**MULTIMODALITY APPROACH IN PERCUTANEOUS INTERVENTION OF RENAL ARTERY FIBROMUSCULAR DYSPLASIA IN AN 80-YEAR OLD FEMALE**

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We present a case of an 80-year old woman with resistant hypertension with systolic blood pressure (SBP) >200 mm Hg. Doppler ultrasound of the renal arteries showed right renal artery (RA) stenosis in mid segment with peak systolic velocity of 237 cm/sec. Magnetic resonance angiography of abdomen reveled irregular narrowing of the right mid RA suggestive of renal artery fibromuscular dysplasia (RAFMD) (Figure.1). Renal angiography showed 70% stenosis right mid RA with “string of bead appearance” characteristic of medial type of RAFMD (1) (Figure.2A). Intravascular ultrasound (IVUS) using Eagle Eye Platinum RX Digital IVUS catheter showed intermittent crescentic membranes in stenosed area characteristic of RAFMD (Figure.3B). We measured translesional systolic pressure gradient (TSPG) using a PressureWireTM AerisTM with Agile Tip 0.014” x 175cm guide-wire (Figure. 4A). The lesion was deemed functionally significant as resting TSPG was 23 mm Hg (Figure.4B). NC TREK RX 4.5 x 20mm balloon was used for balloon angioplasty. We monitored TSPG during our intervention. After 5 inflations at maximum pressure of 12 atmospheres, TSPG was reduced to less than 10 mm Hg (Figure.4C). Post procedure IVUS showed the stenosed segment reached the reference vessel diameter (Figure. 3A). Repeat Doppler ultrasound showed the peak systolic velocity decreased to 198 cm/sec, with improvement in patient’s SBP to 121 mm Hg requiring only two antihypertensive medications. Symptomatic RAFMD is rare in elderly (1). Although renal angiography or biopsy (2) is gold standard in diagnosing RAFMD, Gowda et al (3) showed superiority of IVUS by demonstrating endoluminal abnormalities when angiogram appeared normal. Despite lacking of systematic evidence, an expert consensus panel has suggested that translesional systolic and mean pressure gradients of 20mm Hg and 10mm Hg respectively, should be considered functionally significant(4). We suggest multimodality approach using IVUS, translesional pressure gradients in the percutaneous intervention of RAFMD for good results.



