



Contrast-Enhanced Ultrasonography of liver lesions in patients referred after inconclusive findings on CT – Preliminary Data

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Purpose:

To evaluate the diagnostic performance of CEUS for evaluation of focal liver lesions in cases where CT gave an inconclusive diagnosis

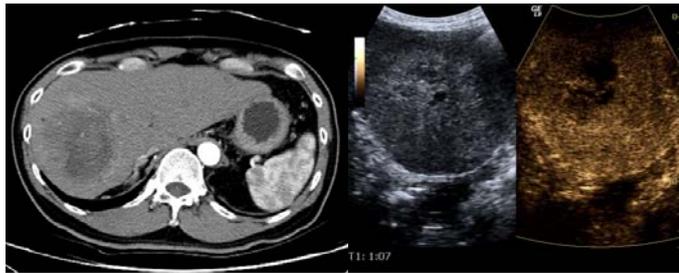


Figure 1: Comparison of a Hepatocellular carcinoma (HCC) liver lesion as seen in CT (left*) and CEUS (right).

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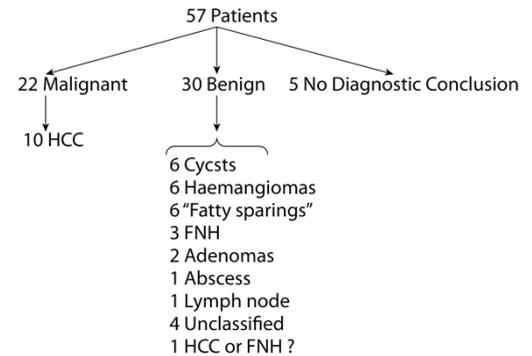


Figure 4: Diagnostic conclusions from CEUS ultrasound scans.

Background:

•Benefits of CT

- Whole body scan
- Minimal artefacts
- Fast scan, minimal affection of body movements

•Drawbacks of CT

- High radiation
- Dedicated location needed
- Expensive
- Need independent specialized person to evaluate images

•Benefits of CEUS

- Cost effective
- No damaging radiation
- Bed side
- Quick answer
- Video recording

•Drawbacks of CEUS

- Operator dependent
- Artefacts such as bone, air in colon

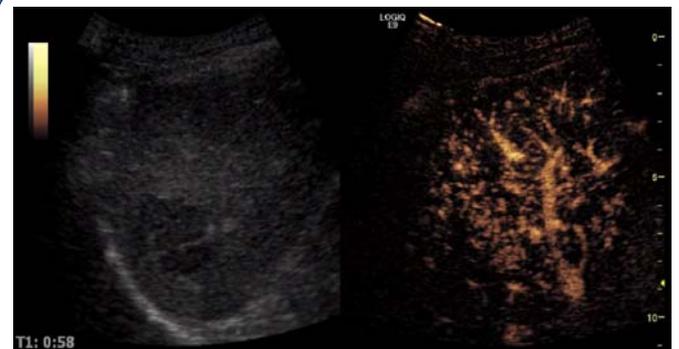


Figure 5: CEUS image of an HCC in arterial phase. A typical "basket phenomenon" can be seen in the right frame.



Figure 2: CEUS image of focal nodular hyperplasia (FNH) showing hypervascularization and a typical spoke wheel pattern in arterial phase.

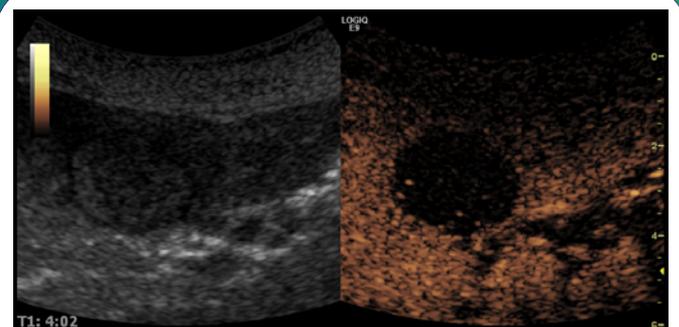


Figure 6: CEUS image of an HCC in late phase. A typical "wash-out phenomenon" can be seen in the right frame.

Materials and methods:

•57 patients with various focal liver lesions were referred for CEUS.

•A Logiq E9 scanner (GE Healthcare, Waukesha, WI) combined with a C1–5 curvilinear probe (1-5 MHz) was used to image the lesions.

•SonoVue contrast agent at doses of 2.4 – 4.5 ml were given I.V. after ordinary B-mode and Doppler scanning.

•Suspicious lesions were examined in arterial, portal, and venous phases.

•In 20 (35%) patients, image quality during CEUS was considered not optimal.



Figure 3: GE Logiq E9 ultrasonography scanner. (Image from product brochure)

Results:

•25 (44%): CEUS examinations confirmed the suspected CT diagnosis

•**27(47%): New diagnoses were given after CEUS examination**

•5 examinations had no diagnostic conclusion

Conclusion:

- Surprisingly are CT examinations of focal liver lesions often not conclusive.
- CEUS can in many cases provide new diagnostic information from inconclusive CT examination of liver lesions
- This may lead to improved patient treatment.