

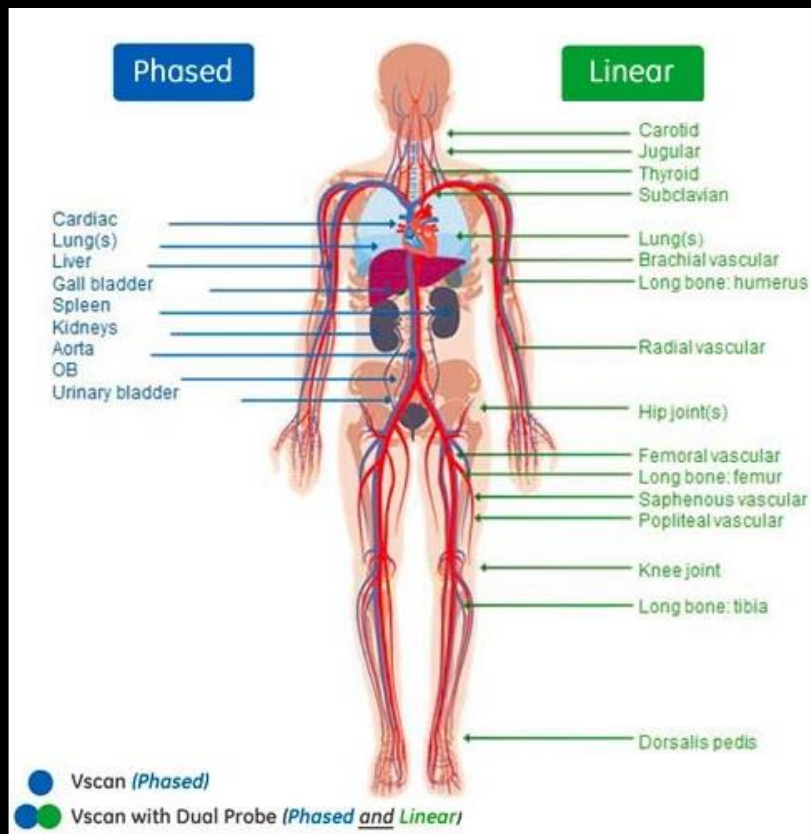


Ragnar Eriksen
Midtnorsk november 2019

VSCAN VED INFLAMMATORISK TARMSYKDOM

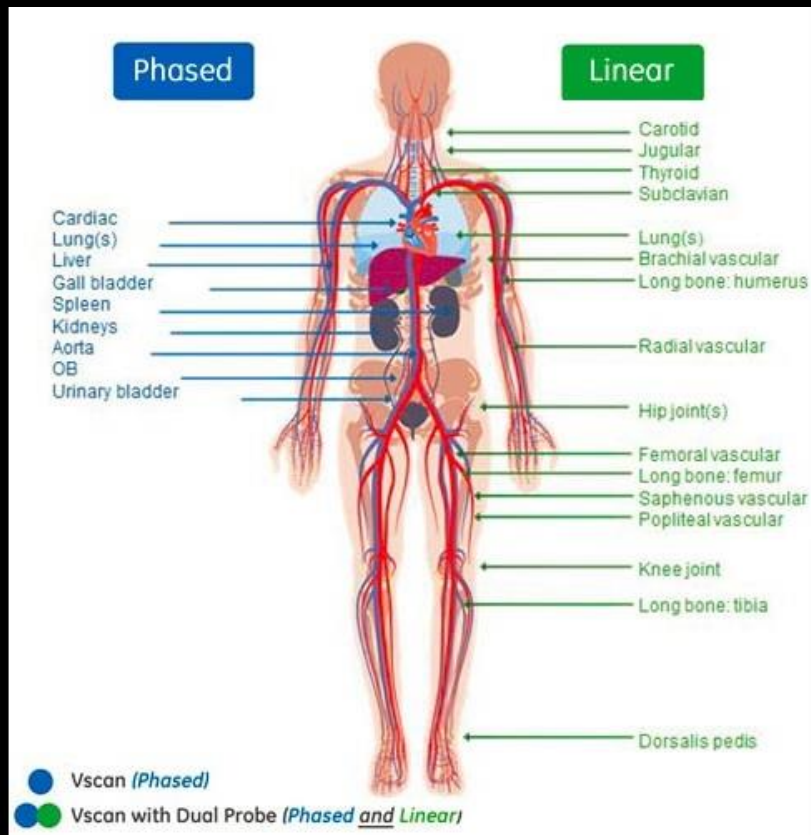
Kan Vscan påvise IBD?

Kjente bruksområder

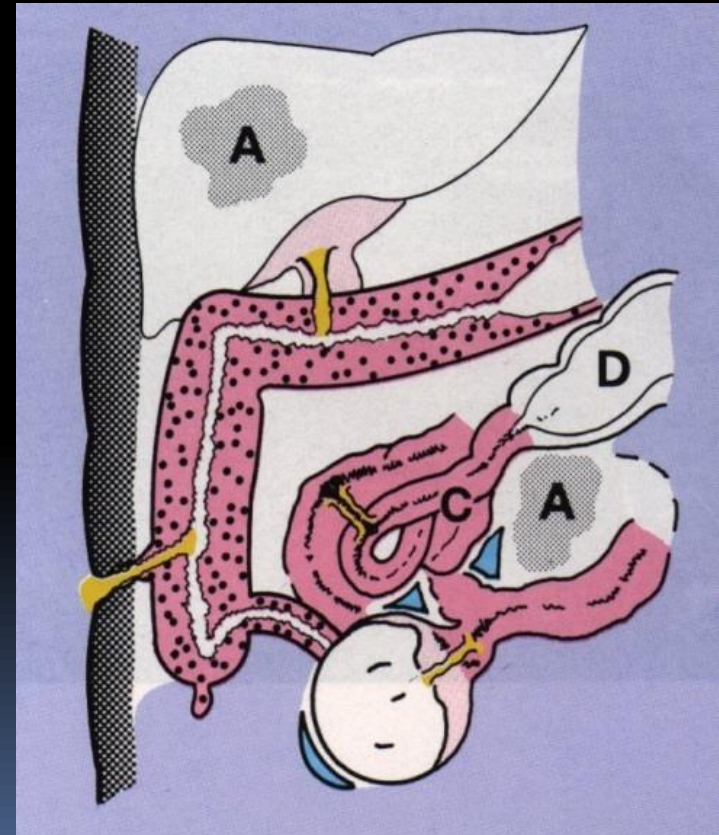


Kan Vscan påvise IBD?

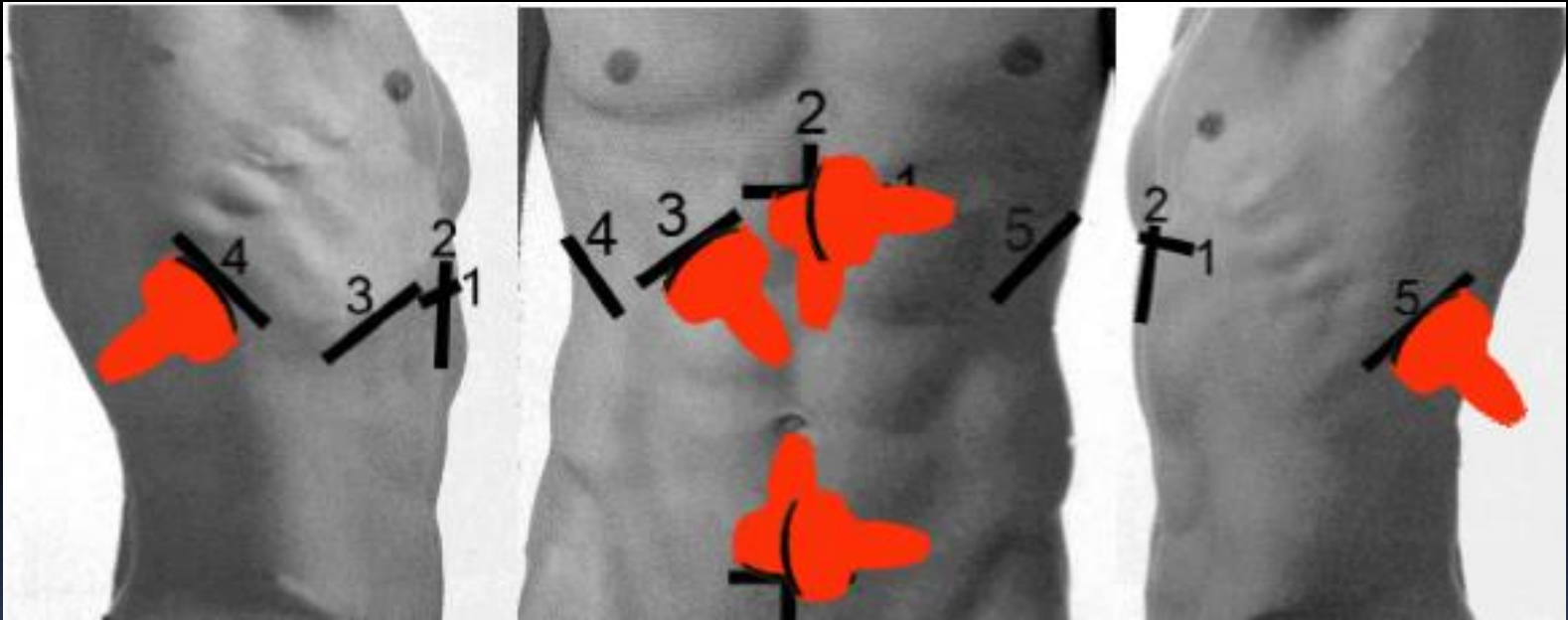
Kjente bruksområder



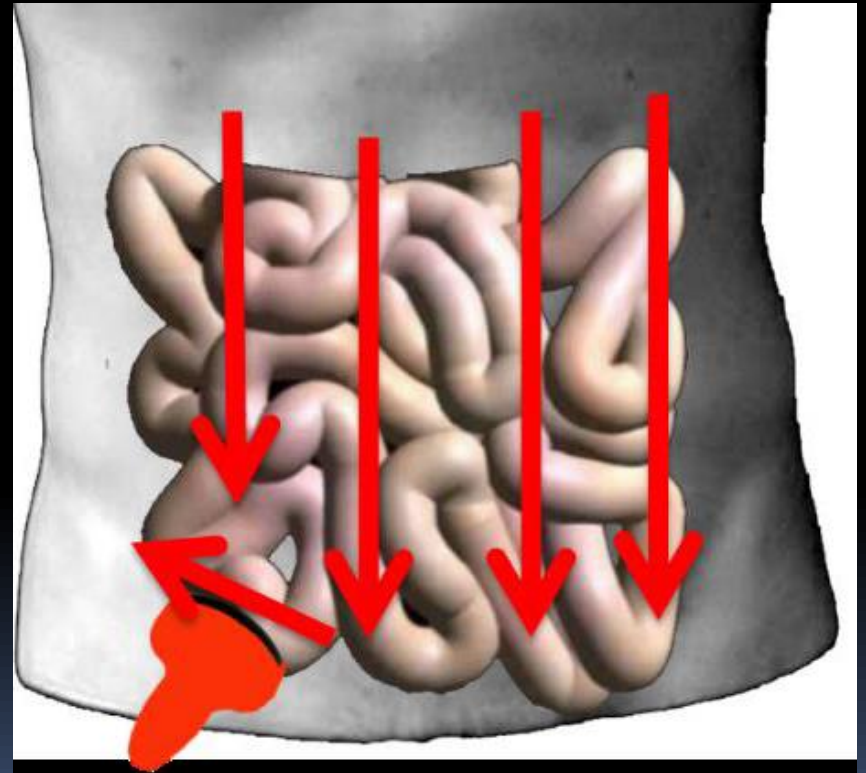
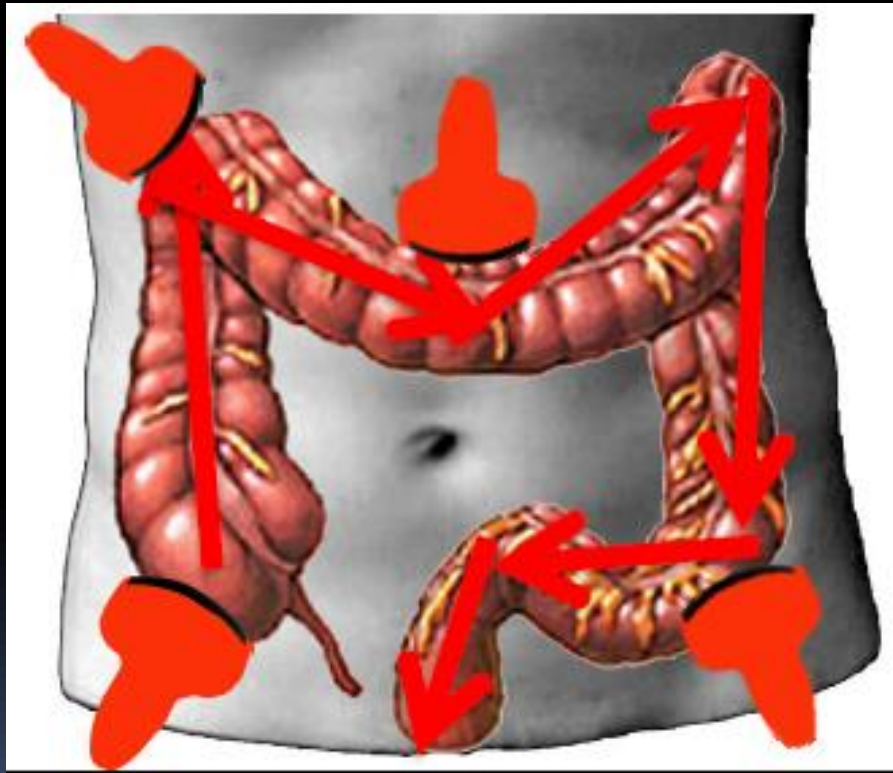
Hva med IBD?



6+: Systematisk UL av buken



6+: GI-tractus



EFSUMB Recommendations and Clinical Guidelines for Intestinal Ultrasound (GIUS) in Inflammatory Bowel Diseases

Ultraschall in Med 2018; 39: 304–317

RECOMMENDATION

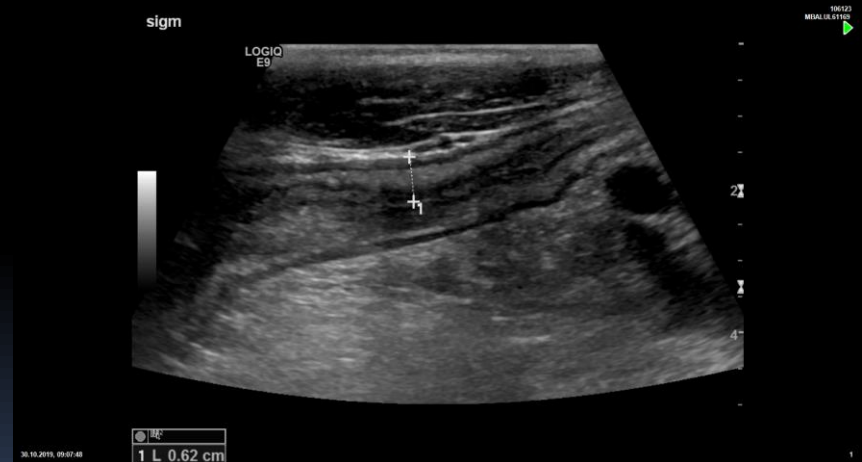
1. GIUS is recommended to be used to detect IBD at its first presentation, and to assess CD location, activity and possible complications [LoE 1a, GoR A]. Consensus levels of agreement: A+ 17/17;

Veggtykkelse

RECOMMENDATIONS

2. Bowel wall thickening measured by GIUS can be used to accurately evaluate Crohn's disease, in particular when located in the small bowel [LoE 1a, GoR A].
Consensus levels of agreement: A+ 14/17; A- 2/17; I 1/17
3. Bowel wall thickening >3 mm as measured with GIUS should be used as a cut-off for the detection of Crohn's disease when a high sensitivity is preferred while bowel wall thickening >4 mm should be used when a high specificity is preferred [LoE 1a, GoR A].
Consensus levels of agreement: A+ 15/17; A- 1/17; D- 1/17
4. Clinical disease activity in Crohn's disease is correlated with bowel wall thickness and can be estimated using GIUS [LoE 2b, GoR A].
Consensus levels of agreement: A+ 14/17; A- 1/17; D- 2/17

Pas med UC



EFSUMB Recommendations and Clinical Guidelines for Intestinal Ultrasound (GIUS) in Inflammatory Bowel Diseases

Lagdeling av tarmveggen

Fokalt brudd i lagdelingen

RECOMMENDATIONS

5. GIUS can demonstrate preserved or disrupted stratification of a thickened bowel wall in Crohn's disease [LoE 4, GoR C]
Consensus levels of agreement: A+ 16/17; A- 1/17
6. The focal or extensive disruption of bowel wall layers can be detected by GIUS and suggests severe disease, possibly with ulcerations [LoE 4, GoR C]
Consensus levels of agreement: A+ 15/16; A- 1/16
7. Increased bowel wall thickening and loss of stratification as detected by GIUS suggest a higher risk of surgery in patients with Crohn's disease [LoE 4, GoR C]
Consensus levels of agreement: A+ 15/17; A- 1/17; D- 1/17



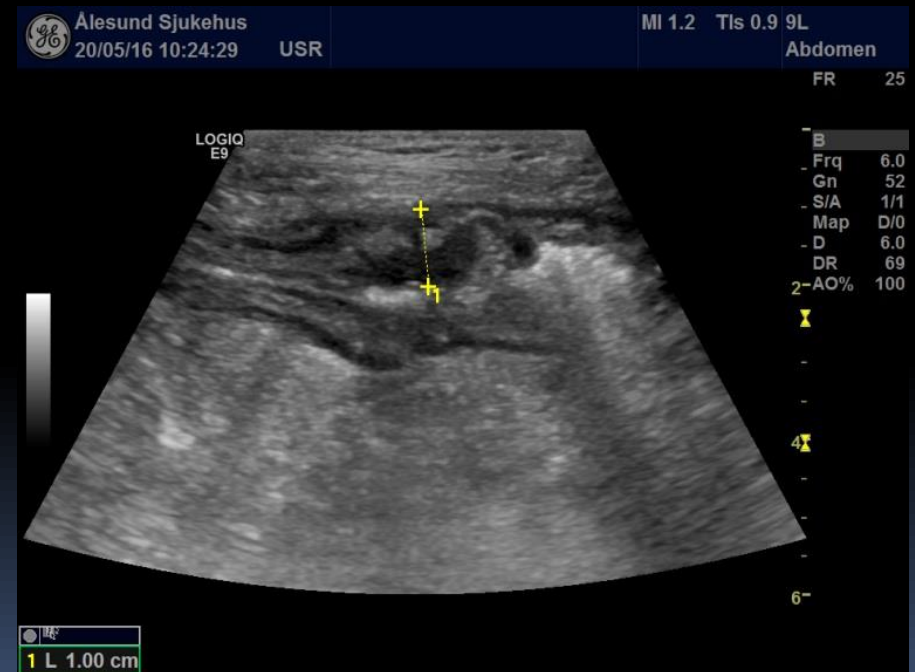
EFSUMB Recommendations and Clinical Guidelines for Intestinal Ultrasound (GIUS) in Inflammatory Bowel Diseases

Mesenteriell fettvevsreaksjon

«Creeping fat»

RECOMMENDATION

13. Mesenteric hypertrophy can be detected by GIUS as hyperechoic tissue or "mass effect wrapping" around the diseased bowel and reflects clinical and biochemical disease activity [LoE 3b, GoR C]
Consensus levels of agreement: A+ 15/17; A- 1/17; I 1/17



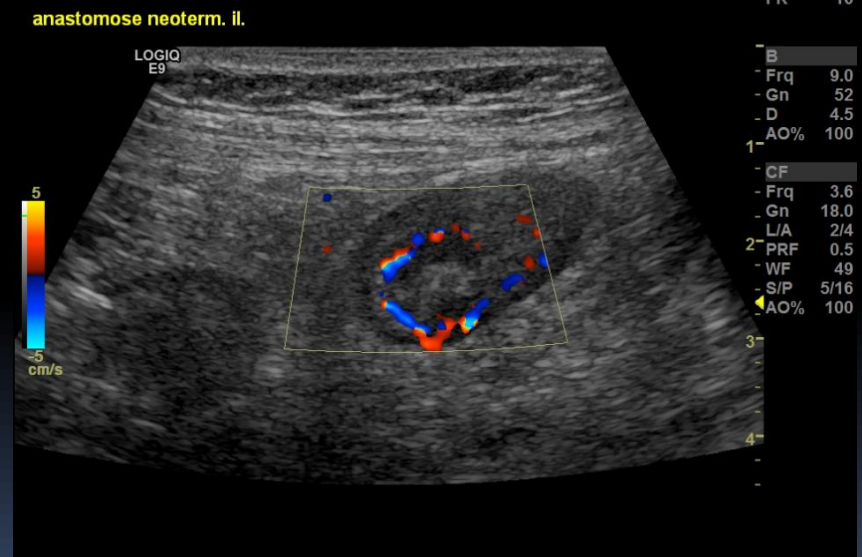
EFSUMB Recommendations and Clinical Guidelines for Intestinal Ultrasound (GIUS) in Inflammatory Bowel Diseases

Vaskularitet

RECOMMENDATION

9. Semi-quantitative assessment of bowel wall vascularity using color Doppler techniques is useful to evaluate Crohn's disease activity [LoE 2b, GoR B]
Consensus levels of agreement: A+ 16/17; A- 1/17

Doppler: Hyperemi i veggen



Målsetting: Sammenligne Vscan Dual Probe med Logiq E9 ved inflammatorisk tarmsykdom

The first pocket-sized ultrasound with two transducers in one probe.

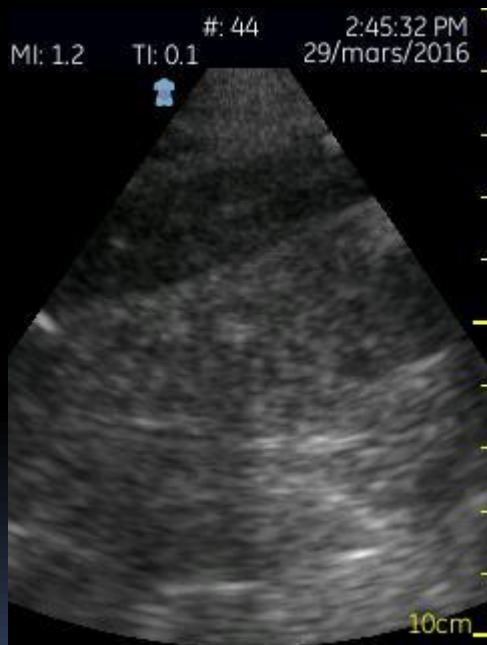


POCUS

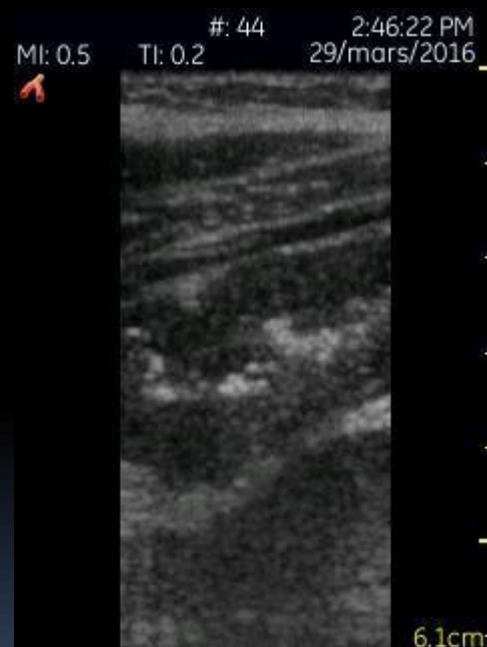
- Deteksjon
 - Veggtykkelse
 - Mesenteriell fettvevsreaksjon
 - Ekkogen lagdeling
 - Hyperemi i tarmveggen
 - Stenoser
 - Abscess
-
- Studiepopulasjon:
 - 14 pas med CD
 - 8 pas med UC
 - 4 pas med AIK

Valg av probe ved Vscan

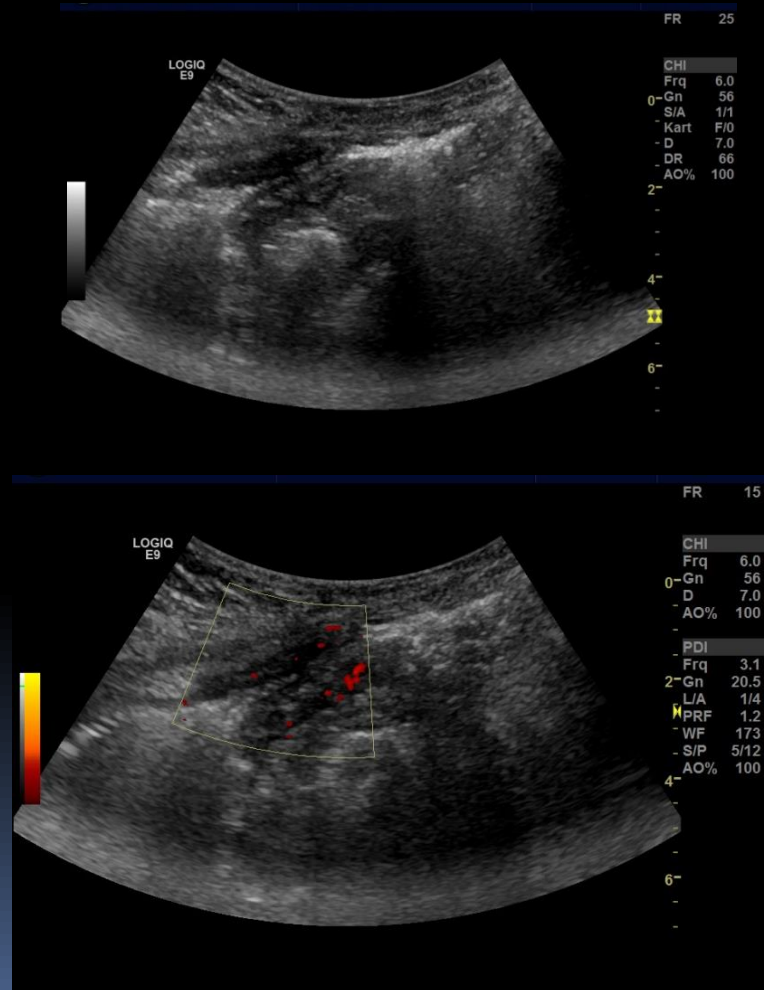
Lavfrekvent (dyp) probe
(1,7-3,8 MHz)



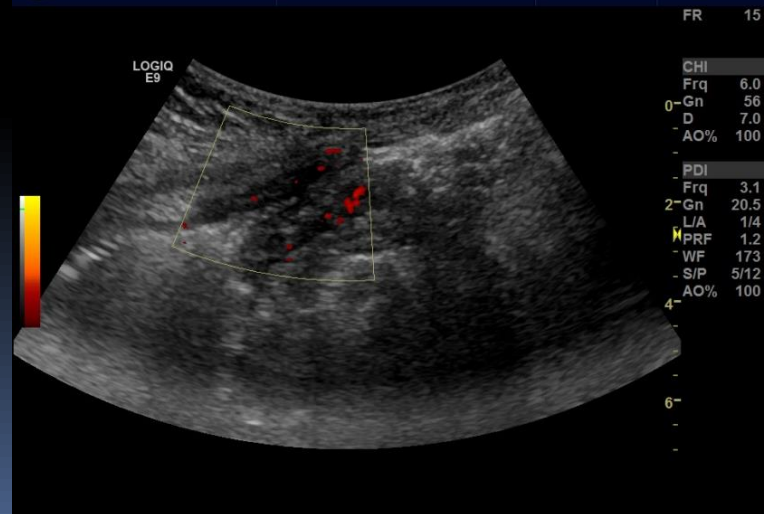
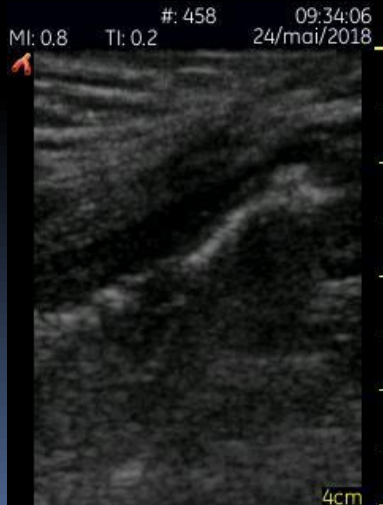
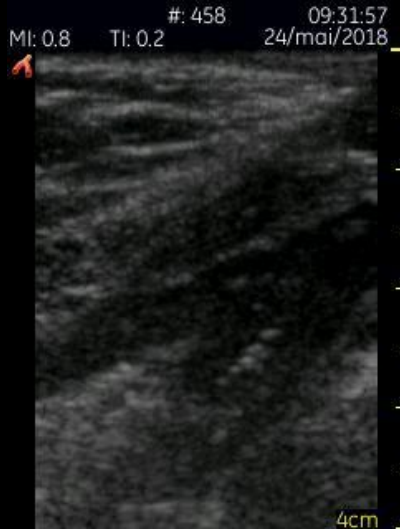
Høyfrekvent (grunn) probe
(3,4-8,0 MHz)



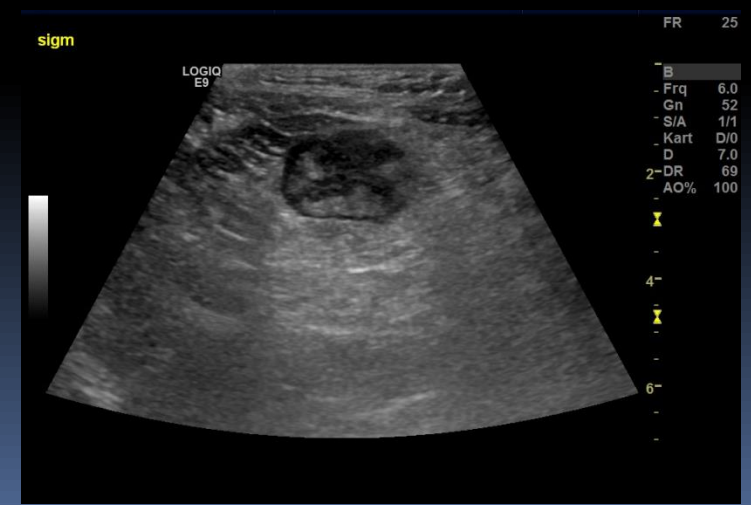
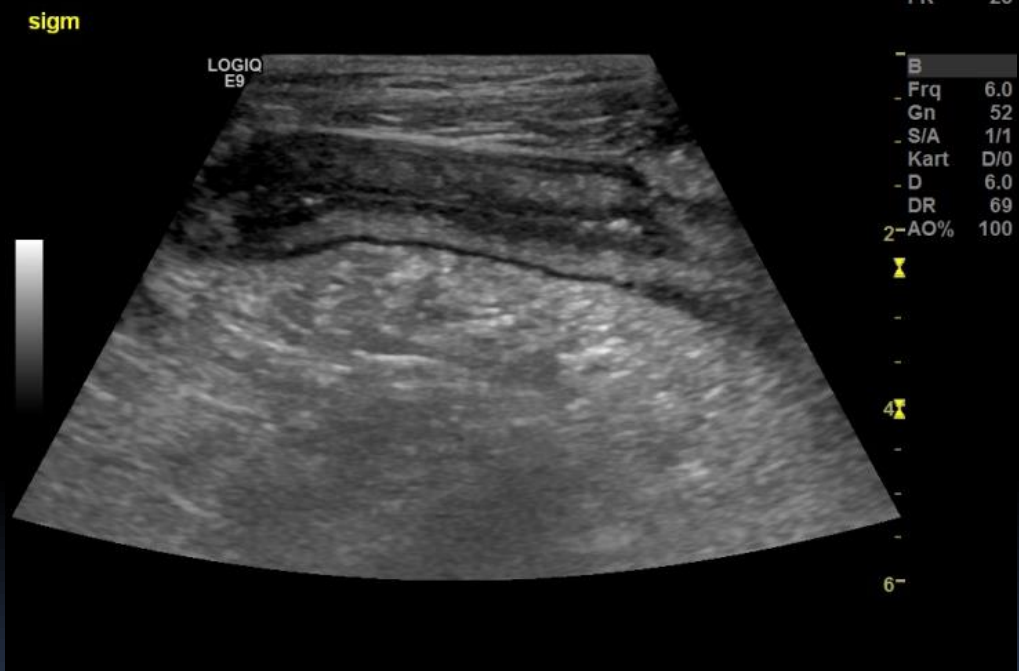
Deteksjon: Neoterminalle ileum

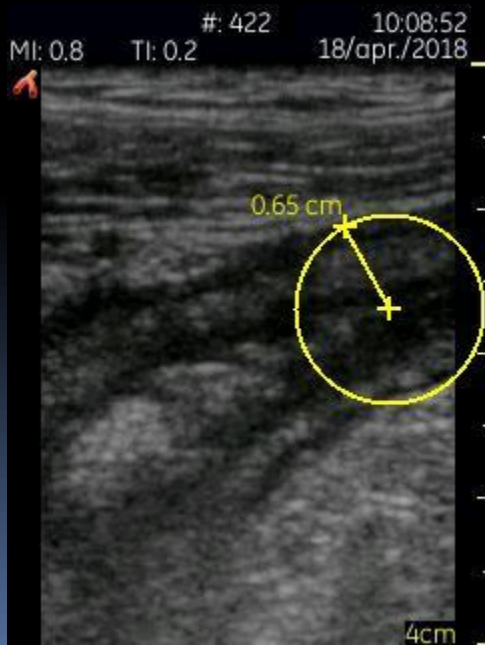
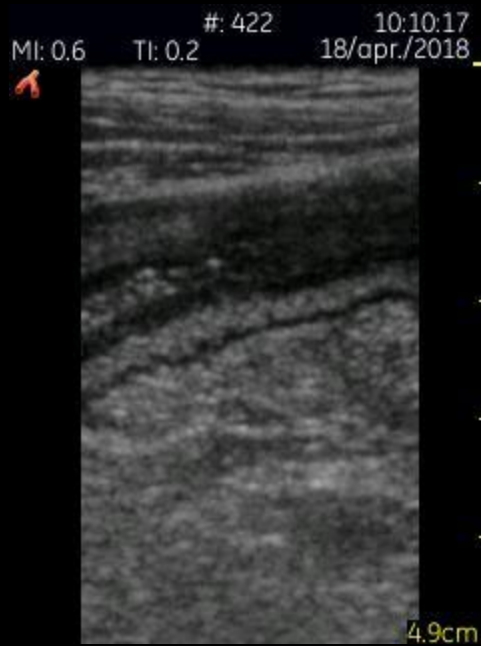


Deteksjon: Neoterminalle ileum



Deteksjon: Crohn-kolitt





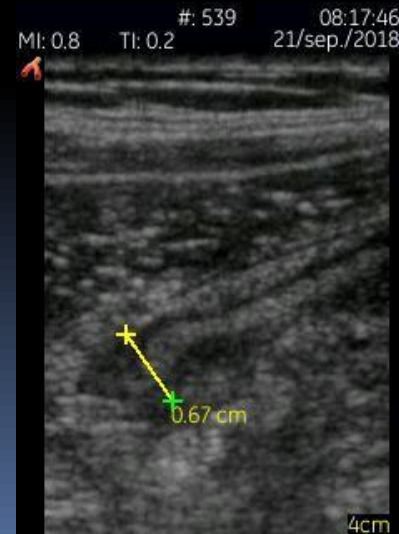
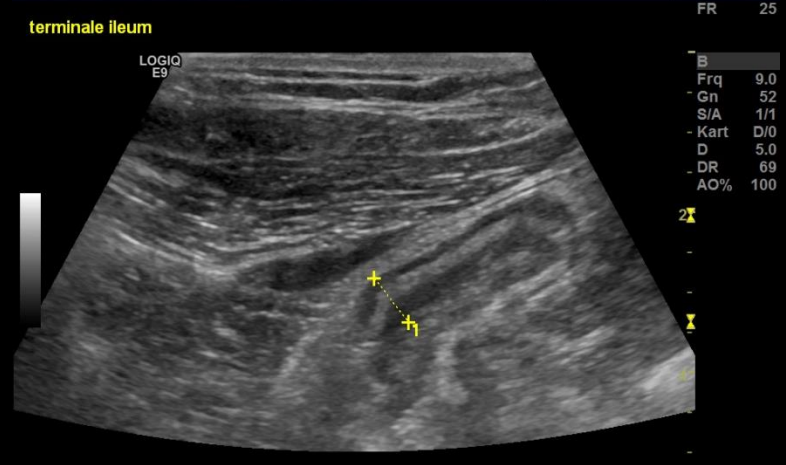
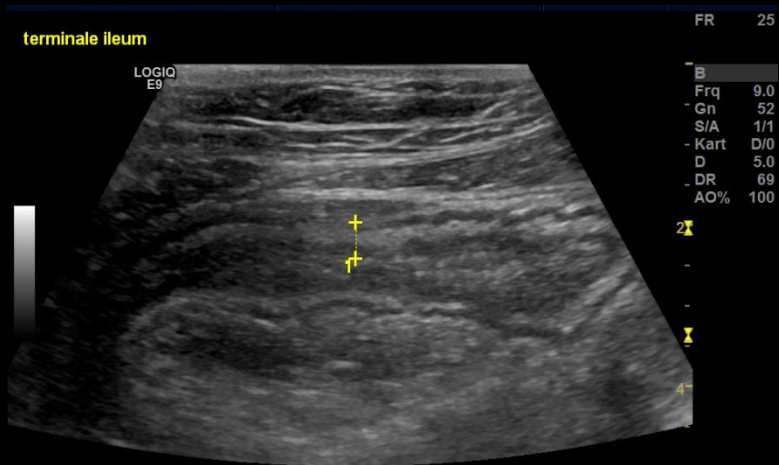
sigm

LOGIQ E9

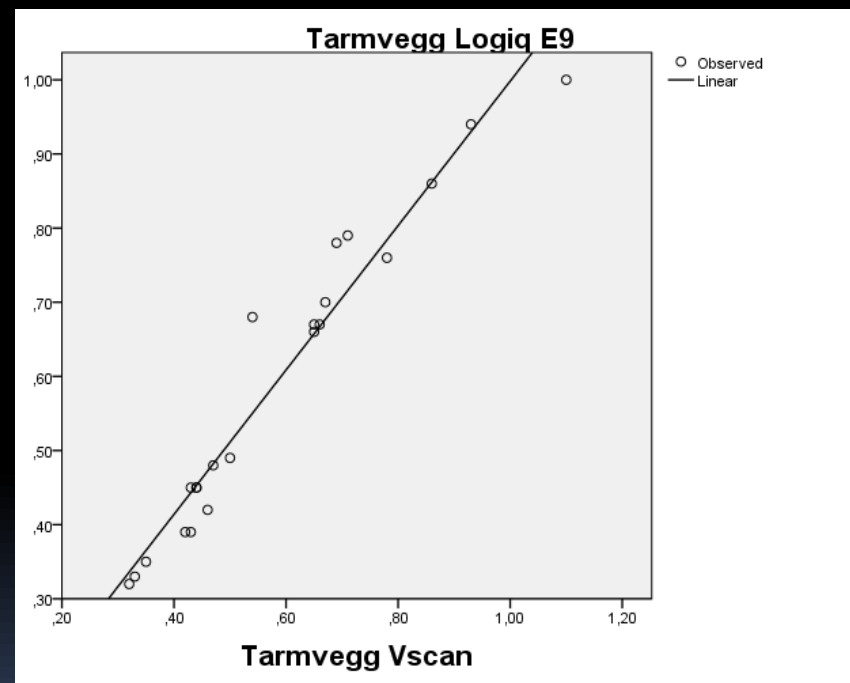
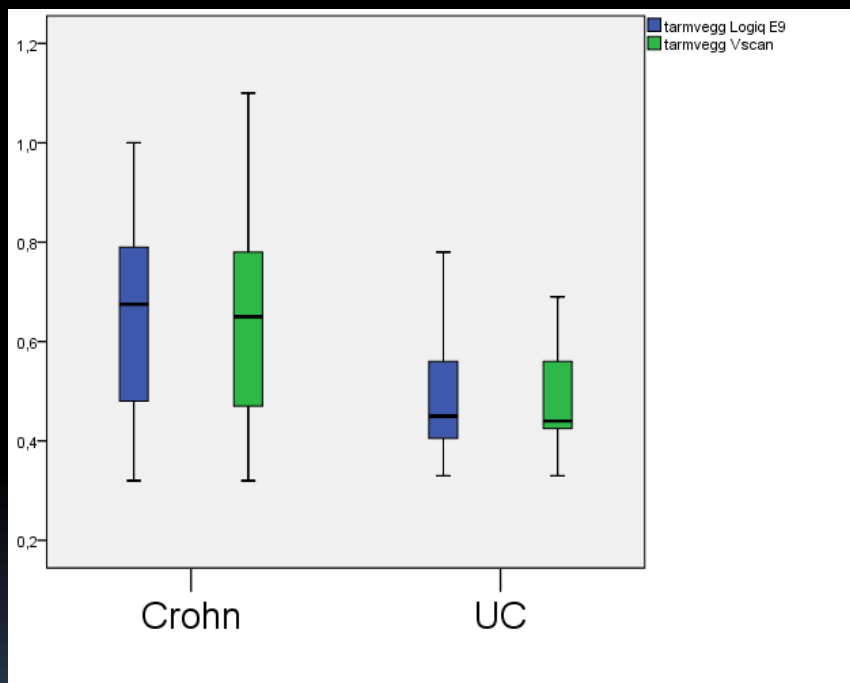
1 L 0.66 cm

PK	ZD
B	
- Frq	6.0
- Gn	52
- S/A	1/1
- Kart	D/0
1- D	4.5
- DR	69
- AO%	100

Veggtykkelse

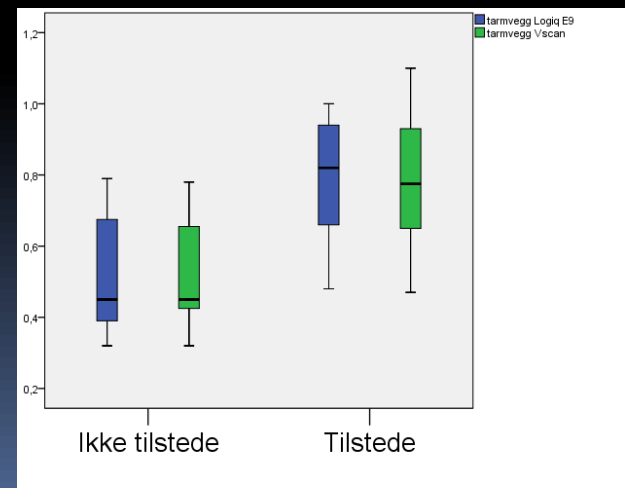
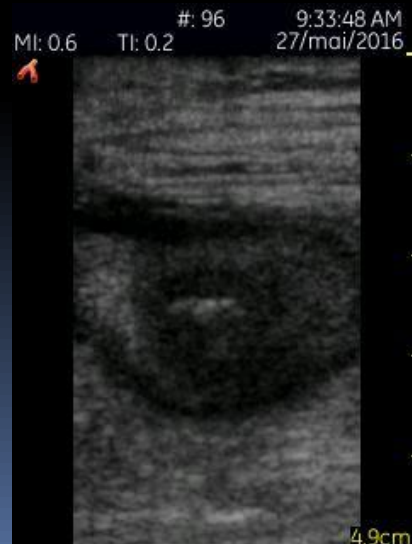
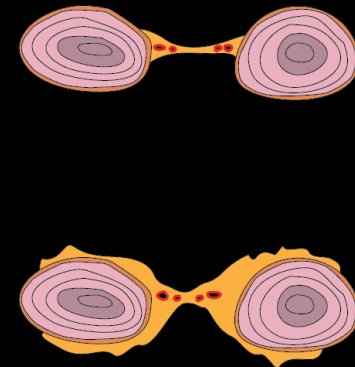
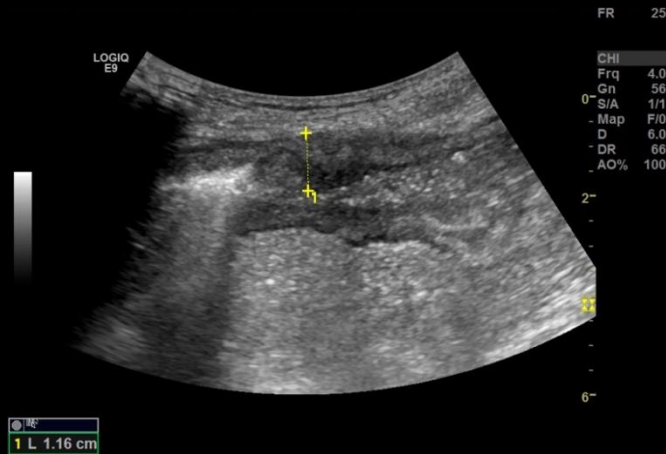


Veggtykkelse



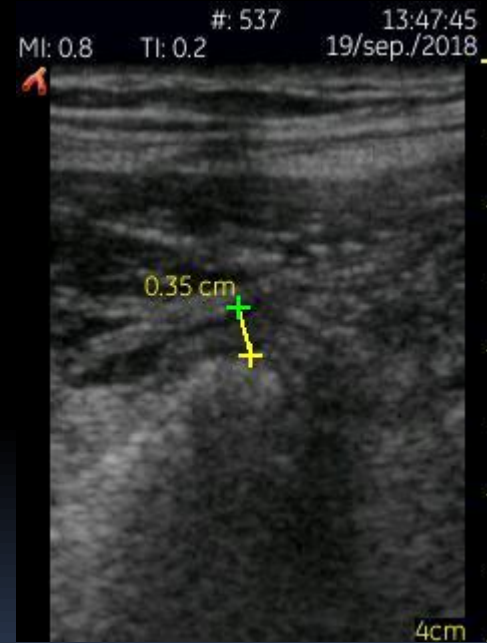
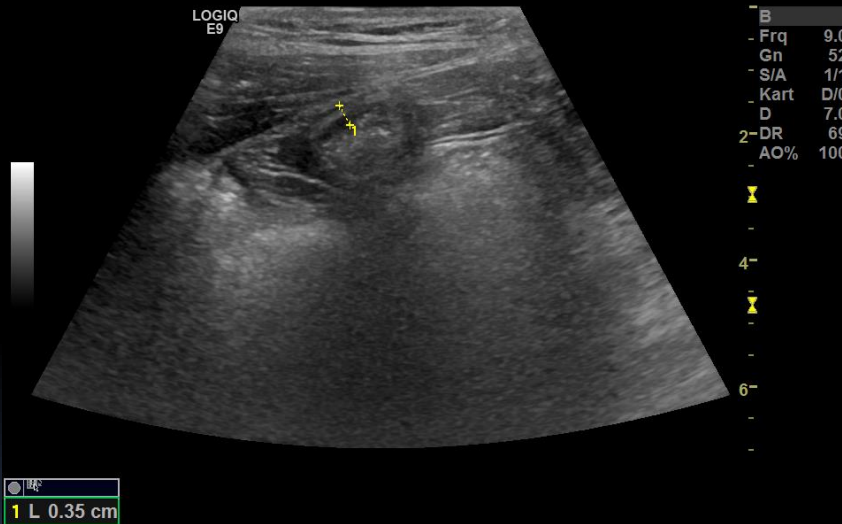
R^2 0,946, $p < 0,0005$

Mesenteriell fettvevsreaksjon (creeping fat, fatty wrapping)

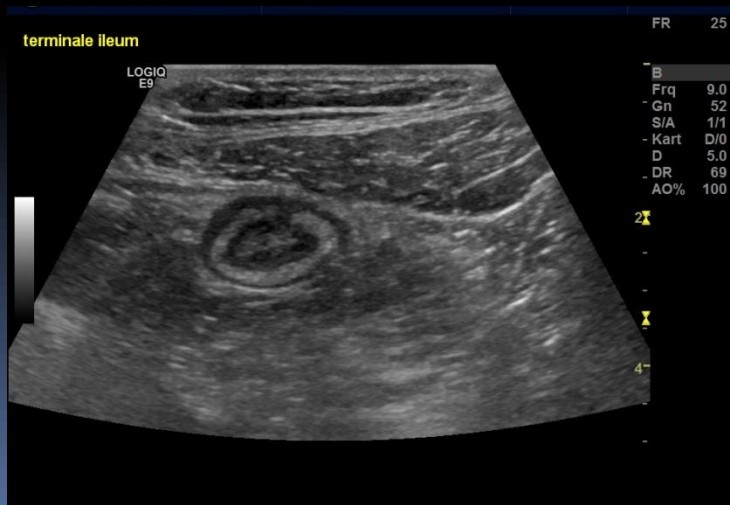
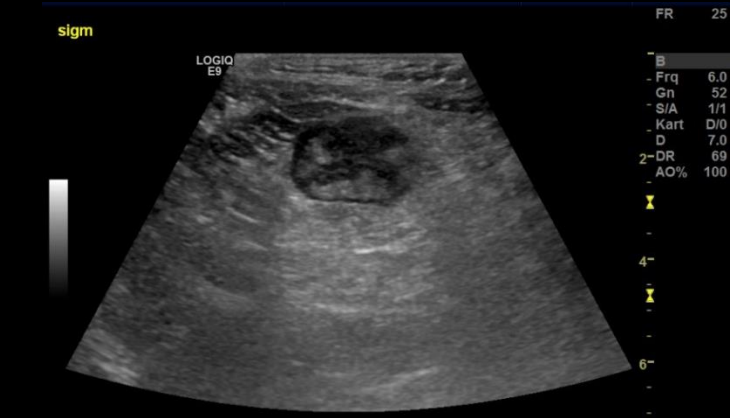


Ekkogen lagdeling: Bevart

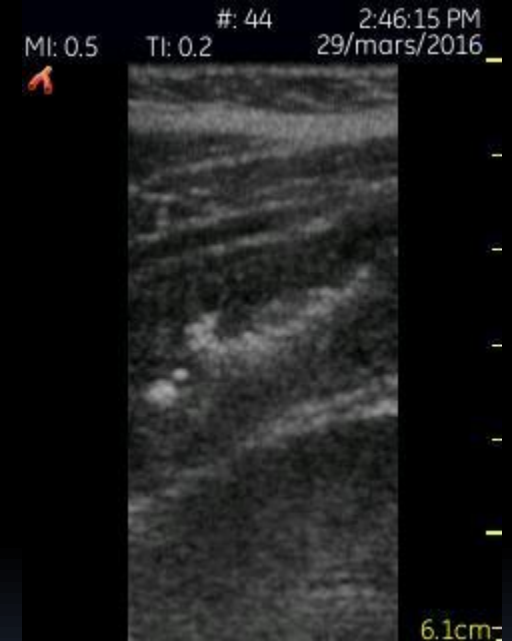
term II



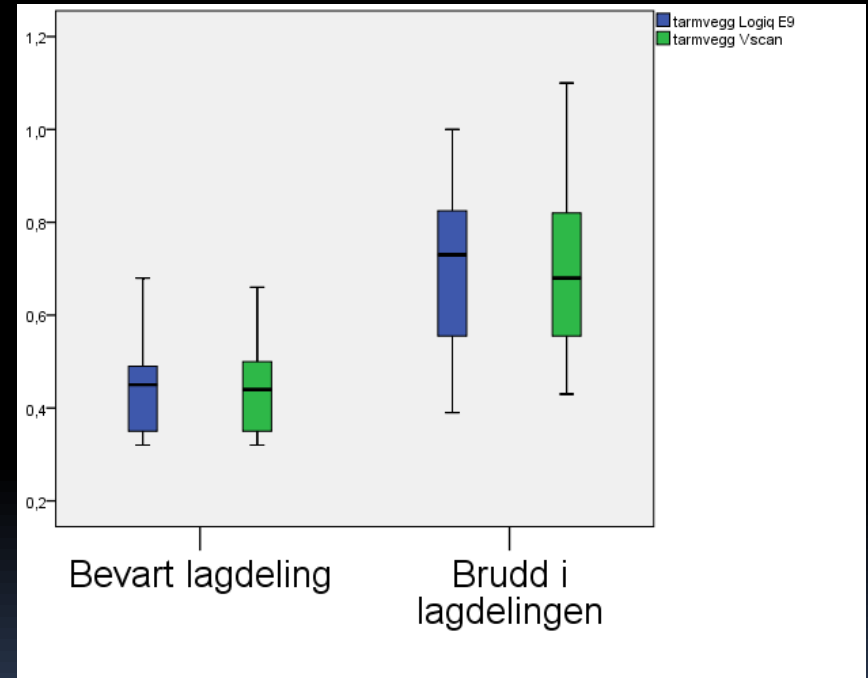
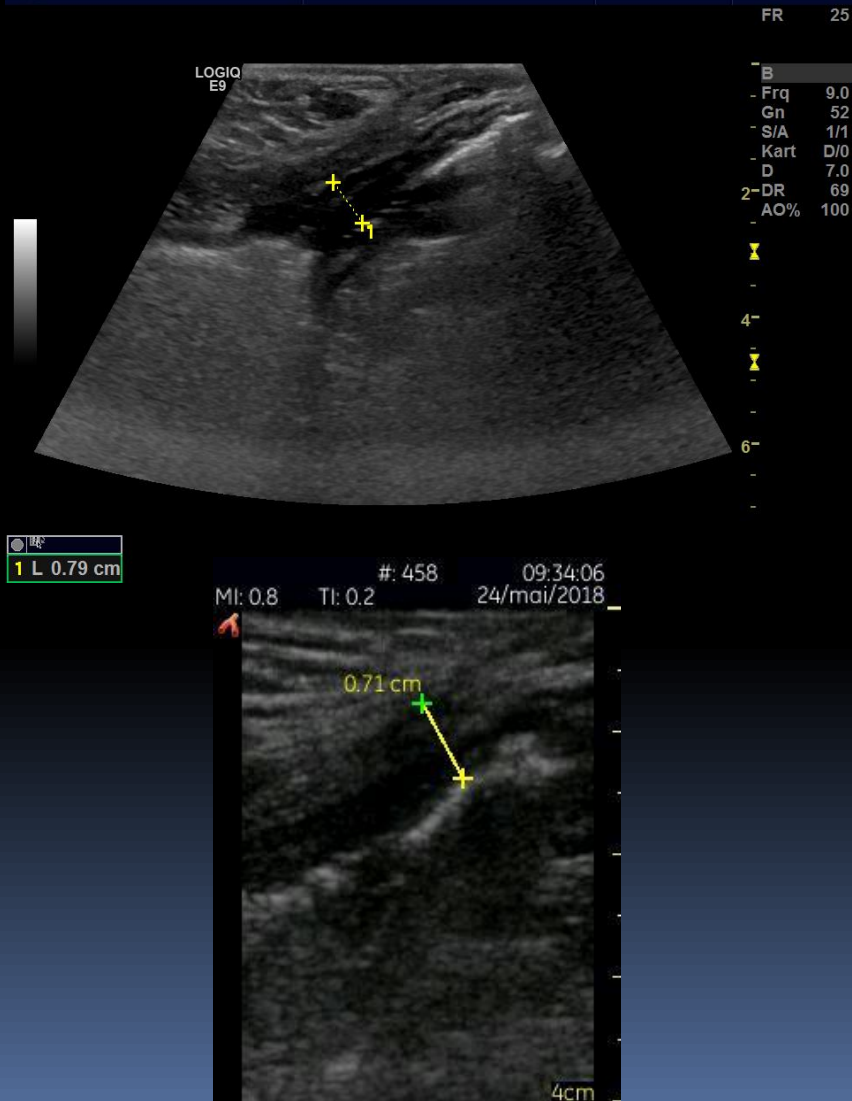
Ekkogen lagdeling: Fokalt tap



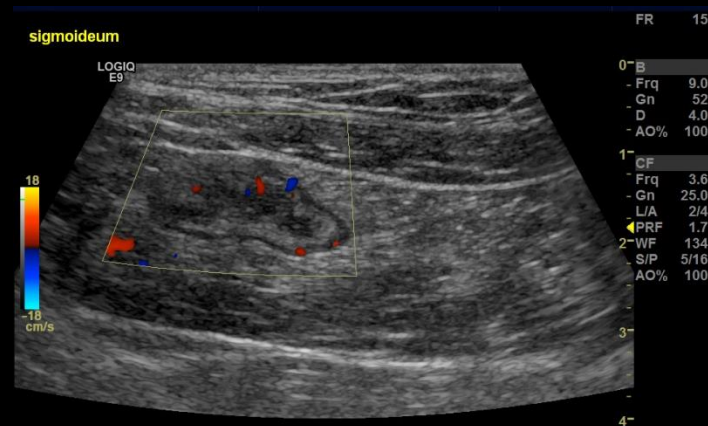
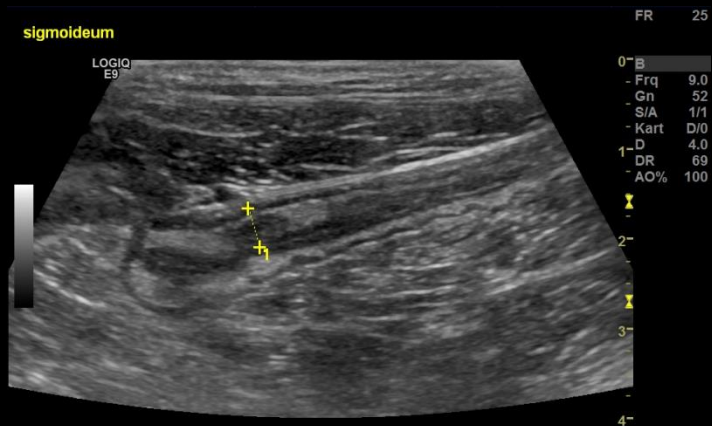
Ekkogen lagdeling: Diffust tap



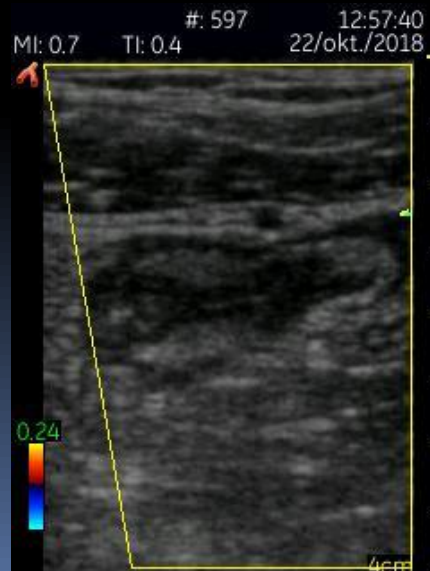
Veggtykkelse og lagdeling



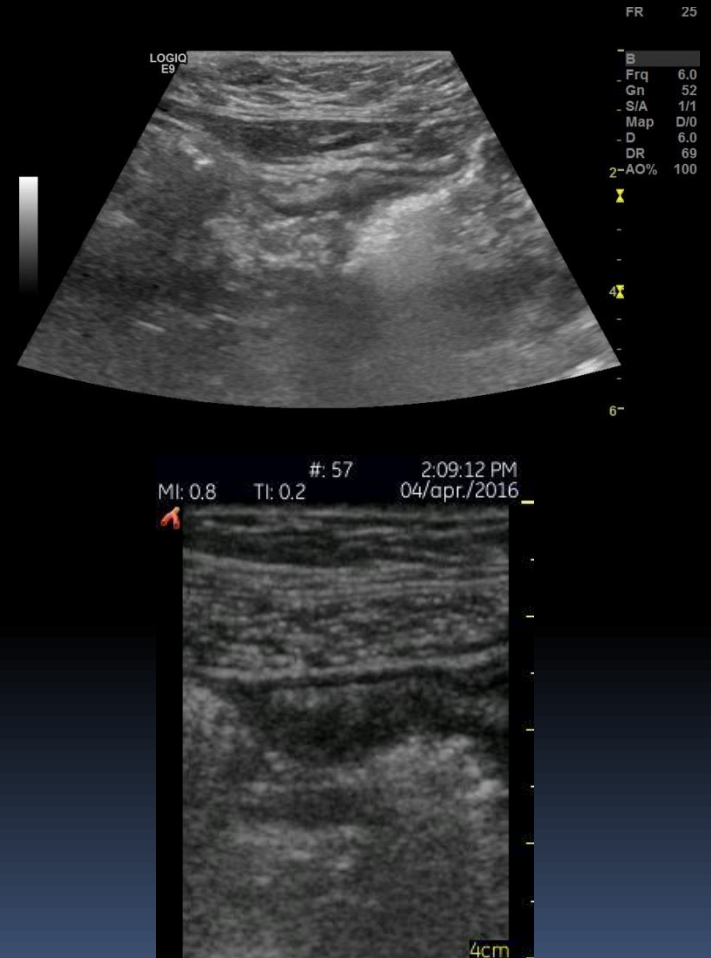
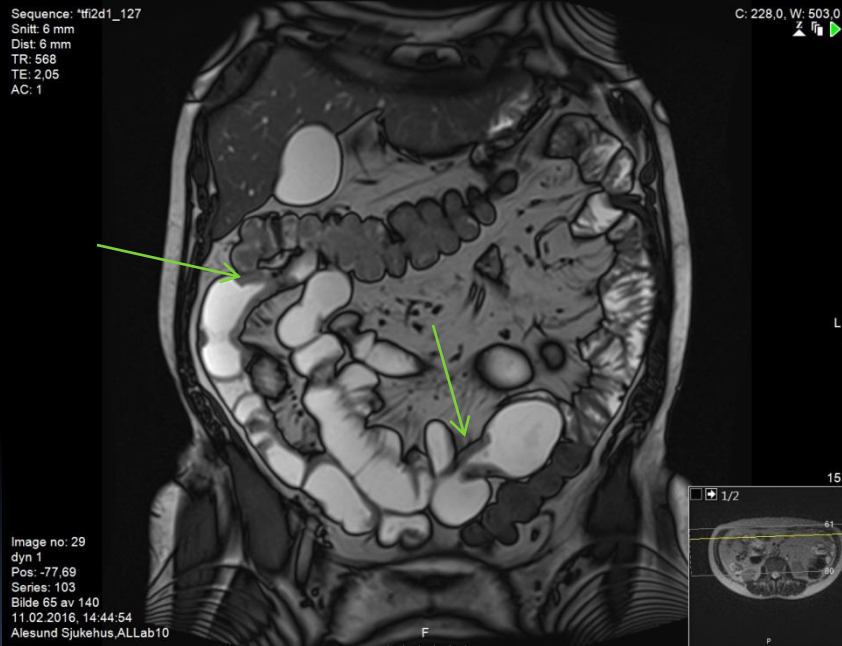
Hyperemi i tarmveggen

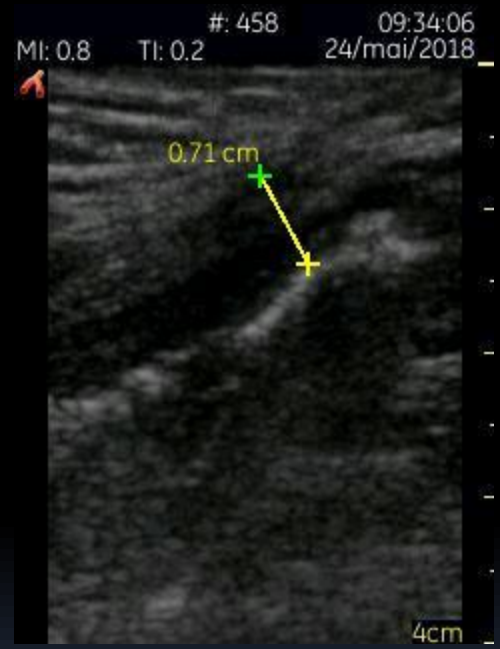
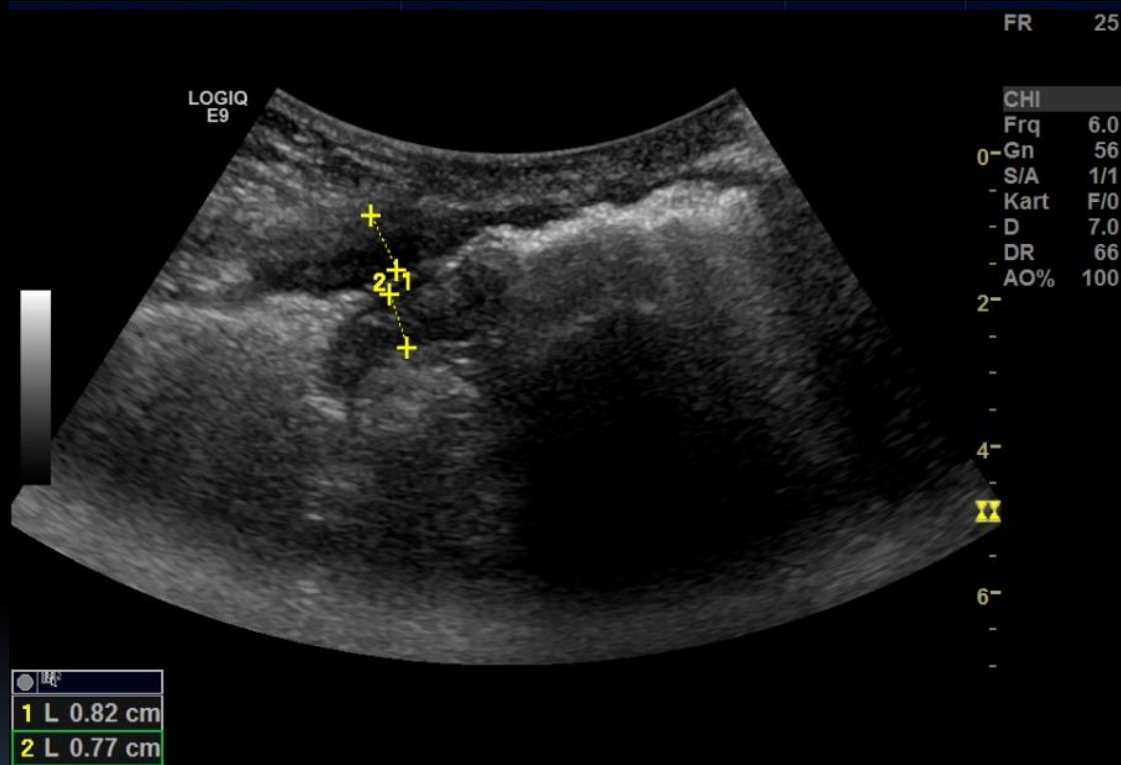


1 L 0.45 cm

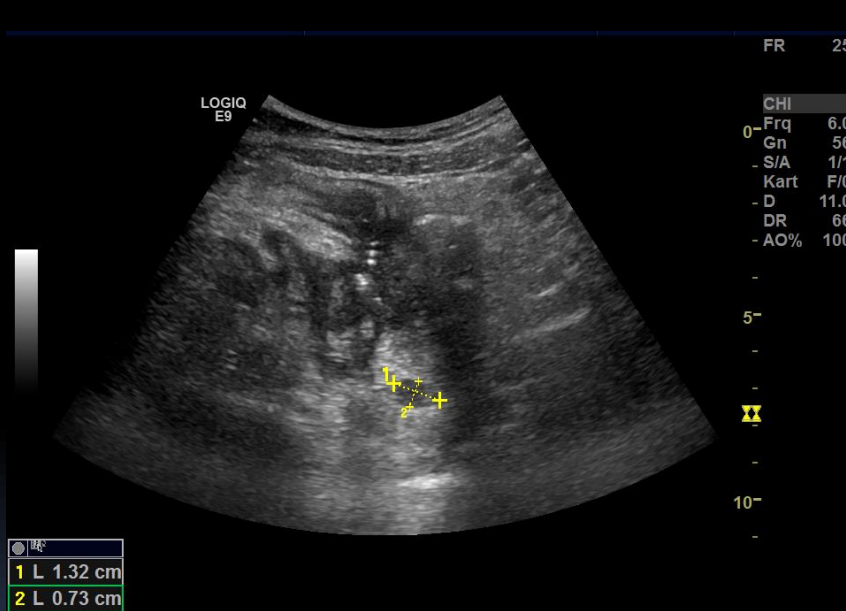


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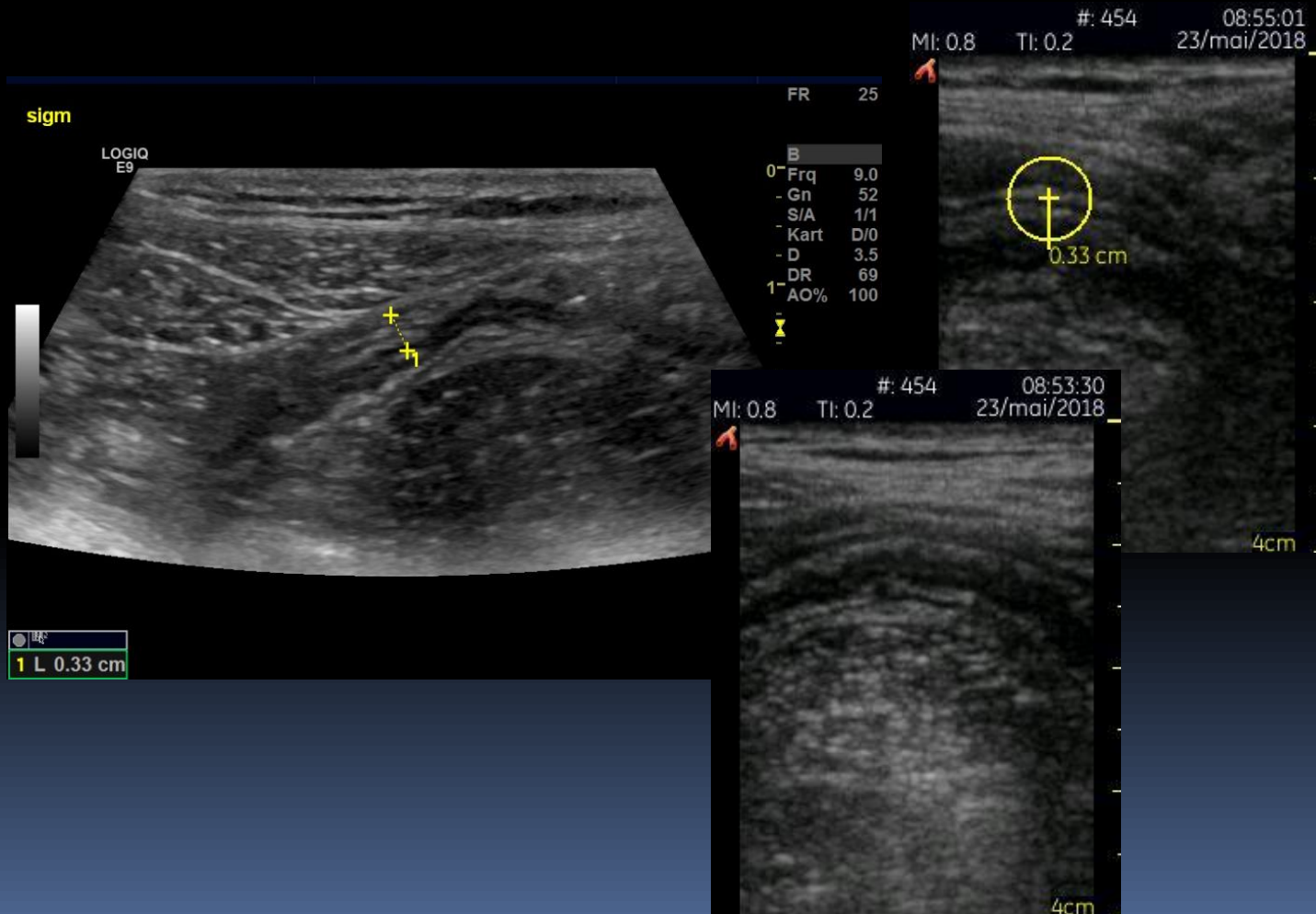




Terminal ileitt med abscess



Ulcerøs kolitt (UC): Inflammasjon i mucosa

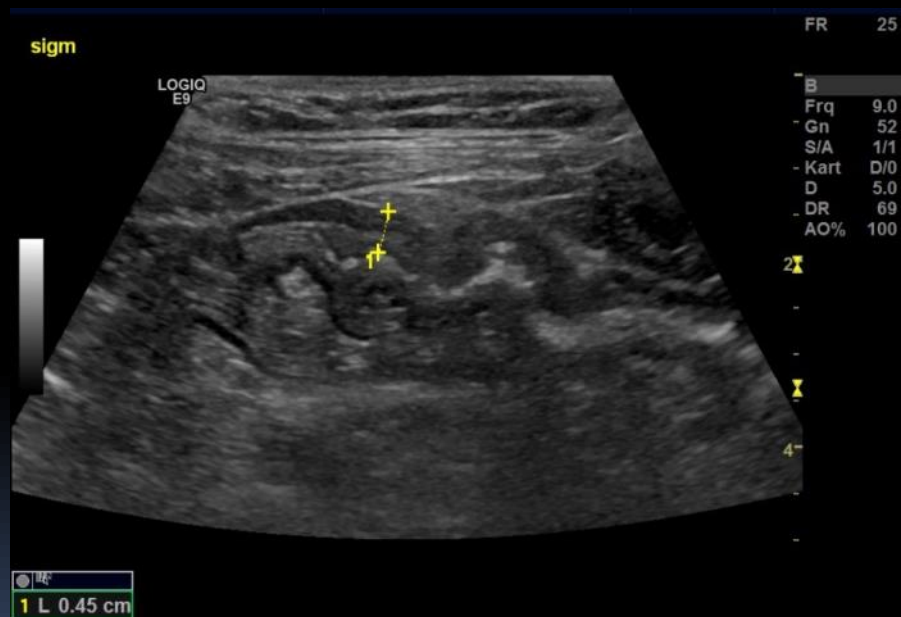
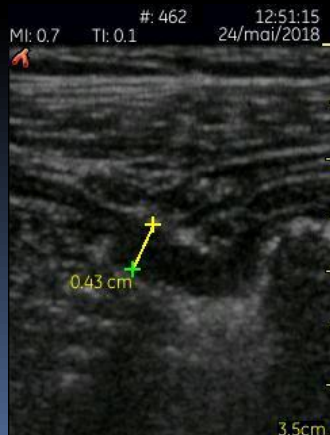


V.Sidig ulcerøs kolitt

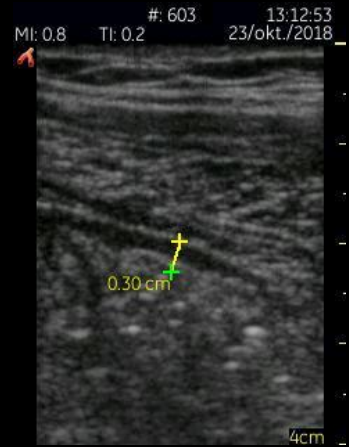
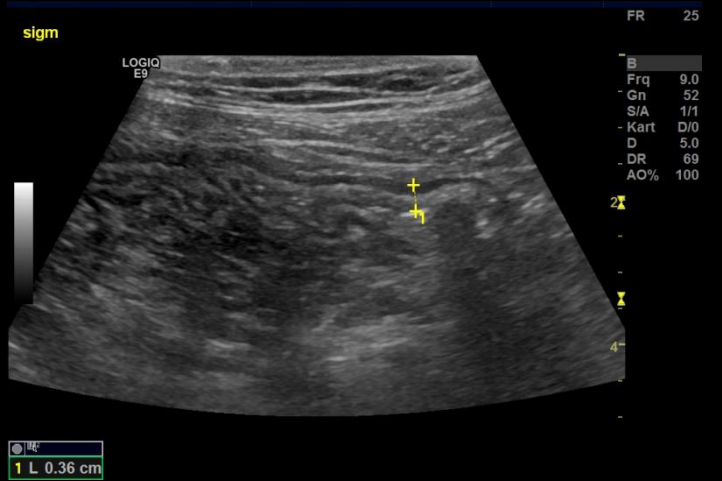
Sigmoideum



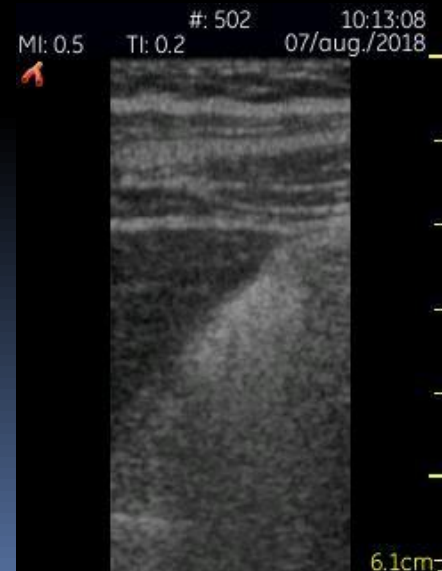
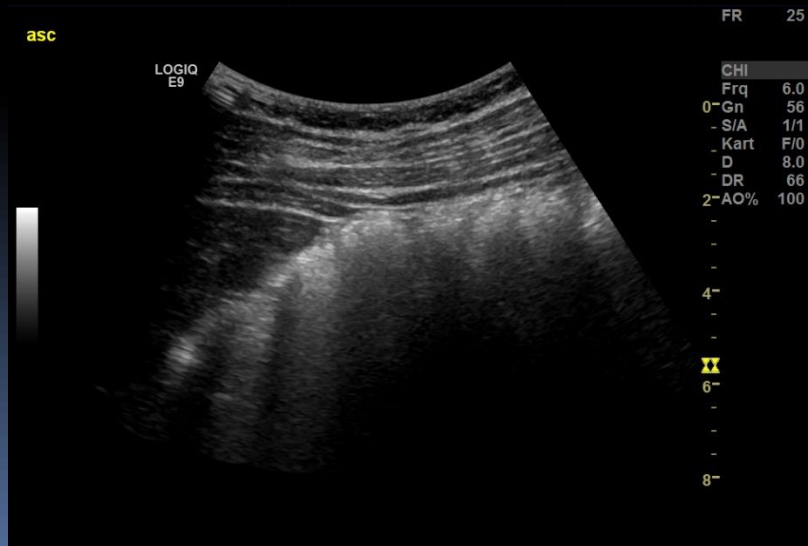
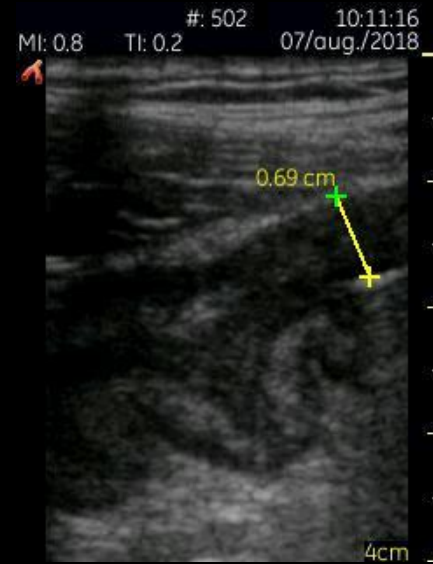
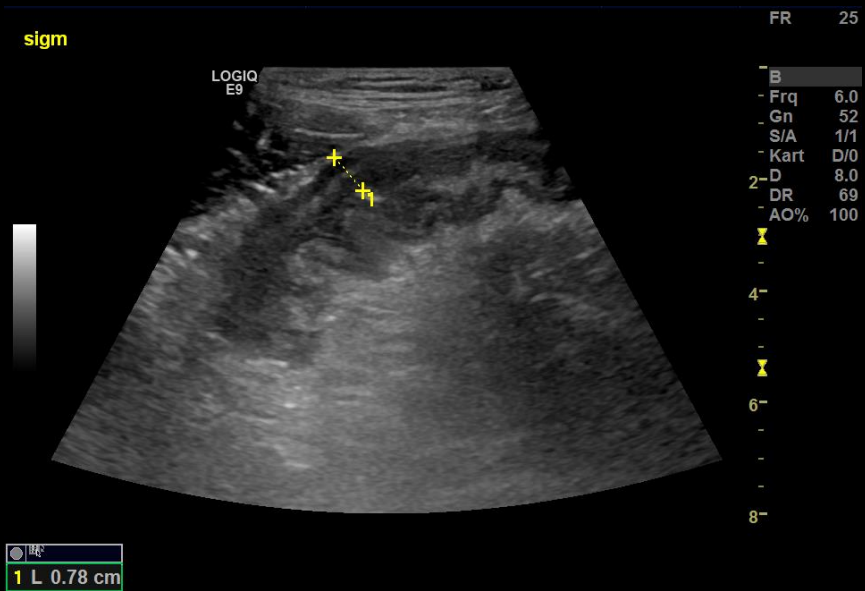
Etter 3. infusjon IFX



7 mndr IFX



UC: utbredelse



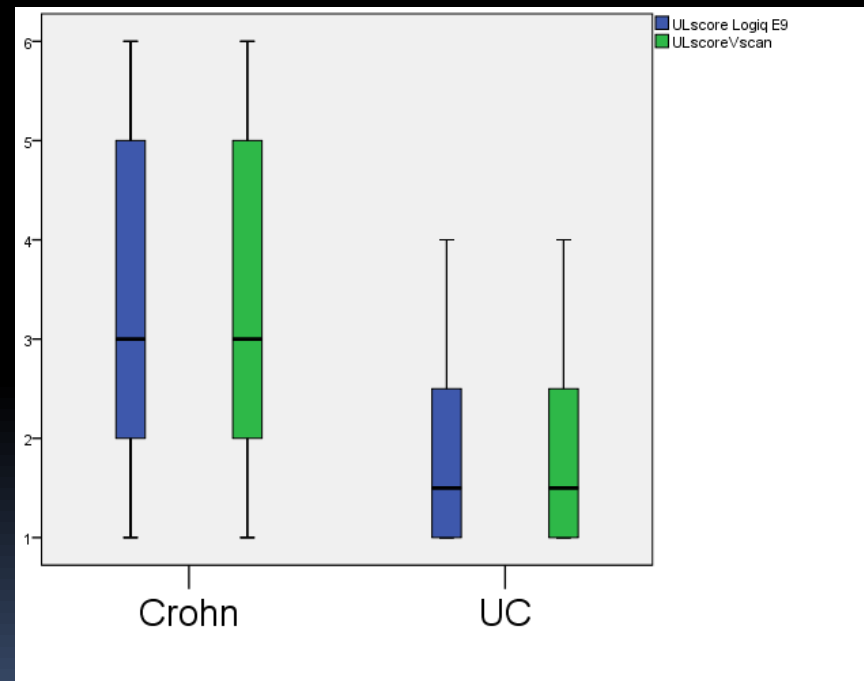
Enkel UL-skår (ULS) av det mest patologiske tarmavsnittet ved IBD

Definisjon av variabler

Veggtykkelse (0-3)	
Lagdeling (0-2)	
Fettvevsreaksjon (0-1)	
Skår (0 – 6):	

	0	1	2	3
Tarmens veggtykkelse	<3,0 mm	3,0-4,9 mm	5,0-7,9 mm	≥8,0 mm
Lagdeling	Normal	Fokalt tap	Diffust tap	
Fettvevsreaksjon	Fravær	Til stede		

ULS: Crohn vs. UC



Litteratur: Kun en poster om Vscan ved IBD



Digestive and Liver Disease
Volume 50, Issue 2, Supplement, 15 March 2018, Pages e196-e197



Posters
P.07 IBD 2

P.07.9 REPRODUCIBILITY AND DIAGNOSTIC ACCURACY OF THE POCKET-SIZE ULTRASOUND DEVICES FOR THE STUDY OF BOWEL

A. Costantino, M. Fraquelli, M. Giunta, S. Arona, G. Casazza, D. Conte

[Show more](#)

[https://doi.org/10.1016/S1590-8658\(18\)30559-0](https://doi.org/10.1016/S1590-8658(18)30559-0) [Get rights and content](#)

[Previous article in issue](#) [Next article in issue](#)

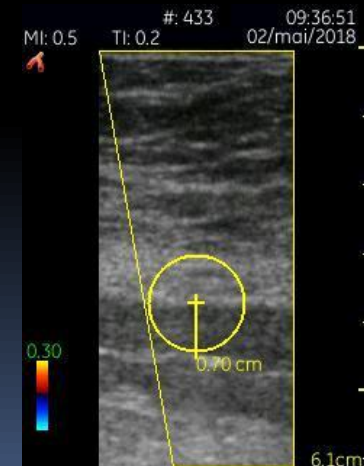
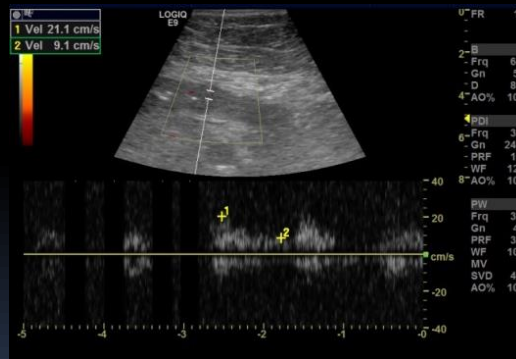
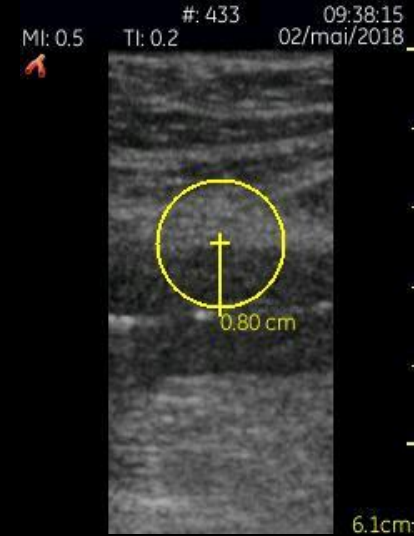
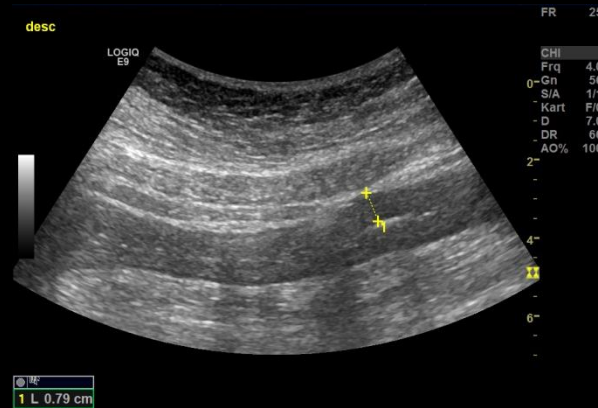
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Reproducibility	Kappa index (95% CI)
Normality of the exam	0.849 (0.769-0.928)
Bowel wall thickening (BWT)	0.838 (0.765-0.926)
Length of the thickened bowel	0.849* (0.805-0.884) *ICC
Bowel wall pattern	0.732 (0.595-0.869)
Mesenteric hypertrophy (MH)	0.635 (0.436-0.834)
Enlarged mesenteric lymph nodes	0.650 (0.498-0.803)
Free fluid	0.876 (0.786-0.966)
Stenosis	0.650 (0.390-0.911)
Abscesses	0.659 (0.297-1.000)
Fistula	0.272 (0.169-0.715)
Increased bowel wall flow	-0.001 (0.017-0.003)



**HVA SÅ MED AKUTT ISKEMISK
KOLITT?**

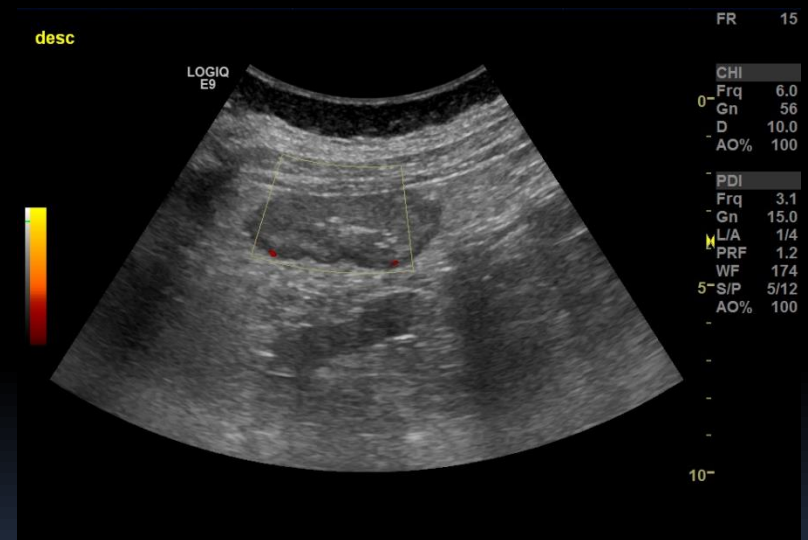
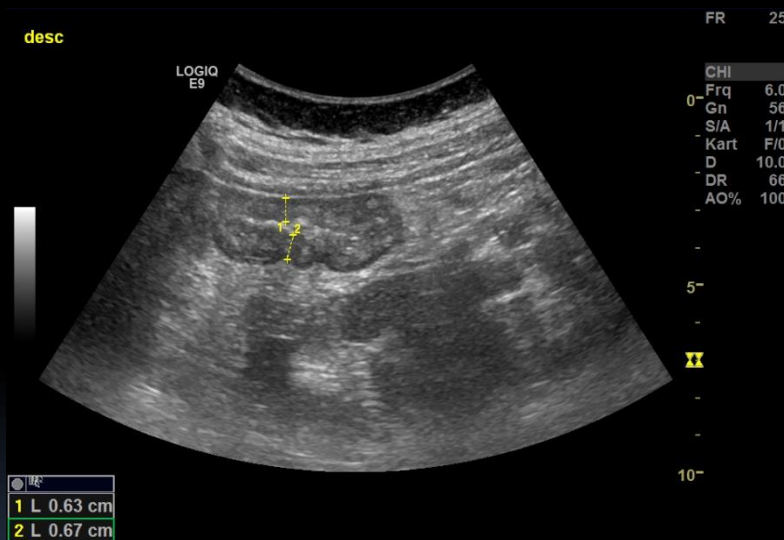
AIK Pas 1

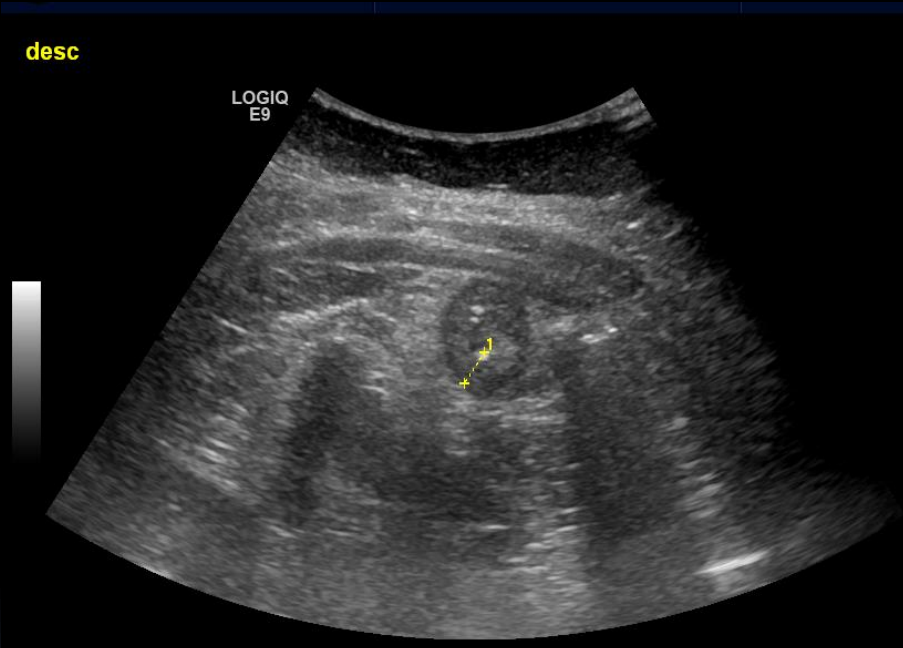


AIK Pas 2

Descendens

3 dager etter smertedebut





desc

LOGIQ
E9

1 L 0.73 cm

MI: 0.5 #: 460 11:25:44
 TI: 0.2 24/mai/2018

FR

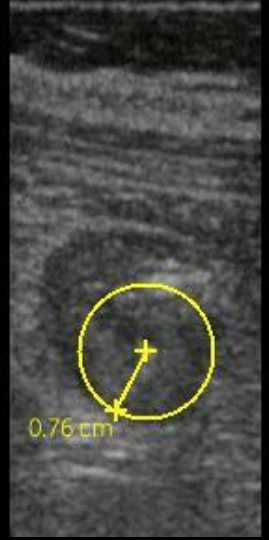
CHI
 Frq
 Gn
 S/A
 Kart
 D
 DR
 AO%

0
 5
 10

MI: 0.5 #: 460 11:25:44
 TI: 0.2 24/mai/2018

6.1cm

6.1cm



0.76 cm



6.1cm

AIK Pas 3

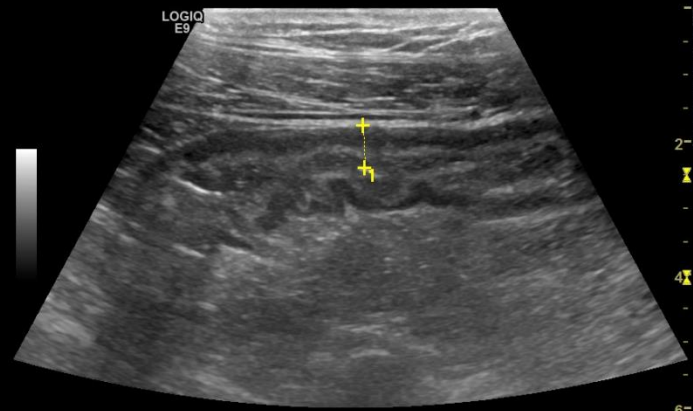
Bilde 58 av 168
 Snitt: 3 mm
 Contrast: Iodine
 Gantry: 0°
 Time: 617 ms
 Pos: PFS
 FOV: 395 mm



C: 50.0, W: 360.0
 Ct=50.0, W=360.0 1/11
 80 sek cor, (Close R)

F: B
 126 mA
 120 kV
 Image no: 58
 Bilde 58 av 168
 Aalesund Sjukhus, ALLab5
 27.10.2016, 16:38:38

sigm

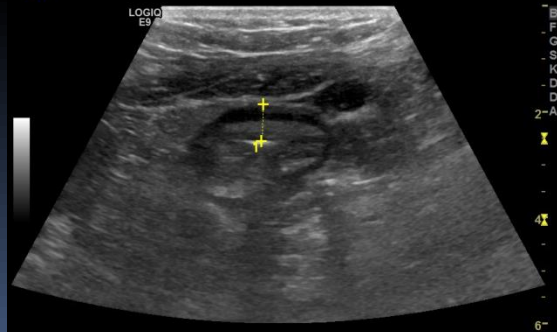


FR 25

B
 - Frq 9.0
 - Gn 52
 - S/A 1/1
 - Kart D/0
 - D 6.0
 - DR 69
 2-AO% 100

1 L 0.64 cm

sigm

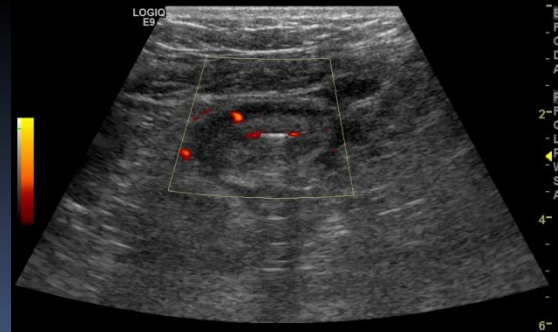


FR 25

B
 - Frq 9.0
 - Gn 52
 - S/A 1/1
 - Kart D/0
 - D 6.0
 - DR 69
 2-AO% 100

1 L 0.70 cm

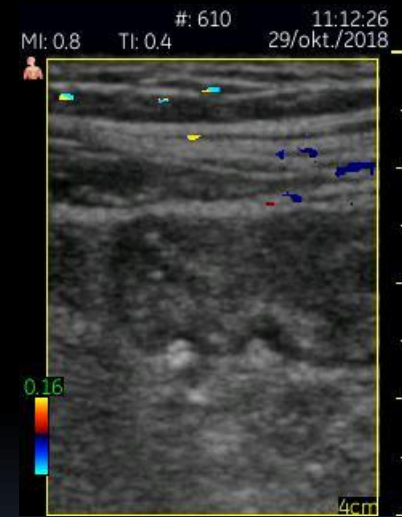
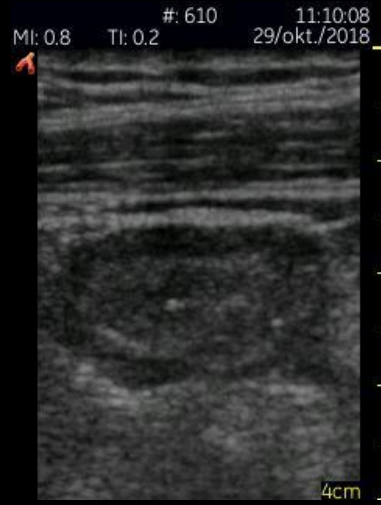
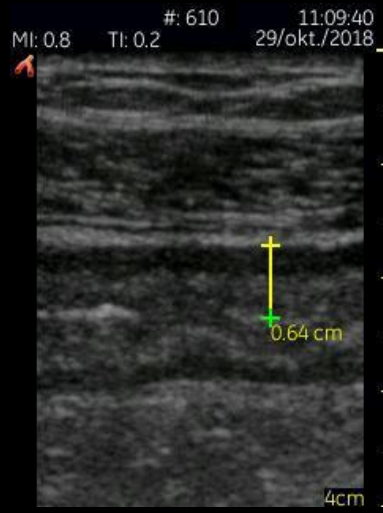
sigm



FR 13

B
 - Frq 9.0
 - Gn 52
 - D 6.0
 - AO% 100
 PDI
 2-Frq 3.6
 - Gn 24.0
 - LJA 2/4
 - PRF 1.1
 - WF 119
 - S/P 4/16
 - AO% 100

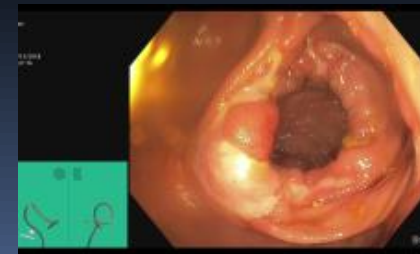


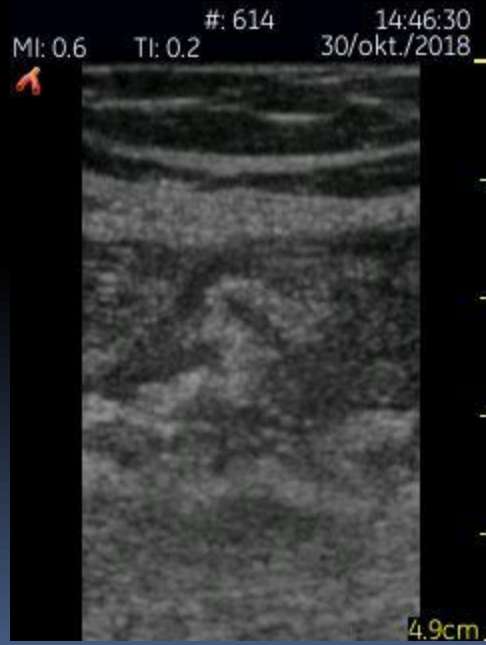
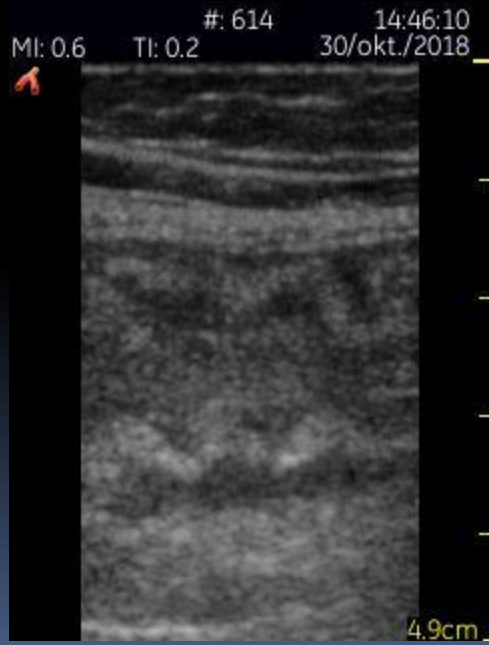
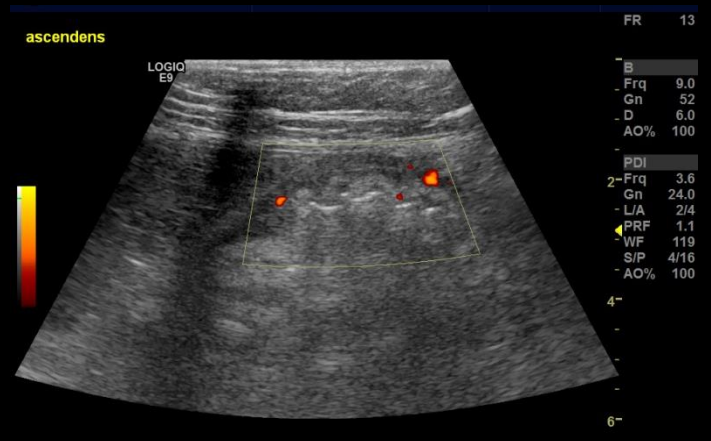
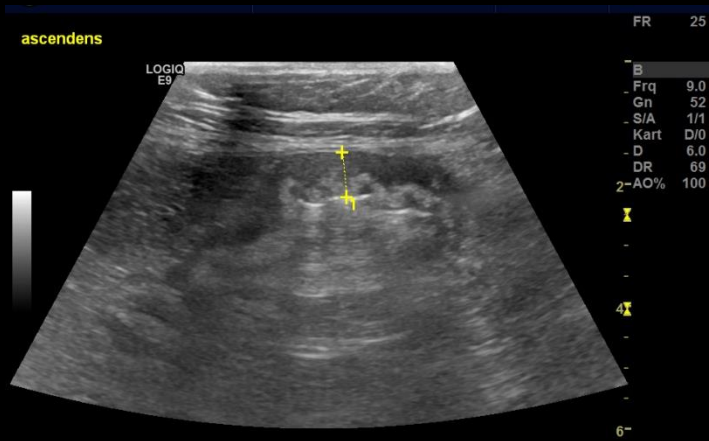


AIK Pas 4



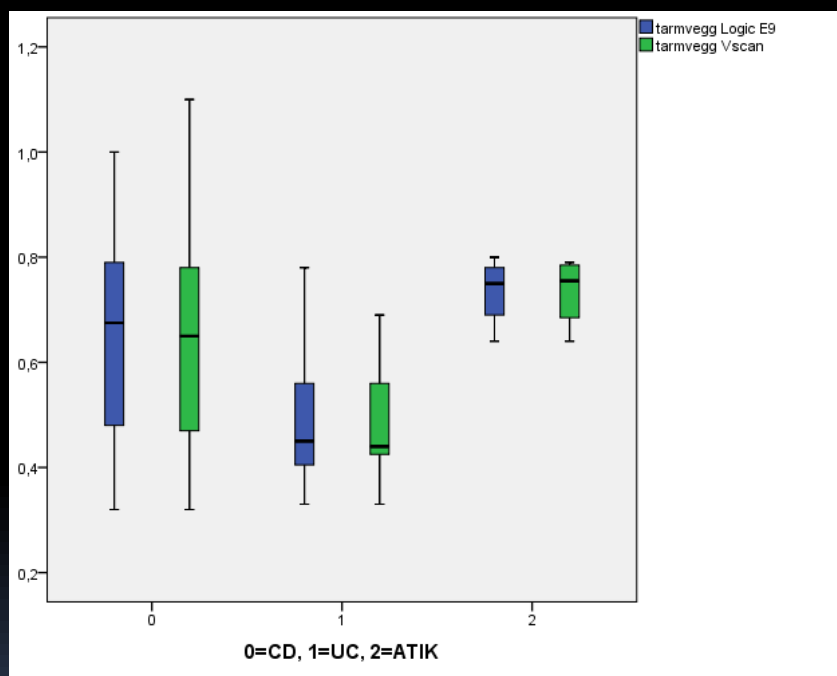
- Akutte magesmerter nedad høyre side
- Diare dagen etter
- 40 års røykeanamnese





Veggtykkelse AIK vs IBD

- 14 CD
- 8 UC
- 4 AIK



Konklusjon

- Vscan Dual Probe kan brukes diagnostisk av IBD og AIK
 - Deteksjon og utbredelse av patologisk tarm
 - Vurdere alvorlighetsgraden av inflammasjon
- Begrensninger:
 - Doppler ikke god nok til å påvise mural hyperemi
 - Skjermbildet er av dårligere kvalitet enn Logiq E9