

Deciphering the obstruction- Subaortic membrane causing Aortic stenosis in a 78 years old patient

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Disclosure of Relevant Financial Relationships

I, Hasan Ilyas, DO NOT have any financial relationships to disclose.

Subvalvar aortic stenosis (subaortic stenosis)

- Aortic stenosis (AS) is the most common aortic valve (AV) pathology in the developed world.
- Subvalvar aortic stenosis second most common form of aortic stenosis.

Anatomy in Congenital Subaortic Stenosis

- A thin membrane (the most common lesion). Thick fibromuscular ridge. Diffuse tunnel-like obstruction

Case Presentation

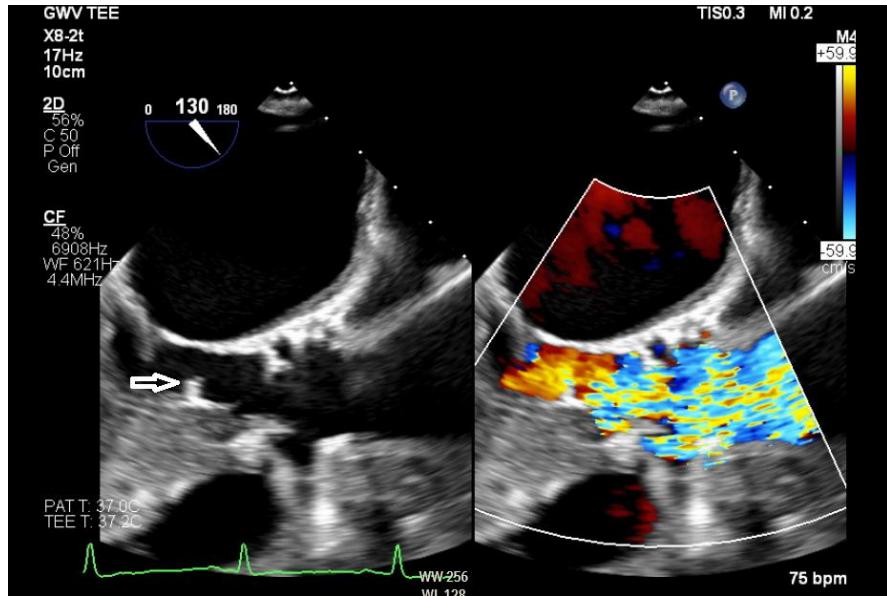
- 78 years old female.
- PMHX: moderate aortic stenosis, OSA, HTN, Asthma
- Onset of worsening dyspnea.
- Multiple visits to PCP and pulmonologists.
- Patient was using CPAP for OSA and as needed inhalers for asthma.

Workup

- Unremarkable BMP. Slight elevation in Troponin-I. Normal pro BNP levels. EKG showing NSR, Chest X-ray negative for acute pathology.
- TTE: hyperdynamic left ventricle with 70% ejection fraction. Grade-1 diastolic dysfunction.
- There was a flow acceleration in Left ventricle outflow tract (LVOT). Aortic valve area could not be calculated. Peak aortic jet velocity (Vmax) was 4.3m/s. Mean gradient was 42mmHg.

TEE

- TEE shows tri-leaflet AV and subaortic membrane arising from muscular septum in the outflow tract was identified (shown by arrow).
- flow acceleration in LVOT with Vmax 3.8m/s with mean gradient 35mmHg and a moderate calcification of AV.
- Aortic valve area by 3D planimetry - approximately 1.3 cm² consistent with moderate valvular aortic stenosis.
- Moderate AI was present.



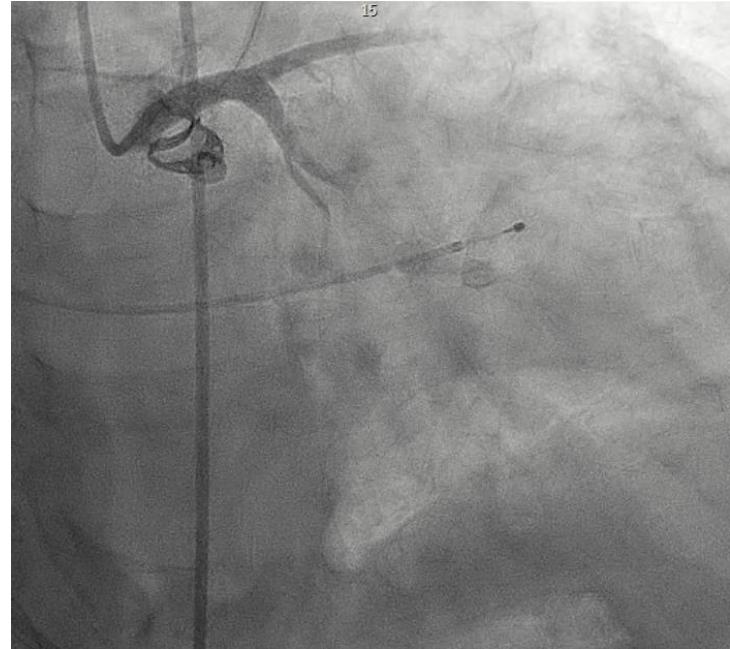
Treatment

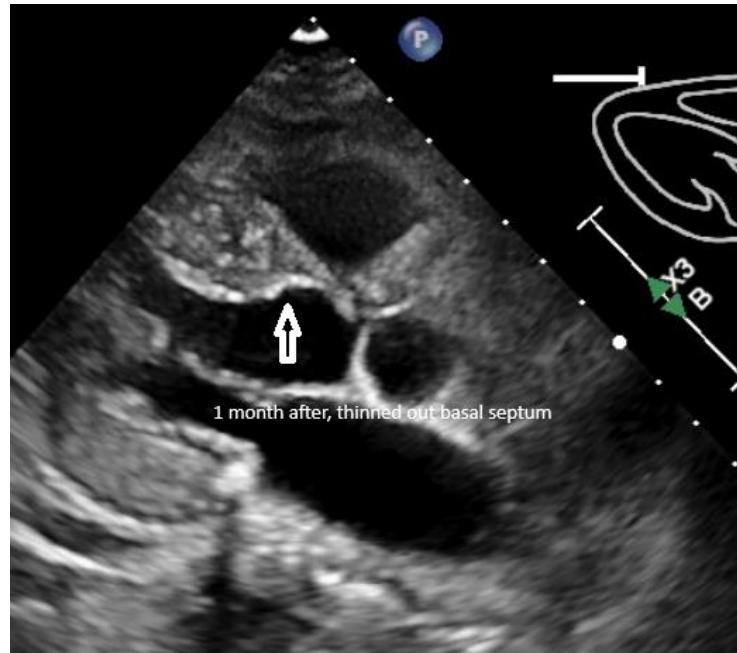
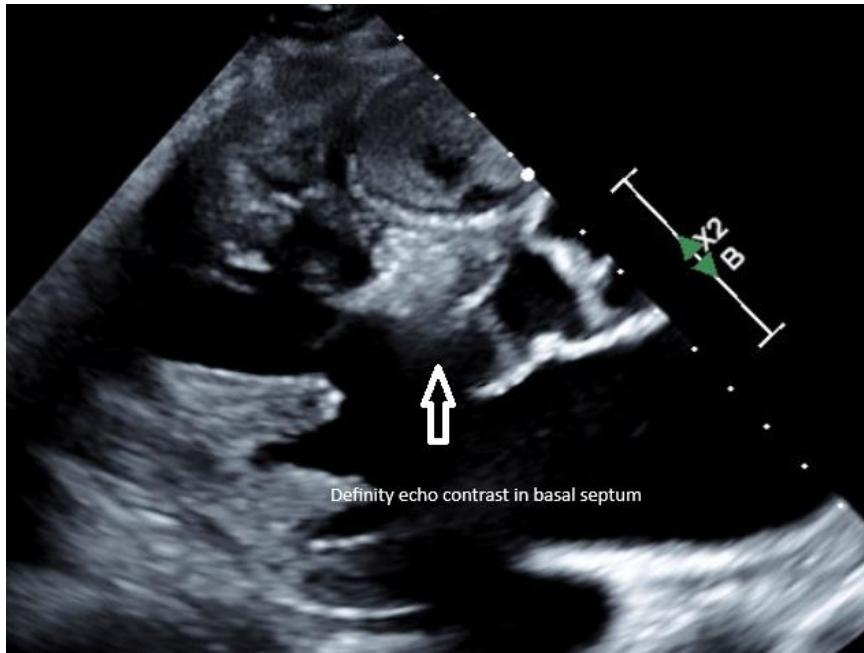
- We performed a transcatheter alcoholic septal ablation(TCASA) of the ventricular septum via a transfemoral approach.
- At one-month follow-up, patient reported significant improvement in dyspnea, and exercise tolerance.
- TTE revealed thinning of the hypokinetic ventricular septum.
- $V_{max}=2.9\text{m/s}$ and mean aortic gradient=25 mmHg.

Septal perforator angiography with OTW balloon occlusion



Post ablation angiogram showing 1st septal perforator





Treatment Highlight

- Previously few cases have been reported where SAM arising from the membranous septum has been treated with transcatheter aortic valve implant.
- In this case, as septum was arising from muscular septum, we performed a TCASA with significant improvement in clinical and hemodynamic parameters avoiding surgical ablation.