A 60-year-old woman was hospitalized for oliguria with bilateral impediment of both renal pelvises. Bilateral nephrostomies were necessary. Twelve months earlier, two titanium stents (Engineers & Doctors) had been implanted in the distal parts of both ureters because of diffuse ureteral stenosis after irradiation therapy for cervical carcinoma 17 years earlier. At admission, retrograde pyelography revealed filiform obstruction of both titanium stents. For extracting titanium stents, greater amounts of cold saline must pass along the implanted stent for sufficient shrinkage of the titanium before the mechanical removal of the stent. After successful retrograde application of two 0.035-inch Terumo-Radifocus guidewires into both renal pelvises, the passage of a catheter over the Terumo wire failed due to profound calcified consistency of the obstruction.

The decision to perform the first extravascular high speed rotational atherectomy (HSRA) was made. Endoscopically, a guiding catheter was placed in the distal portion of both ureters. Like HSRA in coronary arteries, an extra support rotablator guidewire (Boston Scientific) was admitted through the stenosis with the tip positioned in the renal pelvis. Subsequently, a 1.25 burr was admitted just in front of the obstructed titanium stent, and HSRA was performed using 180,000 rounds per minute. Progress through the stenosed titanium stents was limited due to the hard consistency of the lesion. The lumen was finally entered using a 1.75-mm burr (Figure). Thereafter, sufficient amounts of cooled saline could be administered along the stents, and both were explanted successfully. Two Blue stents (Angiomed) were implanted to keep both ureters open.
High-Speed Rotational Atherectomy of Bilateral Ureter Stenosis
Johannes B. Dahm, Chris Protzel, Klaus-J. Klebingat and Astrid Hummel

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