CRITICAL AORTIC STENOSIS IN PREGNANCY

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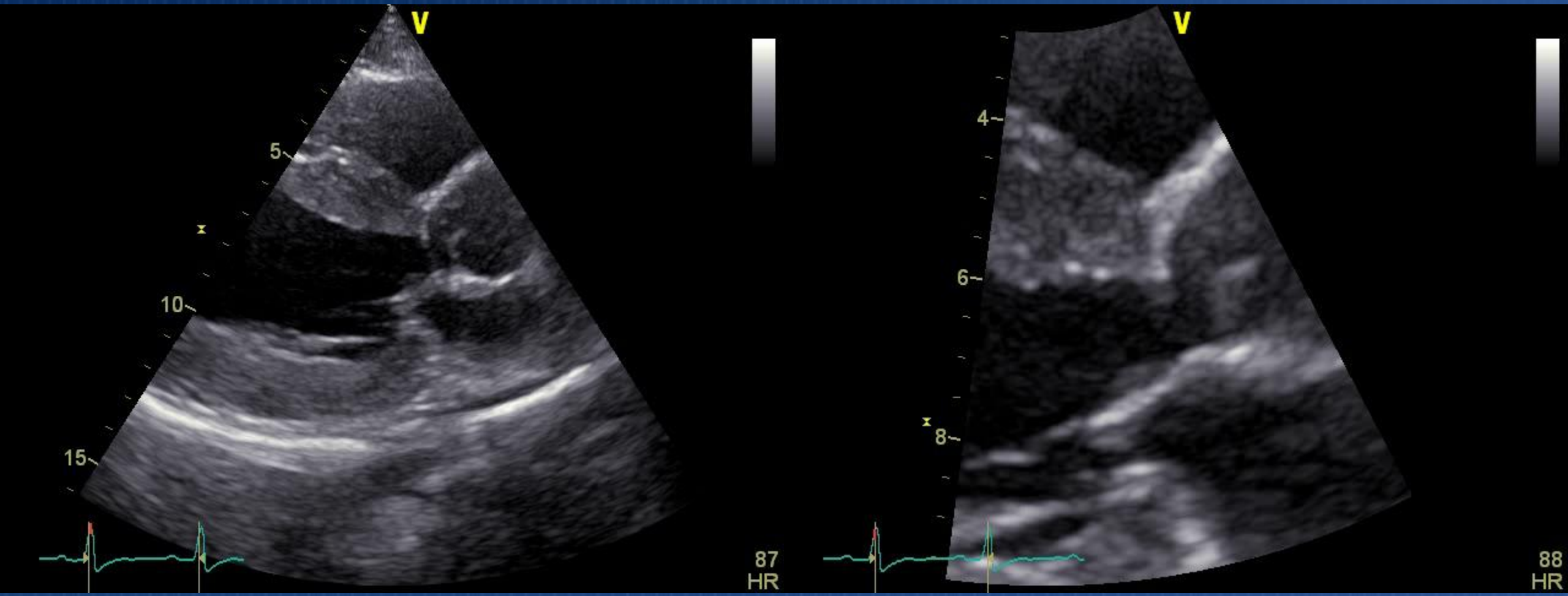
Patient Presentation

- 28 years old female, P1G2, at the time pregnant at 27 weeks gestation
- Presents with dyspnoea at rest
- Her previous pregnancy was also complicated with cardiac failure
- She was treated for cardiac failure and her symptoms improved, but she has a long ejection systolic murmur, and a slow rising pulse

Echocardiography

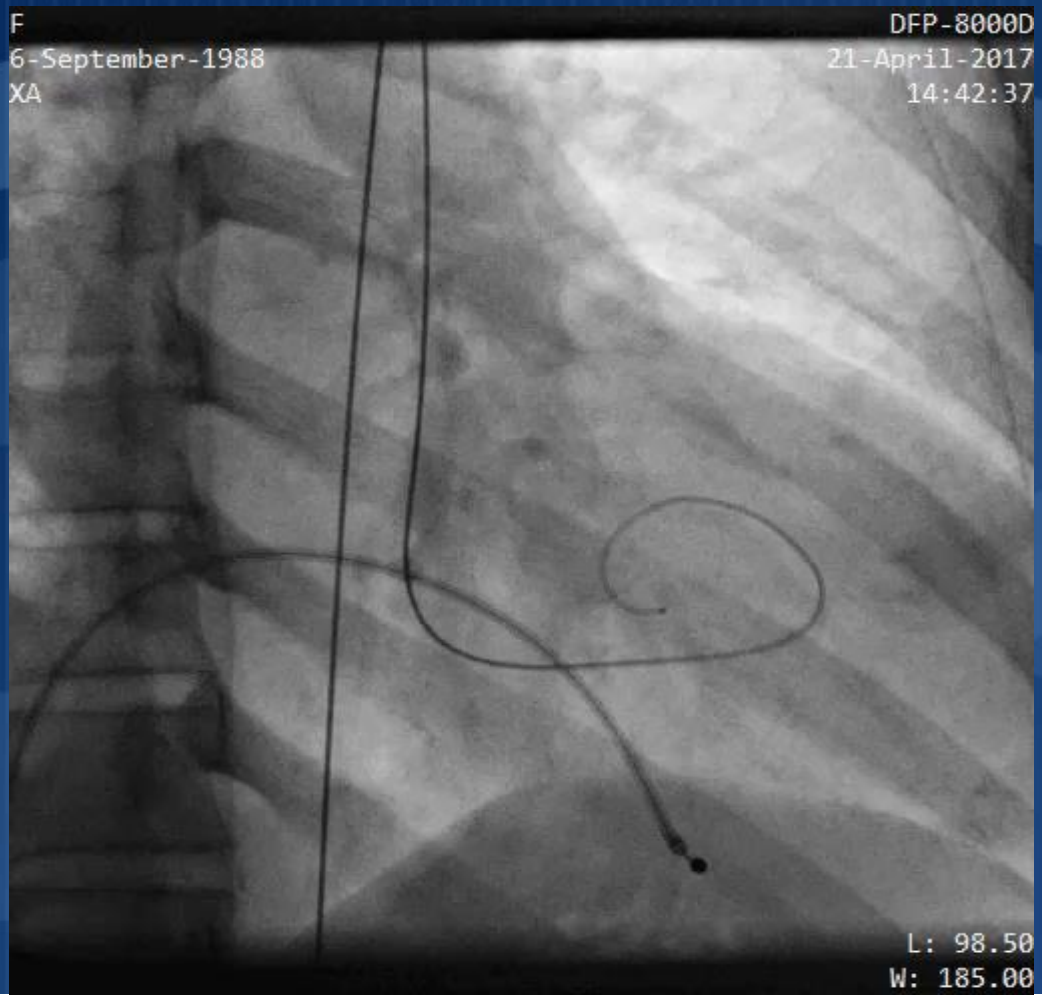


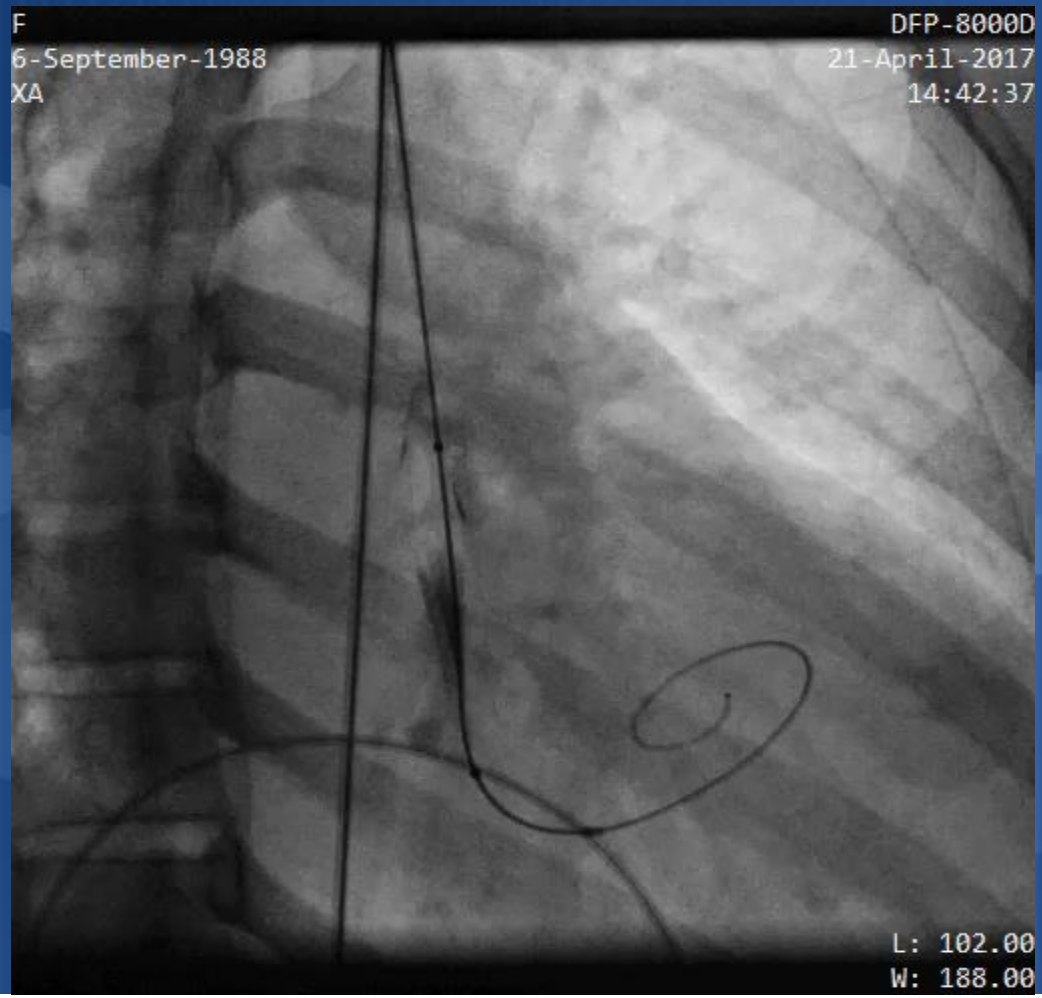
Echocardiography

Patient Presentation

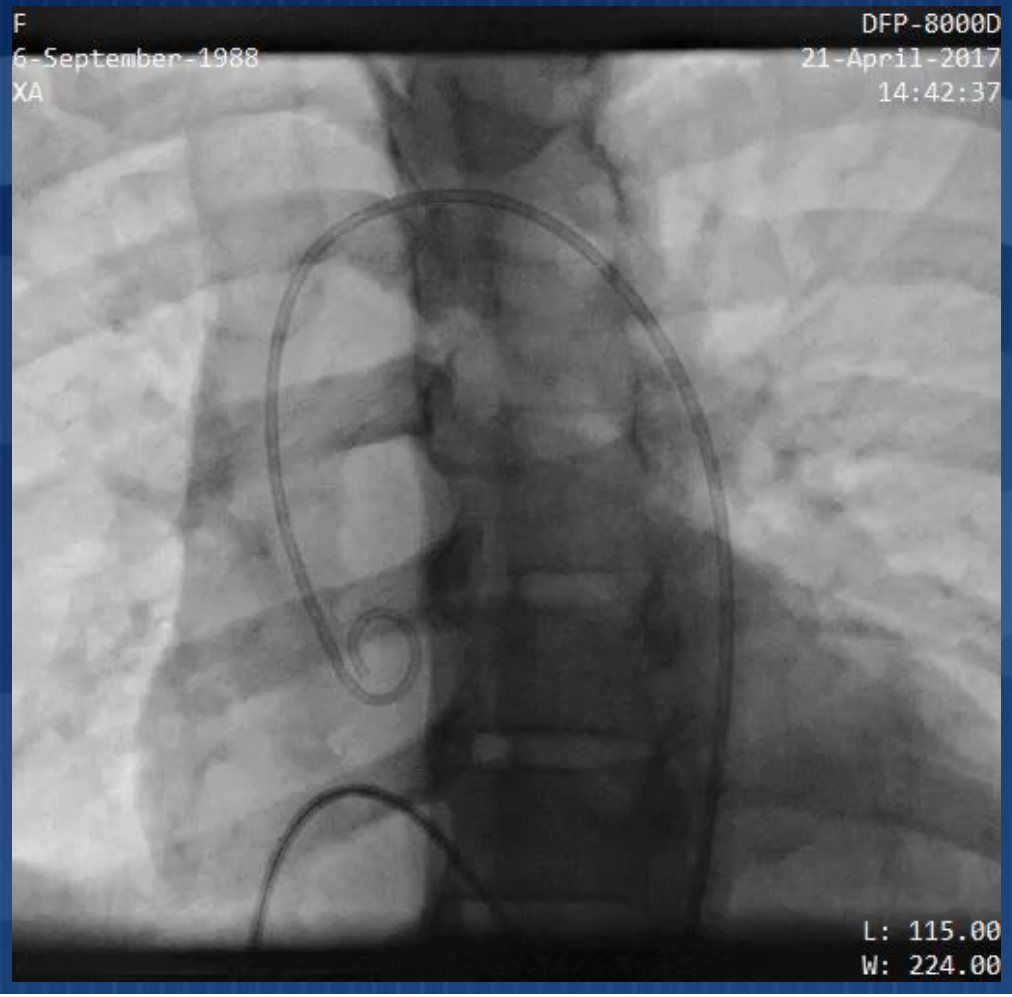
- It is in fact not severe aortic stenosis, but sub-aortic obstruction due to sub- aortic membrane!
- The aortic valve was in fact opening well
- CW shows a max PG of 105 mmHg and mean of 67 mmHg
- Due to her symptoms, advanced stage of labour, the risk of foetal loss associated with open heart surgery, we decided to perform balloon dilatation of sub-aortic membrane

Balloon Membrane Dilatation





Balloon Membrane Dilatation



- Under rapid ventricular pacing, an Atlas Gold 16mm x 6cm balloon was inflated 3 times to a maximum pressure of 10 atm
- An aortogram was done after the inflation, showing mild AR and a co-arctation of the descending aorta

Patient Presentation

- The max PG across LVOT on CW after the procedure was 79 mmHg with a mean PG of 54 mmHg
- Post operatively there were no complications and she delivered via C-section at 36 weeks gestation.
- She was soon discharged to follow-up at our outpatient service, but unfortunately failed to return

Sub-Valvular Stenosis

- Sub-valvular aortic stenosis (SAS) is the second most common type of aortic stenosis, accounting for 14% of left ventricular outflow tract (LVOT) obstruction
- SAS encompasses a variety of anatomic lesions that can occur either alone or in combination
  - Thin, crescent-shaped membrane just below the aortic valve: discrete SAS. This represents 75% to 85% of SAS cases.
  - Thick fibromuscular ridge.
  - Tunnel or tubular: long, narrow, fibromuscular channel along the LVOT

Clinical Cardiology. 2018;41:131–136

Balloon Dilatation

- Balloon tearing of the subaortic thin membrane is an effective and safe method for reducing subaortic obstruction
- Only patients with a thin membrane without any fibromuscular component should be attempted
- Recurrences can appear over time (15%), but long term prognostic predictors includes larger annular size, thinner membranes and distance from the AV, treatment age > 13 years and larger body surface area
- Complications of the procedure includes access site complications, decompensation during rapid pacing, perforation, arrythmias and late recurrence

Circulation. 2011;124:1461-1468

Conclusion

- Balloon dilatation of sub-aortic membrane is a viable therapeutic option
- It is better tolerated than surgery and safe to perform during pregnancy
- It offers reasonable long term durability