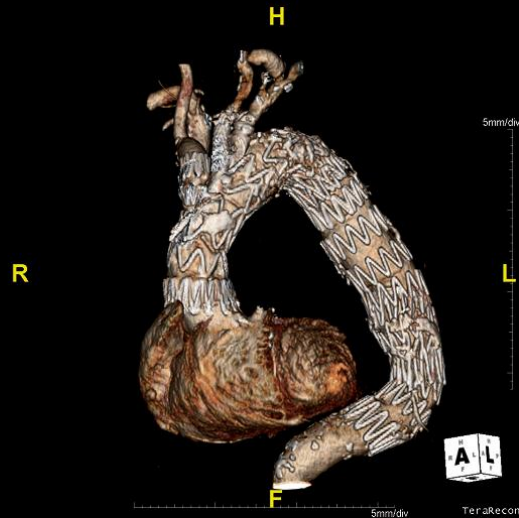




EVAR FOLLOW UP WITH ULTRASOUND

Faculty Disclosure

16TH INTERNATIONAL EXPERTS SYMPOSIUM
CRITICAL ISSUES
in aortic endografting 2012



Ghislaine Deklunder

*I have **no financial relationships**
to disclose.*

May 24 & 25
LILLE, FRANCE **2012**

DUS or CDUS ??

- New imaging modalities including CEUS could reduce risk of harmful side effects (radiation dose and nephrotoxic contrast)
- CEUS improves endoleak detection/DUS and allows comparable results to those of reference imaging modalities
 - **Sensitivity 85-98% vs 66-77%**
Specificity 82 vs 64%, NPV 97 vs 65%, Accuracy 89 vs 63%
 - Endoleaks missed by US are type II with no need for reintervention
- Our experience in Lille
 - Sens 100 vs 85, spec 98 vs 94, NPV 100 vs 94%

Giannoni 2007, Dill-Mackay 2007, Clevert 2008, Deklunder 2009, Iezzi 2009, Manning 2009, Verhoeven 2011

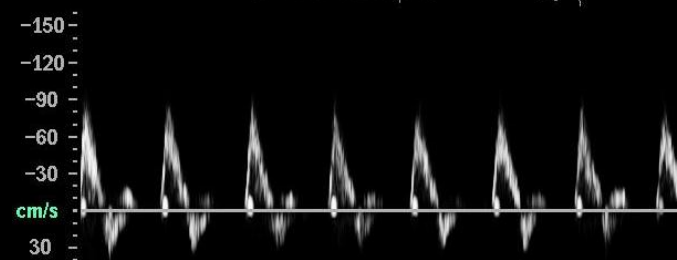
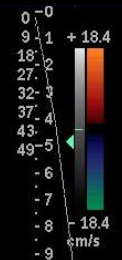
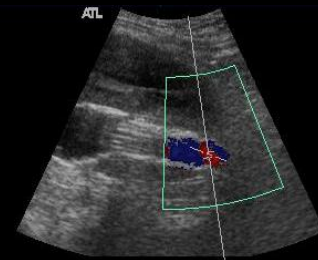
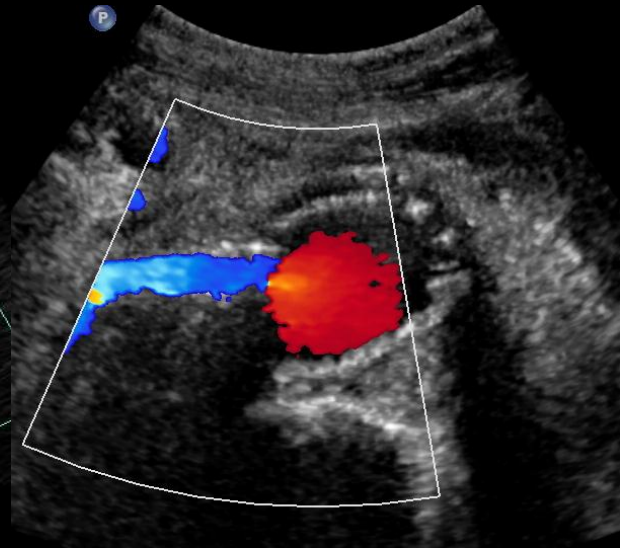
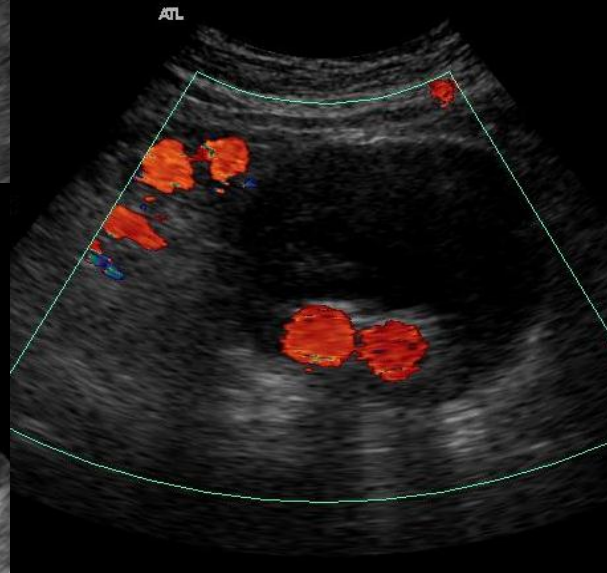
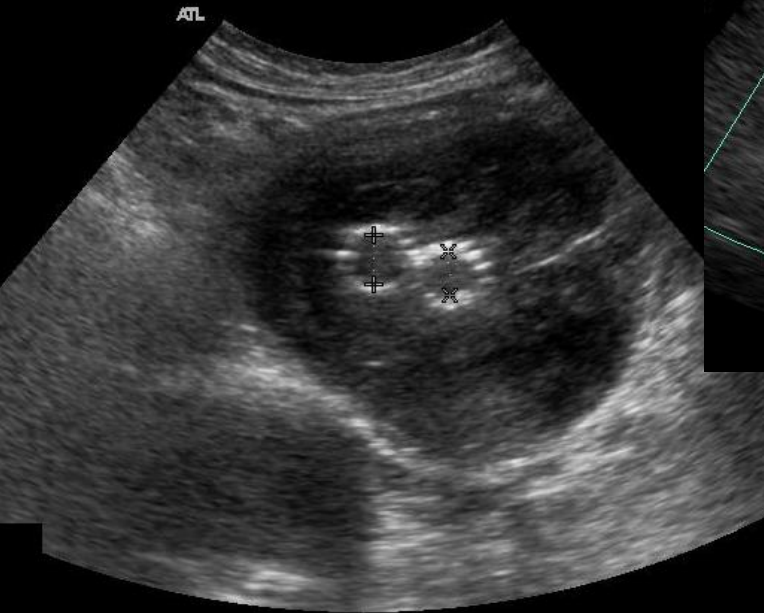
Do we need CEUS in all cases ?

- Early follow up < Day30
- AAA increase in size
- Thrombus modification
- InconclusiveDUS (no accurate classification of endoleak)
- Endoleak follow-up
- After endoleak repair



Normal Aspect

Duplex US



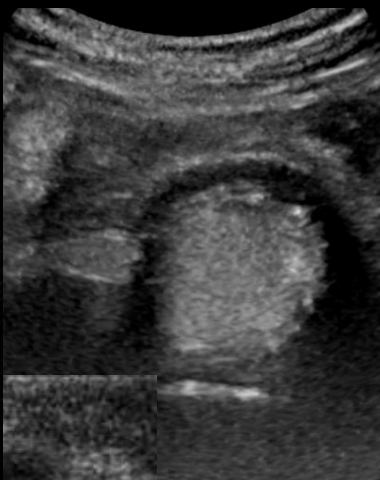
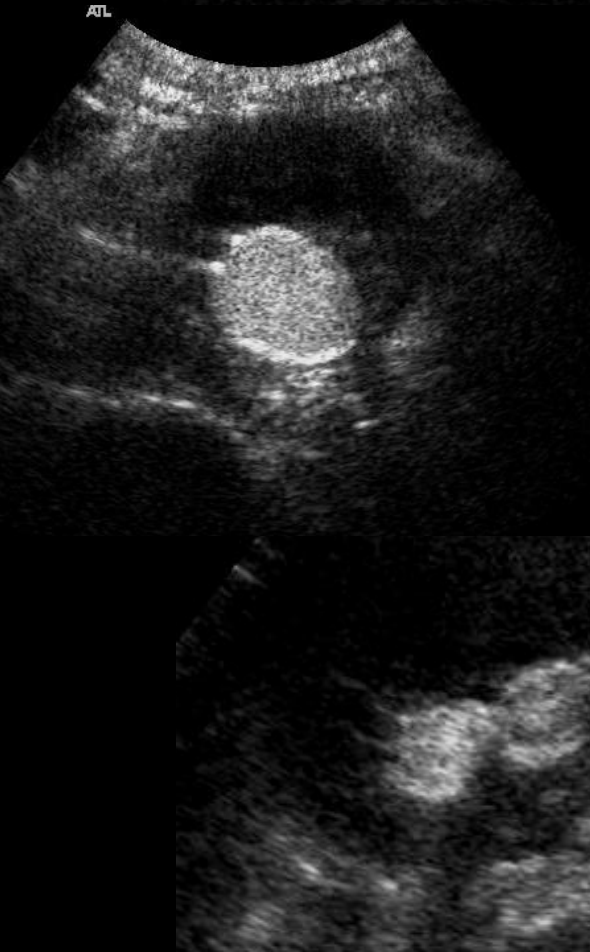
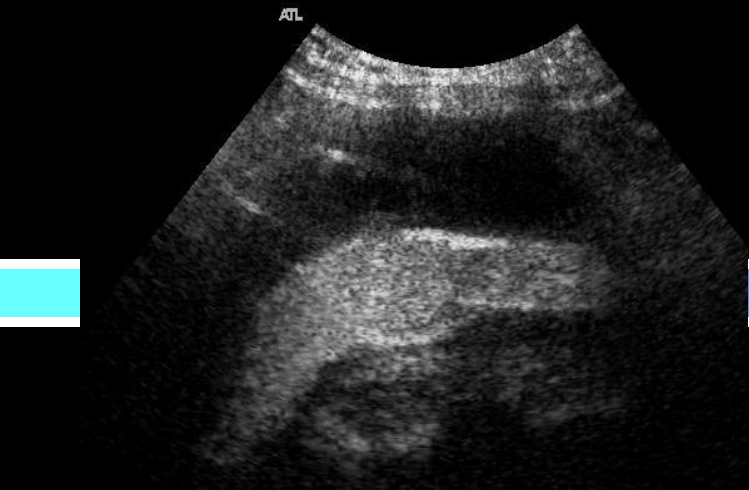
Sac size follow up

Optimal window for EVAR visualization

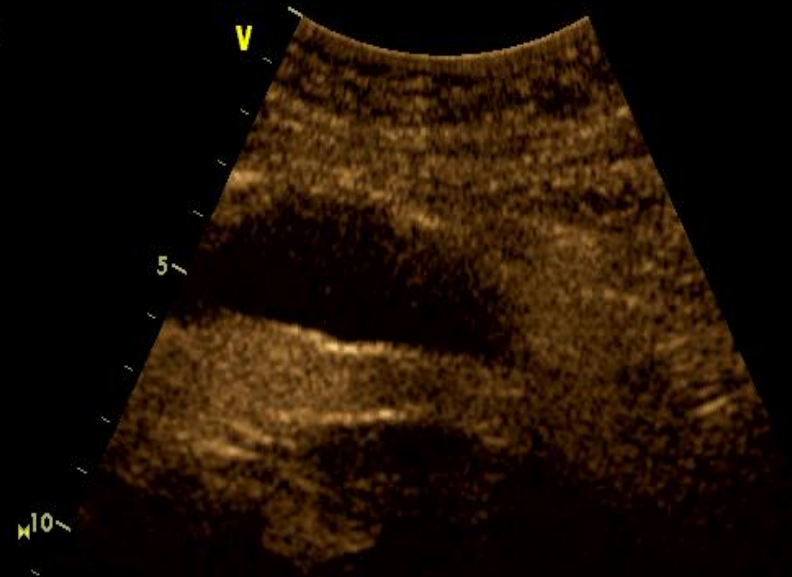
Thrombus and Flow analysis

Normal Aspect

CEUS
CEUS



13:19:53



*Guidelines for the use of contrast agents in US
EFSUMB study group, Ultraschall in Med, 2008*

Color Doppler usefulness

Endoleak detection

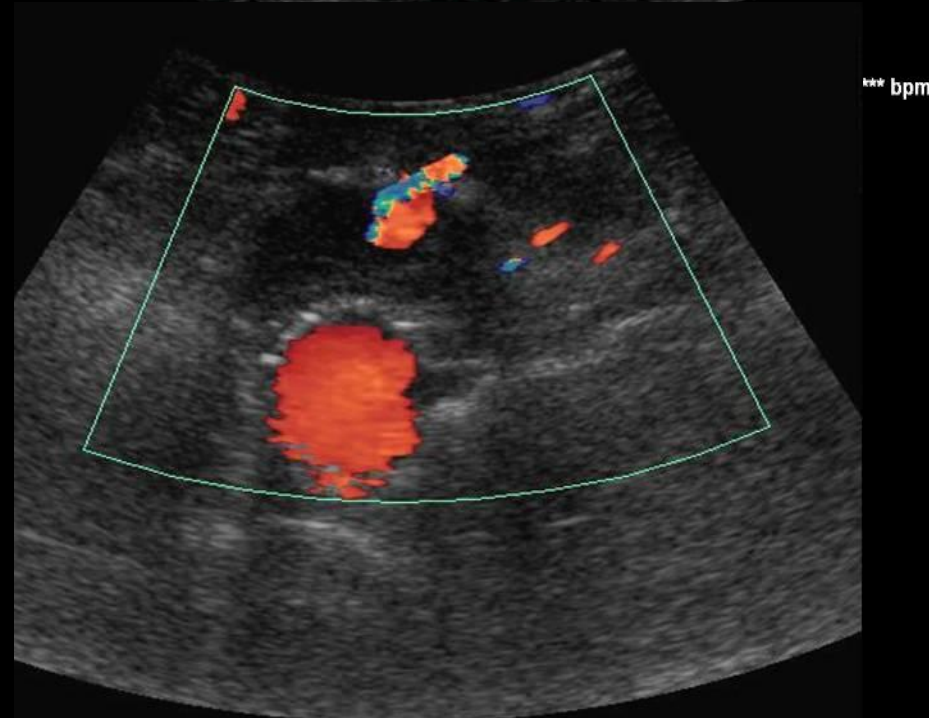
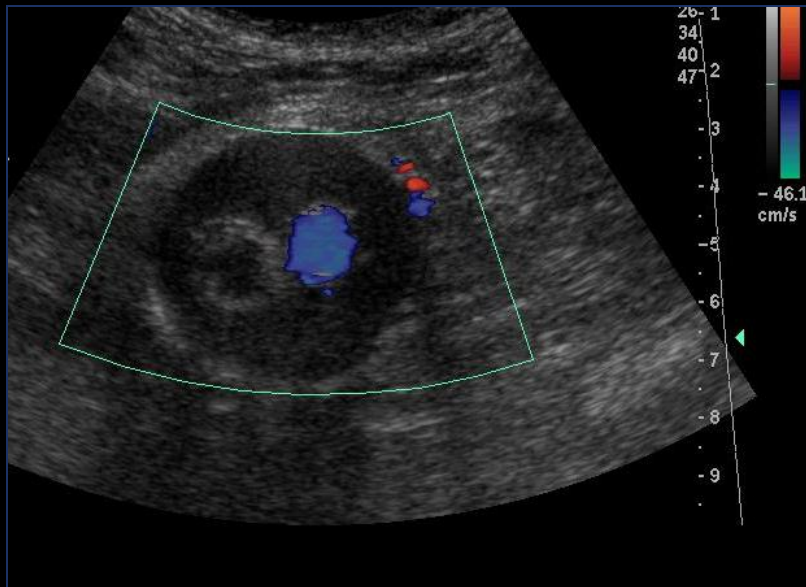
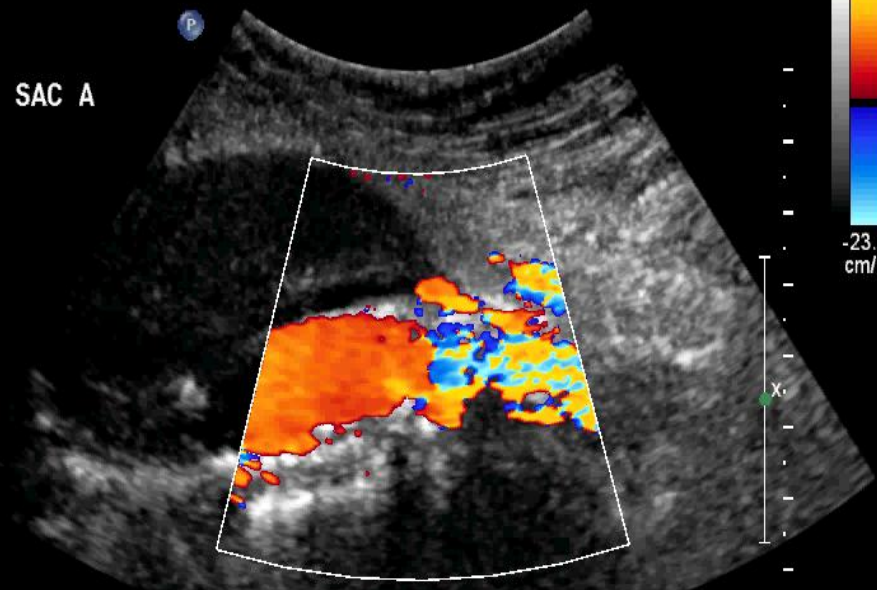
Flow direction

Permeability

CI 17Hz
8.0cm
2D
27%
C 55
P Moy
HPén
Coul
56%
3.0MHz
FP Max
Moy



SAC A



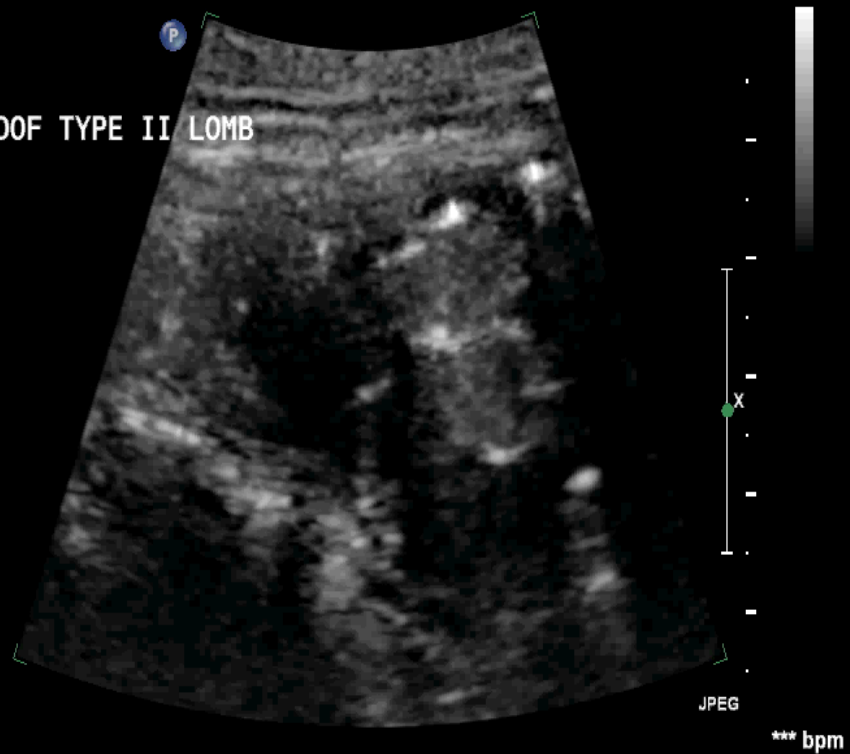
010 11:47:11



6.0cm
2D
53%
C 55
P Moy
HGén



ENDO TYPE II LOMB

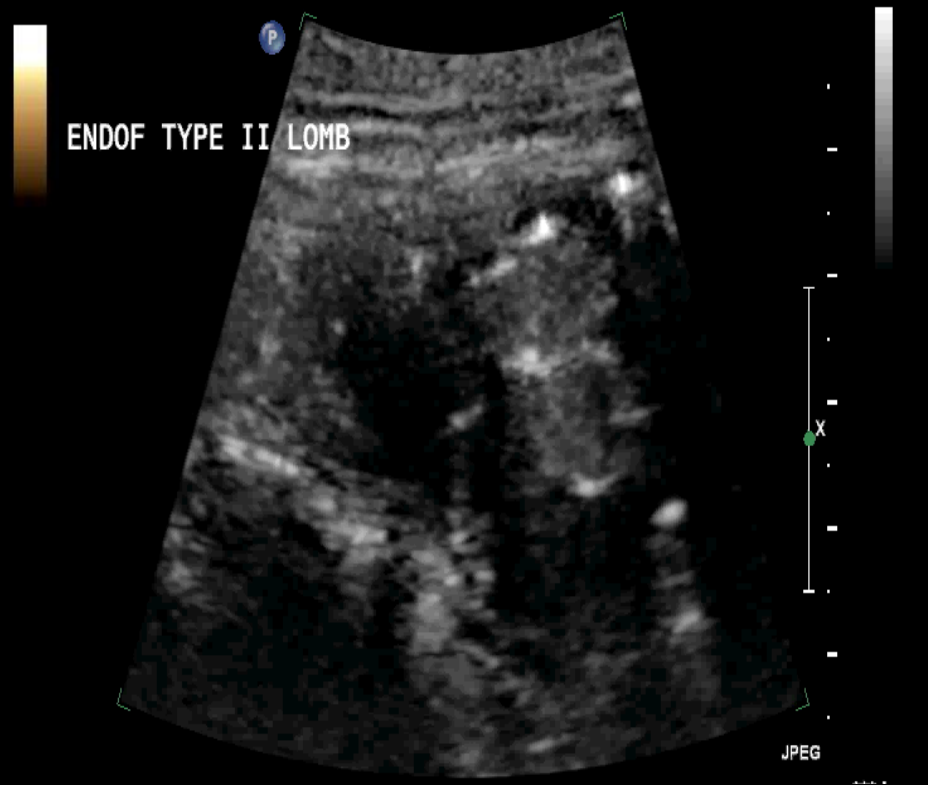


010 11:47:36

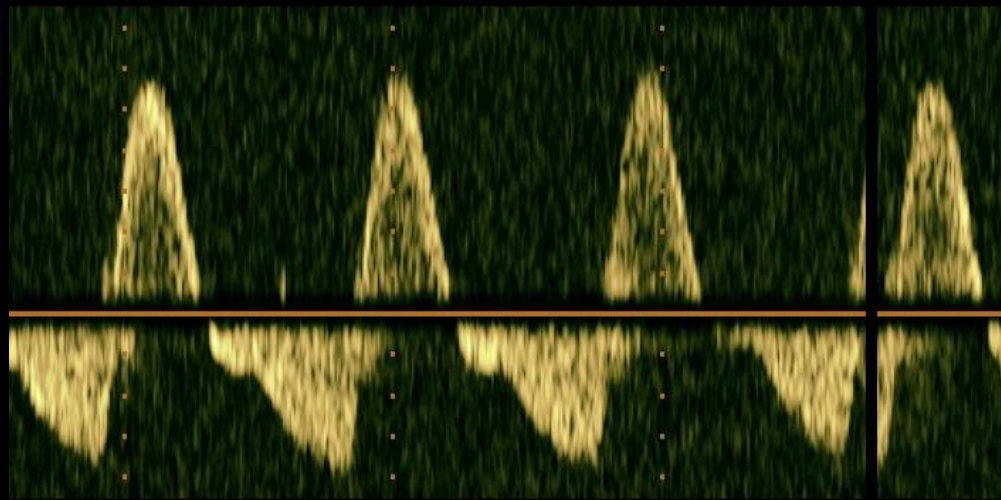
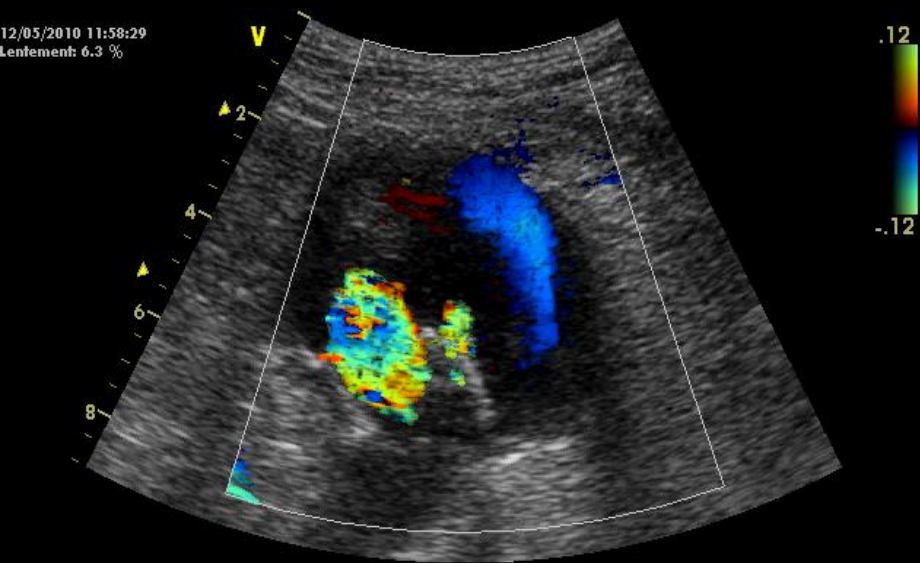


Endoleak course and
extension

10/10 11:47:11



12/05/2010 11:58:29
Lentement: 6.3 %



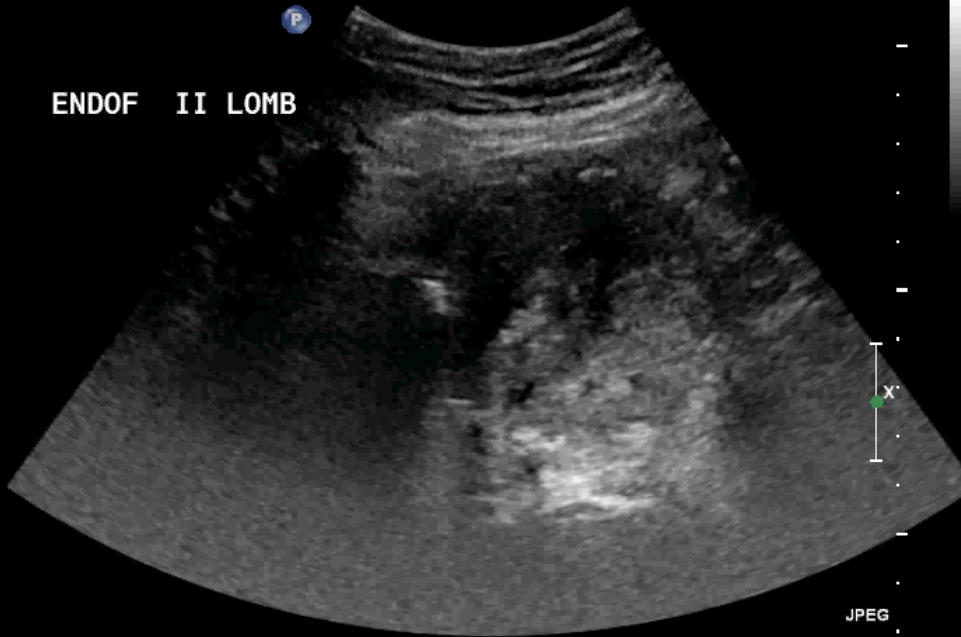
50mm

Combined US modalities allow an accurate analysis

CI 15Hz
12cm

2D
62%
C 55
P Moy
HGén

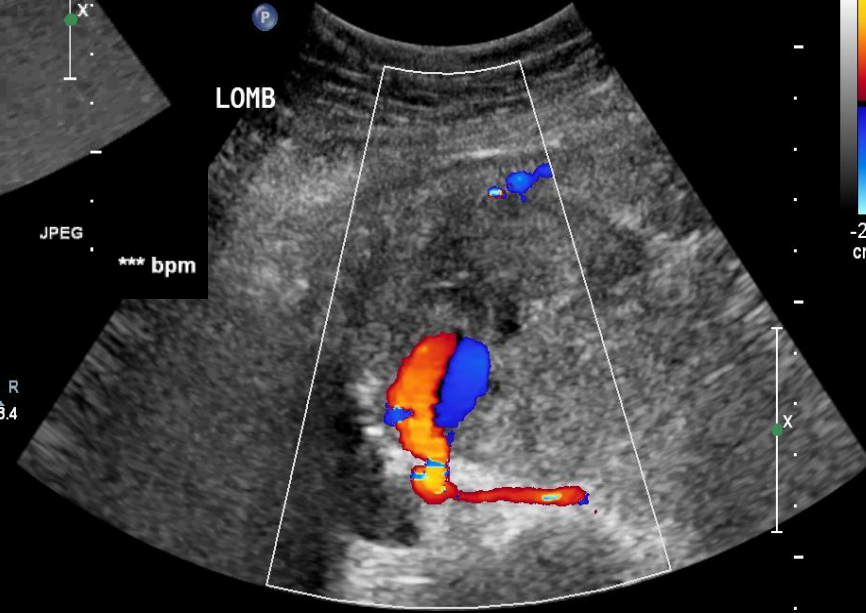
ENDOF II LOMB



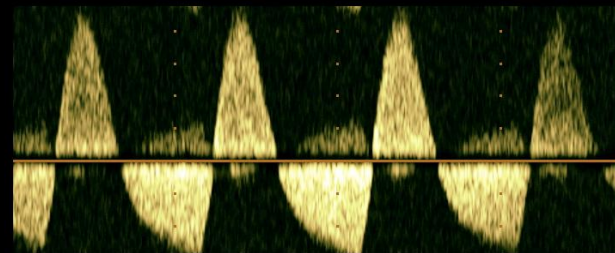
JPEG
*** bpm



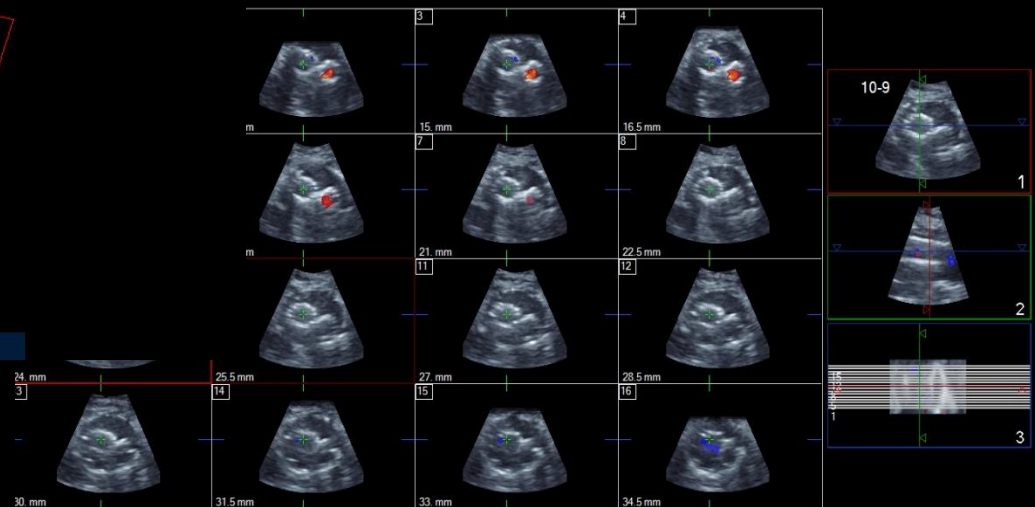
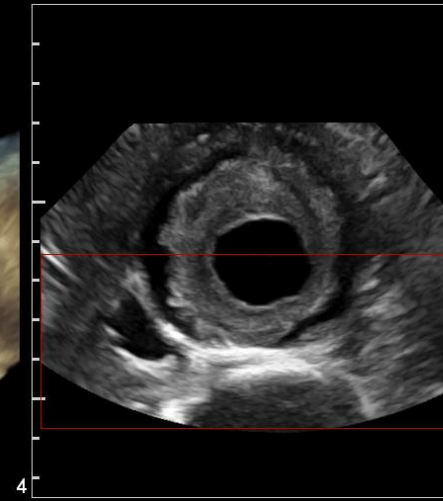
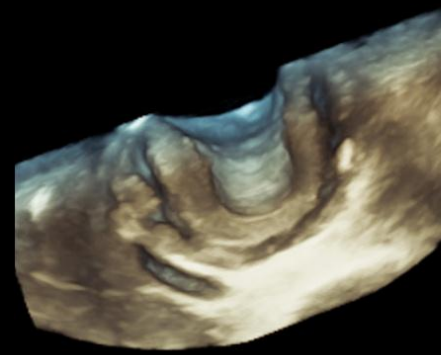
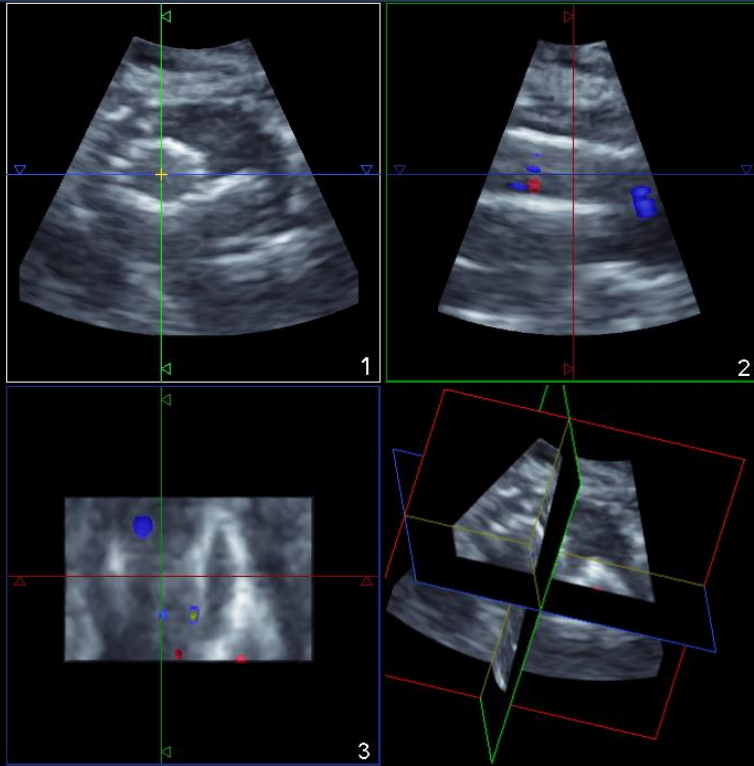
LOMB



Persistent type II lumbar
endoleak after
embolization



Work in progress



3D MPR Slice thickness: 1.5 mm



PHILIPS

1 cm

Careful postoperative lifelong follow up with high quality imaging is essential for all patients with EVAR

CEUS imaging is a fast, noninvasive, reliable and valid tool for endoleak detection in EVAR patients

!! Provided that a state of the art examination has been acquired

CTA and CEUS alternately?

« CTA based on US surveillance, reserved for cases of inconclusive US, signs of complications and unfavourable anatomy » ?