Endovascular Management of Mid Aortic Syndrome

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Introduction

Mid Aortic Syndrome (MAS) is rare all published series are small. A specialized tertiary center in USA treated 30 children in 13 years. There is no good evidence base for endovascular treatment of MAS.

Etiology of MAS:

- Congenital.
- Fusion failure of embryonic two dorsal aorta.
- Intrauterine injury or infection (rubella).
- Bunting vasculitis (Takayasu’s).
- Association with TB.
- Burntout vasculitis (Takayasu’s).
- Intrauterine injury or infection (rubella).
- Fusion failure of embryonic two dorsal aorta.
- Congenital.

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Case history and Investigations

A 17 y old male patient suffering from hypertension 160/110 mmHg hardly controlled with betablockers and diuretics

- ECG and ECHO: left ventricular hypertrophy
- Abdominal sonography: Normal findings
- Duplex study reveal: suprarenal abdominal aorta is of normal caliber, with normal flow pattern and velocity. It bifurcates shortly caudal to the diaphragmatic hiatus into 2 division of nearly equal caliber. Both iliac arteries and both lower limbs axis are patent.

LAB: Normal: renal function.

MSCT: abdomen: The suprarenal abdominal aorta appears patent showing gradual tapering of its caliber. The abdominal aorta gives rise to side branch just before its total luminal interruption, and passes as a continuation to the infrarenal segment of the aorta till its bifurcation into the common iliac arteries. This side branch shows focal stenotic segment opposite L1 vertebral body. The left renal artery arise from the posteroilateral aspect of abdominal aorta showing tight ostial stenosis. Secondary hypertrophied visceral and parietal collateral pathways of internal mammary, inferior epigastric, lumbar arteries and marginal artery of Drummond are seen. Cardiac catheterization reveals normal coronary flow. The ostial left renal artery stenosis was controlled with 2.0 mm coronary balloon to dilate the tight lesion. Follow Up.

Target of the management of this case was to do angioplasty of the tight left renal artery stenosis in order to manage the persistent secondary hypertension.

Transbrachial approach failed to cannulate the left renal artery. Transbrachial approach used with a multipurpose guiding catheter to cannulate the abnormally originated LT renal artery with tight ostial stenosis. After several trials we succeed to cannulate it, then a floppy 5.014 guide wire used to cross the pin point LT renal artery followed by 2.0 mm coronary balloon to dilate the tight lesion. Finally a stent 4.0/15 mm was deployed successfully at the ostium with good distal flow to the distal renal vessels.

Follow Up.

Persistent improvement of BP control with 5 mg bisoprolol. One year follow up with MSCT reveal patent stent and good control of BP.

Procedures

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Conclusions

Mid Aortic Syndrome is a rare syndrome presented with progressive involvement of renal arteries in 90% of cases in children and young people. Renal angioplasty with stenting improves BP in 70% of cases. Restenosis occur in 50% of cases. Definitive treatment is surgical.

References:


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