

# CEUS-guided Management of Compressive Subcapsular Hematoma

Kantonsspital Aarau  
Nephrologie



## after Transplant Kidney Biopsy

Florian Buchkremer, Kurt Hodel, Andreas Bock

Division of Nephrology, Dialysis and Transplantation, Kantonsspital Aarau

Get

PDF!

### Background

Subcapsular hematoma complicated by anuric kidney failure is an uncommon complication of transplant kidney biopsy. It may particularly occur in transplant biopsies beyond the first year. Its management remains controversial.

We present a case of successful conservative treatment which was guided by Contrast-enhanced ultrasound (CEUS) findings.

### Case report:

Twenty-six years after cadaveric kidney transplantation for IgA nephritis, a 65-year-old patient underwent allograft biopsy because of decreasing kidney function.

Two biopsy cores were obtained from the upper pole. Post-biopsy surveillance was uneventful and the patient was discharged 6h later. On the following day, he presented to the emergency room with nausea, mild discomfort in the transplant region and absolute anuria. Creatinine had increased from 240 to 704  $\mu\text{mol/l}$ .

Gray-scale ultrasound revealed a huge subcapsular hematoma around the upper two thirds of the kidney which severely compressed the transplant kidney's parenchyma (Fig. 1). Doppler exam of renal arterial vessels revealed a pendular flow pattern with reversed diastolic flow (Fig. 2)

A CEUS examination clearly delineated the hematoma and - at the same time - demonstrated perfusion of the renal parenchyma (Fig. 3+4).

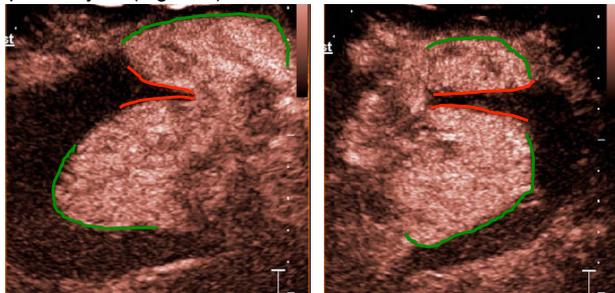


Fig 4. In the pars intermedia the hematoma separated the parenchyma wedge-like towards the renal hilus.

No attempt to surgically evacuate the hematoma was made, since the CEUS findings suggested maintained tissue perfusion and uncontrollable intraoperative bleeding was feared. Hemodialysis was initiated and the patient was monitored closely for the following days.

Early ultrasound follow-up showed stable hematoma size. On Doppler exam the ratio between forward and backward flow increased daily (Fig. 5+6), indicating decreasing pressure within the kidney capsule, despite persistent anuria.

From day 9 on, urine production slowly recovered. Dialysis was stopped after 24 days. Two months later, kidney function had recovered to baseline. After 6 months, ultrasound showed complete resolution of the hematoma.

### Conclusions

Post-biopsy subcapsular hematoma with anuric kidney failure can be managed conservatively. Renal CEUS is a valuable tool for assessing tissue perfusion in this situation.

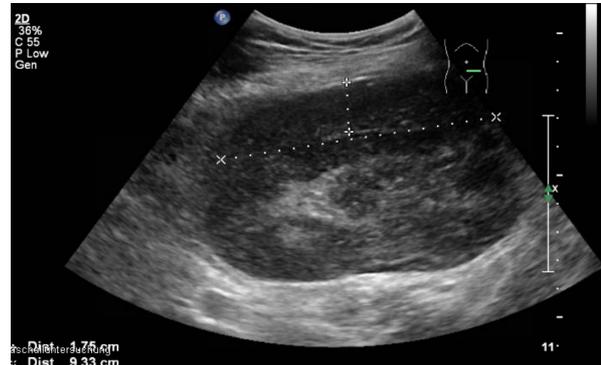


Fig 1. Gray-scale US of the kidney showing a huge subcapsular hematoma (measurements).

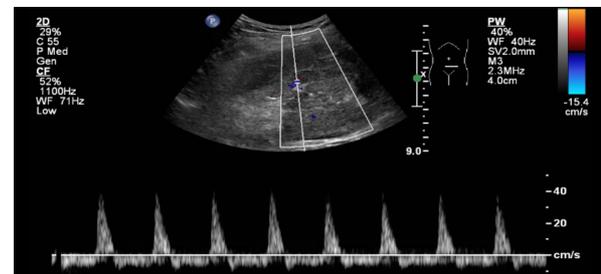


Fig 2. Doppler tracing demonstrating a pendular "to-and-fro" pattern with reversed diastolic blood flow.

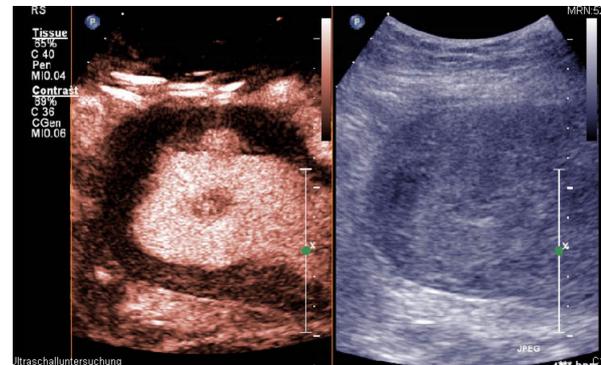


Fig 3. CEUS clearly delineated the hematoma and ensured perfusion of the parenchyma.

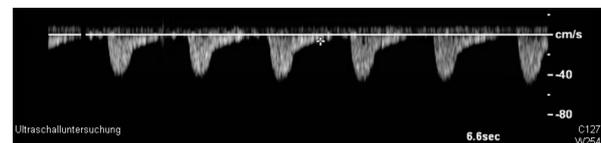


Fig 5. Doppler tracing on day 3 after biopsy. Note the increased duration of forward diastolic blood flow.

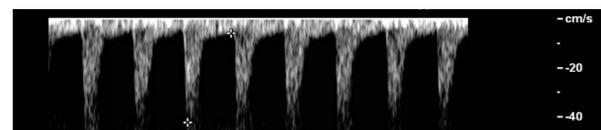


Fig 6. Doppler on day 6 after biopsy with complete normalization of the spectral flow pattern.