

Multimodal bildframställning av carotisplaque- Initiala erfarenheter från Linköping Universitetssjukhus

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Duplex ultraljud

- Duplex ultraljud, preop utredning carotisstenos
- 2D,3D

Carotisstenos

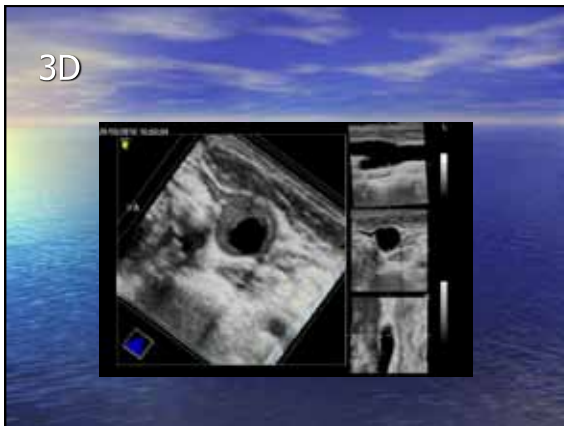
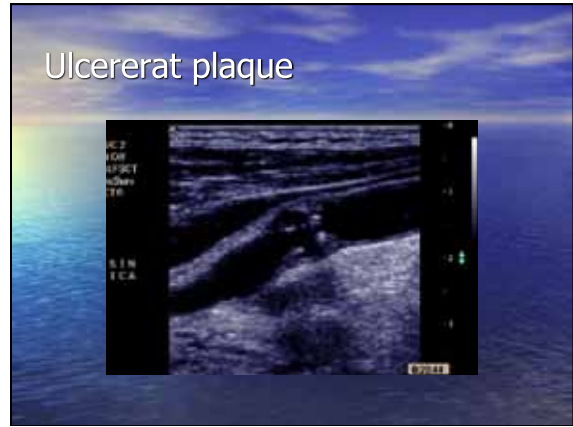
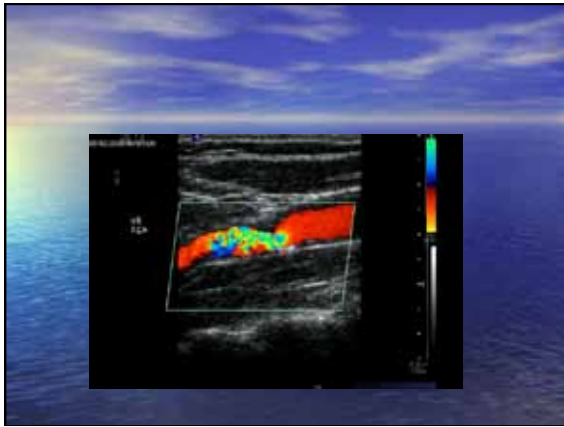
- NASCET: N Engl J Med 1998;339:1415-1425
- ECST : Lancet 1998: 351:1379-87
- ACAS : JAMA 1995: 273: 1421-1428
- ACST Lancet 2004:363:1491-1502

Vulnerabelt plaque

- Duplex ultraljud 2D, 3D
- CT, flera energinivåer DECT
- MR
- TCD: mikroembolisering

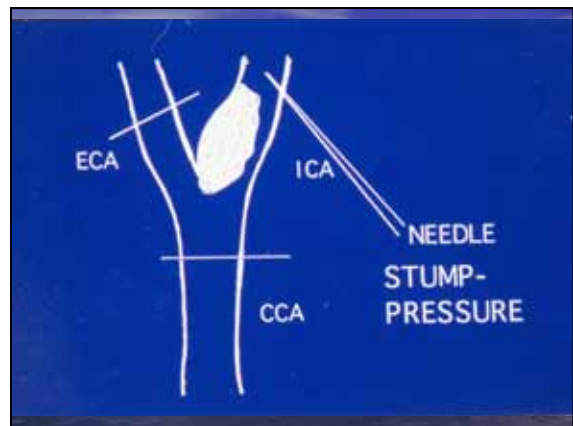
Carotisstenos

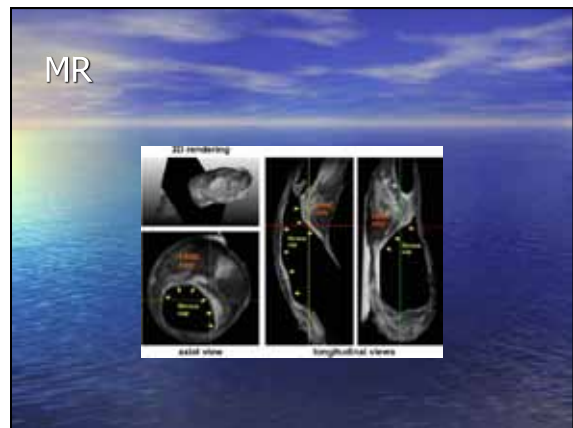
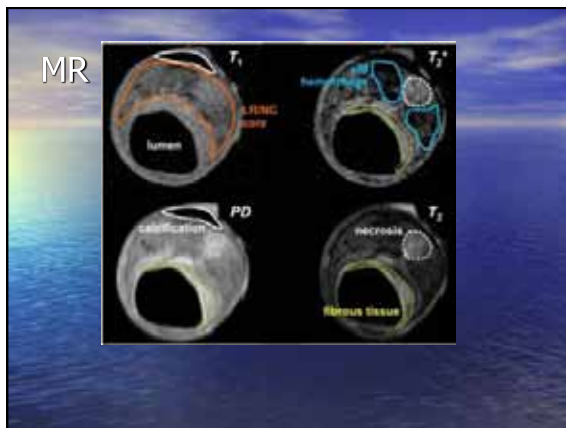
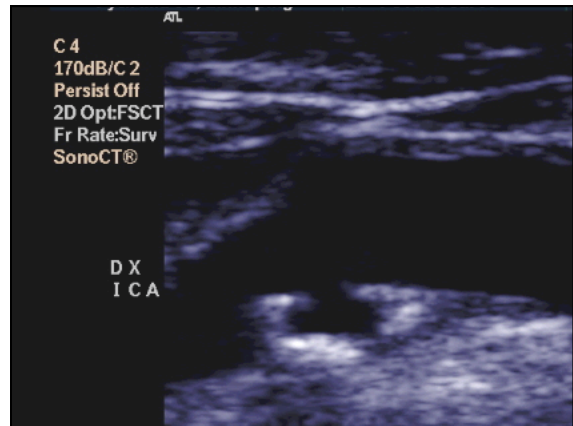
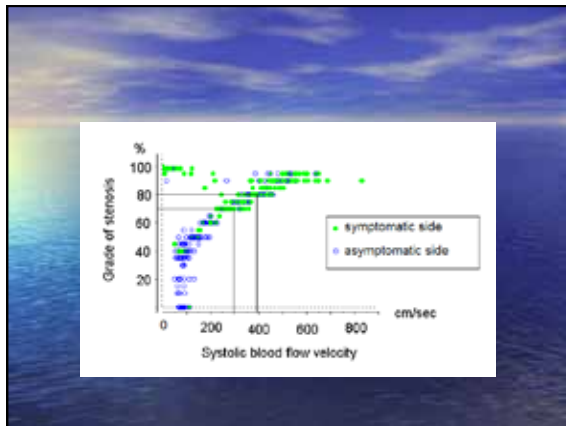
- Flödeshastighet
- Plaquemorfologi: ekogenicitet, ytegenskaper



- ### Stenosgradering
- Stenosgradering NASCET, ECST
 - NASCET: diameter i ICA distalt om stenosen (referens normaldiameter)
 - ECST: uppskattning av ursprunglig kärldiameter i stenosområdet.
 - ECST-metod högre stenograder än NASCET
 - (70% NASCET = 80% ECST)

- ### CEA
- CEA indicerad Vs >3.0 m/s (80-95 % ECST)
 - CEA indicerad viss reservation: 2.5-3 m/s : 70-80% stenosis ECST
 - CEA ej indicerad <2.5 m/s ($<70\%$ ECST).
 - $>99\%$ ej indicerad





DECT

- Ökade möjlighet vävnadskaraktäristik
- Mjuka vävnadskomponenter; lipid, tromb
- Pilotstudie ultraljud; DECT jfr histologi
- DECT Somatom Definition Dual source CT system, 140, 80 kV.

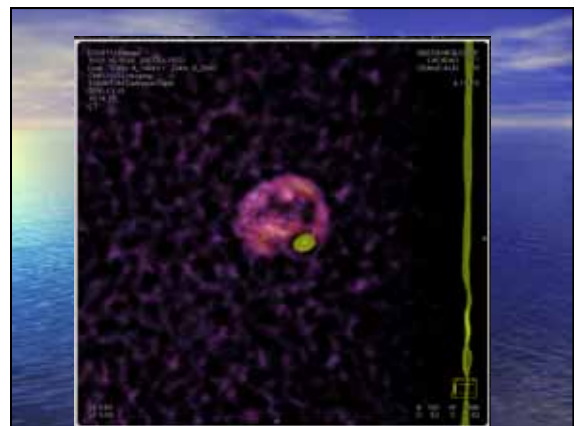
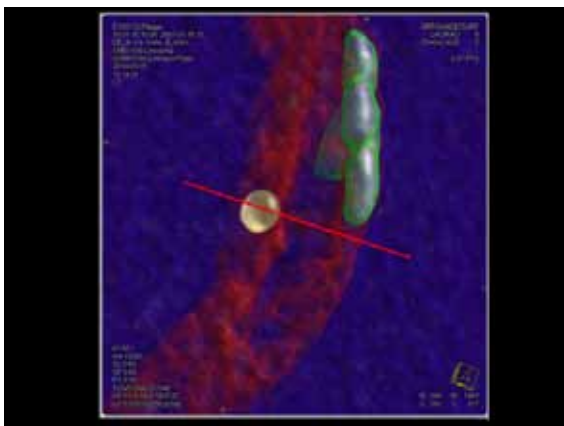
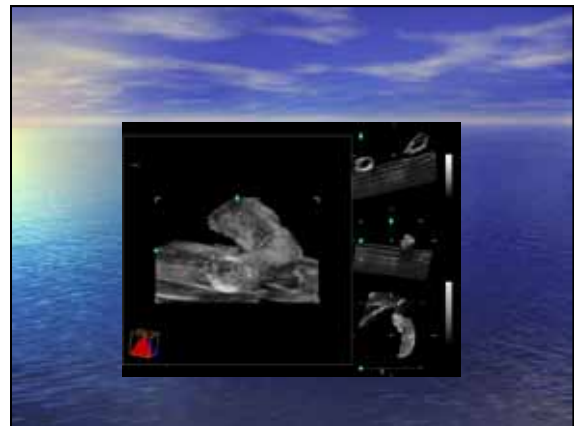
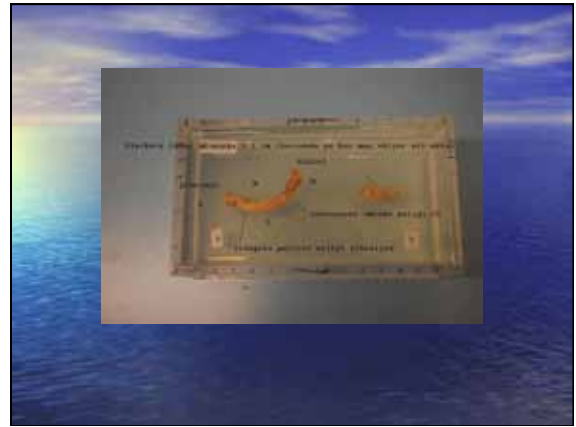
• Zachrisson H, Engström E, Engvall J, Wigström L, Smedby Ö, Persson A. Soft tissue discrimination ex vivo by dual energy computed tomography. Eur Radiol 2010, Mars 8.

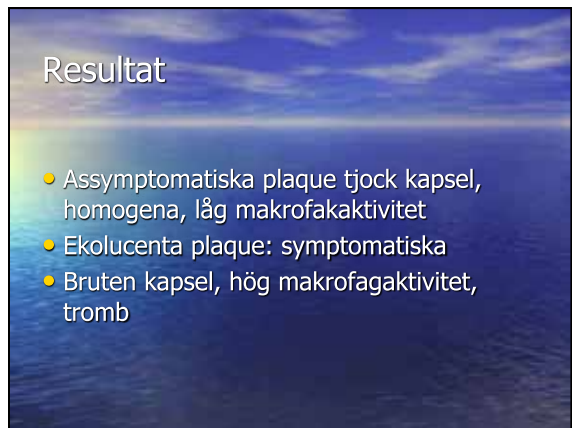
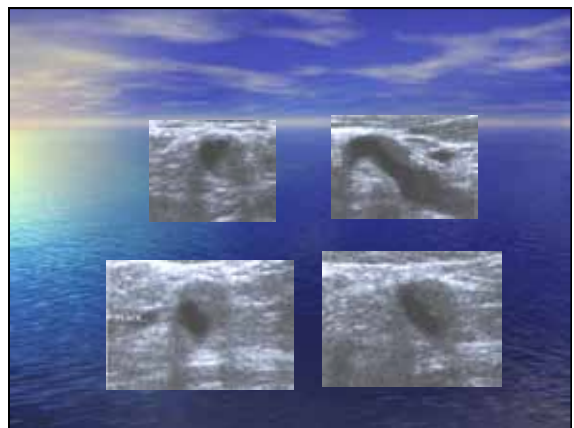
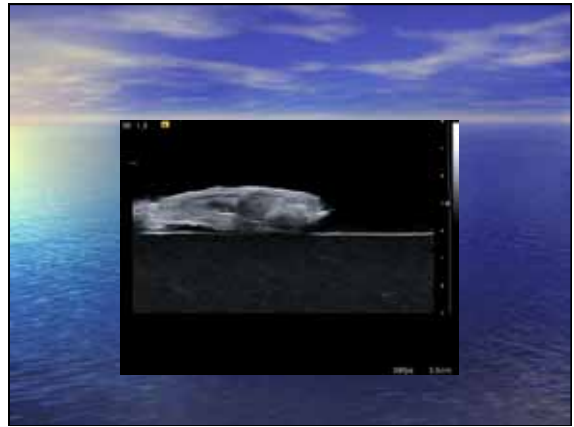
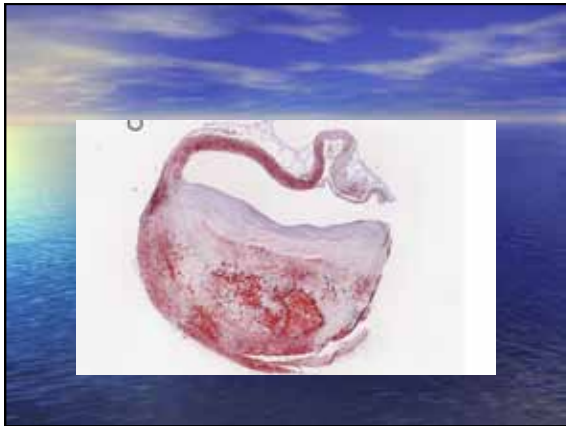
Metod

- Ultraljud 2D, 3D
- DECT
- In-vivo, ex-vivo
- GSM asymptomatiska /symptomatiska
- Plaque-gelatinlösning
- Histologi: Diff fett, tromb, kollagen, glatt muskel, kalk, makrofagtypning

Vulnerabelt plaque

- Ultraljud : plaquetypning, ekogenicitet.GSM : gray scale mean
- Lågekogena plaque, bruten kapsel-hög embolirisk





Sammanfattning

- 3D-ultraljud och DECT, ökade möjlighet identifiering av vulnerabla plaque
- Ytterligare studier definiera klinisk tillämpning.

