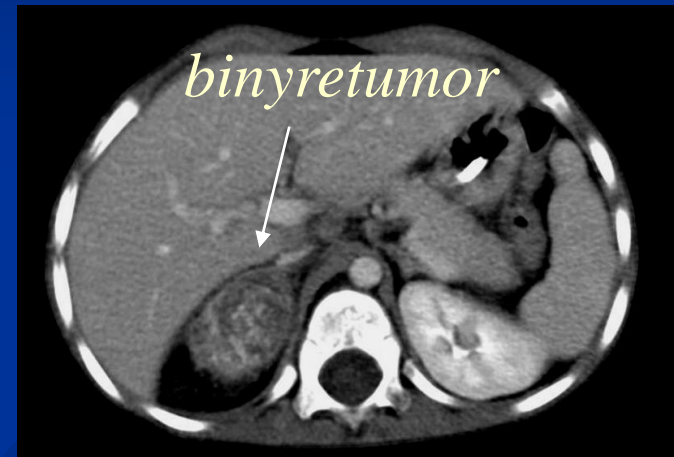
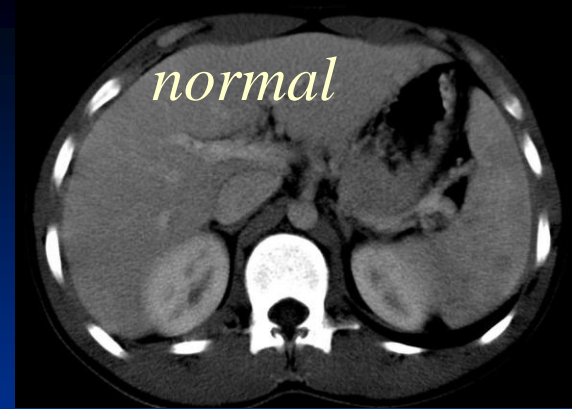


10 mdr. gammel pige med bilateral exophthalmus-

ORBITA-

2

Og hvad abdomen gemmer.....

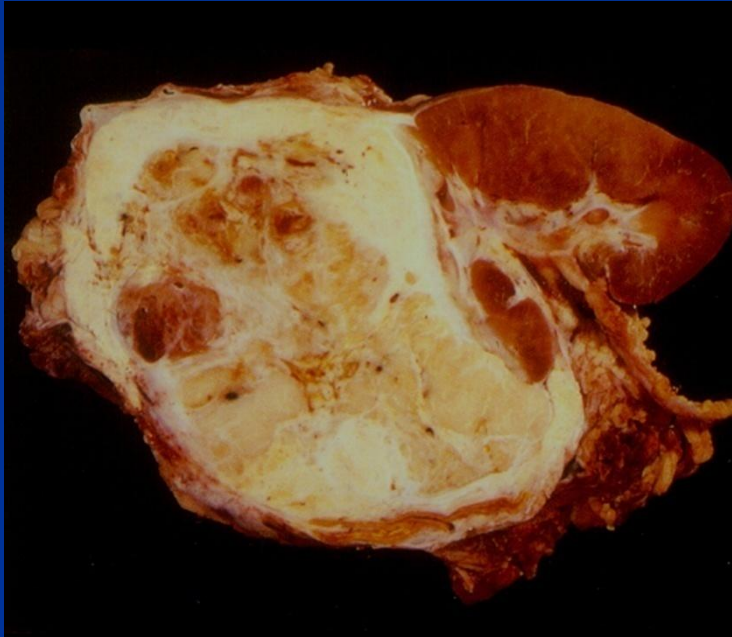


Klassisk binyre neuroblastom

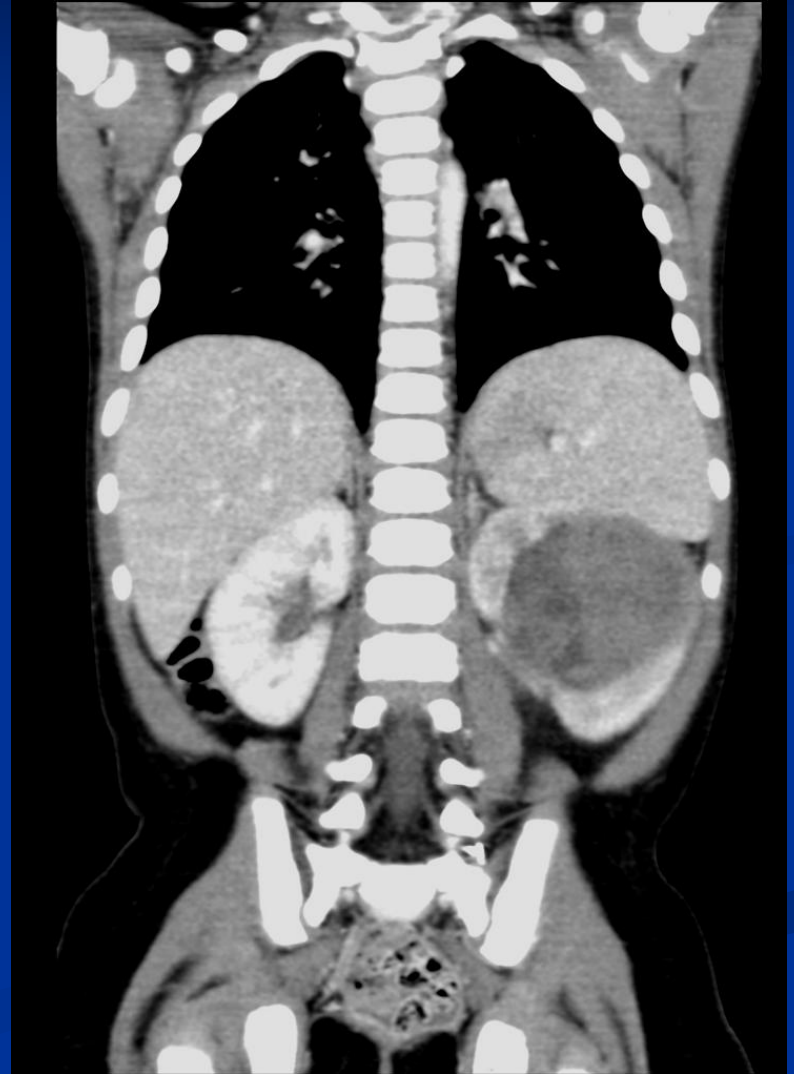
NEUROBLASTOM –PRÆOPERATIVT- OPERABILITET?



NEPHROBLASTOMA

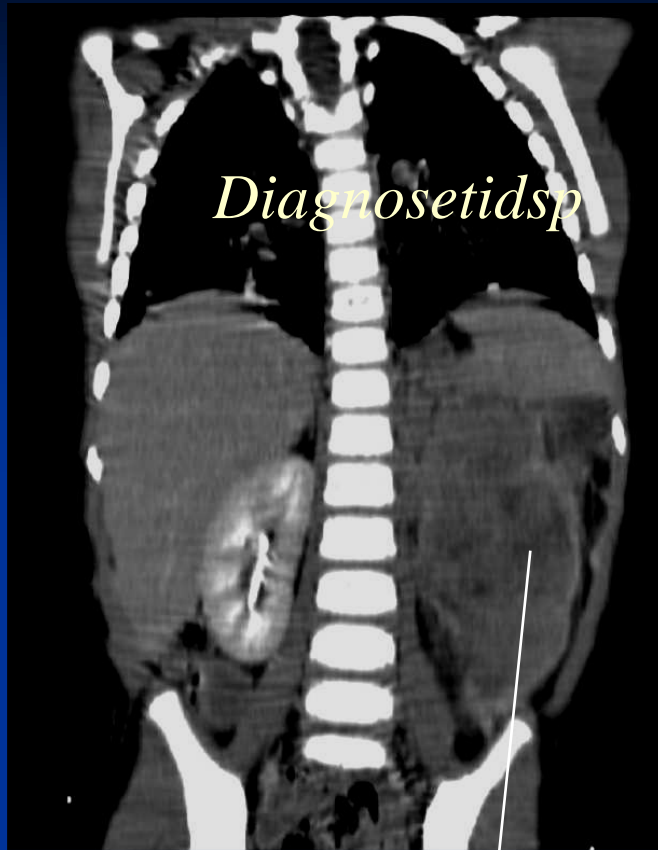


WILMS TUMOR



HISTOLOGISK KLASSIFIKATION- LOW RISK/HIGH- RISK

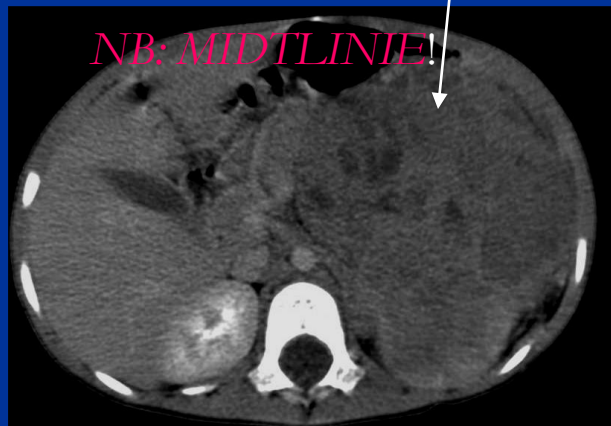
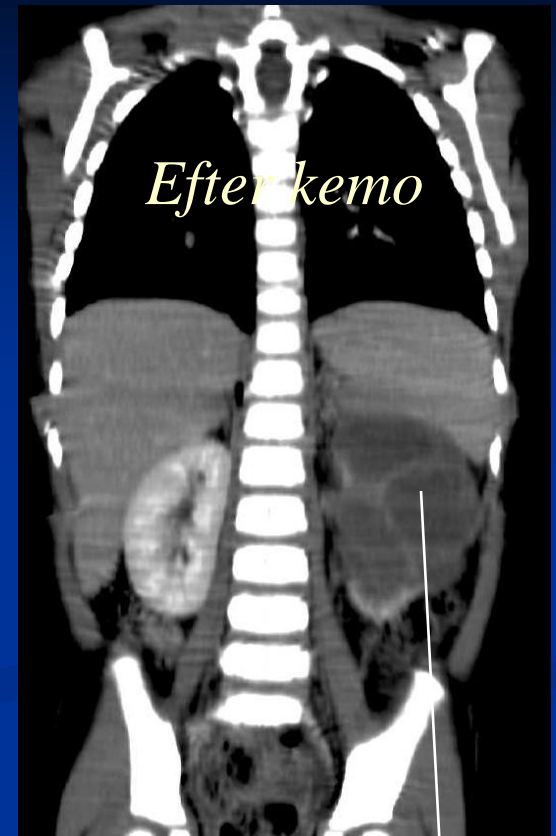
WILMS TUMOR kontrol



*For-
Behandling*

Kemoterapi

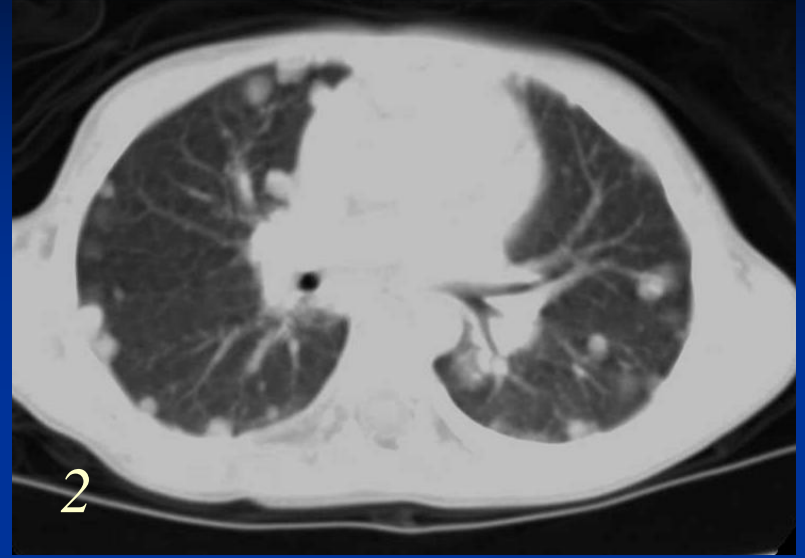
*Præ-
operativ*



OPERABILITET



Nephroblastoma stad V



1: multifokal

2: lungemetastaser

3: bilateral

DENNE PT. FORTSAT RASK- KEMO
NEFREKTOMI OG RESEKTION

Nephroblastoma SIOP

STADIUM I : LOKALISERET TIL NYREN – *komplet excid.*

STADIUM II: TUMOR EXTRARENALT –*komplet excid.*

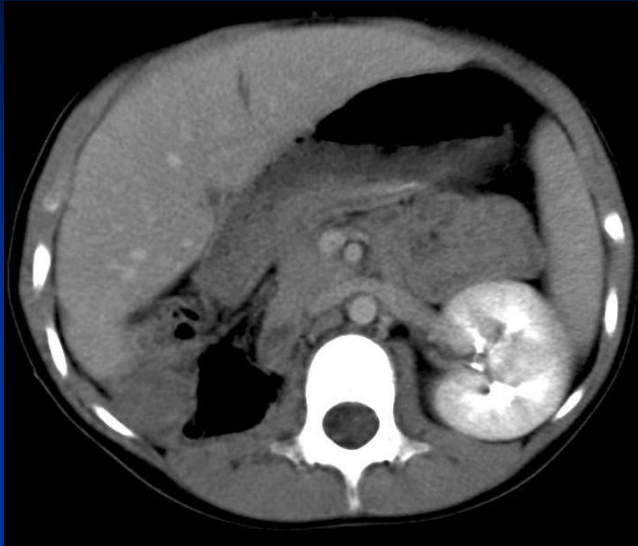
STADIUM III: TUMOR EXTRARENALT- *inkomplet excid*
peritoneale – extrareg.gdl.,karinvasion-
ruptur, biopsi

STADIUM IV: **FJERN METASTASER**

STADIUM V: **BILATERAL TUMOR**

PRIMÆRE STAGING
PLUS BEHANDL.
PLUS KIRURGISK
RESULTAT

Nephroblastom prognose



*”2 års sygdomsfrihed ækvival.
recidivfrihed”*

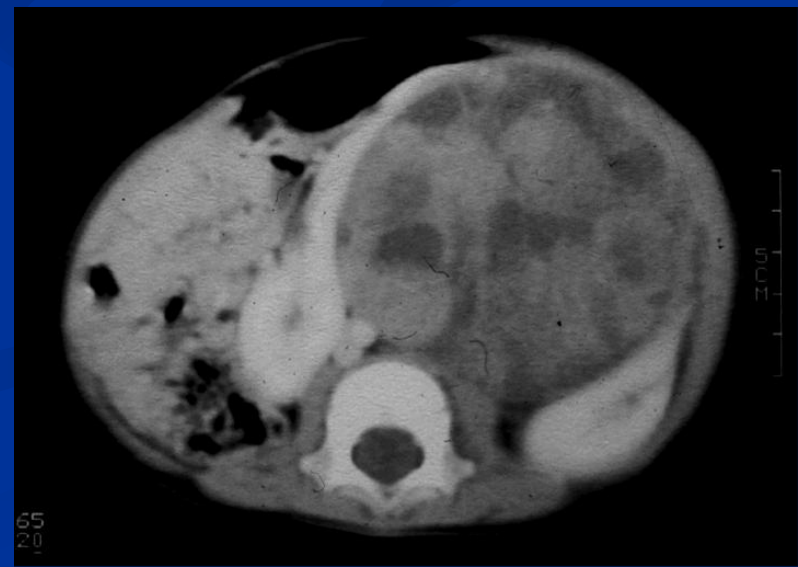
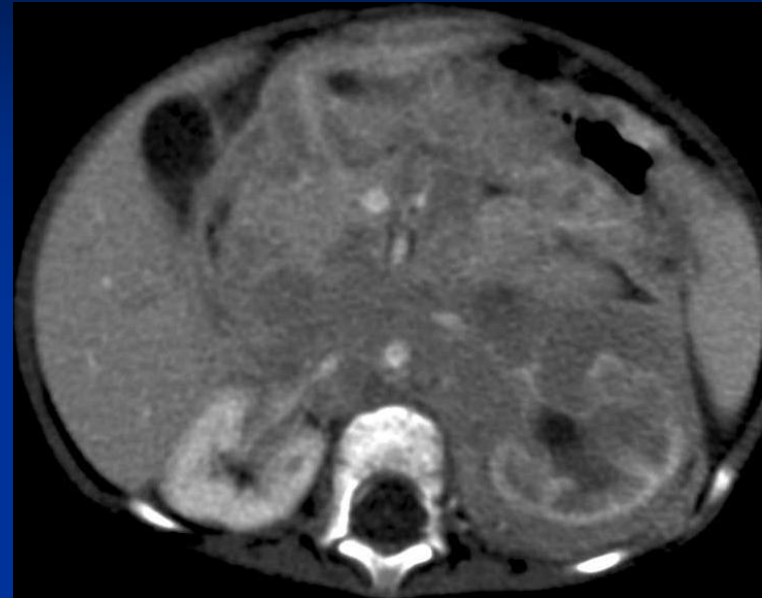
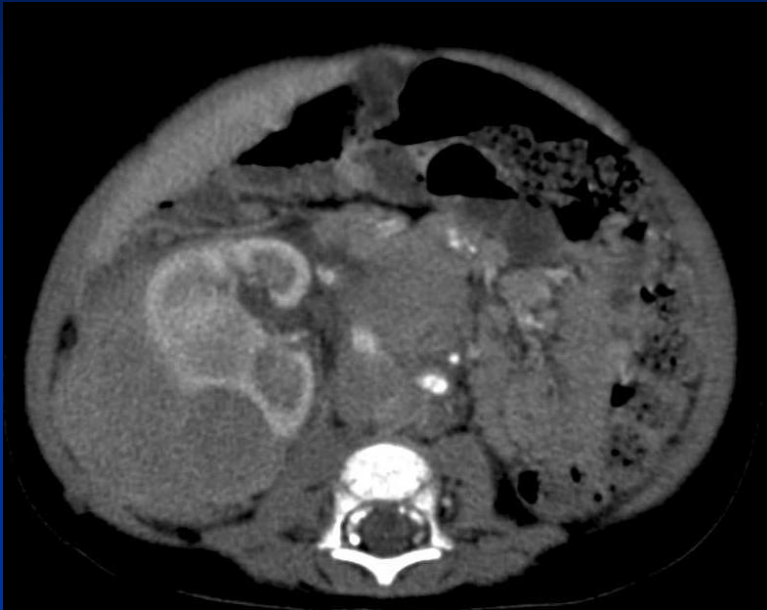
Stad.I: 98 %

Stad.II og III: 92 % recidivfri 79%

Stad.IV: 70%

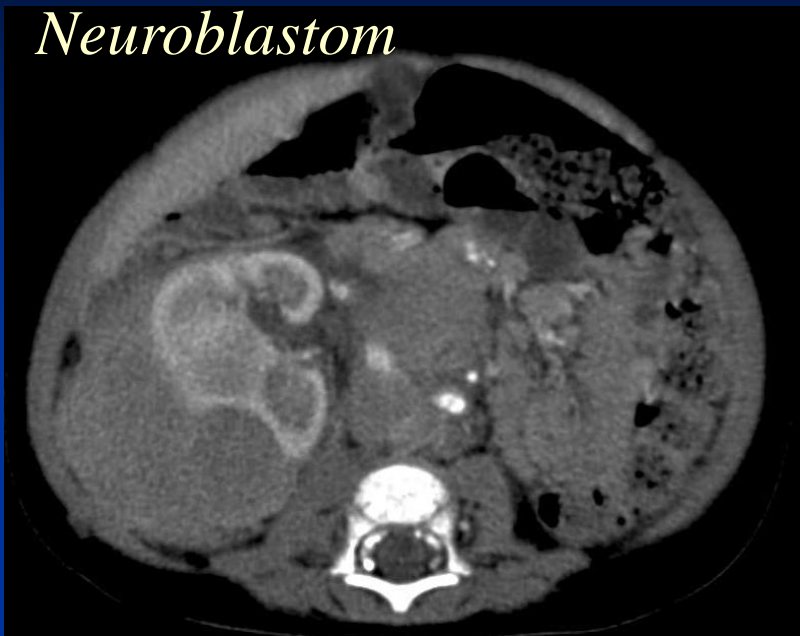
Stad.V som II og III

KONFUSION- diagnoser?????

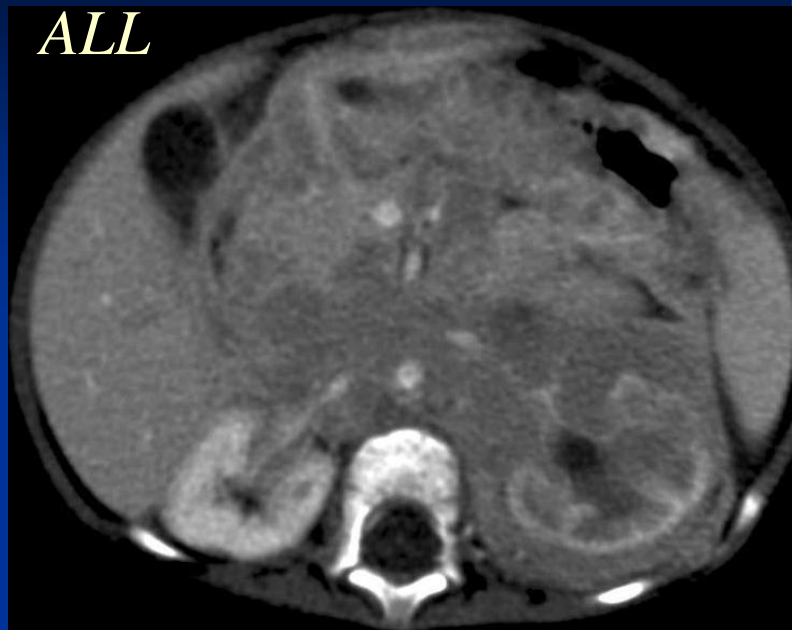


KONFUSION- BIOPSIBEHOV

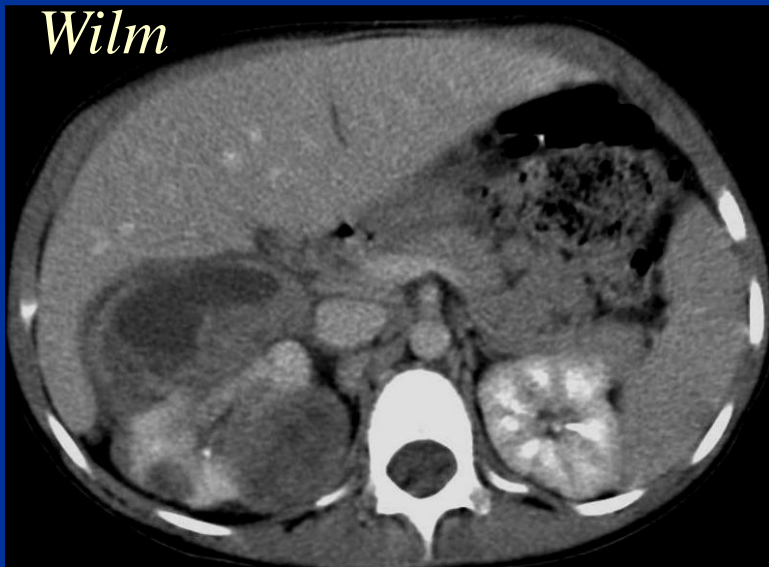
Neuroblastom



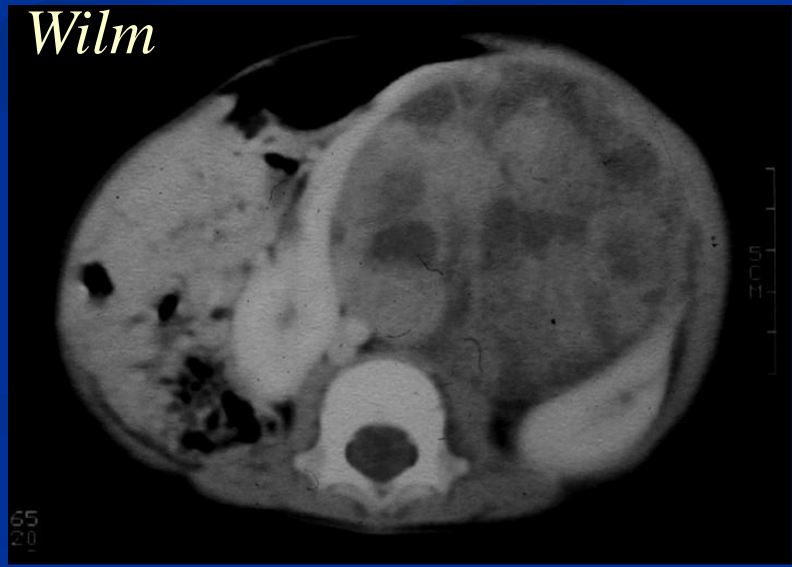
ALL



Wilm

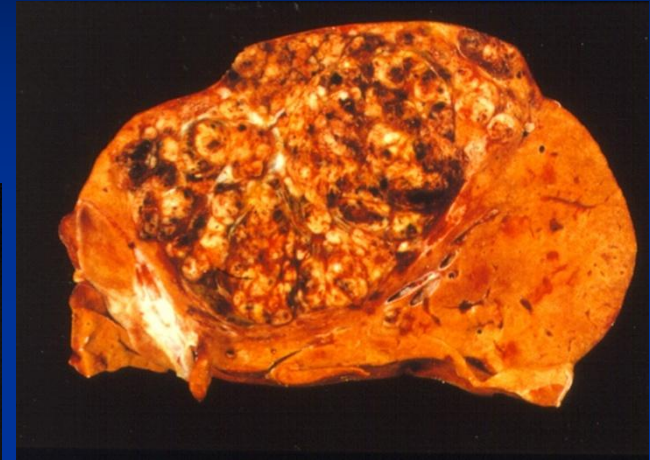
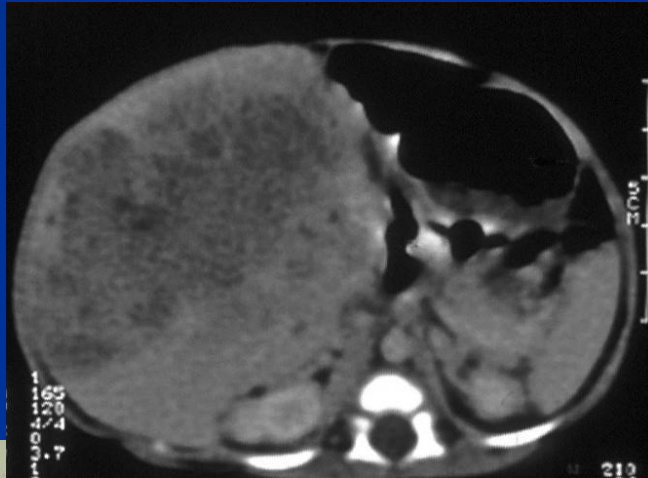


Wilm

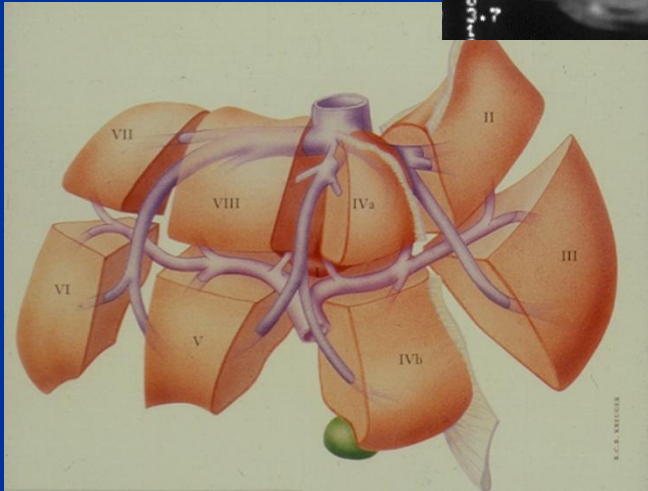


HEPATOBLASTOM

- *ULTRALYD DIAGNOSE OG ALFAFOETOPROTEIN*



DIFFERENTIAL DIAG!

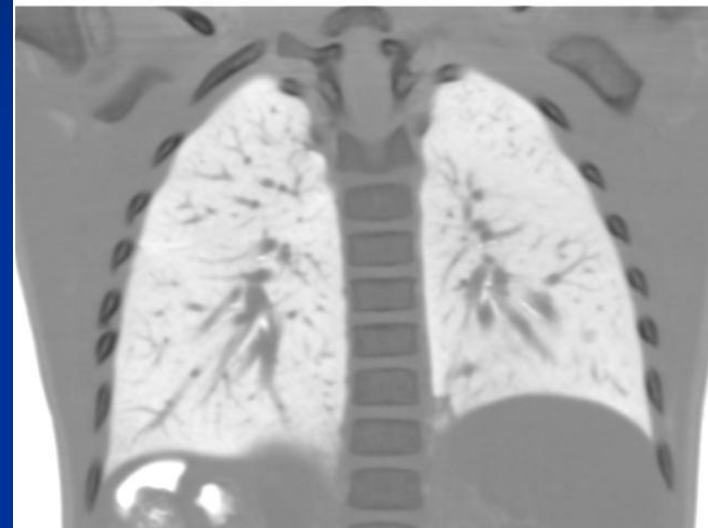
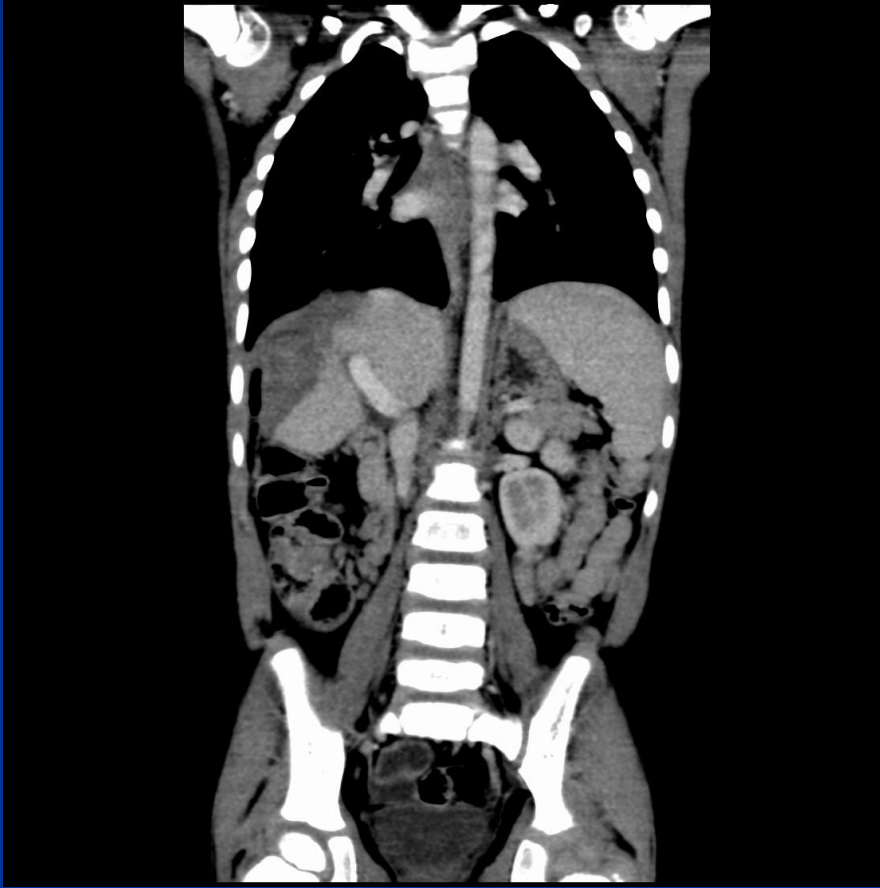


KONGENT



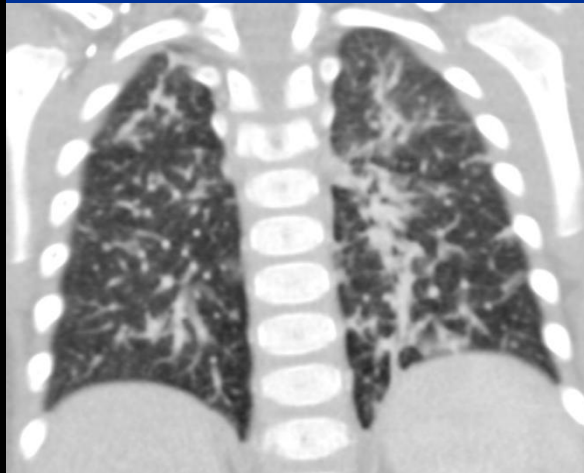
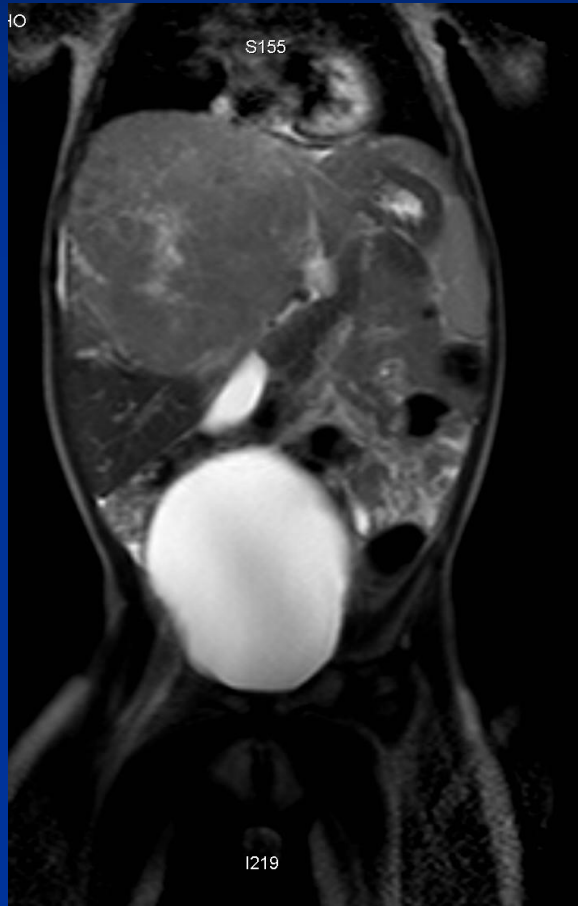
BLASTOMA

HEPATOBLASTOMA



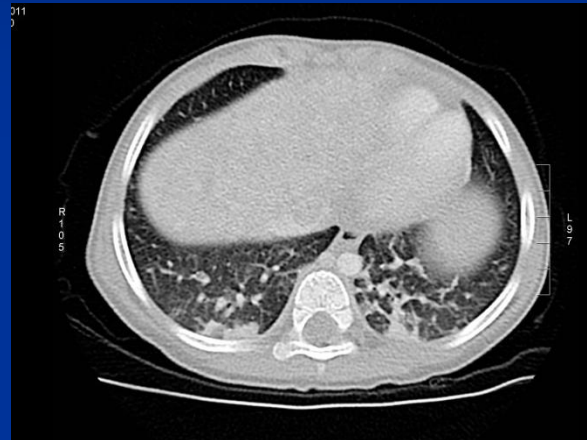
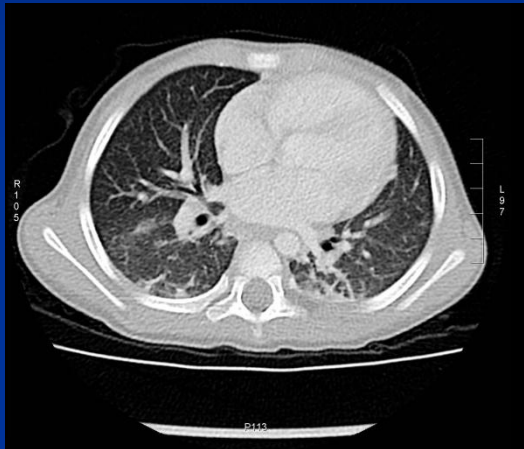
MULTIDISCIPLINÆR UDREDNING
TUMOR TYPE- INVOLVERING-
BEHANDLING
OPERABILITET

HEPATOBLASTOM MR/ CT

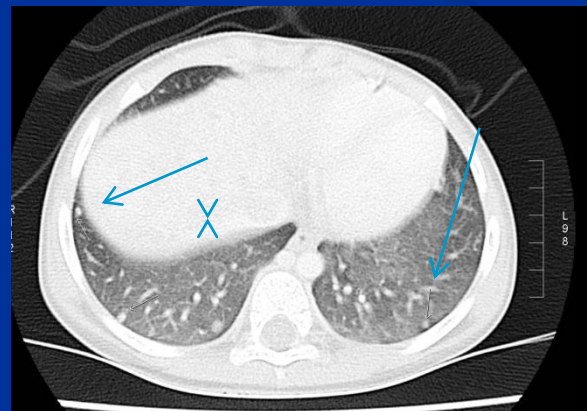
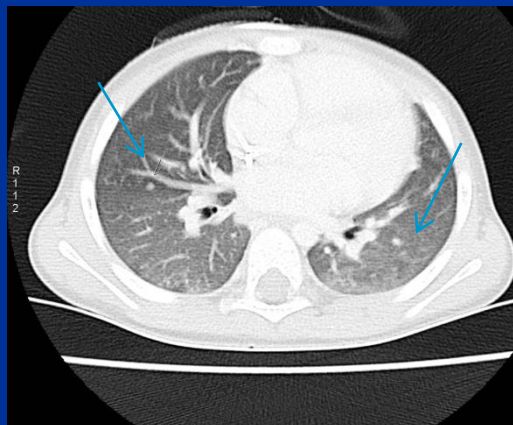


KADANCE METASTASER ANÆSTESI -LUNGER!

■ UDREDNING RÆKKEFØLGE UL/MR/CT



03.05.11 EFTER MR I
INTUBATION



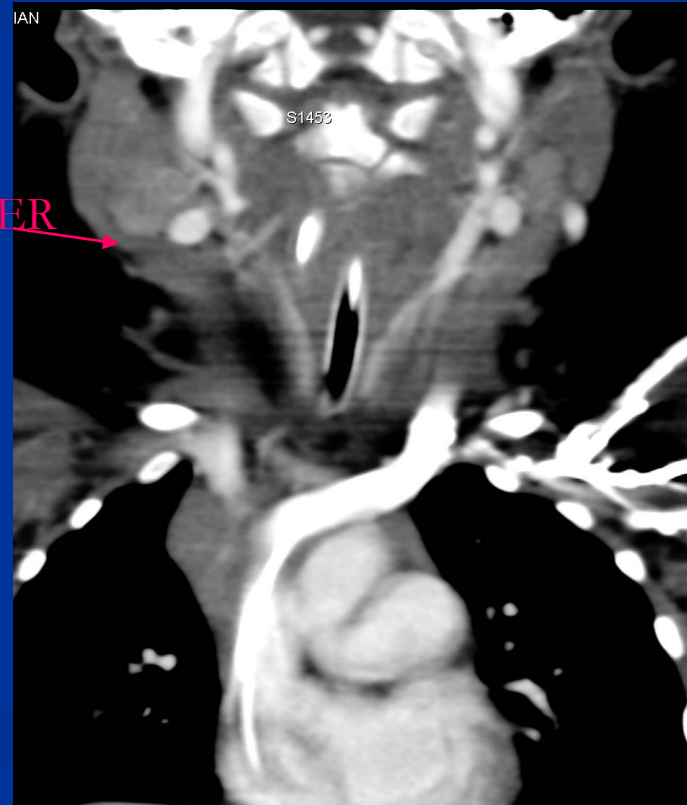
18.05.11 – CT
SEDATION

RHABDOMYOSARCOM.

- ALLE ORGANER
- GLAT MAUSKULATUR
- OFTE DISSIMINERET
- GOD PROGNOSE

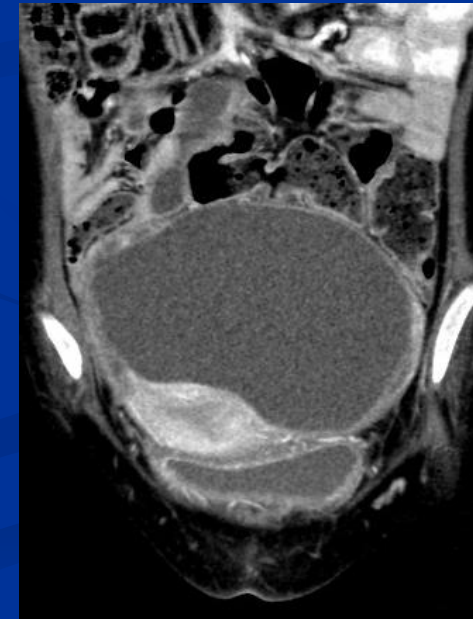
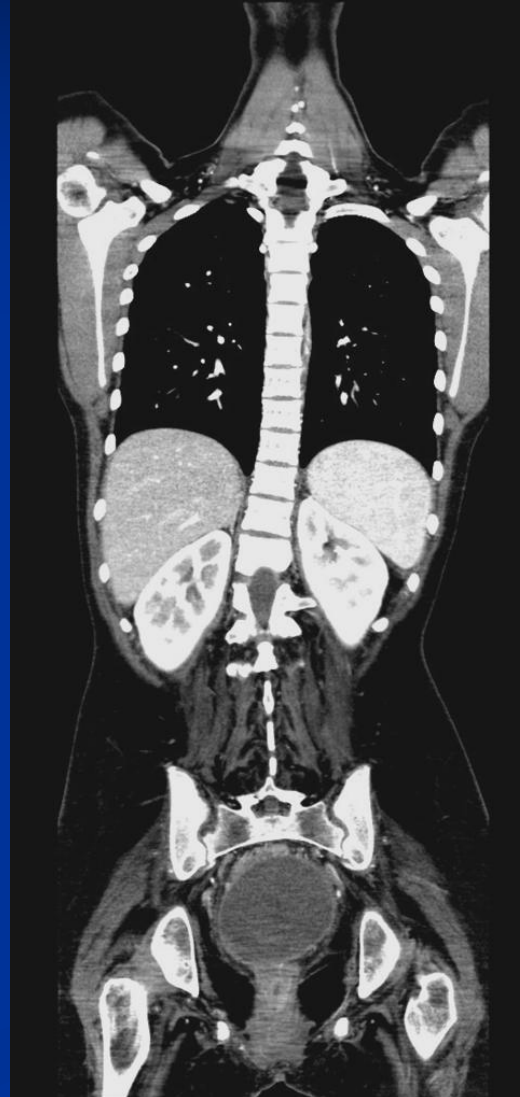
KÆBE TUMOR- MED LYMFENUDER

DRUEKLASE TUMOR I VAGINA

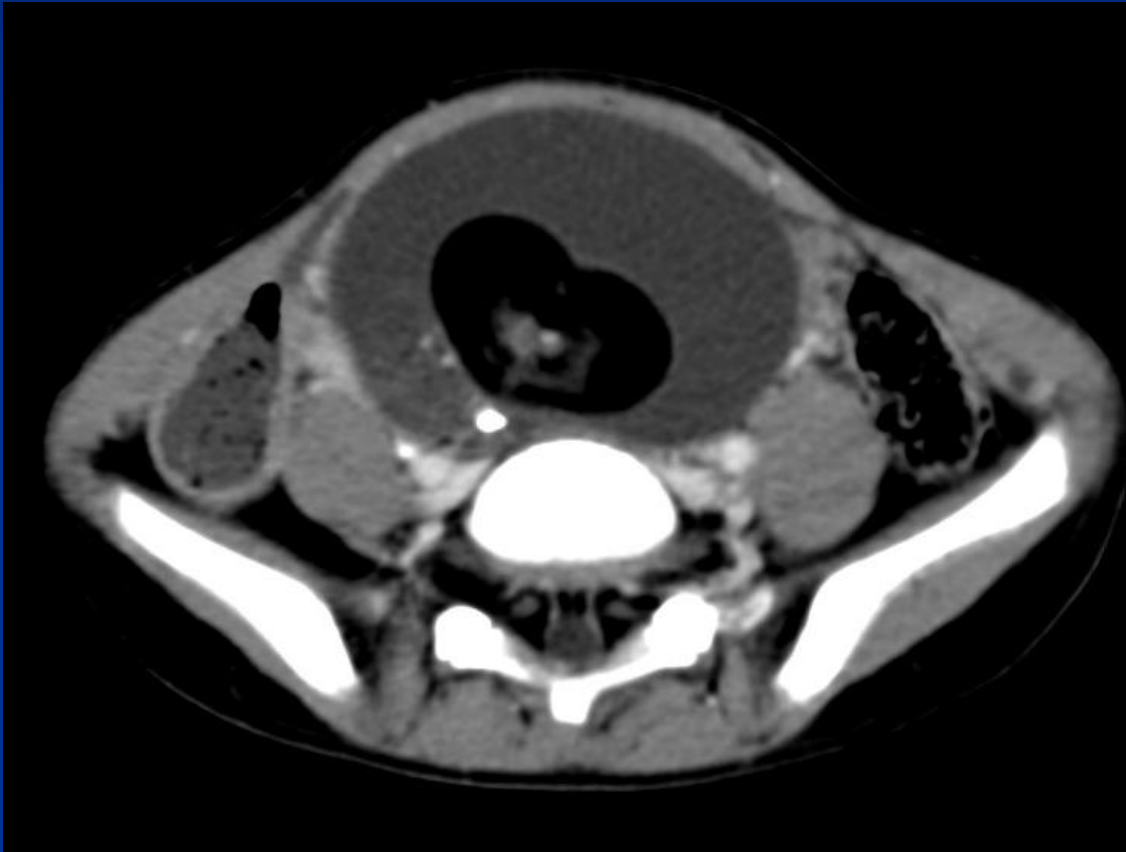


OVARIETUMORES

TEENAGE og mindre

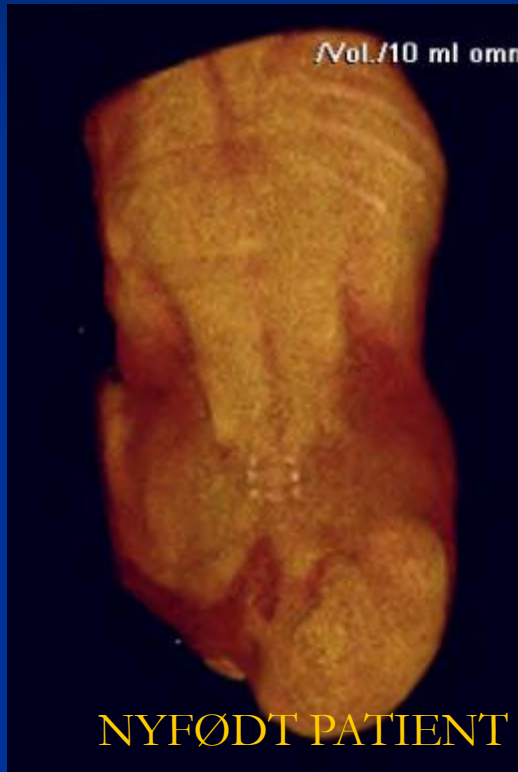


OVARIETUMOR 2



...MEN DET KAN JO OSSE ENDE GODT!

BULER PÅ BALLEN

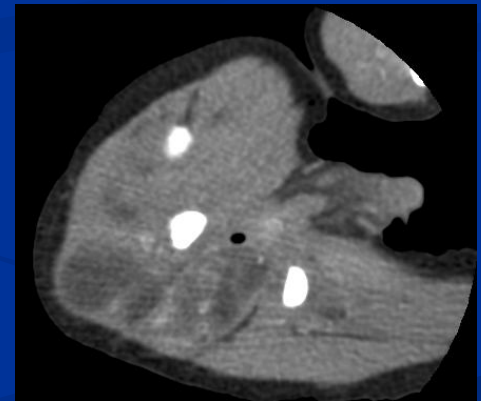
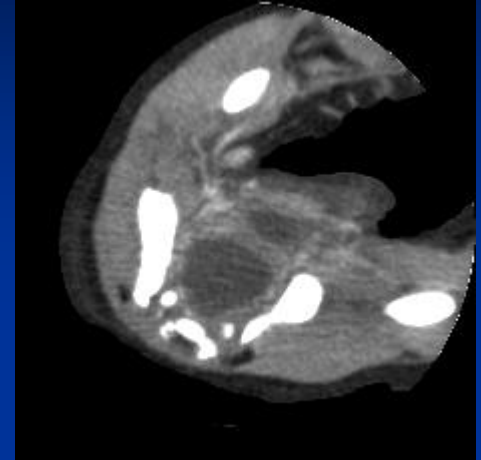
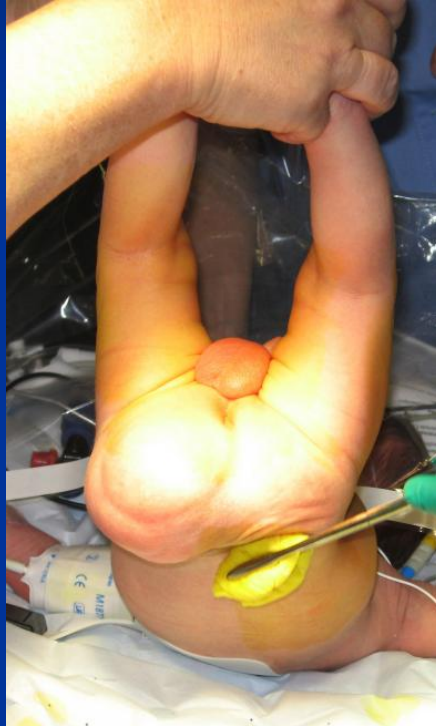
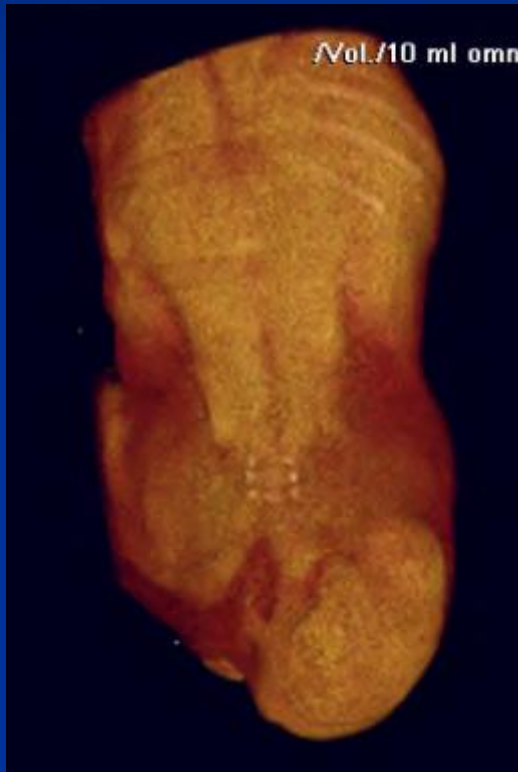


TO SIDER AF DEN SAMME SAG- BULE PÅ BALLEN

NYFØDT MED BULE PÅ BALLEN- MDCT- HVORFOR ?



KLINIK OG BILLEDDIAGNOSTIK



TERATOM- UDEVENDIG OG INDVENDIG



*...kirurgisk
indgreb
Både
oppefra og
nedefra*



TERATOM - POSTOPERATIVT



*. og når enden er god, er
alting godt.*

BULE PÅ BALLEN – 2

NÅR ENDEN IKKE ER GOD!

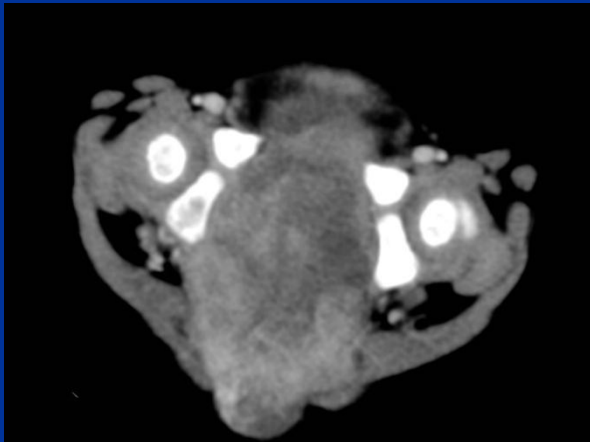
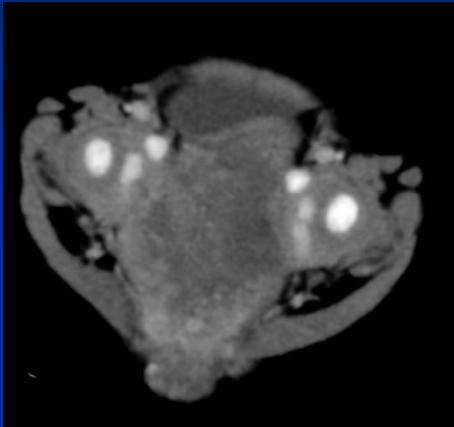
- 10 MÅNEDER GAMMEL PIGE- TIDL. FULDSTÆNDIGT RASK.
- VOKSENDE BULE PÅ BALLEN
- AFFØRINGSBESVÆR
- LIDT MAT OG TRÆT

1.STE UNDERSØGELSE: UL- SCANNING
TUMOR



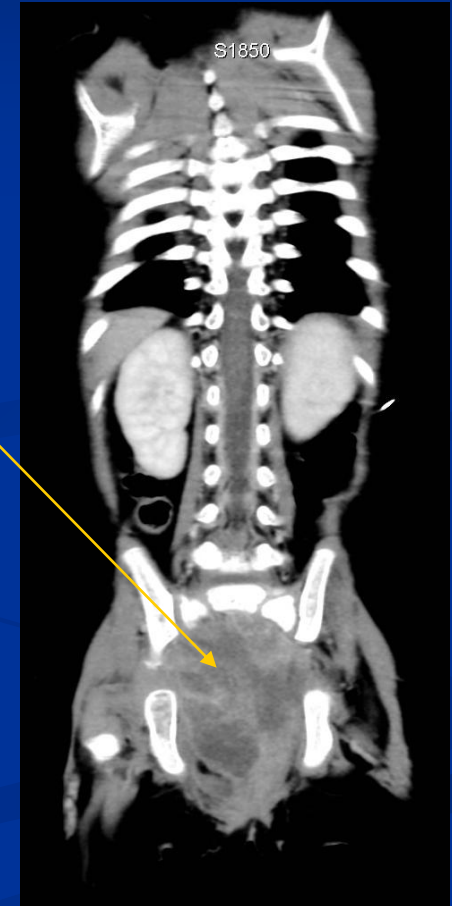
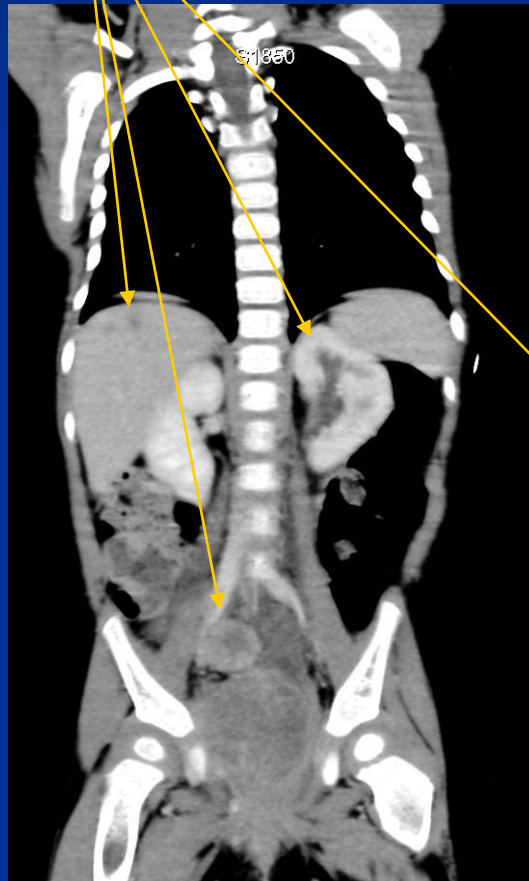
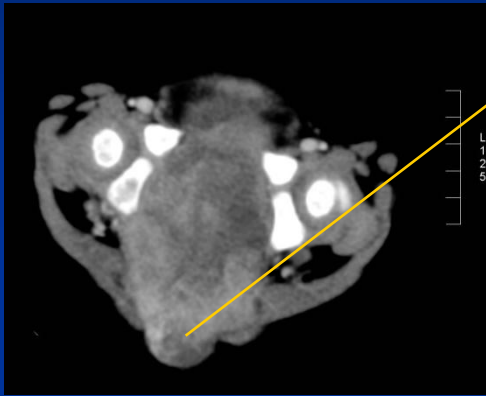
BULE PÅ BALLEN 2

CT- THORAX-ABD.UDREDNING



BULE PÅ BALLEN 2

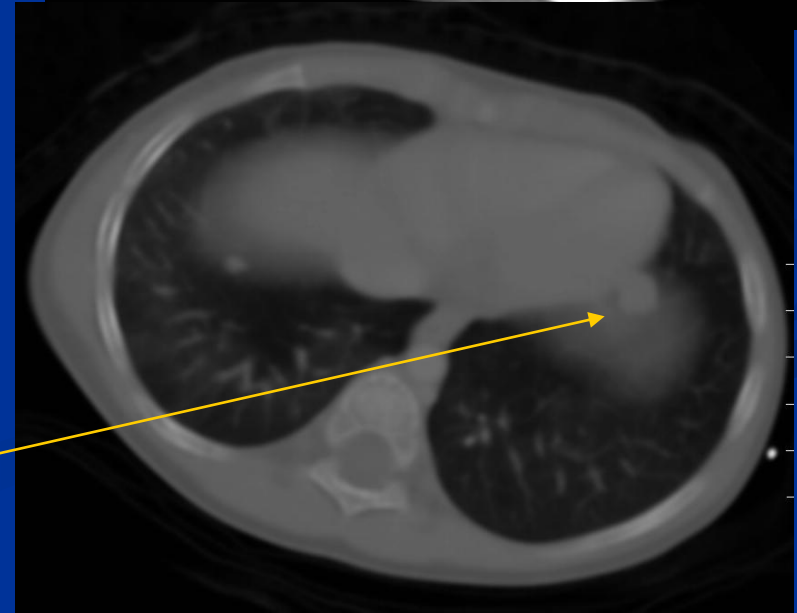
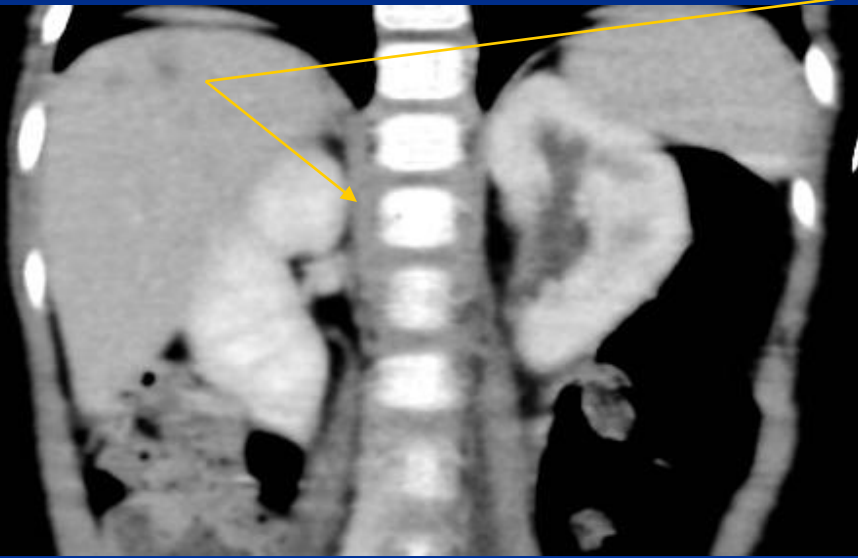
CT- THORAX-ABD.JULI 09



LOKAL INDVÆKST- LUNGEMETASTASER- LEVER OG LYMFENUDE METAST.

BULE PÅ BALLEN 2

CT-STADIE INDDDELING



LOKAL TUMORUDBREDNING
OVER DIAFRAGMA
LYMFEKNUDER
LEVER

BULE PÅ BALLEN 2

CT- SAGITAL- TUMORUDBREDNING



INDVÆKST OG SPREDNING- IKKE OPERABEL-→ KEMOTERAPI

BULE PÅ BALLEN 2- SPT. 09

EFTER 4 SERIER KEMO



TUMOR
REDUKTION

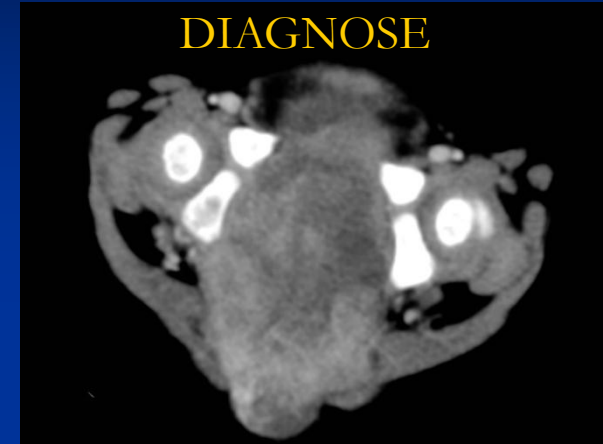
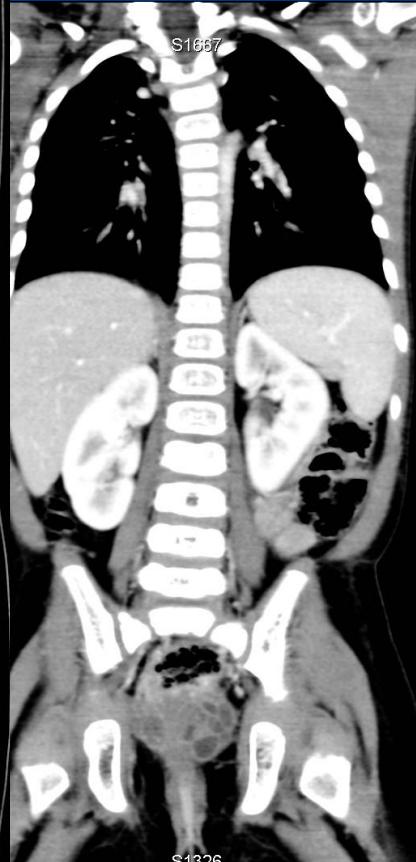
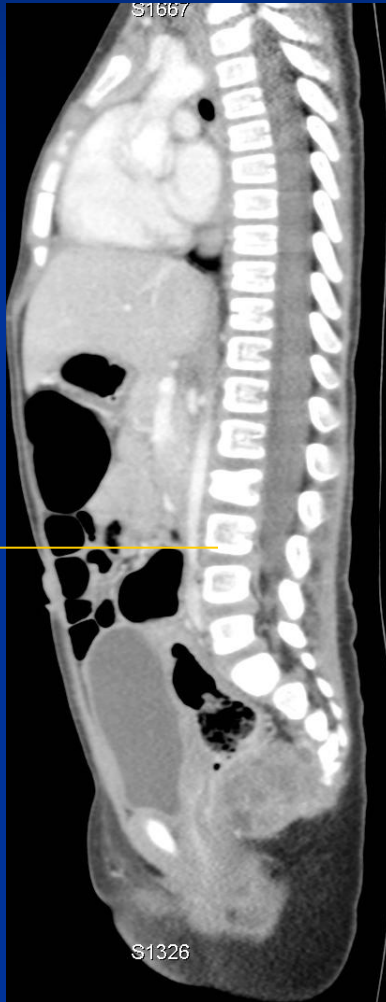
MEN ELLERS ER
DET
IKKE GÅET EFTER
BOGEN

....I SCANNER
REGI!

BULE PÅ BALLEN 2- PRÆOPERATIV CT SEPT. 09

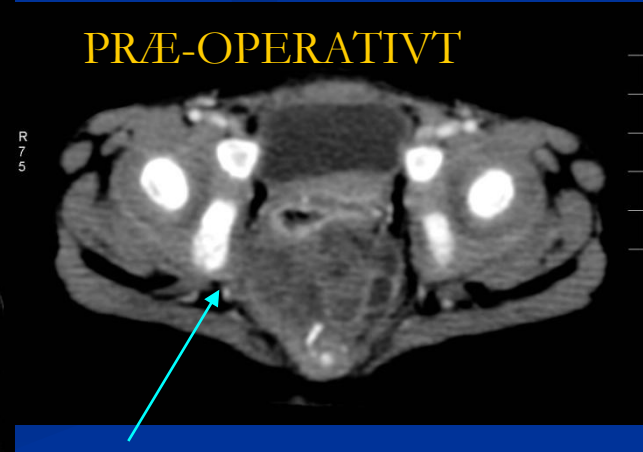
DIAGNOSE

PRÆ-OPERATIVT



DIAGNOSE

PRÆ-OPERATIVT



BULE PÅ BALLEN JO FØR JO BEDRE!

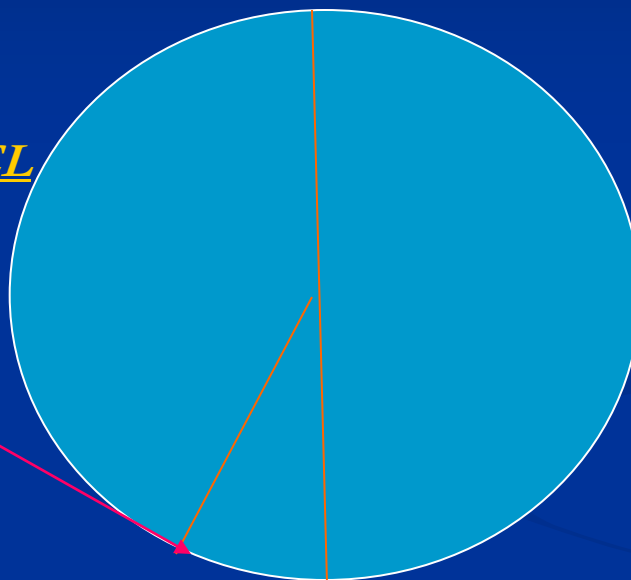


OPERATION 23.9.09:
KOMPLET KIRURGISK KOMPLET FJERNET
OPFØLGENDE KEMOTERAPI-
OG EFTRFØLGENDE KOMMENDE
ULTRALYDSCANNING OG CT VED
KLINISK MISTANKE OM RECIDIV
TUMORMARKØRER

KLIENDEL OG KLINIK

BLANDET LANDHANDEL

UROLOGI
AKUT ABD.
ANGIOGRAFI



INDIKATIONER
FOR AKUT ABD:
NÅR MAN IKKE
KAN KOMME VIDERE
MED OOA-UL!
PERFORATION-
PERITONIT
KOMPIKATIONER
TIL TIDL. KIRURGI –
ONKOLOGISK
BEHANDLING

UDGØR CA. 10-15%- MEN ER TILTAGENDE I ANTAL – STORT DIAGNOSTISK
UDBYTTE, KORT SCANTID, SJÆLDENT GA- YDERLIGERE FALDENDE DOSER!

PÆD. UROLOGI MISDANNELSER

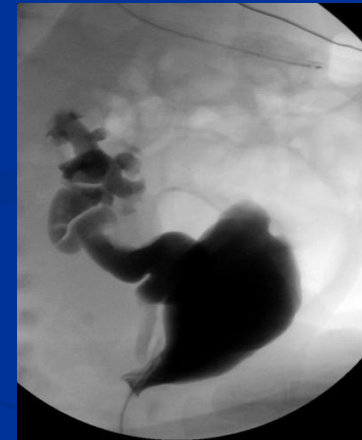
GENERELT: KIRURGISK
VURDERING HVOR ULTRALYDSCANNING
IKKE KAN VISUALISERE ANATOMI
TIL DEN KIRURGISKE PLANLÆGNING

STØRRE BØRN: MR UROGRAFI

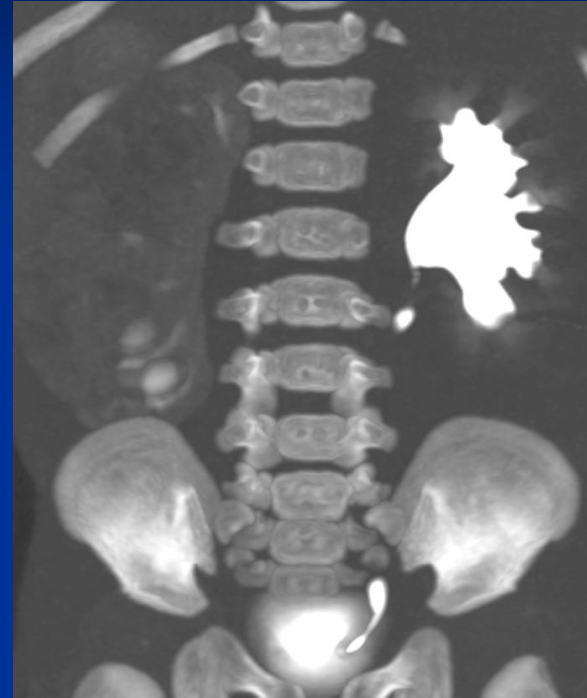
INDIKATIONER GENERELT CT-UROGRAFI

*KUN UDREDNING
PRÆOPRATIVT
EFTER ULTRALYDCANNING
MCU
RENOGRAFI*

*NEONATAL / SPÆDBARN
MED PRÆNATAL PÅVIST
MALFORMATION
OG INDIKATION FOR
OPERATION*

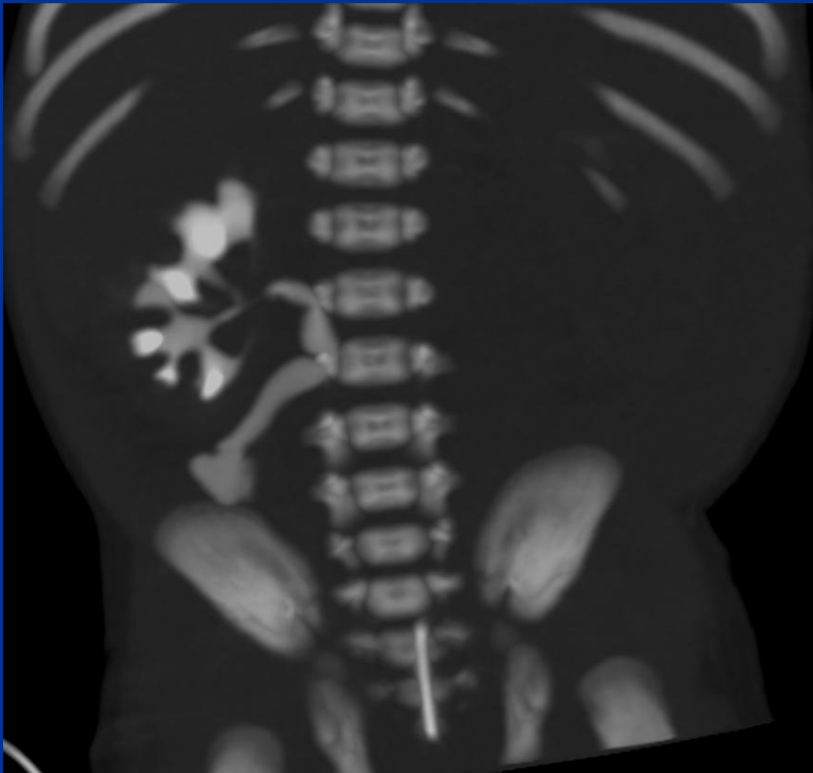


EKSEMPLER CT-UROGRAFI



*Low dose iv. Kontrast: 1/2 -1ml/kg (4-8 ml)- delay 10 min
Low dose dosis- enkelt fase- reformation-
Ingen sedation eller anæstesi-*

EKSEMPLER PÅ CT- UROGRAFI



LOW- DOSE GENERELT < 1 mSiv- ingen anæstesi , samme dag som renografi-

PAUSE



SPØRGSMÅL?

OG TRØST:

DET NÆSTE INDSLAG
ER MEGET MINDRE!

MDCT – THORAX- LUNGESYGDOMME

Udfordringer:

Kooperation- fra 3-4 år

Sedation- småbarn

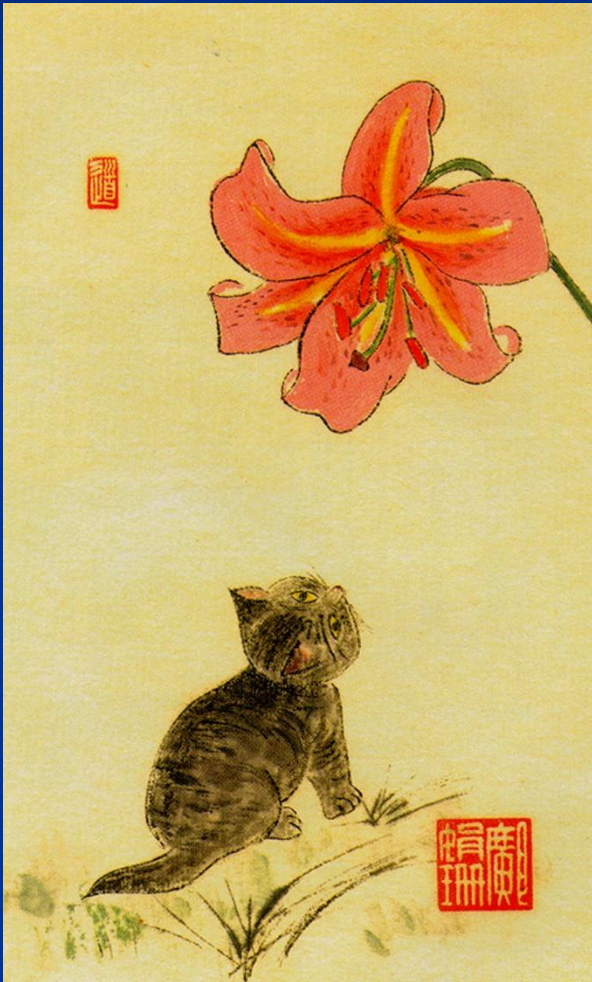
GA- undgå- men kan være indiceret

Stråledosis: low-dose

Strategi: evt- enkelt snit.

Volumen med reformation.

Evt: insp. og expiration-

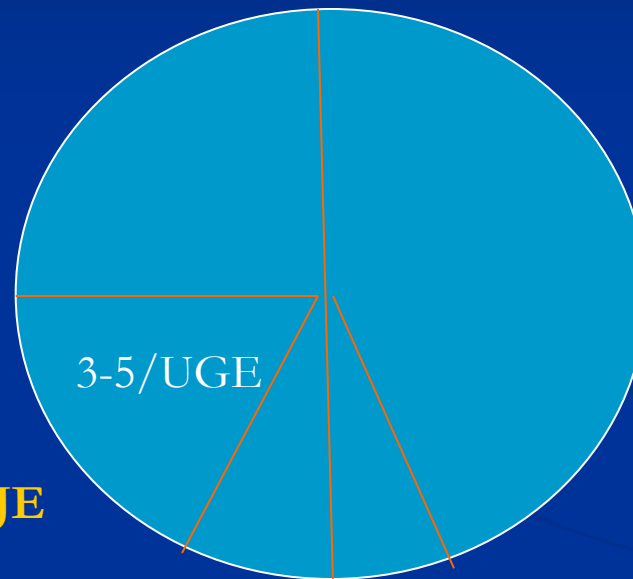


KLIENDEL OG KLINIK

PÆDIATRISK PULMONOLOGI – AFVIGER FRA VOKSEN PULMONOLOGI
EX: INERSTITIELLE SYGDOMME, MALIGNITET, IMMUNOLOGISKE TILST.

THORAX

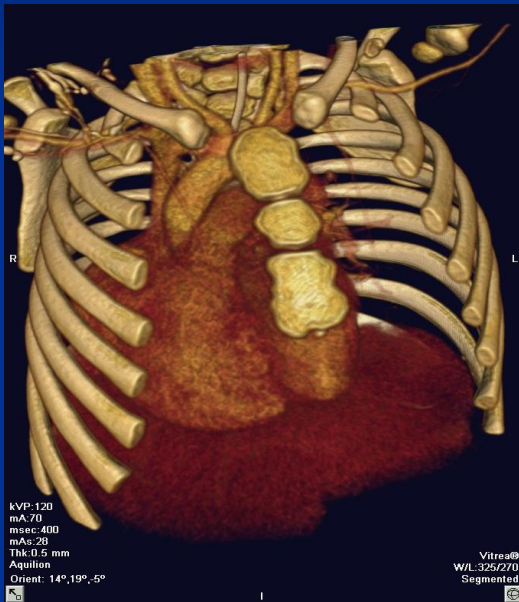
LUNGER/LUFTVEJE



INDIKATIONER:
MISDANNELSER
KIRURGISK
AKUTTE TILSTANDE
KRONISKE LUNGE-
SYGDOMME:
UDREDNING-
MONITORERING
KOMPLIKATIONER
SUPERINFEKTION

TEKNIK: GENERELT SPIRAL- MED VOLUMEN REFORMATION
OG REKONSTRUKTION 1MM MED HR-FILTER

MDCT - HRCT



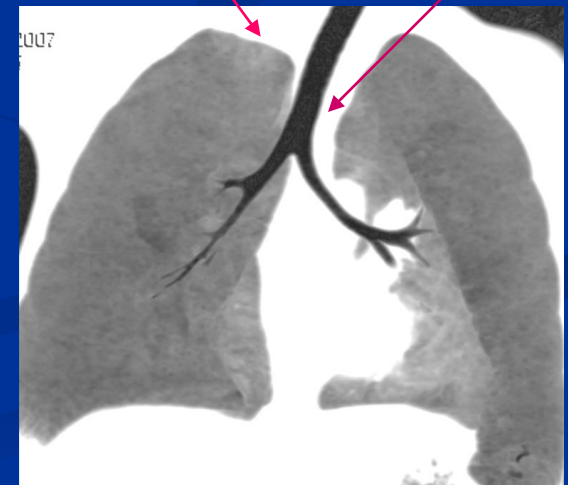
**MISDANNELSER:
ALTID VOLUMEN CT
MED IV. KONTRAST
OG REFORMATION**



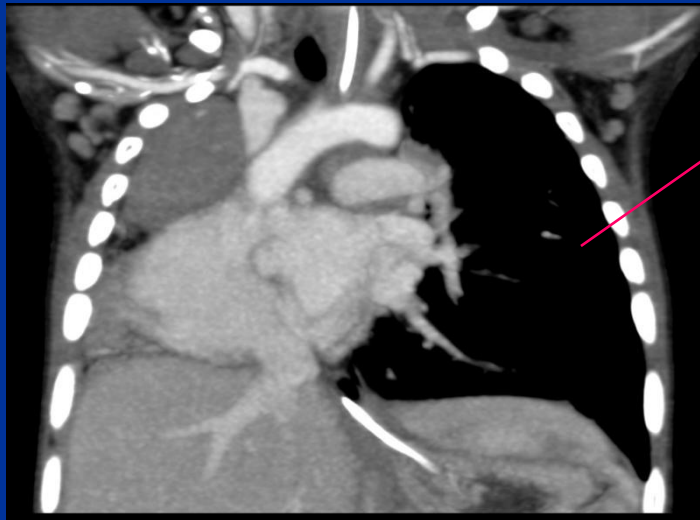
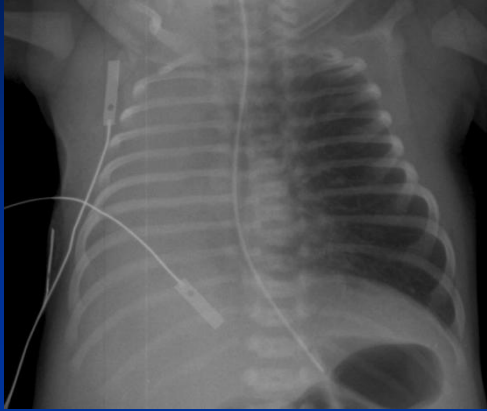
**Axial:
Parenchym
Interstitis**

**Airways-
Coronal/axial**

**VOLUMEN MED
1MM SNIT- AXIAL
OG FILTER:
OVERBLIK OG
ANATOMI**

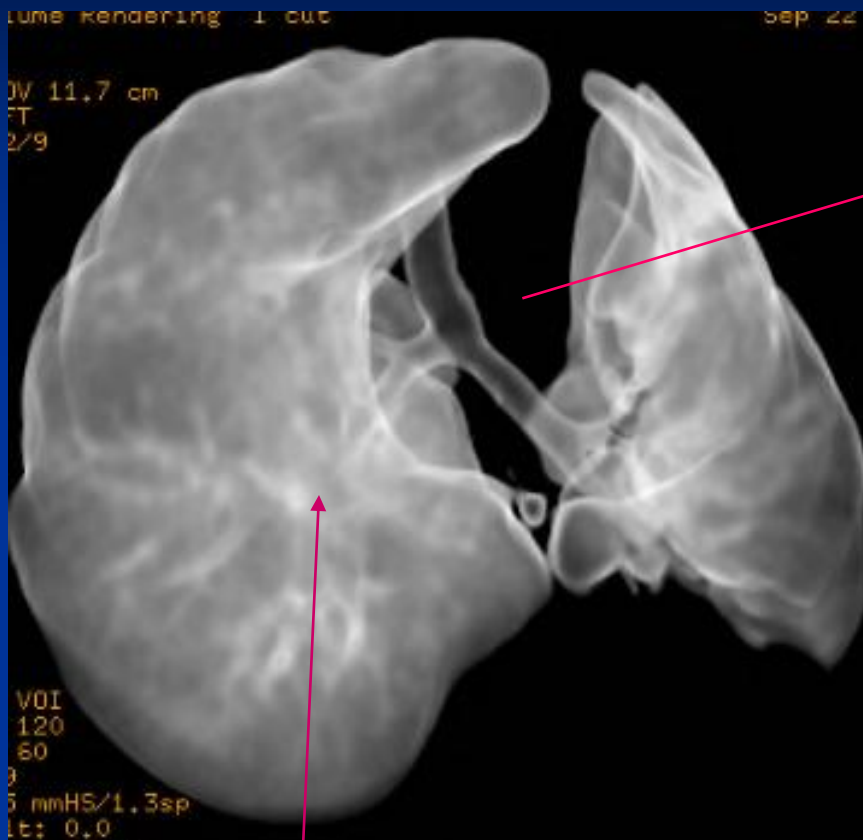


MISDANNELSER-ALLE STRUKTURER

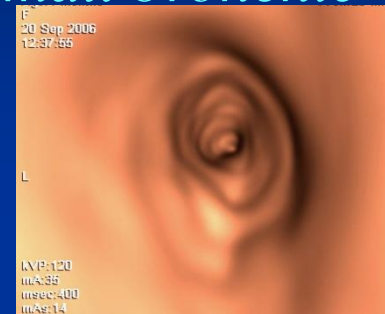


*EX: HVID LUNGE-
MISDANNELSE-
LUNGEHYPOPLASI*

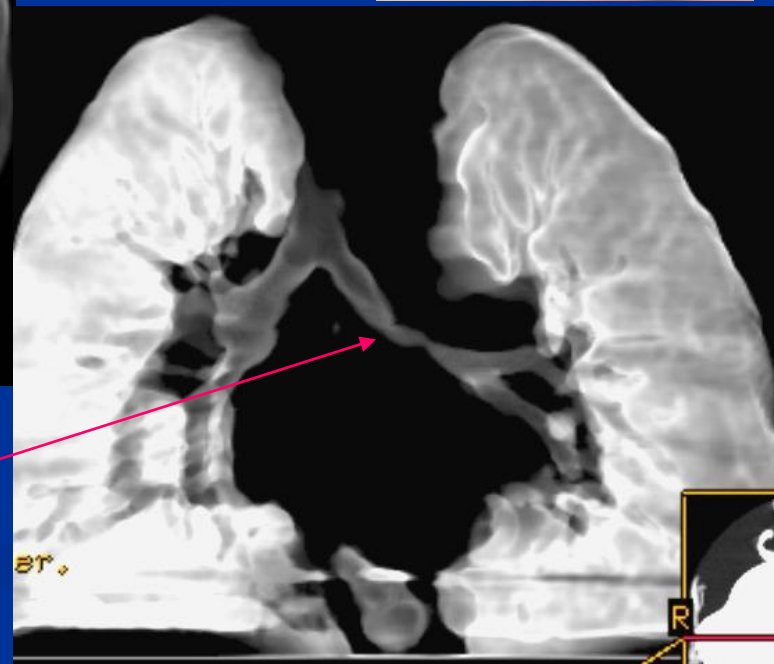
LUFTVEJE- STENOSE/MALACI?



CT: Normal bronchie system



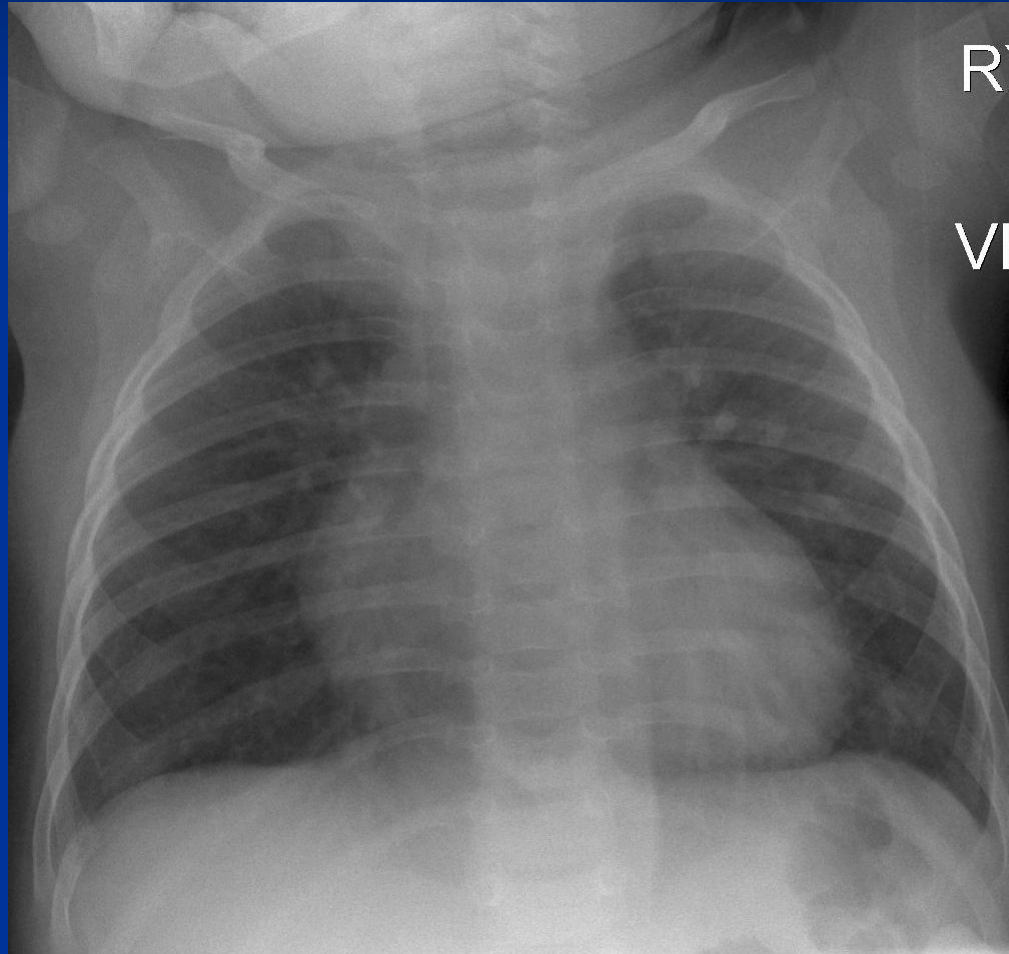
*Volumen fremstilling af
Lunge- lobi*



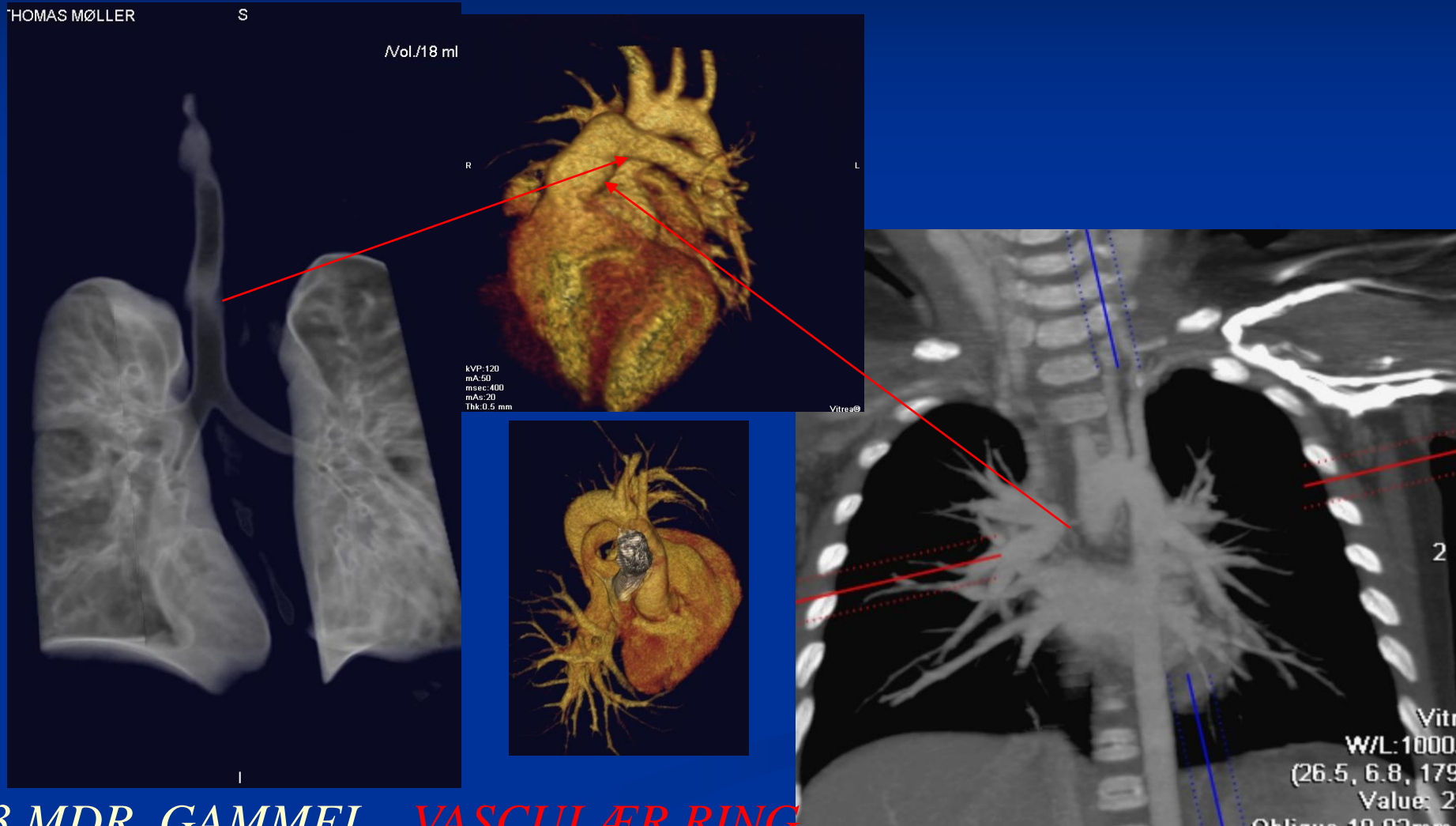
FORSNÆVRING- STENOSE

MISANNELSE ?

STRIDOR- LUFTVEJE

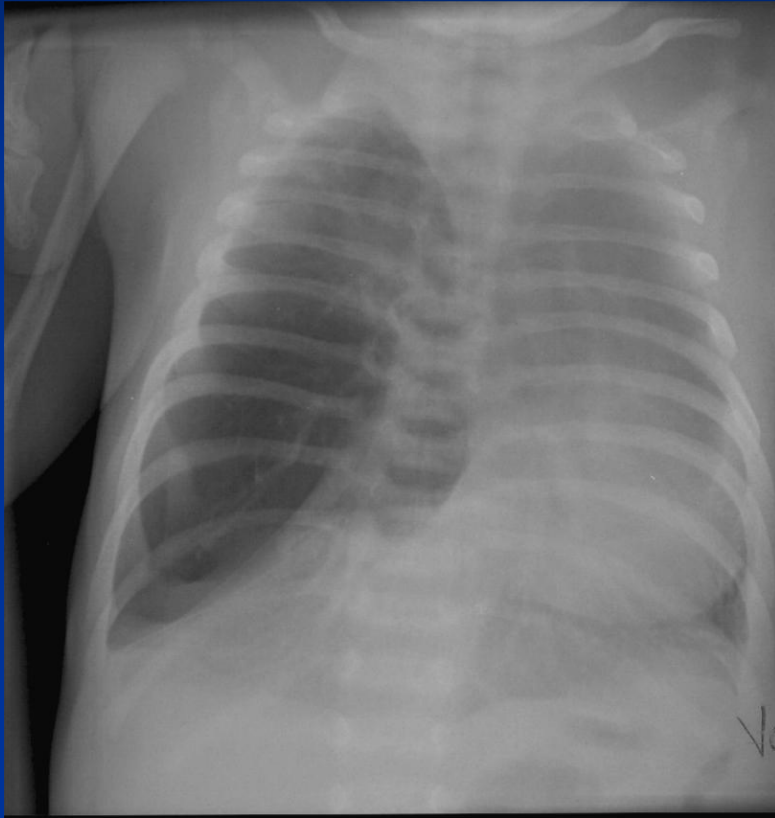


STRIDOR – VASCULÆR RING



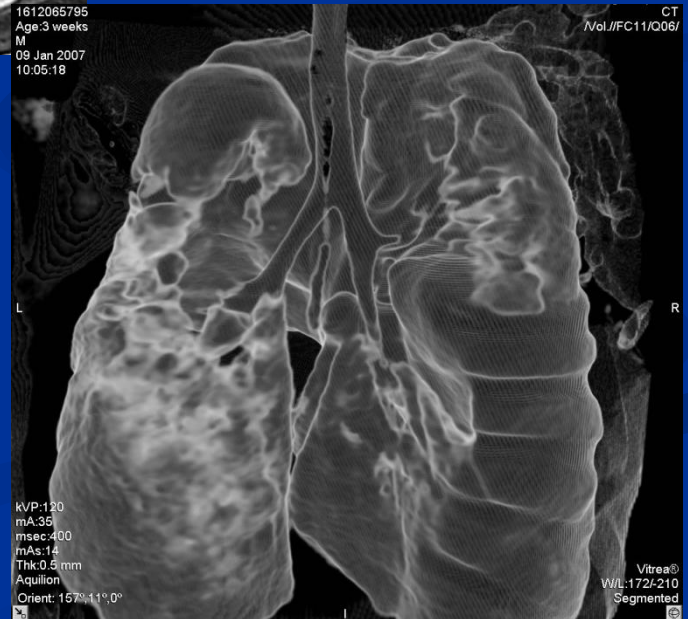
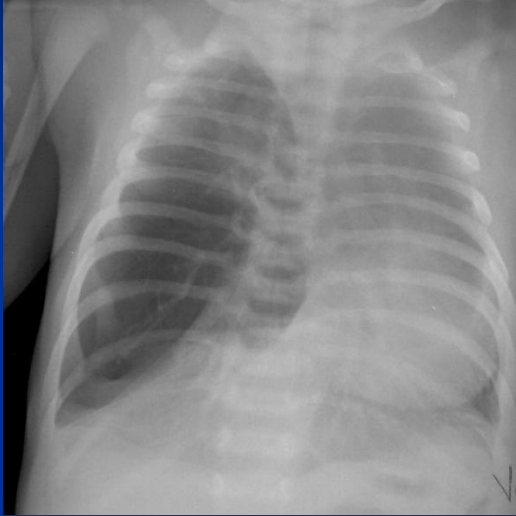
3 MDR. GAMMEL- VASCULÆR RING

MALFORMATION? NEONAT. TACHYPNOE

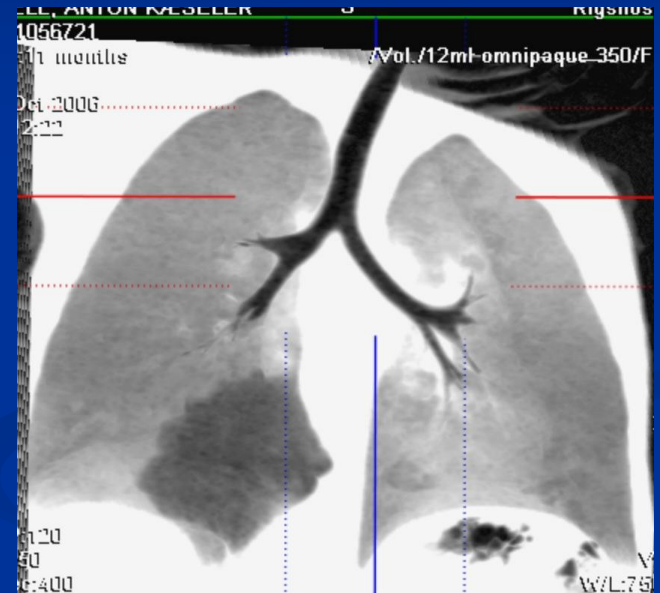
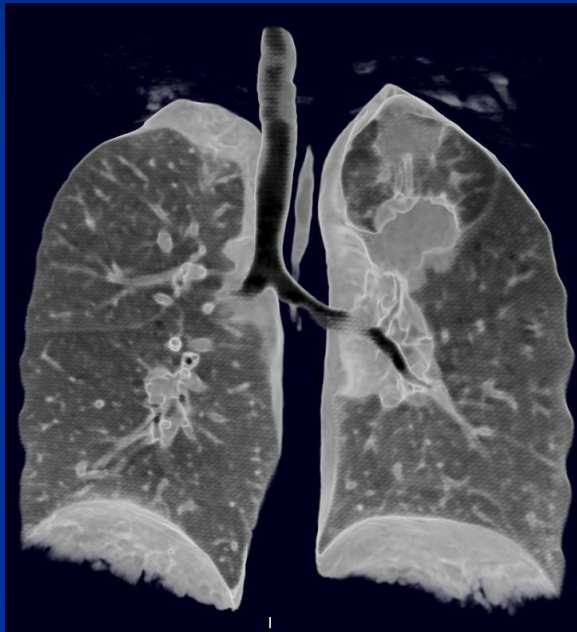


TILTAGENDE ØGET GENNEMSKINNELIGHED- LOKALISERET-
PNEUMOTHORAX? LOBÆR HYPERINFLATION?

MALFORMATION- LOBÆRT EMFYSEM LOBÆR HYPERINFLAMMATION



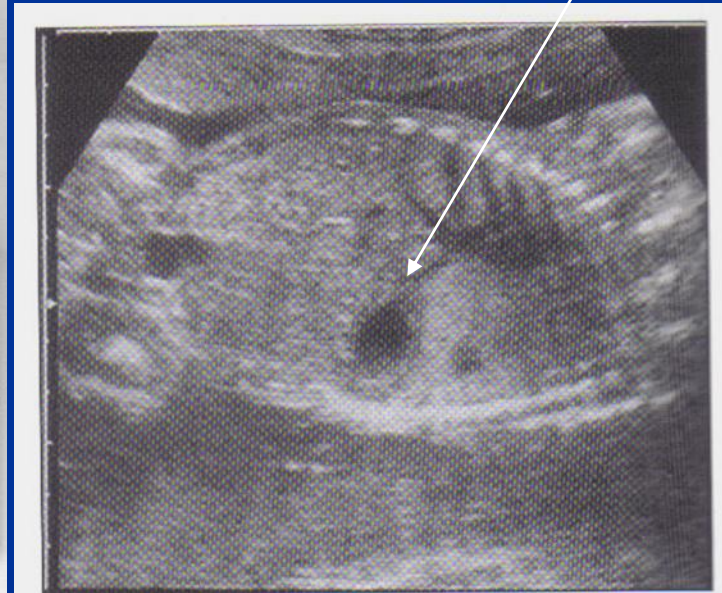
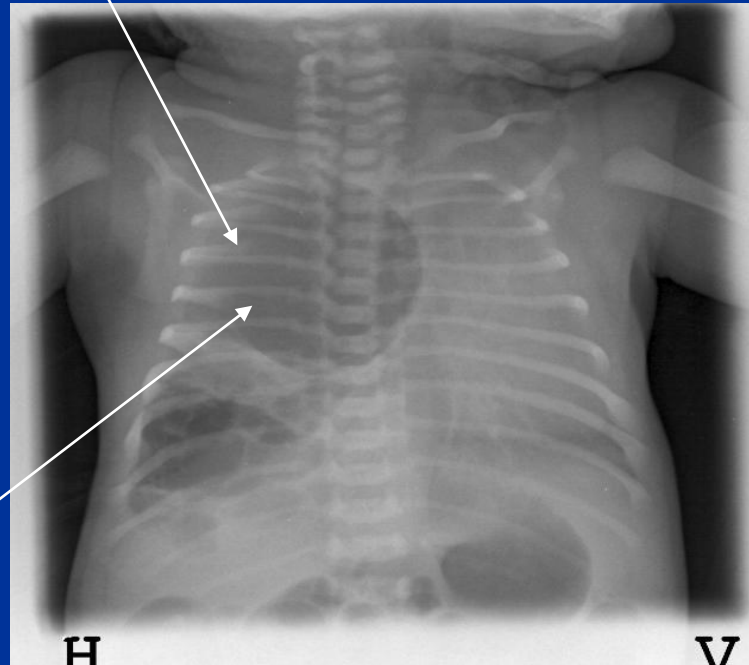
LOKALISEREREDE PARENCHYM MISDANNELSER-EX: CCAM



PRÆNATALT ULTRALYD SCANNINGNING:
PULMONALE MISDANNELSER

CCAM

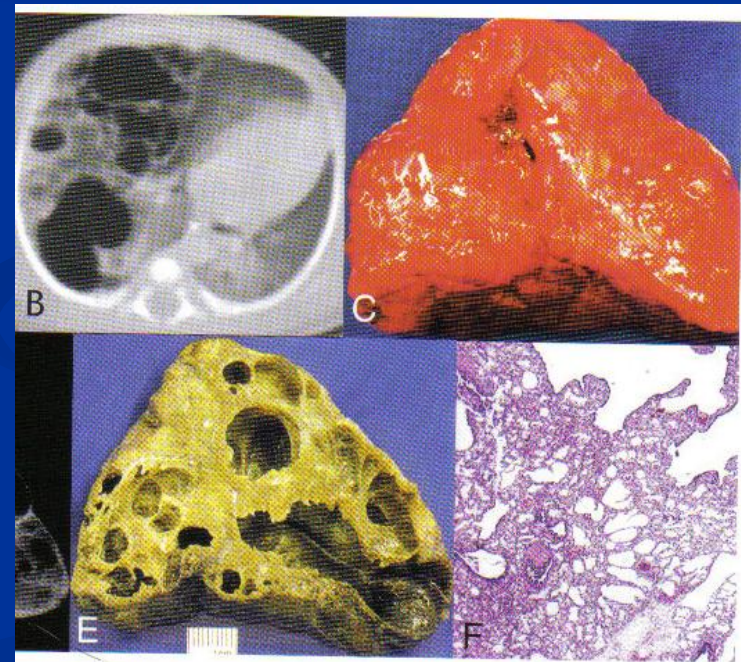
CONGENIT CYSTISK ADENOMATOID MALFORMATION



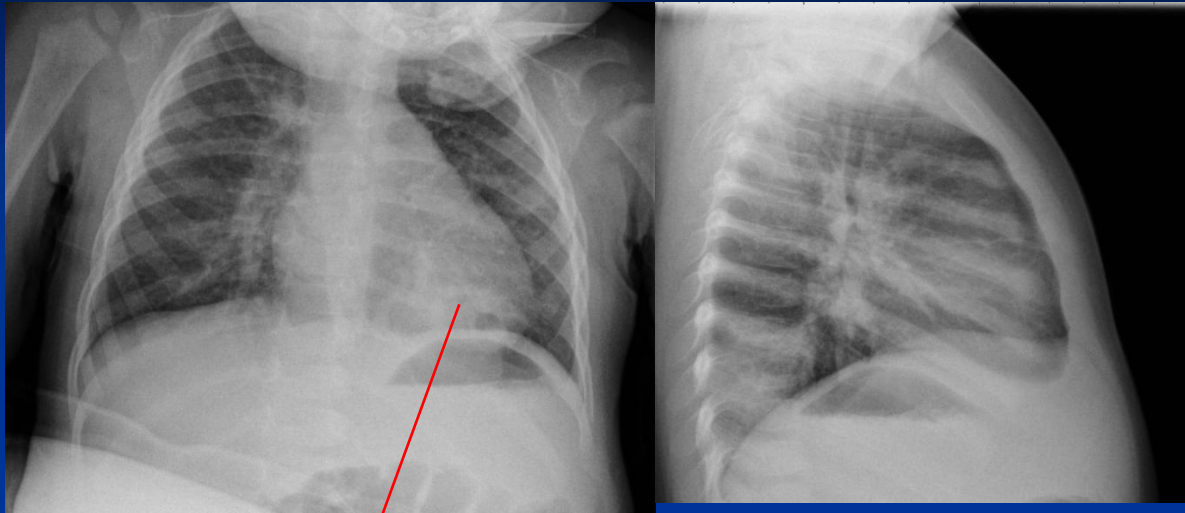
KONV. THORAX- KLINISK INDICERET ELLER PRÆNATAL ULTRALYDSSCANNING

CCAM- CONGENIT CYSTISK ANDENOMATOID MALFORMATION

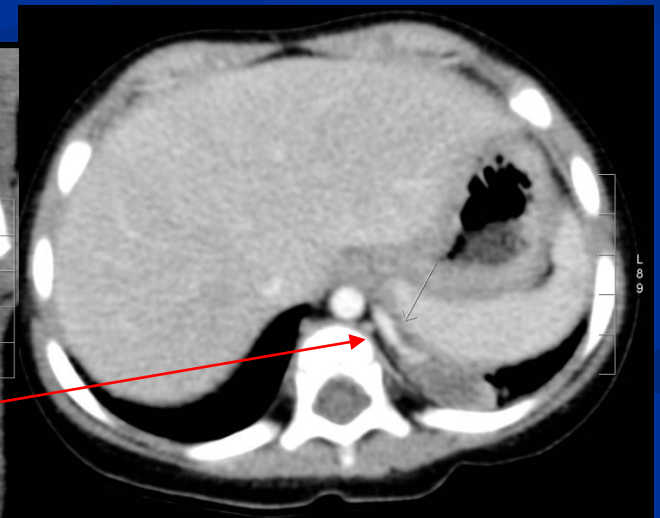
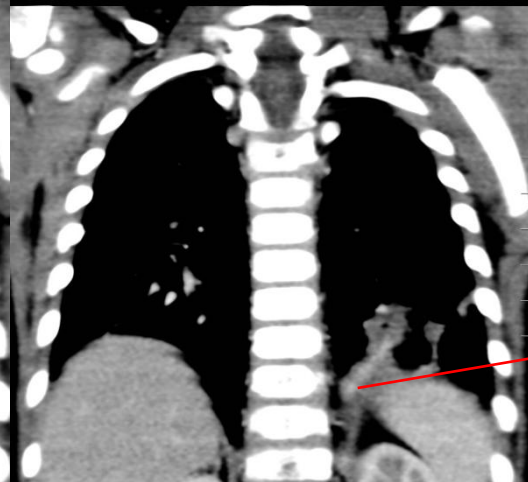
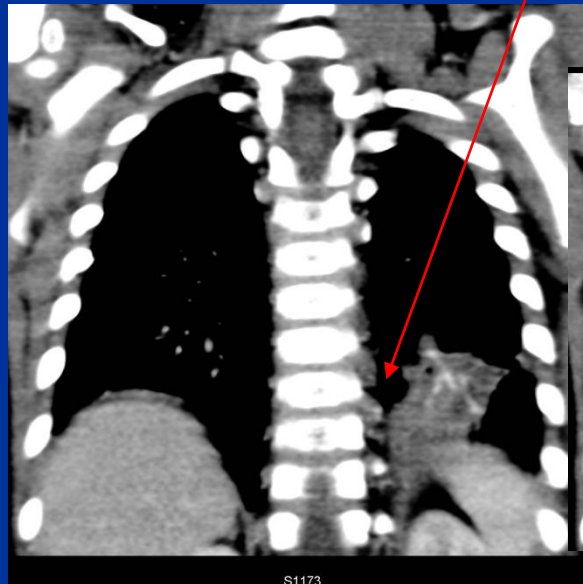
*DEFINITION: PROLIFERATION AF
BRONCHIAL STRUKTUR-
UNDERUDVIKLET
ALVEOLÆRT VÆV-
EKSPANSIVT-
VASKULARISERING TILHØRENDE DEN
SYSTEMISKE CIRCULATION*



MALFORMATION - PARENCHYM OG KAR



MED IV.
KONTRAST
MISTANKE
OM KAR –
INVOLVERING

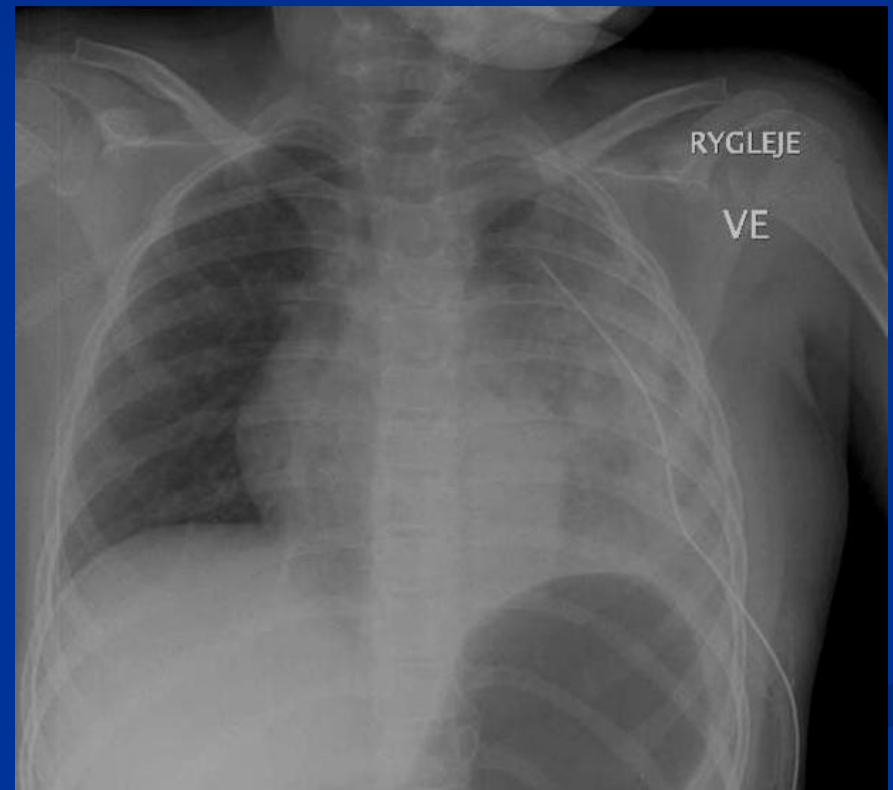


LUNGESEKVESTER

LUNGESYGDOMME KIRURGISK

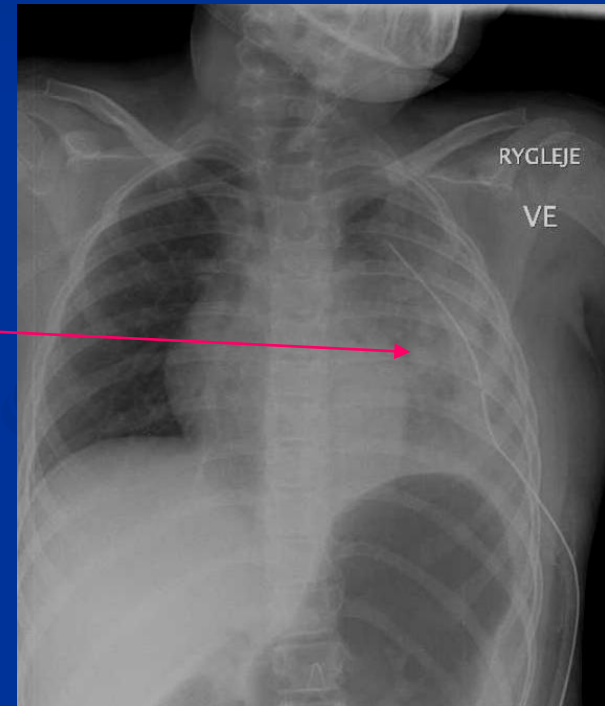
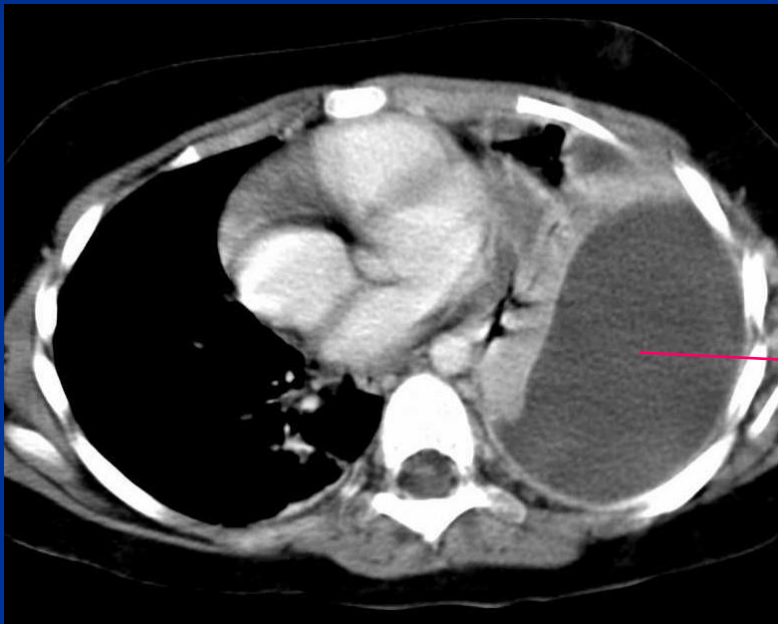
■ EMPYEM

■ MISDANNELSER



Empyem

*KOMPLICERET LUNGEINFEKTION
MED PUSANSAMLING I PLEURA*



*.. EN AF DE SJÆLDNE INDIKATIONER FOR
AKUT CT- I VAGTDØGNET- NB: VISITATION.....*

AKUTTE UDREDNINGER- FREMMEDEGEME?

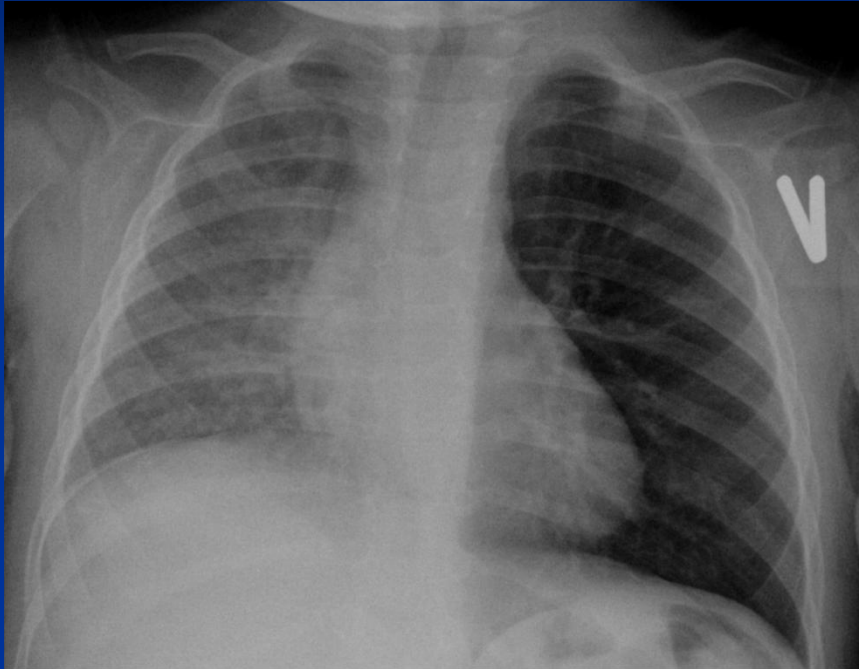
- SYNLIGT FREMMEDEGEME
- IKKE SYNLIGT: FØDE-PEANUTS!!!

TOTAL OBSTRUKTION /
VENTILFUNKTION

BRONCOSCOPI

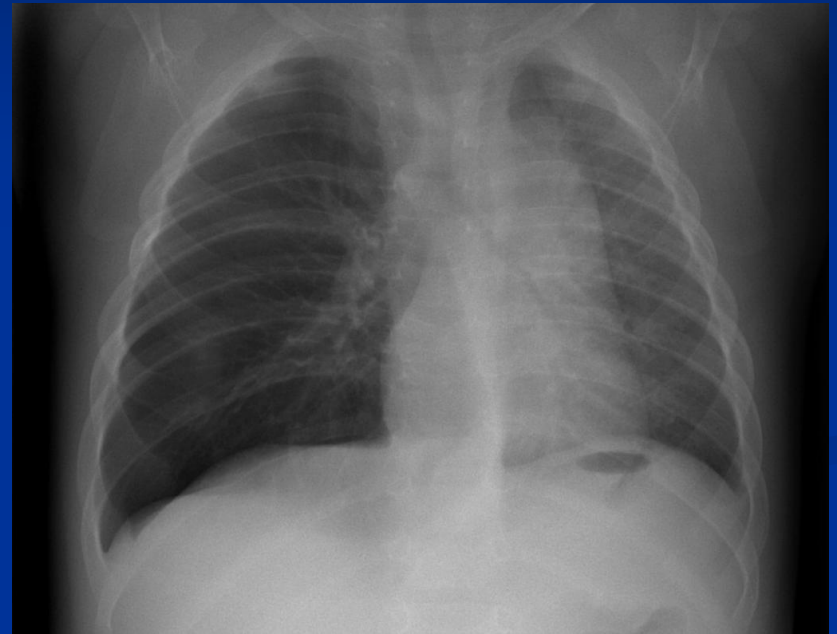
...MEN DET ER NU ALLIGEVEL SJØVT AT KUNNE KIGGE PÅ
BILLDERNE OG

ASPIRATION FREMMEDEGEME



HØ: TOTAL BRONCHIAL OCCL

ATELEKTASE



HØ. SUBTOTAL-VENTIL

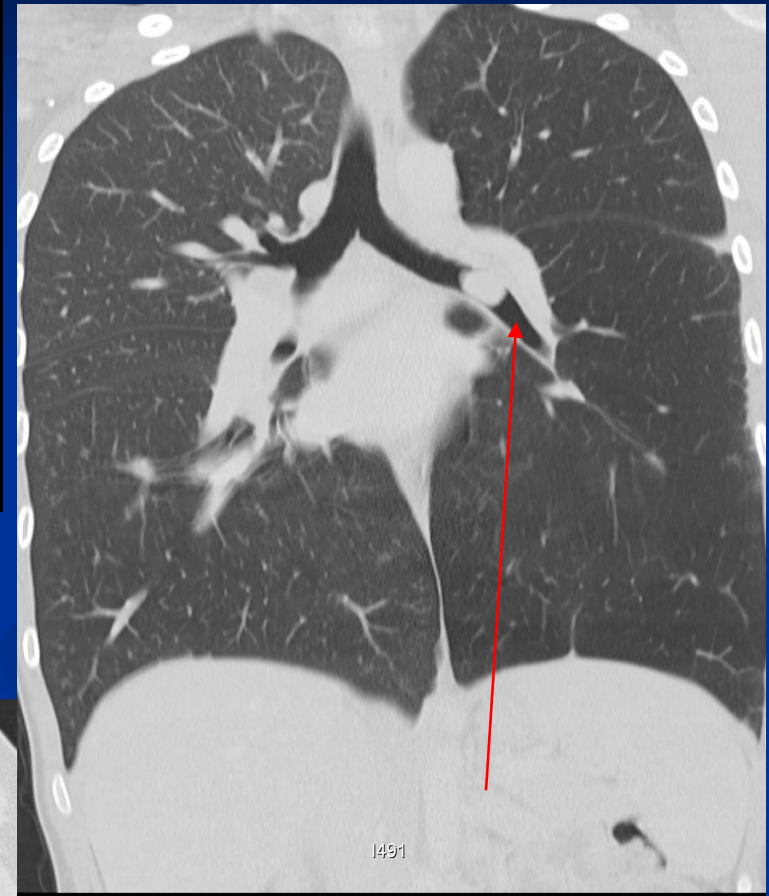
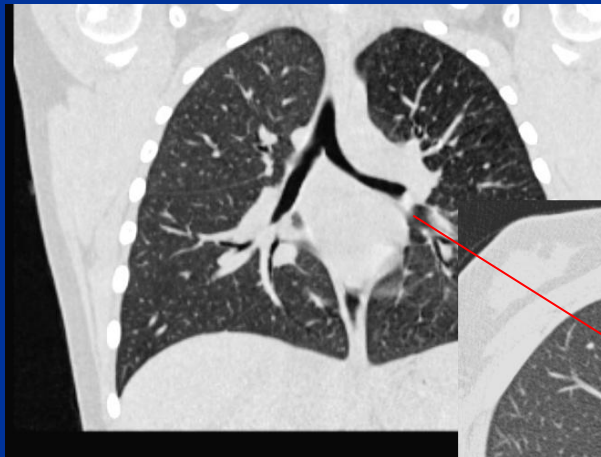
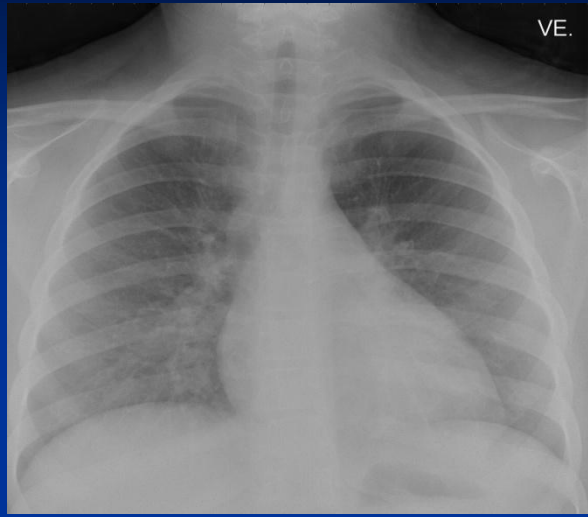
EMFYSEM

MEDIASTINALT SHIFT VED RESP:

MEDIASTINUM HØ

MEDIASTINUM VE

FREMMEDLEGEME- CT

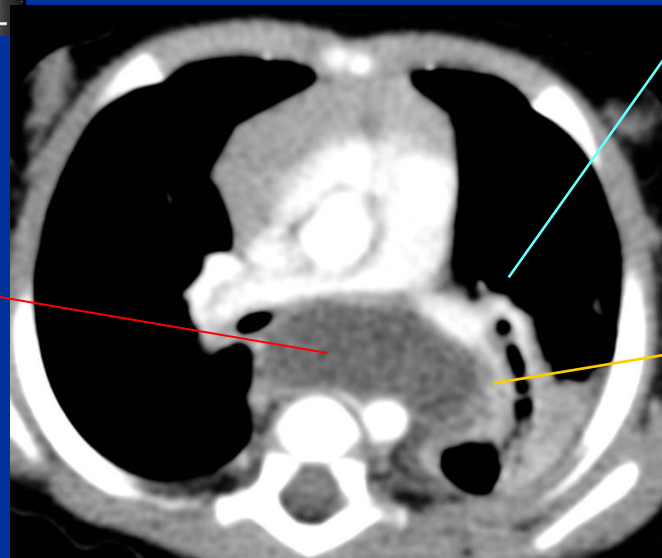
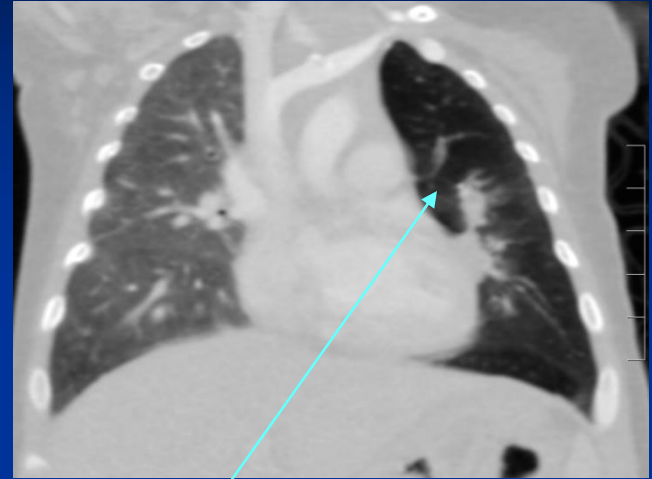
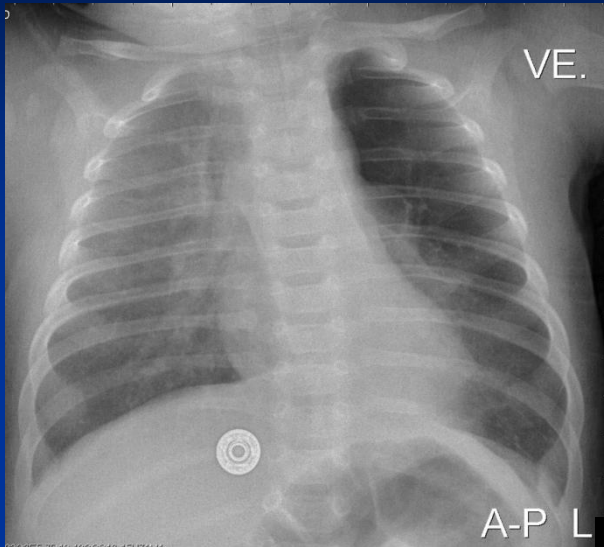


TØR MAN SIGE
....PERLE?

NEJ- FOR DET HER ER
INTRABRONCHIAL TUMOR!!

FREMMEDLEGEME??

DYSPNOE- STRIDOR- KOMPRESSION



BRONCHOGEN CYSTE

ATELEKTASE

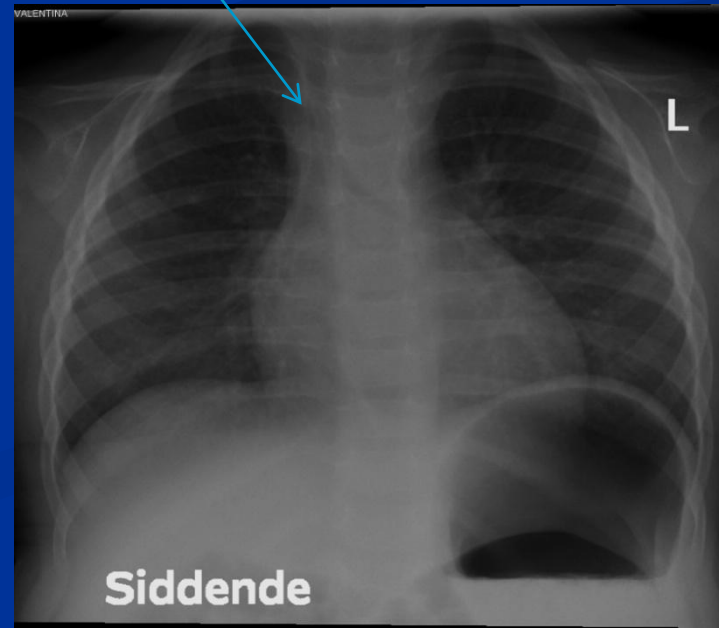
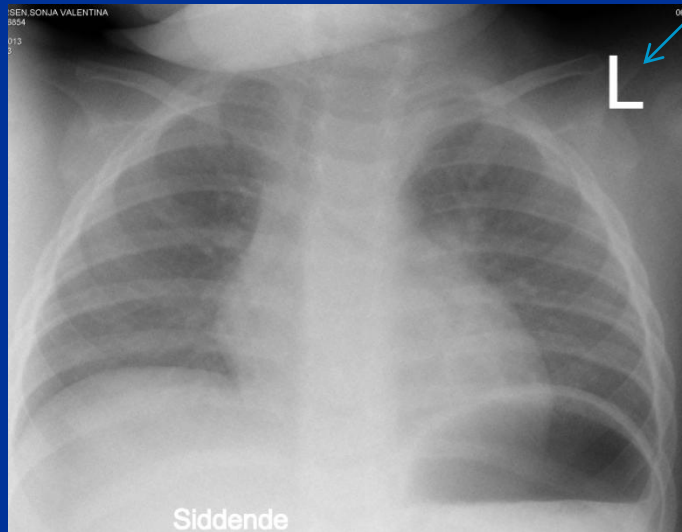
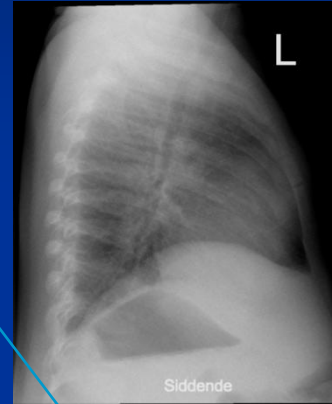
KOMP. EMFYSEM

STRIDOR

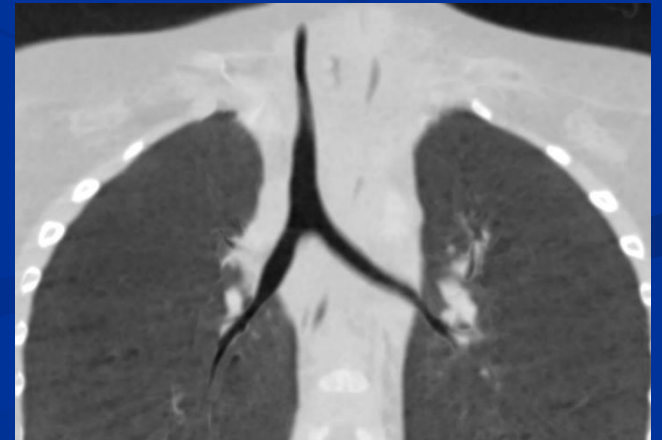
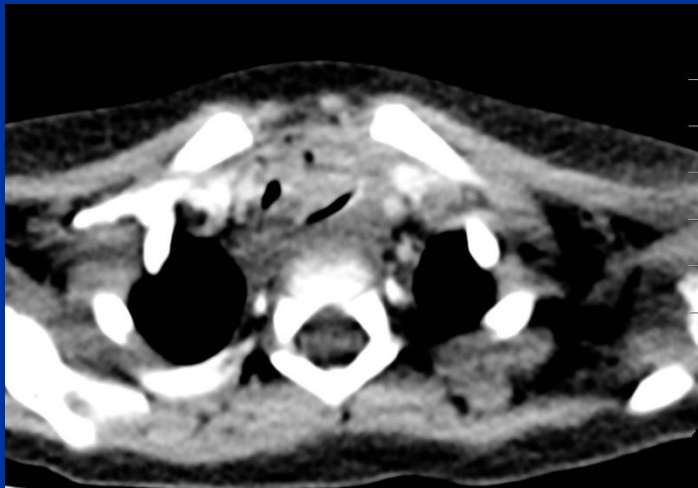
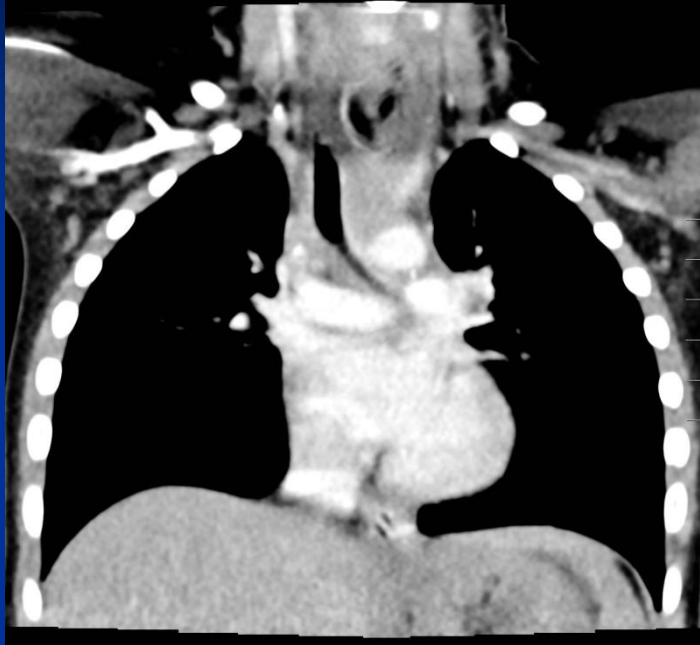
- 10 MDR.GAMMEL PIGE-
- SYMPTOMER I 5-6 MDR
- THORAX X2

APRIL

OKT.



STRIDOR CT



LUNGESYGDOMME- MEDICINSK- HRCT



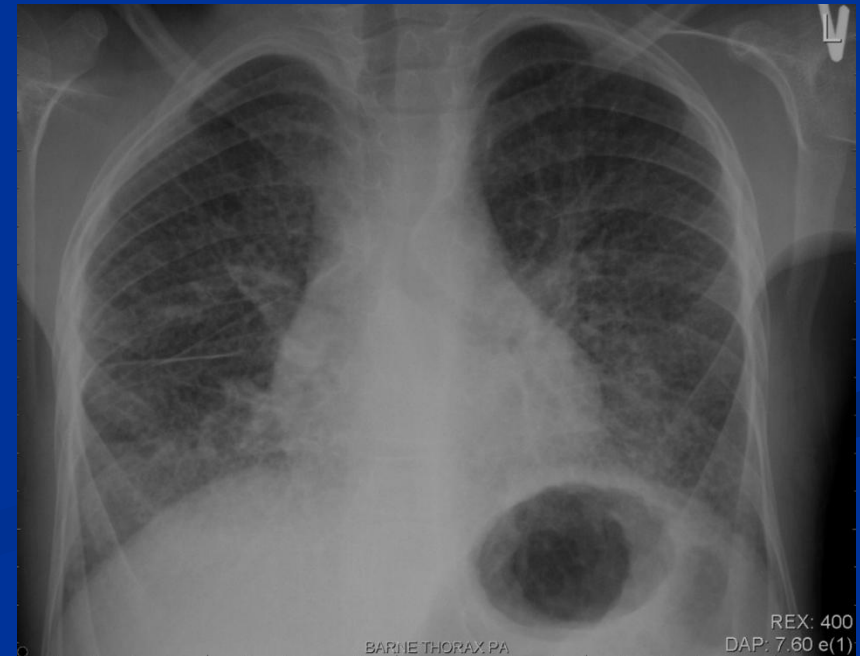
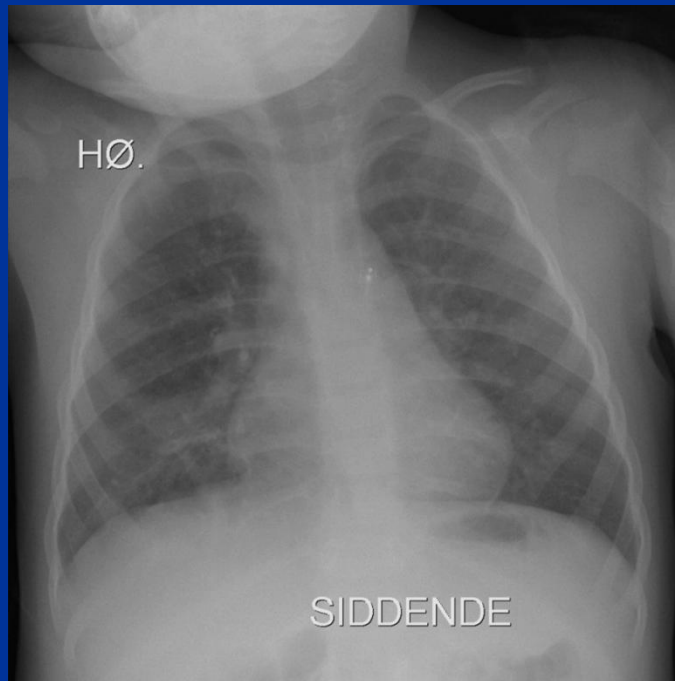
*SUVERÆN
KORTLÆGNING
1. BRONCHIE
2. PARENCHYM/ALVEOLE
3. STATUS/ PROGRESSION*

*LOW-DOSE
SPIRAL
VOLUMEN*

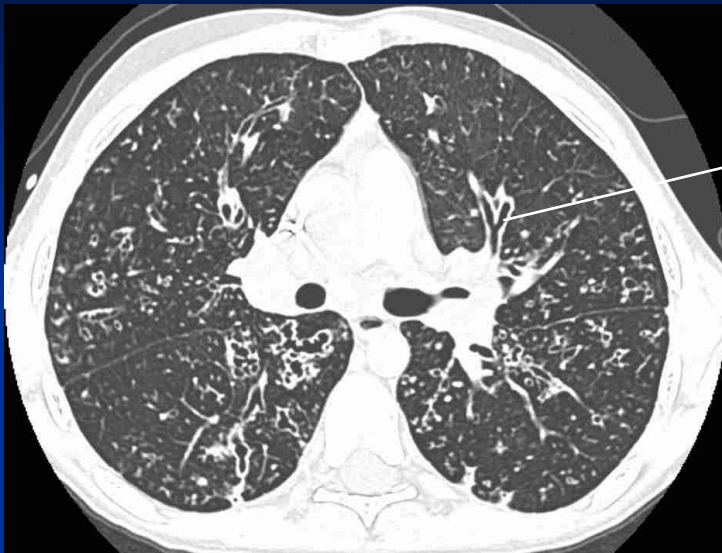
---DE SJÆLDNE KRON. LUNGESYGDOMME- CF-CCDK-
OG UDREDNING AF RECIDIVERENDE INFEKTIONER

PULMONOLOGI- UDREDNING

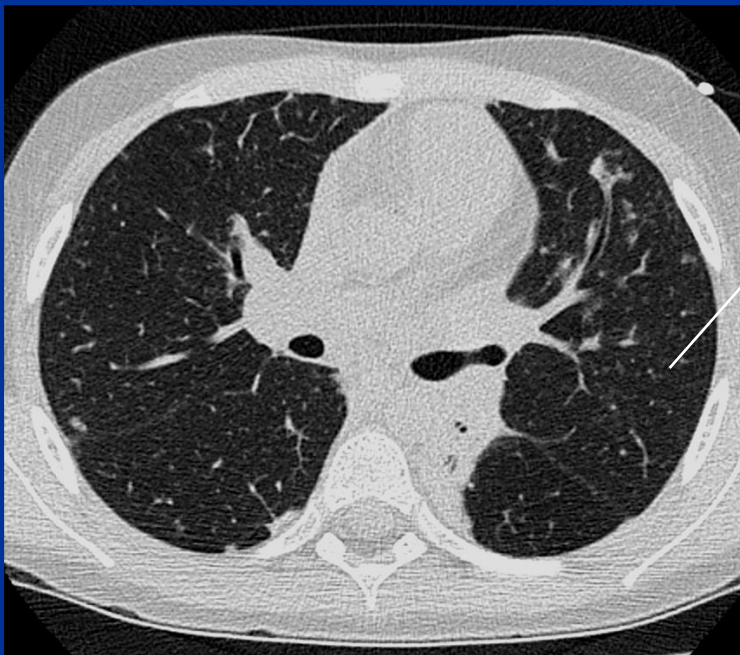
RESPIRATORISKE –SYMPTOMER
MED ELLER UDEN ABNORMT THORAX
MDCT- BLØDDELE/LUFTVEJE/PARENCHYM



SYSTEMATIK-



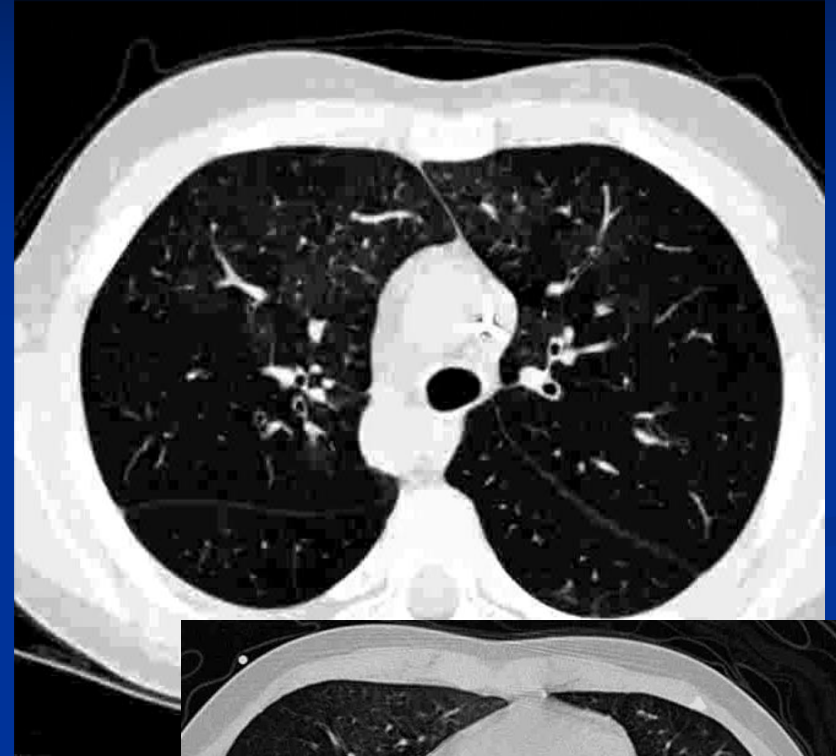
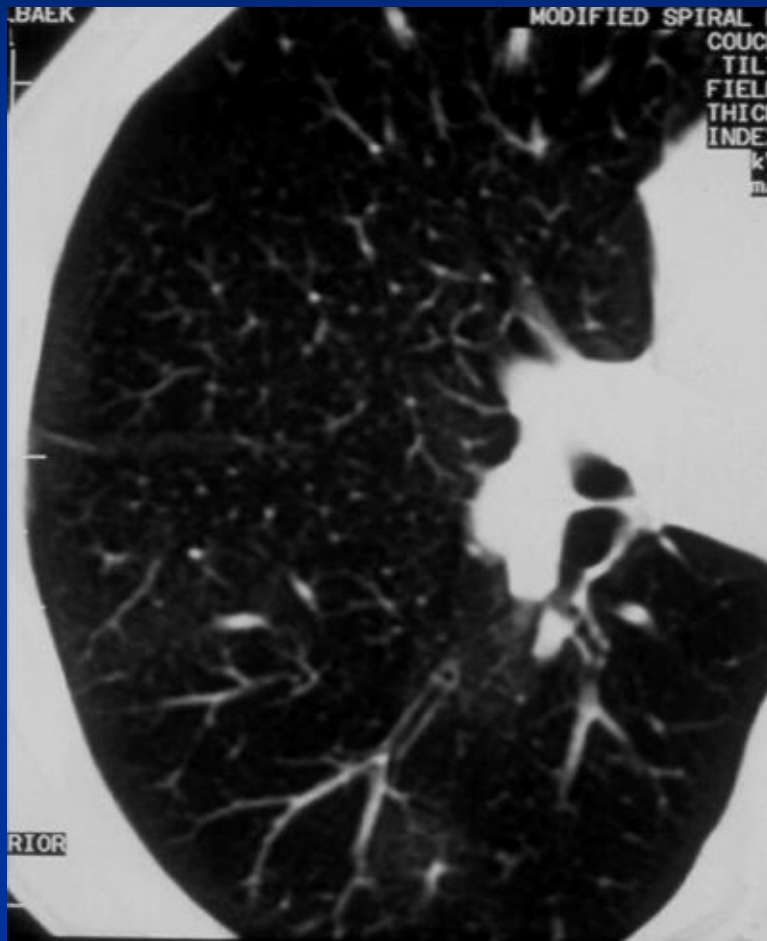
BRONCHIER:
NORMALE- SYGE ?
LOKALIERET/DIFFUST?
HVOR- LOKALISATION?
PERI-BRONCHIALE
FORANDRINGER?



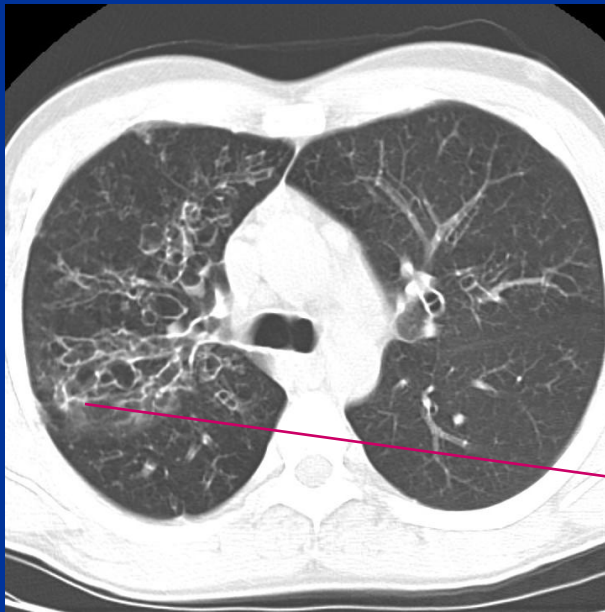
PARENCHYM:
DENSITET?
LOKALIERET/ DIFFUST?
HVOR-
LOBULÆRT/LOBÆRT?

ANDRE INDIKATIONER-
MALFORMATION

BRONCHIER- NORMALE

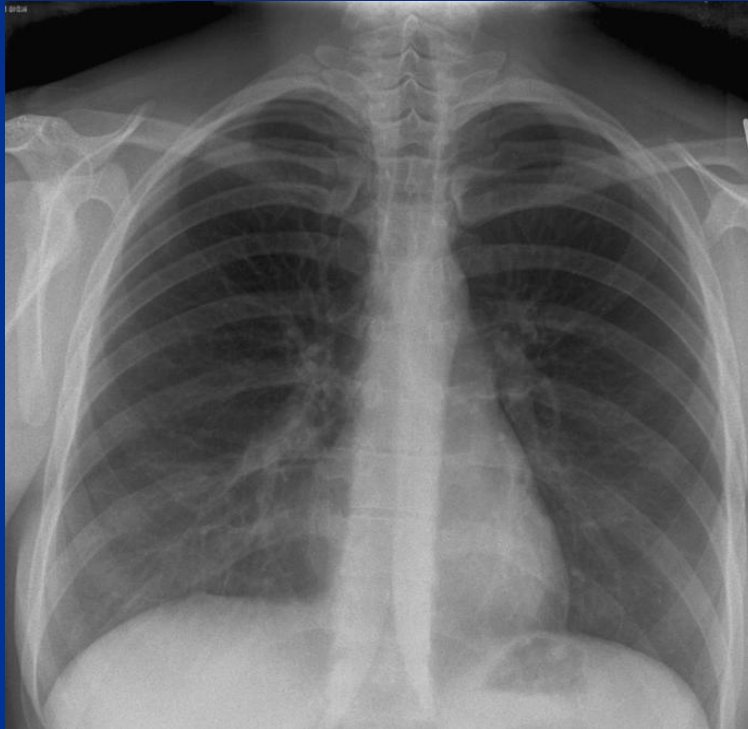


BRONHIER- EKTASIER



**SIGNET RING- LET EKTASI-
TYDELIGE SACCULATE EKTASIER**

BRONKI-EKTASI LOKALISERET 1

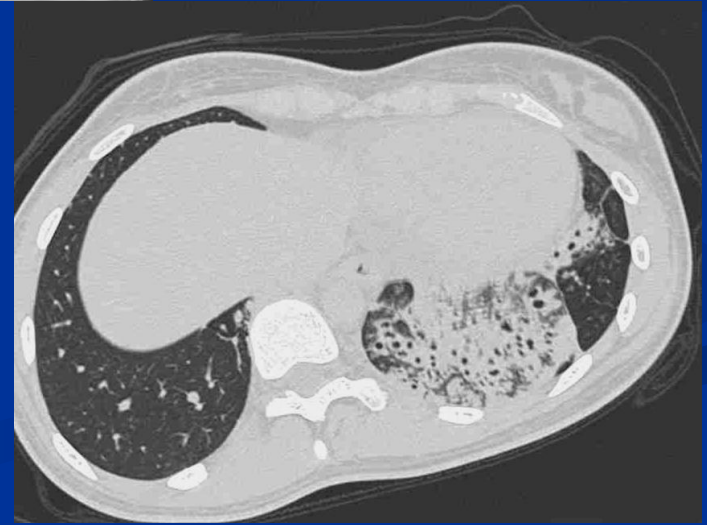


KRON. MELLEMLAPSSYNDROM

Bronchie-ectasier – 2



Ukendt ætiolog-
CILIE-DYSKINESI?

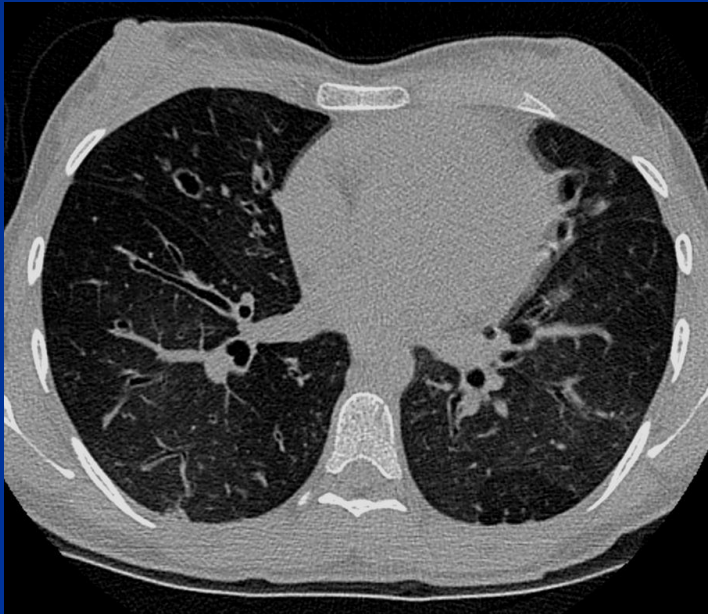


Bronchie-ectasier- CF



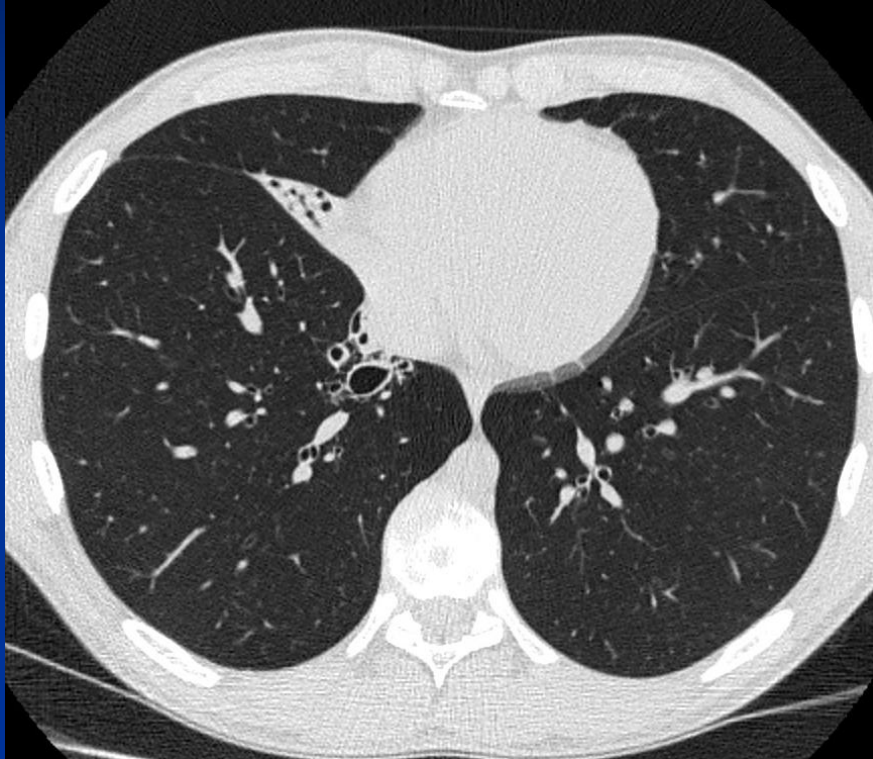
BRONCHI-ECCATSIER

CF-



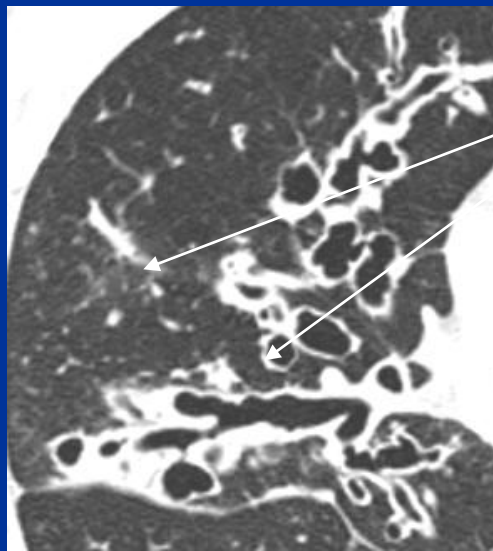
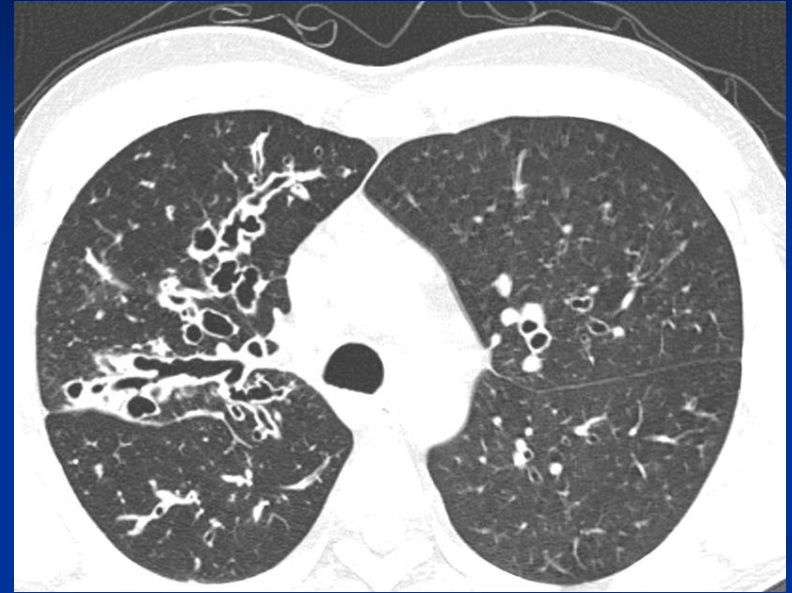
...AFFEKTION: ALLE LOBI-

BRONCHIE ECCTASIER- CILIEDYSKINESI

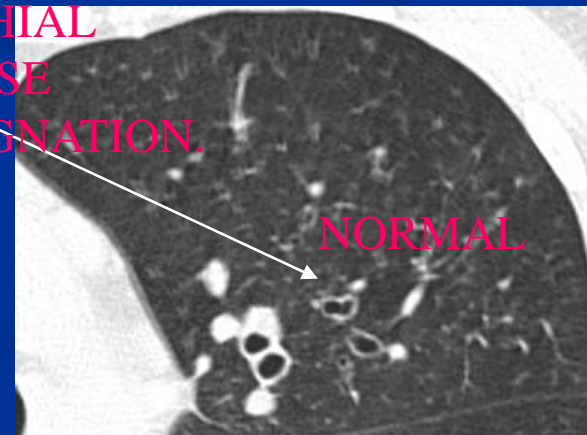


LOKALISEREDE- MELLEMLAP/UNDERLAP

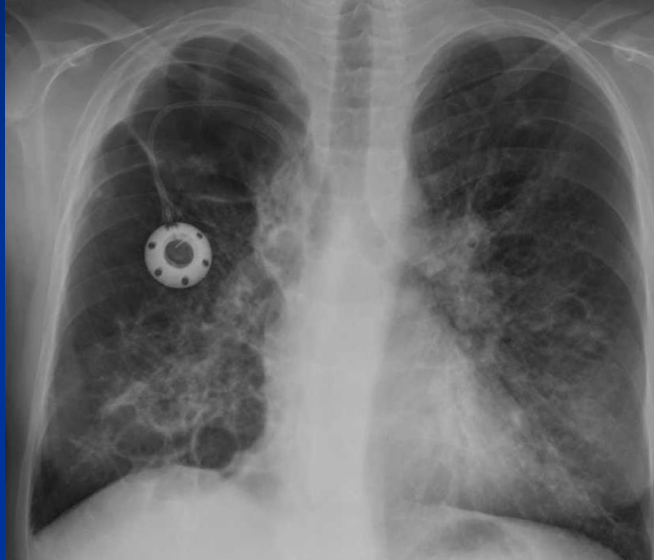
CF- FALDENDENE LUNGEFUNKTION LF.TILTAGENDE FIBROSE/



PERIBRONCHIAL
FORTYKKELSE
SEKRETSTAGNATION.



CF- END STAGE



CF- FALDENDE LUNGE FUNKTION- SUPERINFEKTION?

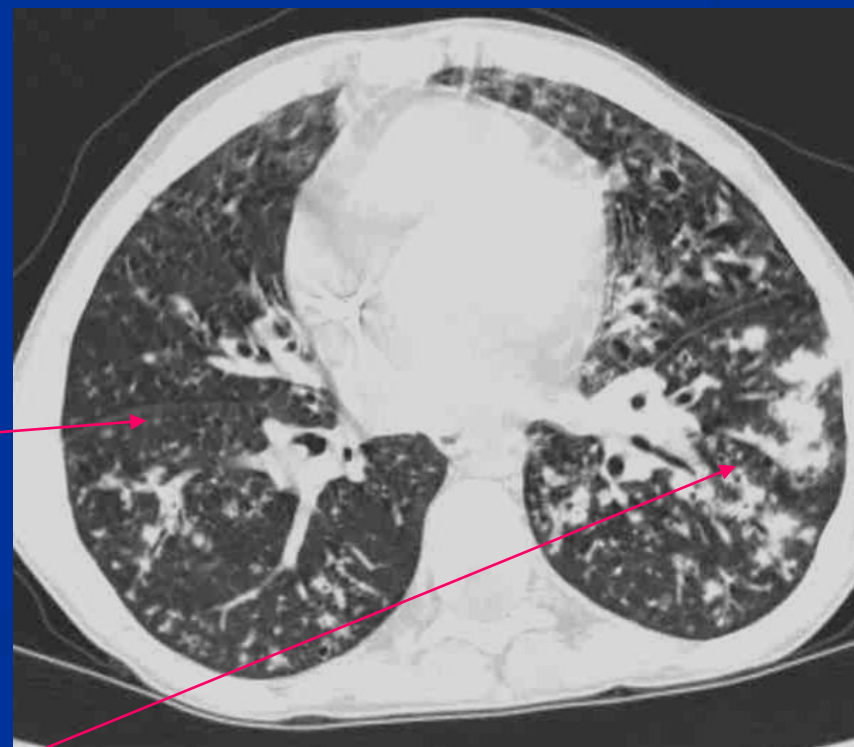
Status CT- aug.08



SAMMENLIGNING-
BASELINEUNDERSØGELSE

Akut CT- sept.08 SVÆR
PERI
BRONCHIAL INFLAMMATION

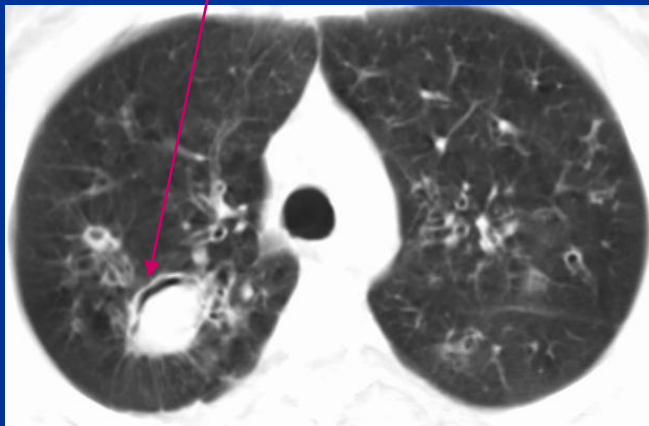
Klinik og BAL:
atyp.mycobakterier



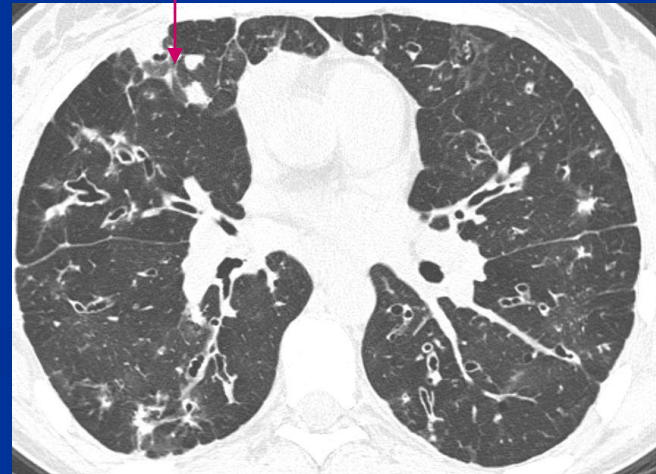
CF- SUPERINFEKTION ASPERGILLUS



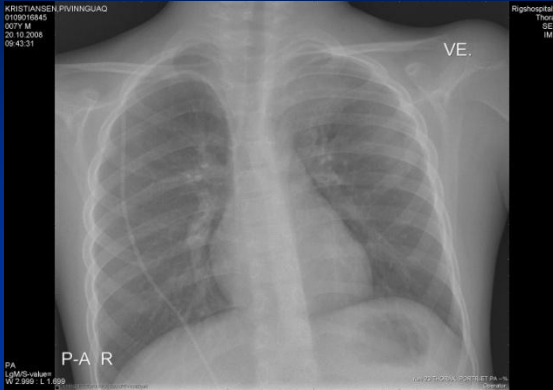
ASPERGILOM



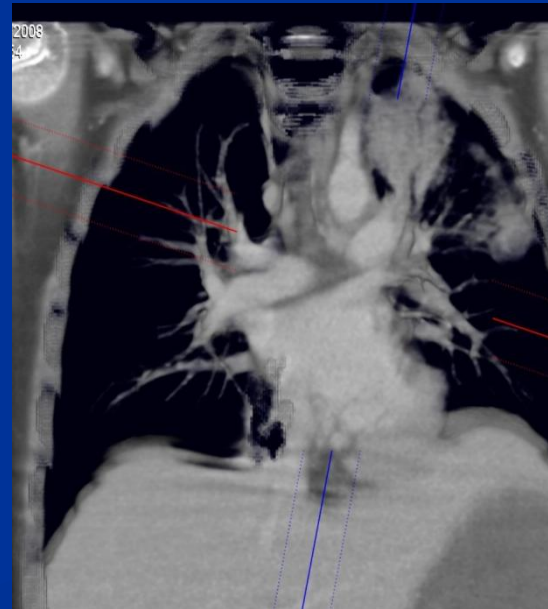
INVASIV BRONCHIAL ASPERGIL.



SUPERINFEKTION - ASPERGILLUS 2



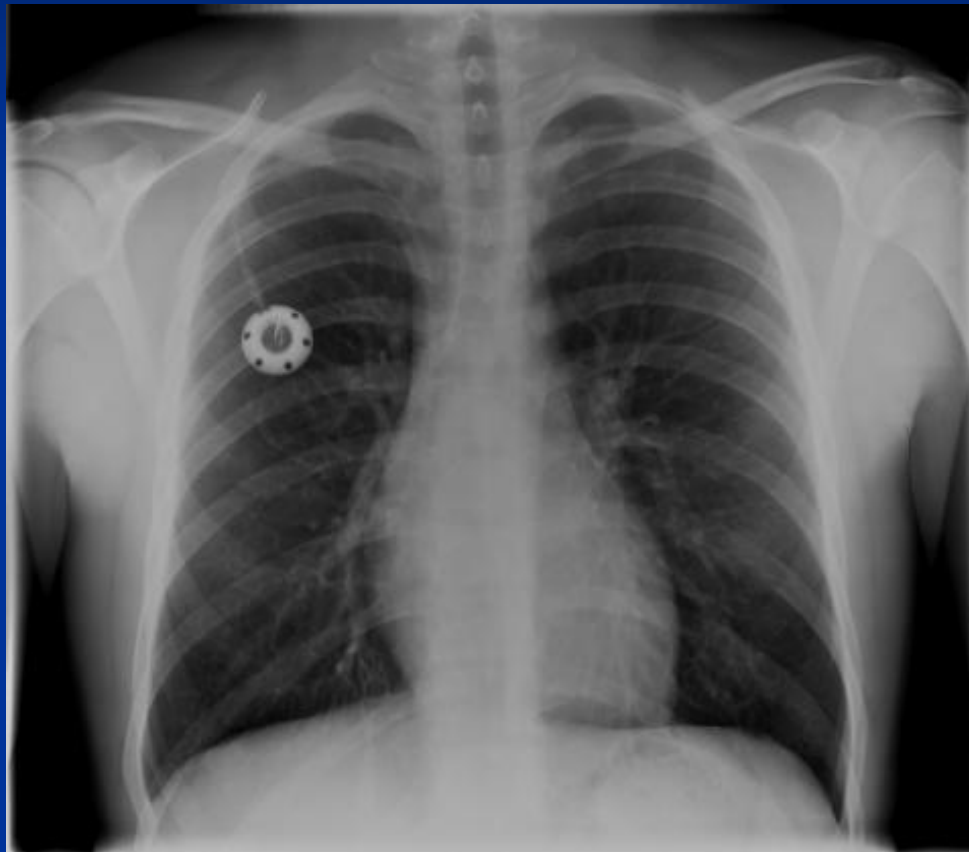
”PNEUMONISK”
INFILTRAT-
SPIKULERET
PERIFERKONSOLI-
DERING



Operation
Lobektomi
Plus hyfer

ANGIOINVASIVT ASPERGILLOM?

CT "funktion-in -expiration"

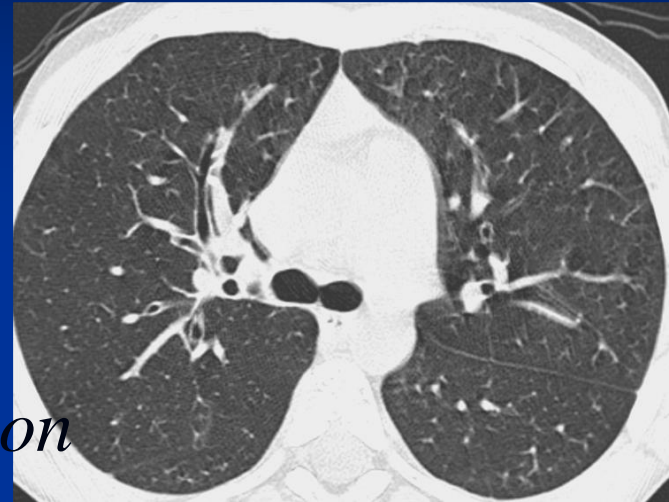


Det konventionelle billede.....

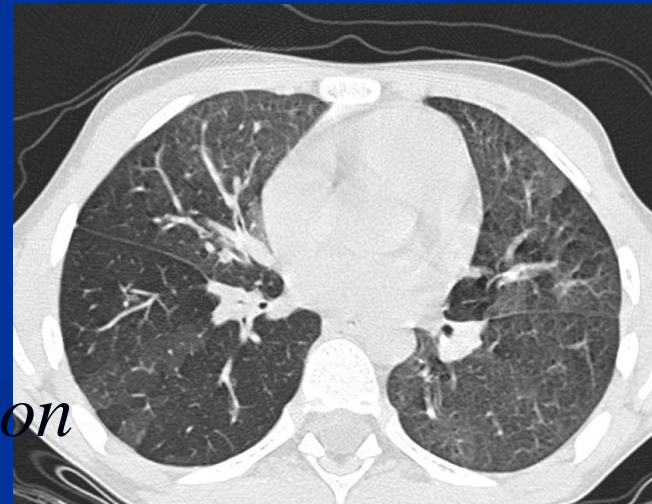
CT "funktion"- in/exp optagelse



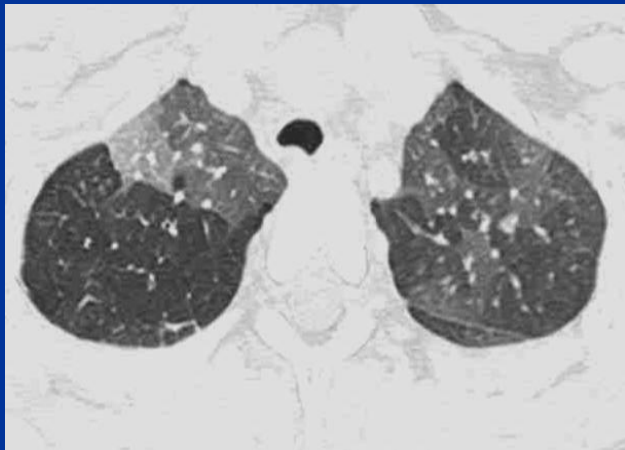
Inspiration



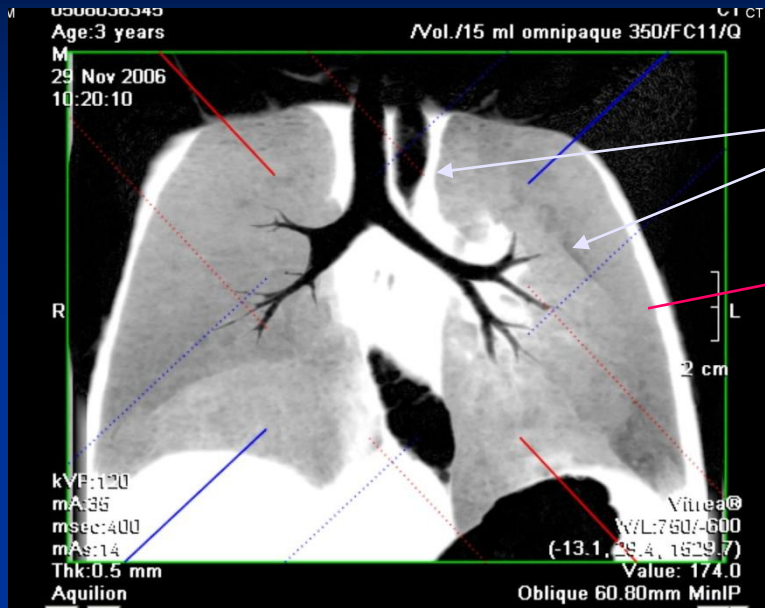
Ekspiration



CT insp-exp-mosaik



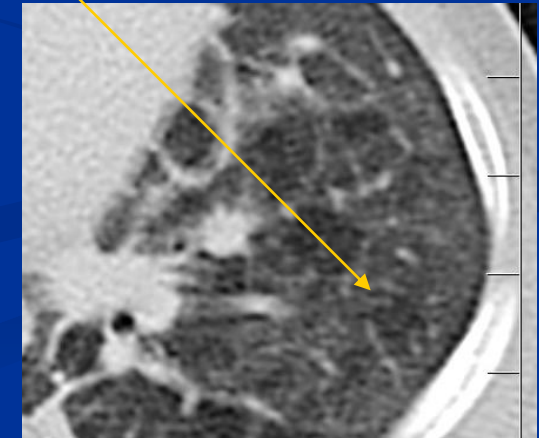
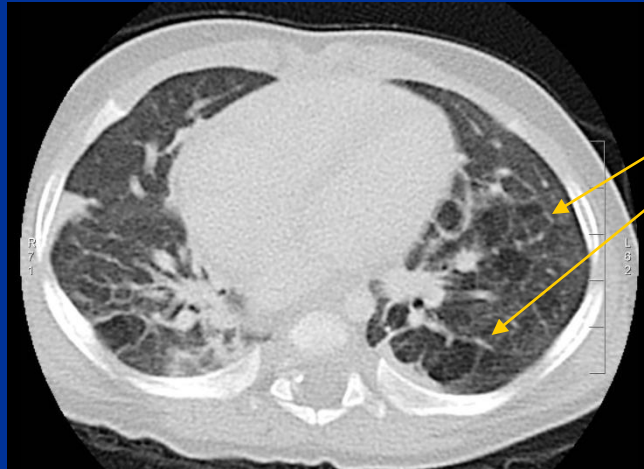
HR CT – PARENCHYM /INTERSTITIUM



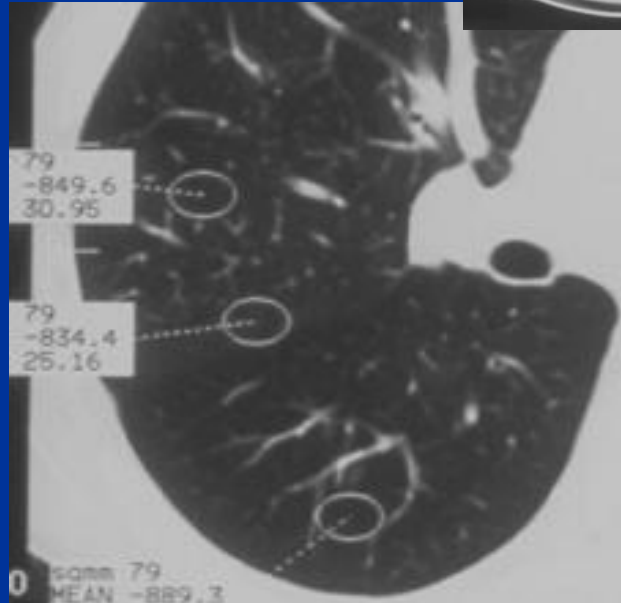
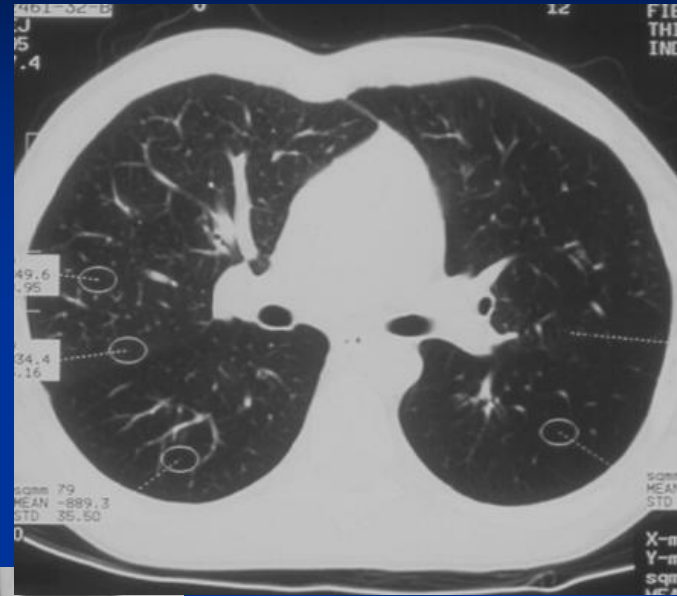
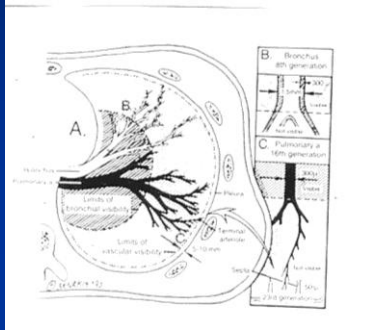
1. AIRWAY

2. PARENCHYM/
ALVEOLE

3. INTERSTITIUM

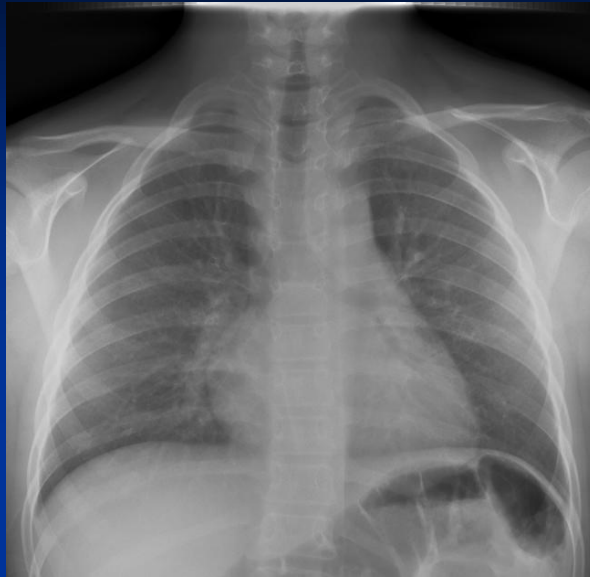


HRCT- PARENCHYM/INTERSTITIS



Normalt parenchym:
Ensartet –insp/exp
HU:850-900

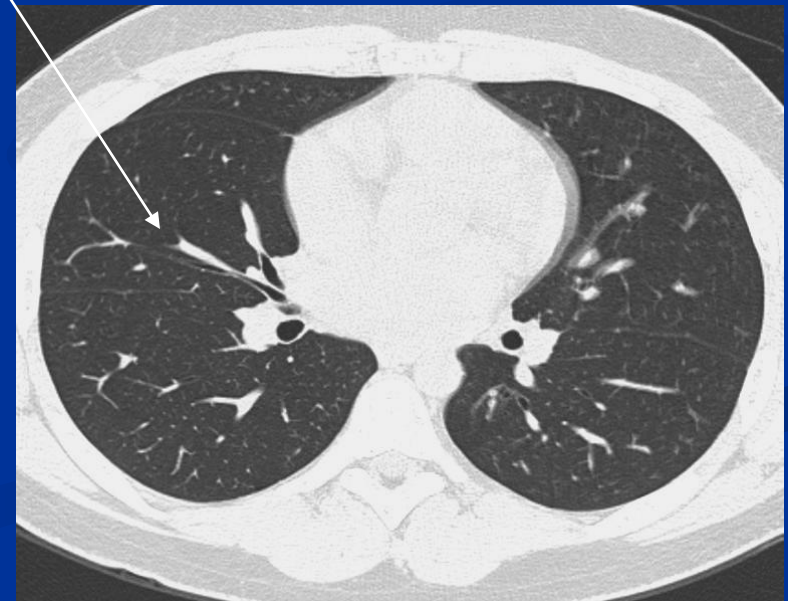
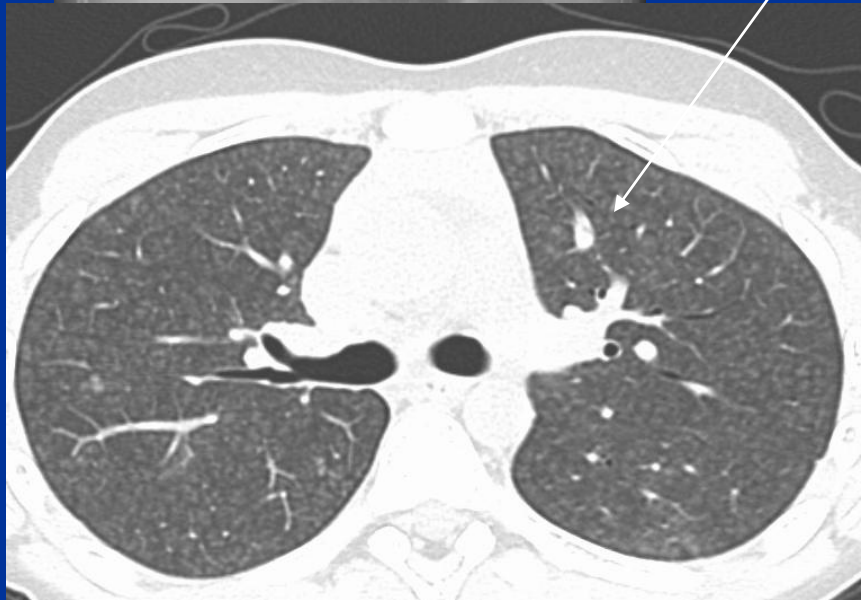
Parenchym- tæthed- ex:alveolit



Diffust ændret densitet- finnodulært
Præg- CT tallet stiger!!

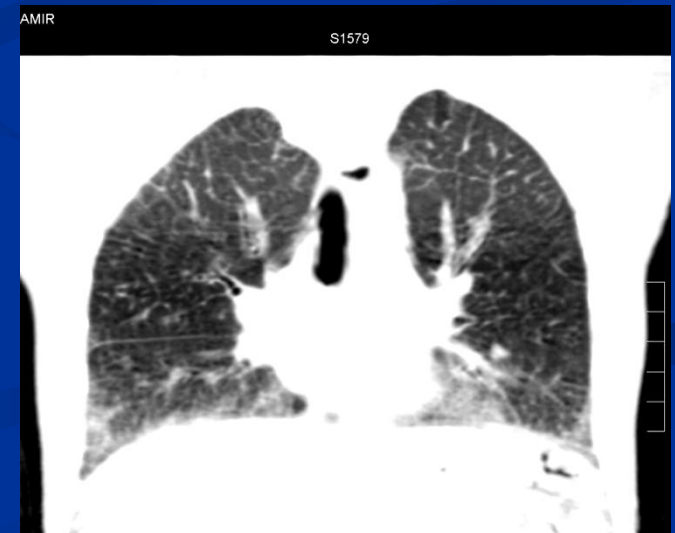
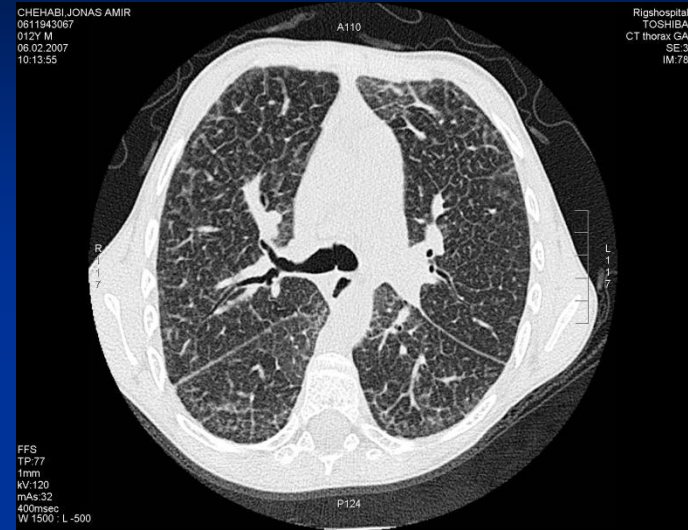
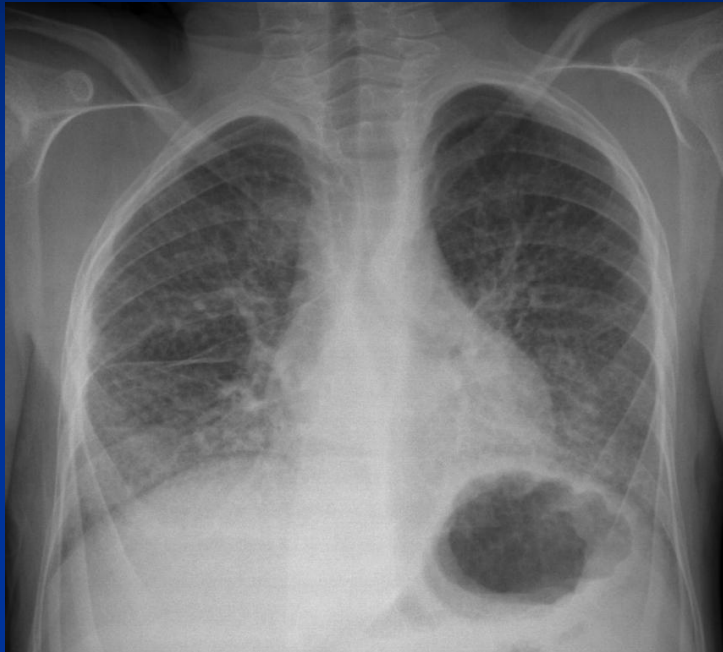
-780

-890



NB: DER ER I DK MINDRE END 10 BØRN OM ÅRET MED ILD!

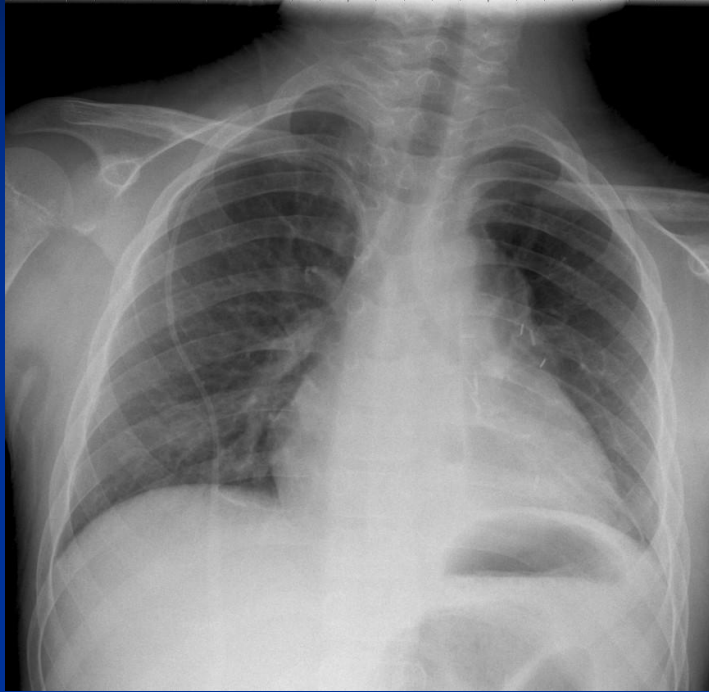
INTERSTITIUM ILD- AFLEJRING



SEPTAL FORTYKKELSE
DIFFUST

MB.GAUCHER

INTERSTITIUM 2- IMMUNOLOGI/



SEPTAL FORTYKKELSE
ALVEOLÆRE HULLER
OG ØGET DENSITET
HISTIOCYTOSE

INDIKATIONER FOR PÆDIATRISK CT- PULMONOLOGI- RESUME

NORMALT THORAXBILLEDE- MEN SVÆRE
SYMPTOMER/OBJ. FUND

ABNORMT USPECIFIKT THORAXBILLEDE-
INFILTRATIVT/INTERSTIELT-

MISTANKE OM BRONKIEKTASI

KOMPLIKATIONER TIL LUNGELIDELSE

KRONISKE TILSTANDE- CF,CDK,BPD

MALFORMATION- UDREDNING- PRÆ- BIOPTISK/OPERATIVT

OG LYKKEN KENDER INGEN GRÆNSER

- *HURTIGERE CT*
- *INGEN STRÅLER – NÆSTEN*
- *VOLUMEN CT 16 CM- 0,275 SEC*

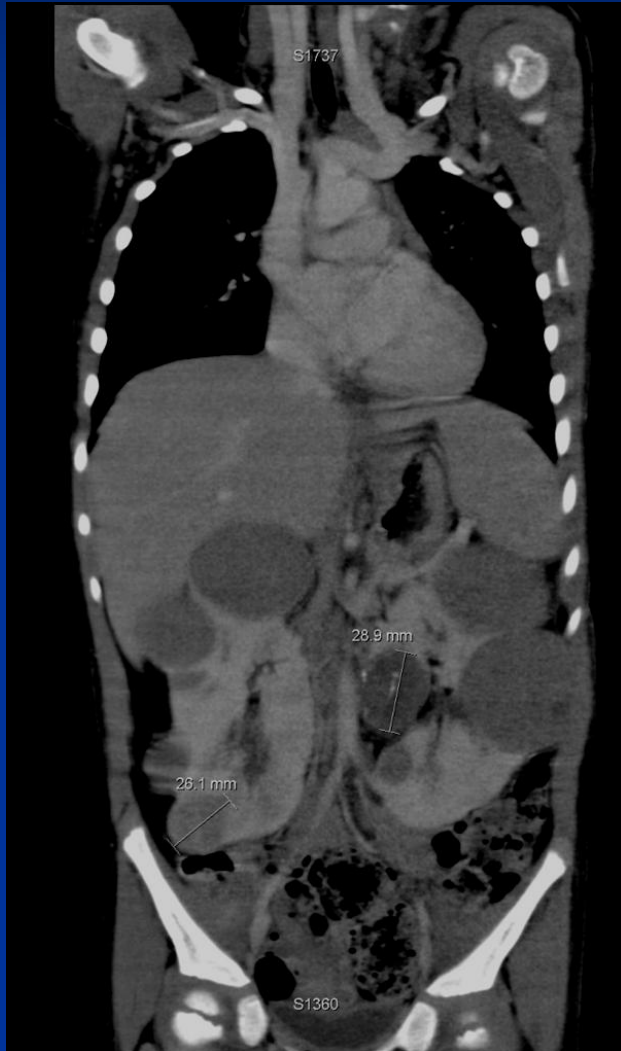
AQUILLON ONE VISION

- Antal snit: 640
- Detektor rækker.320
- Detektor bredde: 160mm
- Isotropiske voksler: 0,5x0,5x0,5
- Rotationshastighed 0,275 sekunder
- Generator; 100 kW
- Rekonstruktions hastighed 50 billeder/ sek.

MDCT 640 HELICAL SD 5- STANDART DOSE 1,6

mSIV

Hele thorax og abdomen
Bilateral nyretumor
Diagnostisk og staging



Ex- multifokal nefroblastom- præoperativ - tumor og angio VOLUMEN OG HELICAL



TOFASET – 1 .5 ML KONTRAST IV- ARTERIEL (20 SEK) OG SEN
TUMORFASE- LOWDOSE- VÆGTRELATERET- SD

PARAMETRE

- CTDI - CT DOSIS INDEX

STANDART ABSORBERET DOSIS (PERIFERI OG CENTER)

- DLP- DOSIS LÆNGDE PRODUKT mGY cm

- $DLP = CTDI \text{ vol} \times \text{Scan længde}$

- BEREGNET DOSIS: $DLP \times \text{faktor}$

CT PARAMETRE

Diagnostic reference levels (DRL) - Quantities

DLP or $CTDI_{vol}$?

- **Both are useful; DLP for complete procedure and $CTDI_{vol}$ per sequence.**
- **DLP is more closely to risk; however, special considerations needed for paediatric patients:**
 - **Size of the patient will have a large effect on the scan length → higher DLP for a taller patient will not necessarily correspond to higher organ doses**
 - **Choice of anatomical start and stop positions may have a critical effect on dose to organs at the edge of the area of interest**
 - **Additional dose due to over-ranging in helical scans is likely to be a greater percentage of the total dose as the patient size decreases and beam width increases**

SD- DOSIS FORHOLD-VALG

OF FRANCIS

Study ID : 36156432 Study Date : 2013.05.15 (P. 1)

Accession No : 36156432

<< Detail Information >>

1. Abdomen Child 16 - 30 kg (HCT)

	CTDIvol	DLP	SD
SCANOSCOPE			
SCANOSCOPE			
NORMAL_CT	4.30(Body)	0.90(Body)	11.64
DYNAMIC_CT	13.10(Body)	5.20(Body)	
HELICAL_CT	2.40(Body)	49.80(Body)	7.50
HELICAL_CT	2.40(Body)	72.00(Body)	7.50

SD: 7.5- "STØJ I BILLEDET"

STANDART KVALITET

DOSIS LÆNGDE PRODUKT

ANGIO: 49 – OMREGNES
TIL ABSORBERET DOSIS

ALDERS VÆGT FAKTOR-

DOSIS VURDERING MDCT FAKTOR

Body Region	0 year old	1 year old	5 year old	10 year old	Adult
Head & Neck	0.013	0.0085	0.0057	0.0042	0.0031
Head	0.011	0.0067	0.0040	0.0032	0.0021
Neck	0.017	0.012	0.011	0.0079	0.0059
Chest	0.039	0.026	0.018	0.013	0.014
Abdomen/pelvis	0.049	0.030	0.020	0.015	0.015
Trunk	0.044	0.028	0.019	0.014	0.015
Extremities					0.0008*

AAPM report No 96, 2008

*http://msct.eu/PDF_FILES/Appendix%20MSCT%20Dosimetry.pdf

DOSIS VURDERING-MDCT/ KONV.



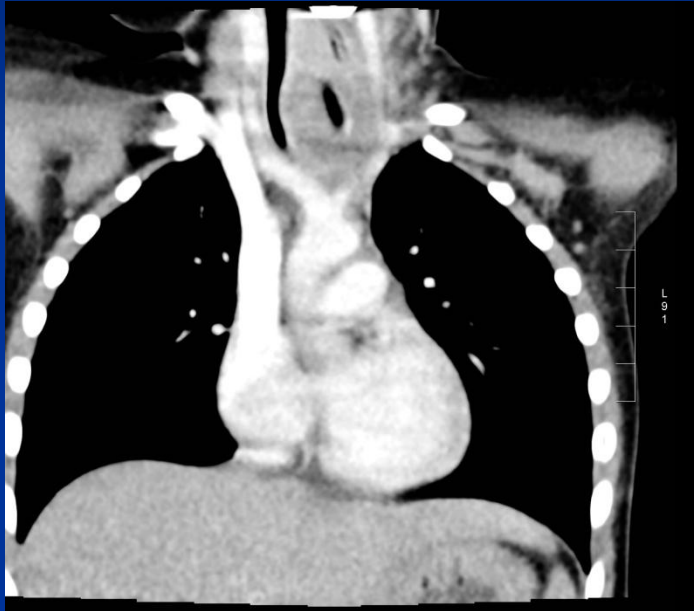
Examination	E, lchildren, μSv Kiljunen et al.	E, adults**, μSv www.stuk.fi
Limbs		10
Dental panoramic tomography	2-5	10
Sinuses	6-11	30
Chest (PA)	6-18	100
Skull	5-13	100
Abdomen	25-170	2000
Urography		4000
Head CT	2000-3000	2000
Chest CT	3000-6000	9000
Chest HRCT	500	

MDCT BODY 0,5-3 mSIV

KONV:1AP 0,02-0,17 mSIV

EKSEMPEL VOLUMEN

THORAX 16 CM -10 KG/BABY 8 MDR.



Patient Name (Multi-byte) :

ID : 0602126854

Study ID : 36528971

Birth Date : 2012.02.06

Age : 1Y

Sex : F

Weight(kg) :

Height(cm) :

Patient Comment :

Study Date : 2013.10.25

Body Part : CHEST

Requesting Department :

Referring Physician :

Reporting Physician :

Operator Name :

<< Dose Information >>

DLP(mGycm)

(Head) : -

(Body) : 24.00

DLP: 24 mGY cm X faktor 0,015 =
0,36 mSiv i absorberet dosis

BILLED KVALITET SD- OVERVEJELSER

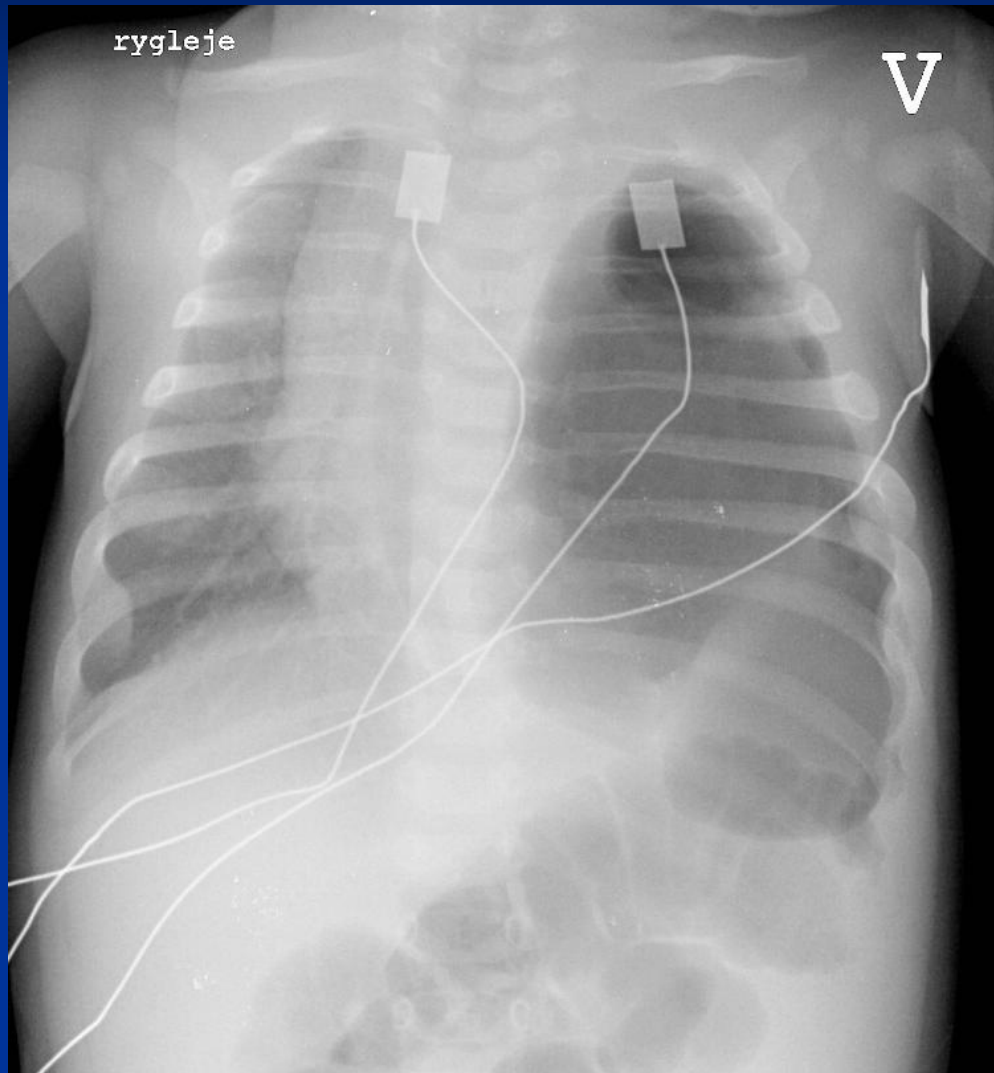
- MODALITET: MDCT – 64/320/ 640 slice
- BILLED REKONSTRUKTION- iterativ REFORMATION
- SUBJEKTIV - BILLEDBEDØMMELSE –SD!
- *Signal støj- "high quality/ standard/ lowdose-" reformationer- detaljer - patient BM højde/vægt*
- **PÆDIATRISK PATIENT- PROTOKOL OG INDIVIDUEL PLANLÆGNING**

OG NU EN AKUT LUNGECASE.. SOM IKKE ER SÅ KEDELIG!



*....DET GÆLDER OM AT HAVE
ØJNENE ÅBNE-*

En case-om....noget er svært: 1

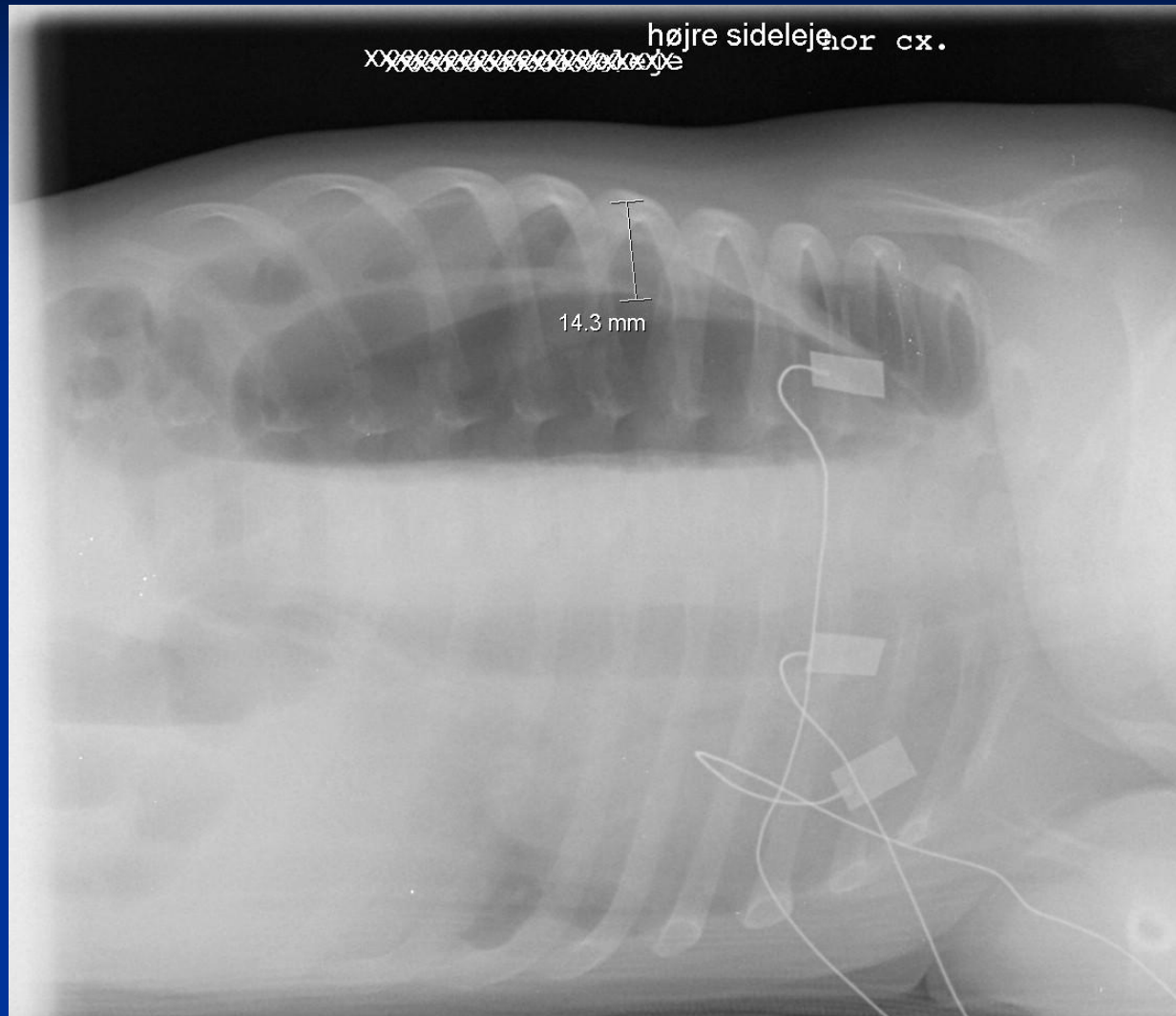


8 uger gammel
pige-
Født til tiden-
Rask til akt.

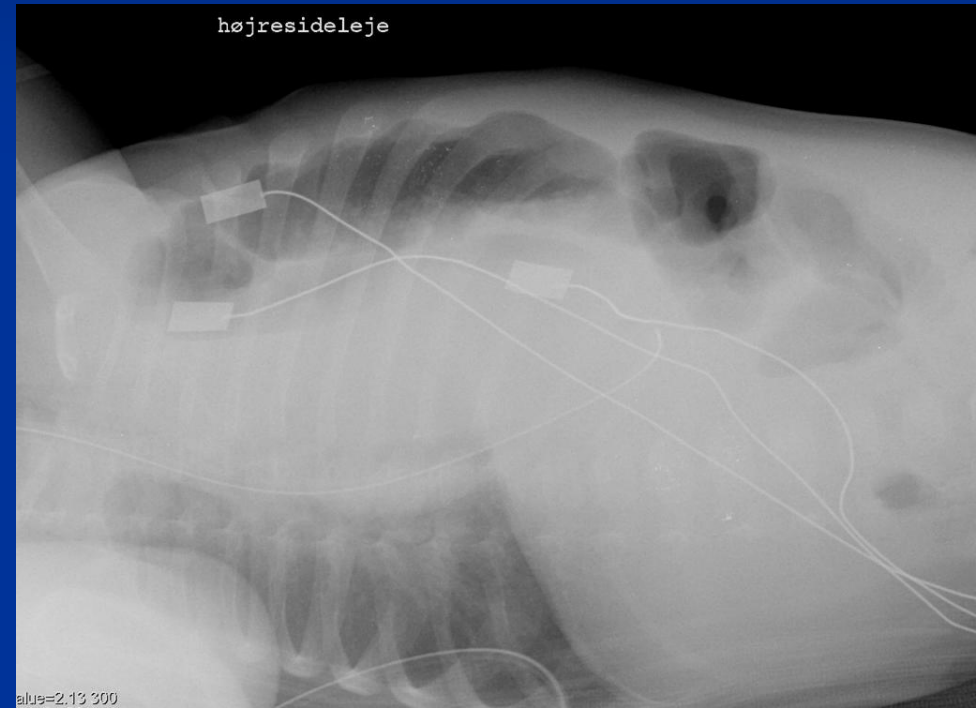
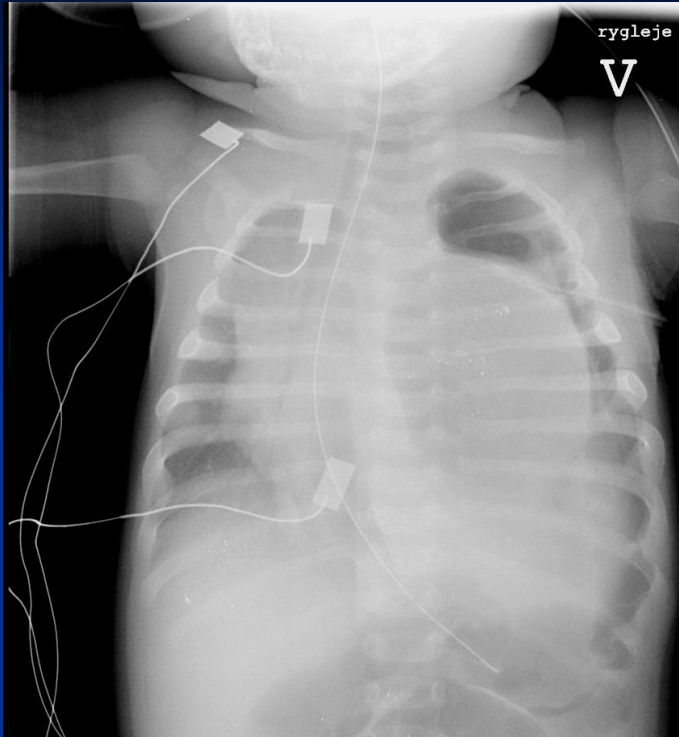
Dog lidt , knirken'
Nu ret utilpas
Klokken 9 mane-

HVAD ER DER GALT?

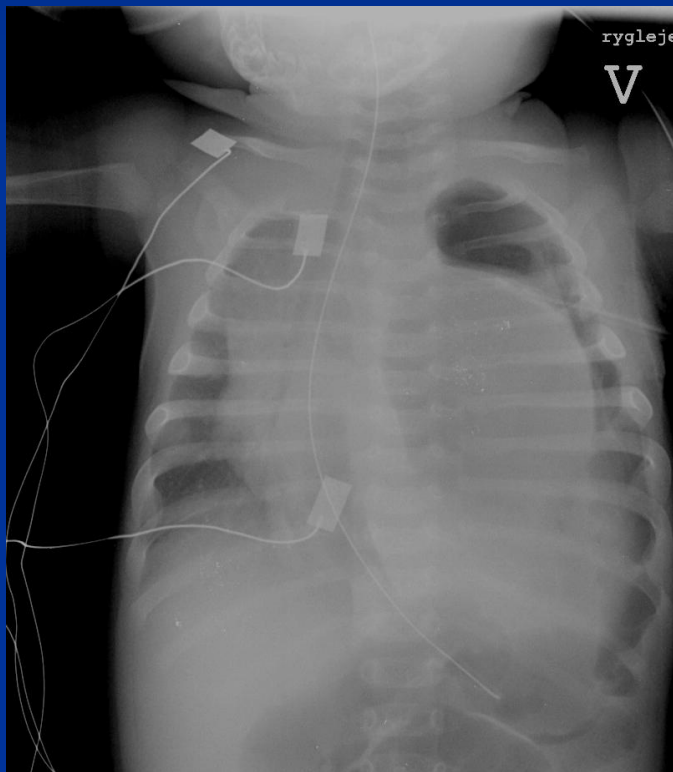
Svært- 2-PNEUMOTHORAX?



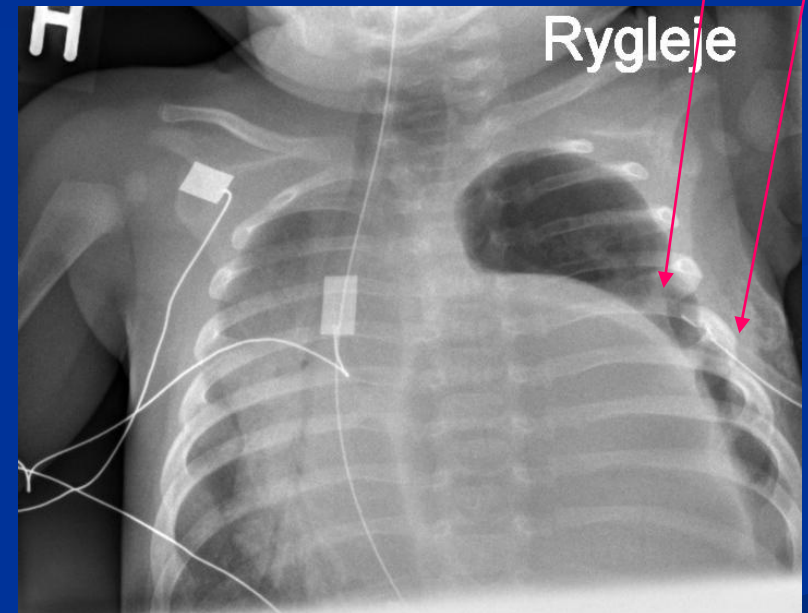
Svært- det er det stadig 3



Svært- sært og utaknemlig: 4-

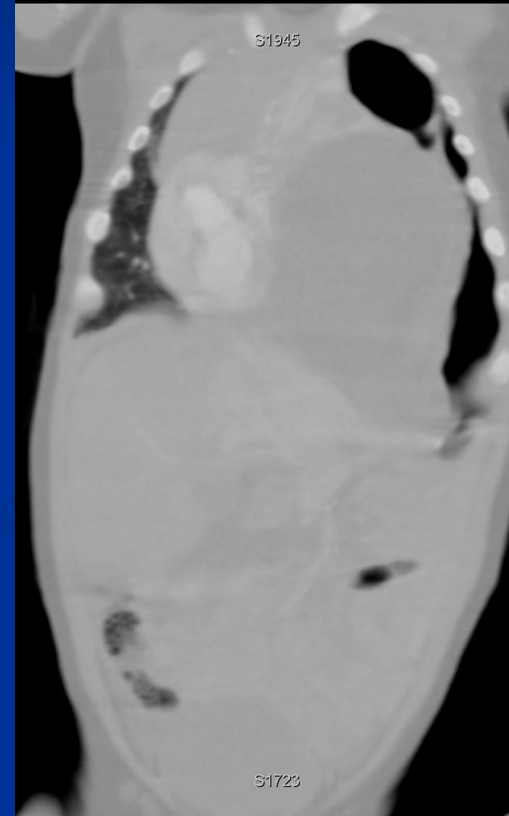


Kl.14



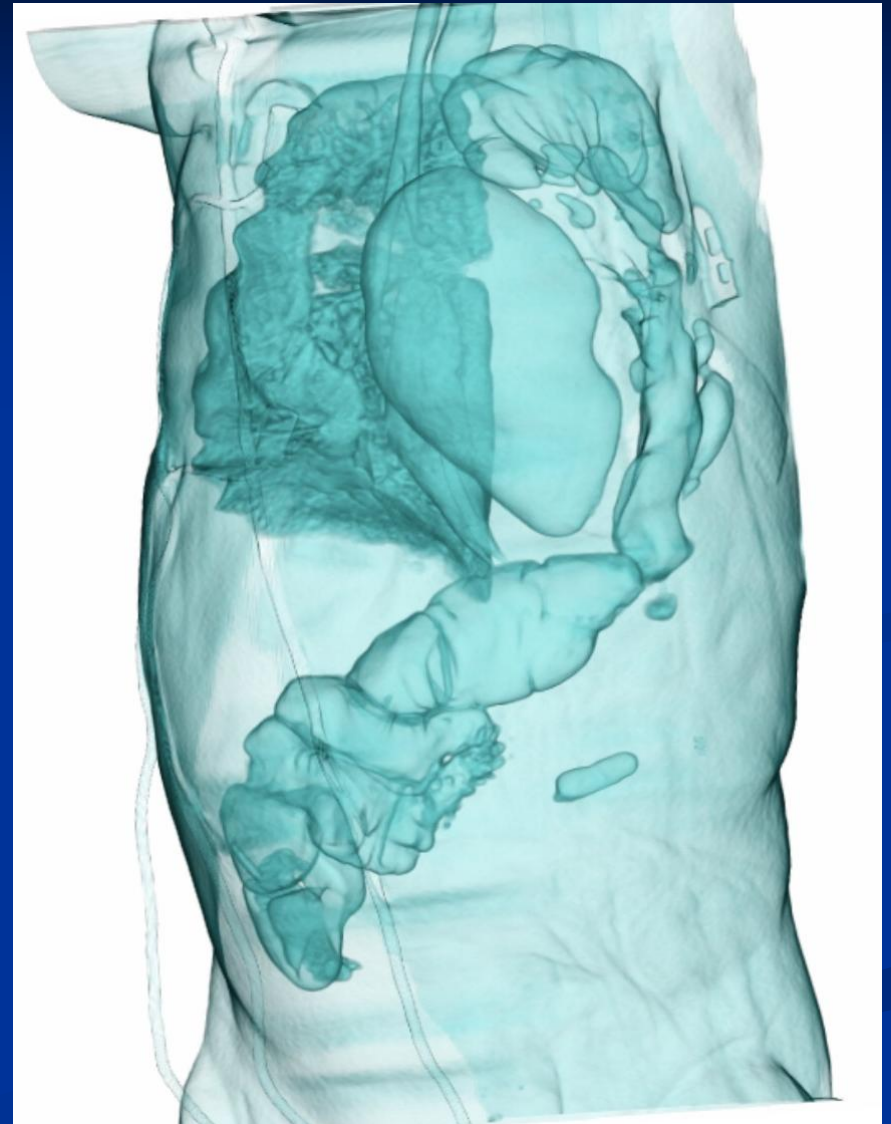
kl.19

Svært-og sært fortjener ...5

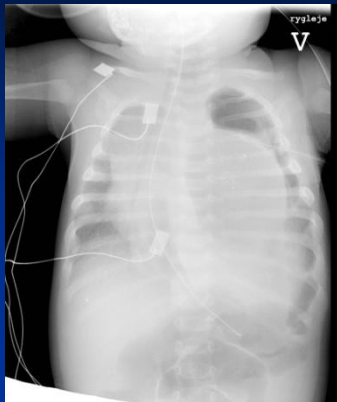


MDCT

Svært..sært-6
og det lovede 3D



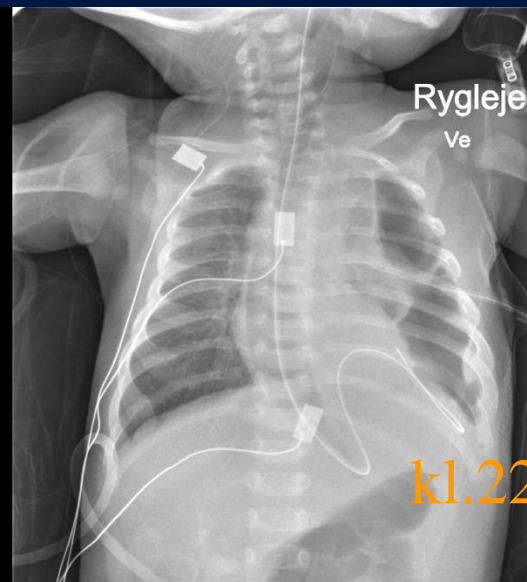
Sært er svært- men kan ende godt:



K1.10



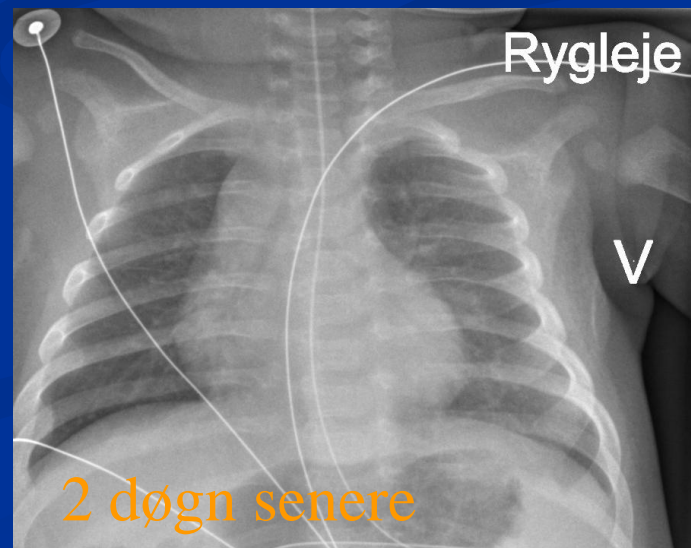
k1.21



k1.22



K1.01.00



2 døgn senere

SLUT



*OG SÅ FIK DET DA ENDLIGT
ENDE!*

*...og ellers vil jeg bare sige tak
for invitationen til at komme.*