

Rare kidney diseases: a continuous clinical challenge for the nephrologist– role of ultrasonography.

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Objectives:

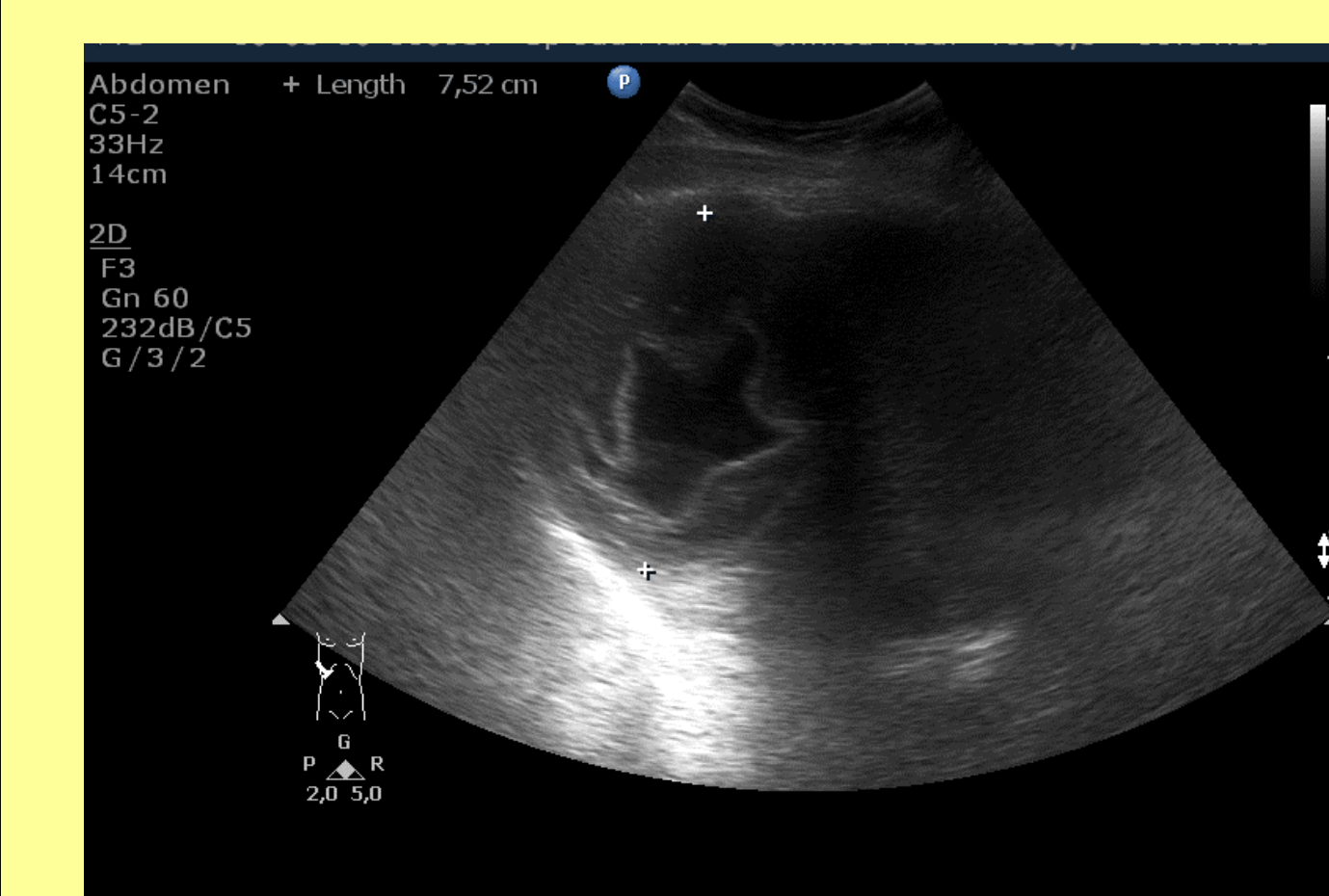
Ultrasonography (US) is well known to improve the quality of the clinical diagnosis in terms of rapidity, accessibility, repeatability and non-invasively. It's indications in nephrology and urology are numerous, but the most important aspect is its utility in emergencies. In this medical specialty, US is performed routinely, on a daily basis, and every medical doctor has a specific preparation in US during residency. Although is a routine method of imagistic investigation, there are specific conditions, in which one can describe unusual US findings, very hard to define, as rare medical conditions. In this case, more experienced examiner is needed, in order to recognize a rare anomaly.

Methods:

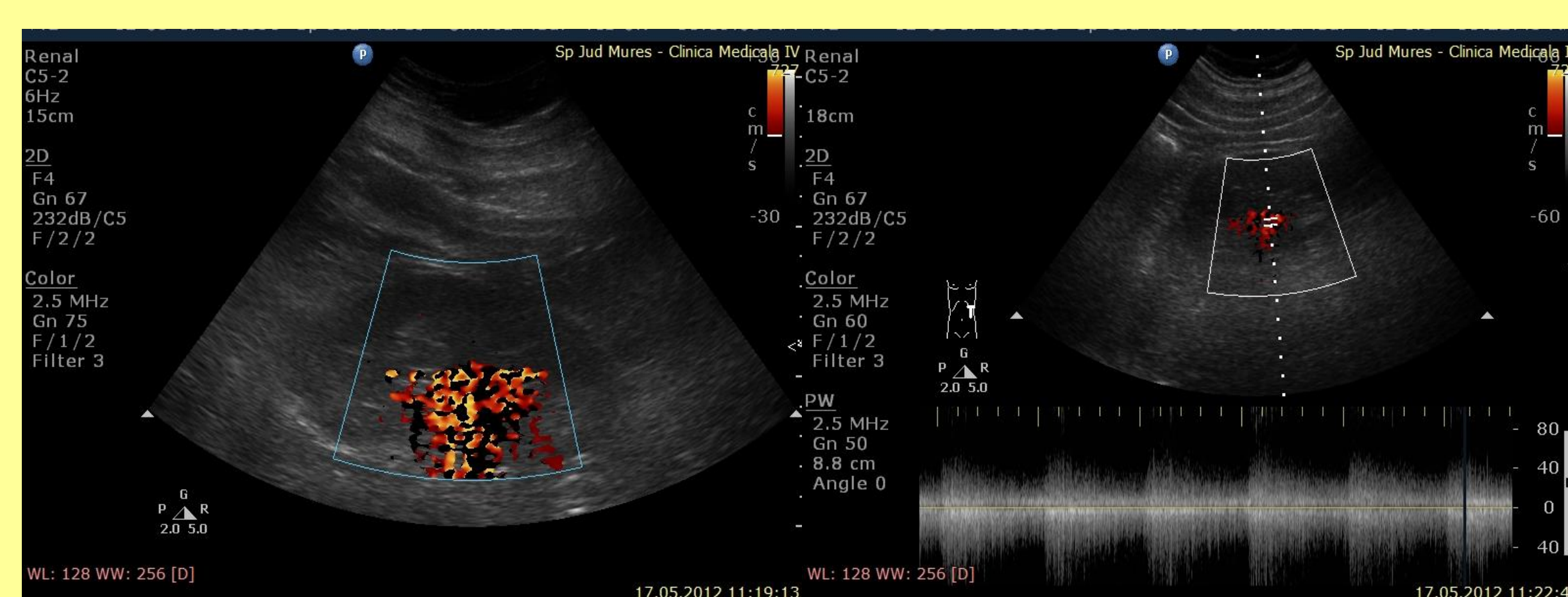
We analyzed the kidney US morphology in a cohort of patients in a period of two years. We performed a total of 3650 general abdominal ultrasound examinations in patients from nephrology department and other departments of the Mures County Clinical Hospital in a period of three years. We used two ultrasound machines: Esaote My Lab40 (Xview, 2D, phased-array transducer 2-4MHz) and Philips HD11xe (convex probe 2-5MHz). The final diagnosis was made based on clinical judgement and was compared with the ultrasound diagnosis. The positive predictive value, sensitivity and specificity were calculated.

Results:

Results were: 56 polycystic kidney disease, 14(0.38%) rare kidney tumors, 2(0.05%) AIDS nephropathies, 12(0.32%) cases with medullary sponge kidney, 3(0.08%) persistent fetal lobulation, 2(0.05%) intrarenal post-biopsy arterio-venous fistulas, 3 (0.08%) renal hidatid cysts, 2 (0.05%) cases with bilateral angiomatosis-tuberous sclerosis, 35 (0.95%) renal unilateral artery stenosis-one partial, one case with bilateral fibrocystic dysplasia. Positive predictive value in all cases was 98%, with a 100% sensibility and 98% sensitivity of the positive diagnosis.



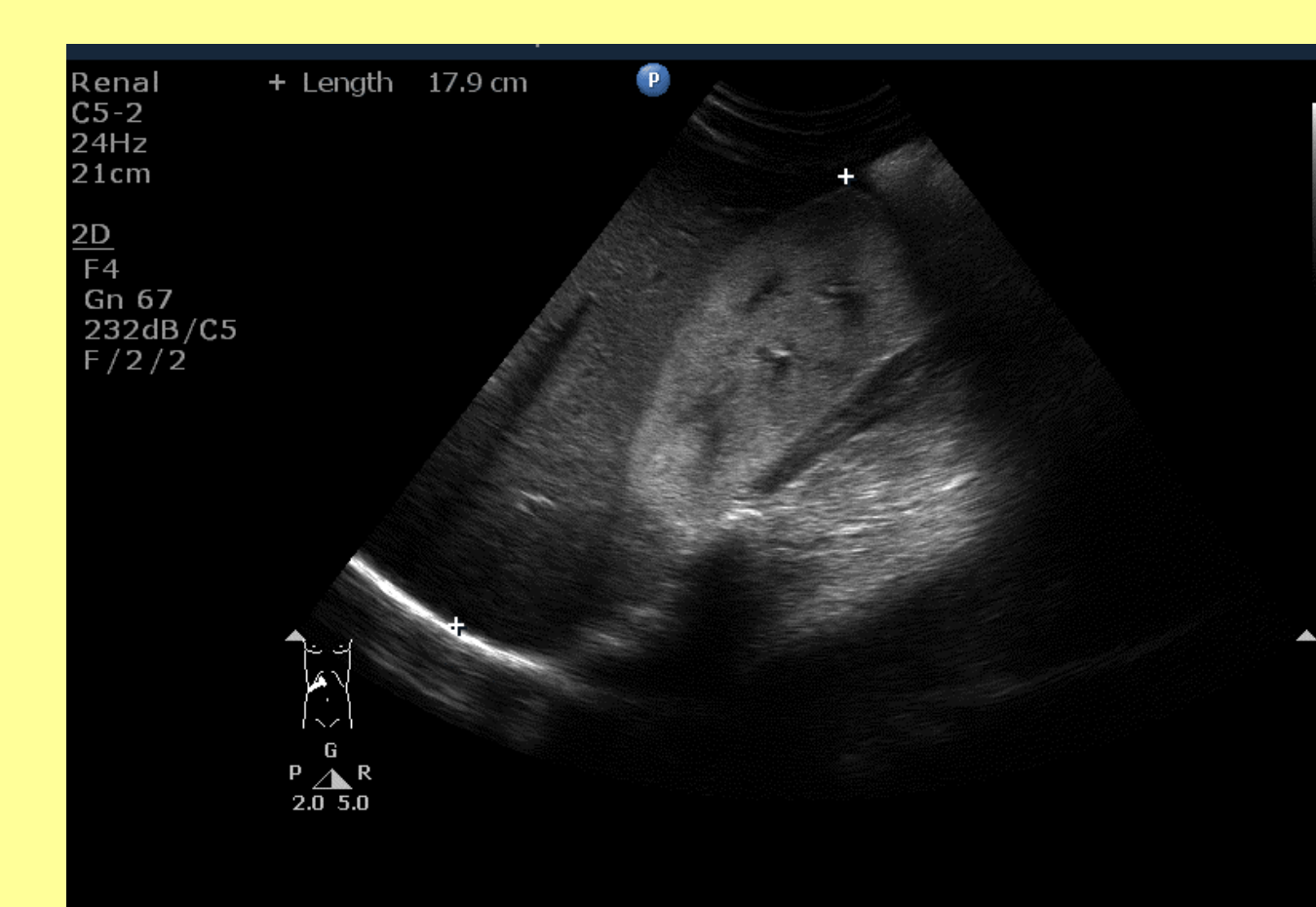
Decolated hydatid membrane, urinary hydatid fistula



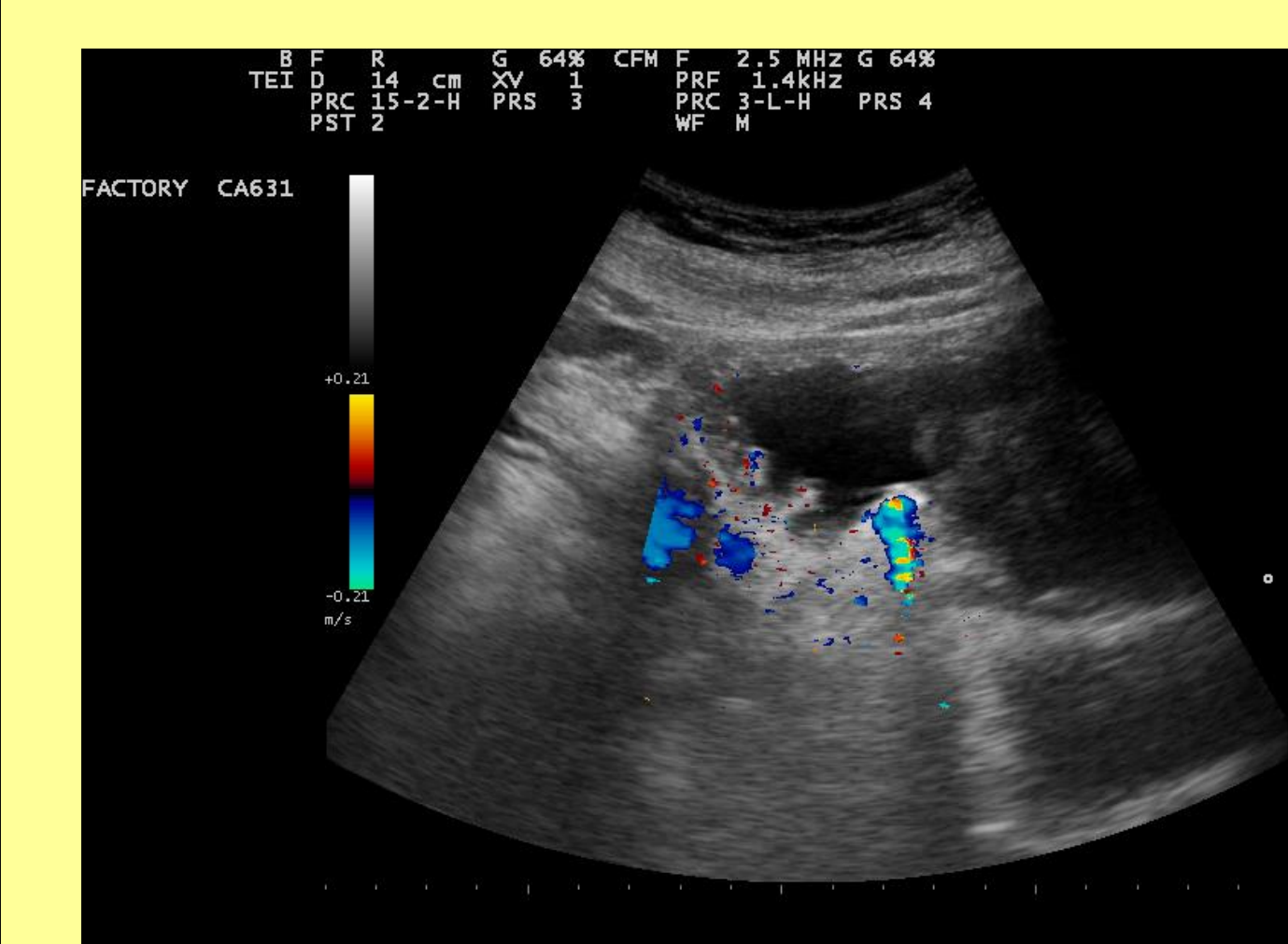
Arterio-venous fistula after kidney biopsy. Color Doppler the aliasing artefact; pulsed Doppler suggestive for fistula flow.



Numerous, well delimited cystic lesions, bilateral, ADPKD.



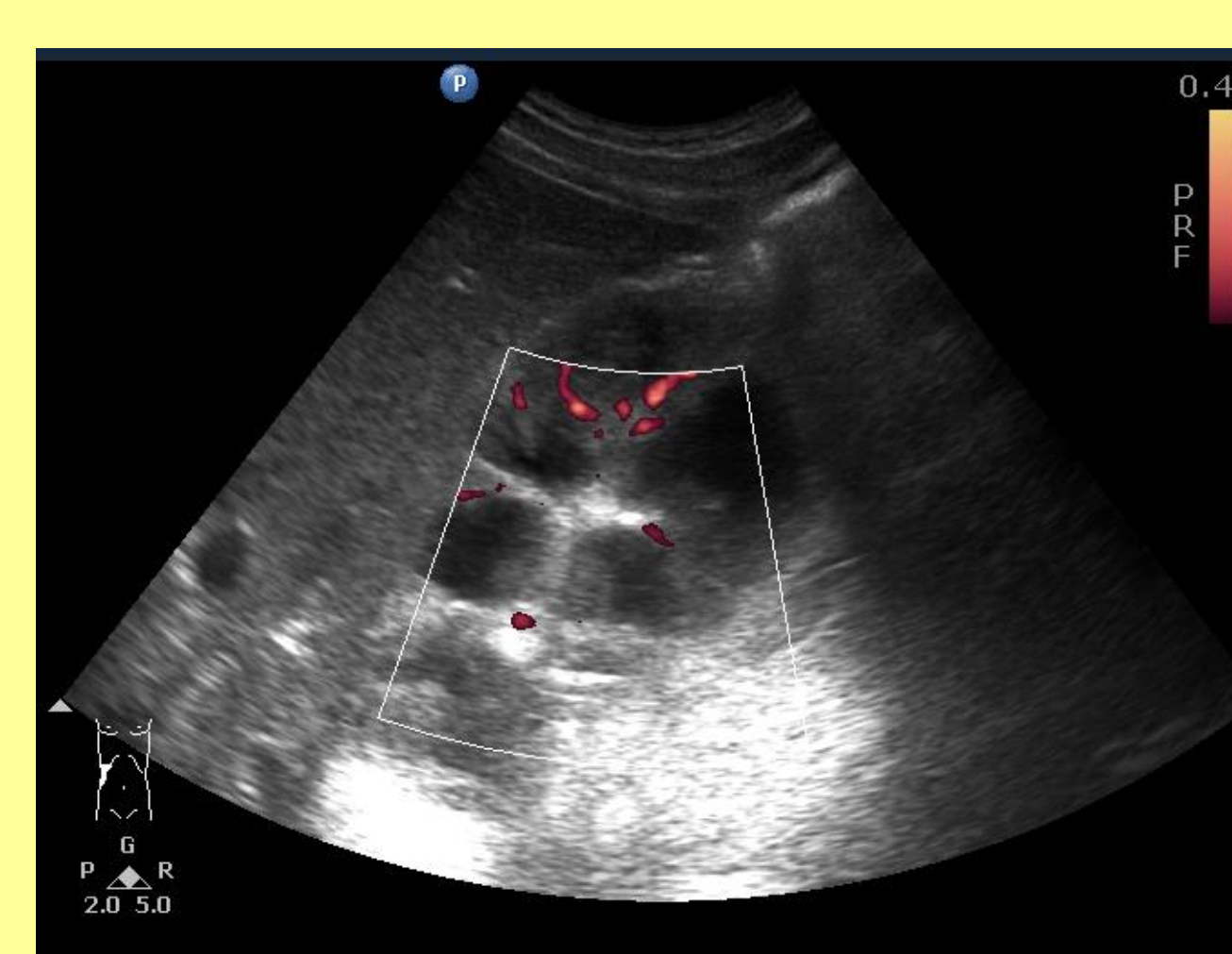
Intense echogenicity of the parenchima AKI in AIDS nephropathy



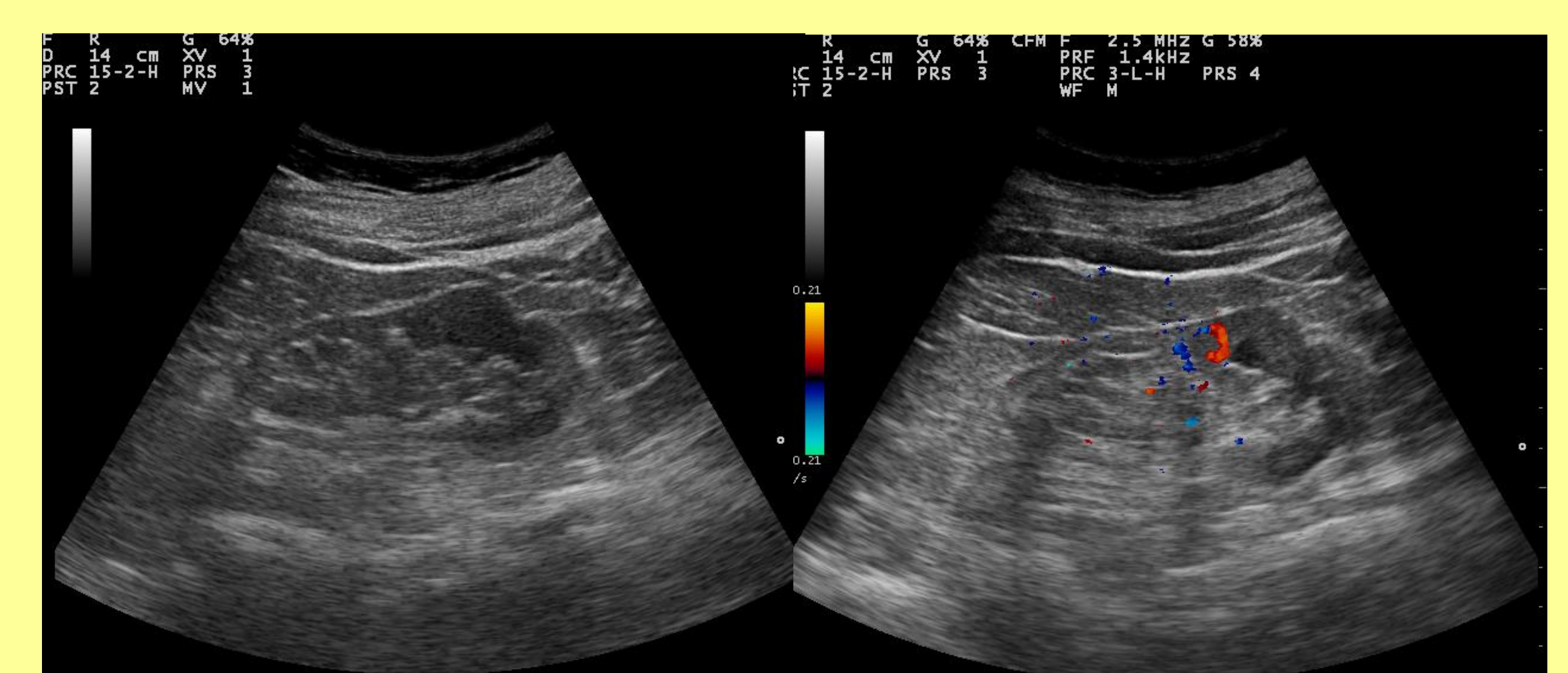
Stone in the ureteric-vesical junction.



Twinkling artifact of a kidney stone.



Vascular pattern in extensive urothelioma: Power Doppler.



Partial, superior segmental renal artery stenosis: small, shrink half-superior kidney.

Conclusions:

There are many ultrasound aspects regarding the kidneys, from normal morphology with various anatomical variants or anomalies to small, shrink kidney in terminal renal insufficiency.

Rare kidney diseases are considered very hard to be diagnosed, because of low incidence and lack of symptoms in many cases. Therefore we should think of them more often in order to detect them.

Ultrasound is a very useful, accessible, cost-effective method for the diagnosis.

Combining clinical examination with ultrasonography of the urinary system will improve the accuracy and rapidity of the diagnosis.

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