

An unusual renal colic: A tribute to Joseph Hyrtl (1810–1894) and Max Brödel (1870–1941)

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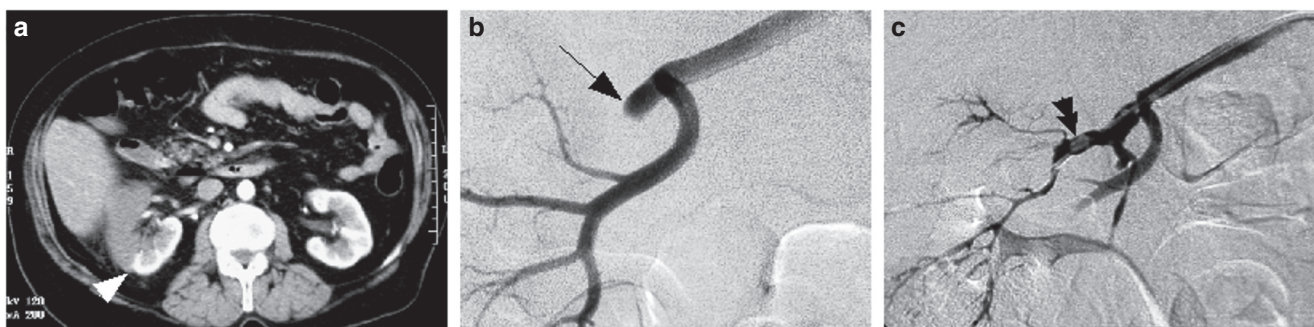


Figure 1 | Complete obstruction of the anterior branch of the right renal artery. (a) Contrast-enhanced computed tomography of the hypodense area suggested ventral kidney infarction. The bloodless line (arrowhead) is at the junction of the anterior two-thirds of the kidney and the posterior third part. (b) Arteriogram of the right kidney artery: the anterior branch is completely obstructed (arrow) by a thrombus. (c) After partial removal, the anterior branch is visible and the thrombus is still present (arrowheads).

A 68-year-old hypertensive woman presented with sudden onset of severe right-sided flank pain radiating to the groin, of 12 hours' duration. On physical examination she had an irregular pulse of 110 beats per minute. Laboratory findings showed a white blood cell count of 14,000 per mm³, a serum creatinine level of 152 μmol per liter (1.7 mg per dl), and a lactate dehydrogenase level of 1,500 international units per liter. Urinalysis was normal. Electrocardiography showed atrial fibrillation. Contrast-enhanced abdominal computed tomography revealed segmental infarction of the ventral half of the right kidney (Figure 1a). The source of embolism was thought to be the heart. A renal arteriogram revealed complete obstruction of the anterior branch of the right renal artery (Figure 1b). Thromboaspiration followed

by intra-arterial thrombolysis was performed without complication (Figure 1c). The patient's pain rapidly disappeared, and the lactate dehydrogenase level decreased. The serum creatinine level was 72 μmol per liter (0.8 mg per dl) at the time of discharge, and the patient was maintained on oral anticoagulation and antiarrhythmic therapy. These images illustrate the terminal and non-anastomotic vascularization of the kidney, which was described by Hyrtl (1882) and Brödel (1901) with the use of corrosion anatomy and dissection. These two authors described the "bloodless line of the kidney," the relatively avascular area of renal cortex between the anterior and the posterior branch territories of the renal artery. This description led to the development of modern renal surgical techniques.