



**Wockhardt Hospitals Surat**

**Opp .Chowpati, Athwalines , Surat - 395001**

**Appointment no: 0261-6694444**

## **Case study - Arch Of Aorta**

### **Introduction:-**

This is a case of Young lady 20 yrs old female resided at Valsad Came with complaint of recurrent headache with numbness of limb associated with chest pain. She was admitted at Adventist Wockhardt Hospital, Surat at 22 Dec. 2016 under Dr. Dhaval Shah (Cardiologist). Her BP is 250/100 mmHg on Upper Limb and 100/60 mm Hg on Right Lower Limb. This case is rarely seen and come for treatment for cardiac angina complaint associated with secondary hypertension. 2 D Echo show suspicious interrupted aortic arch type A with LVH. So advised for Aortogram which suggestive of Interrupted arch of aorta Type A.

Interrupted aortic arch (IAA) is an uncommon congenital anomaly representing approximately 1% of congenital heart disease. More than 97% of the cases also have associated cardiac anomalies complicating their treatment. Because the median age at death in untreated cases is 10 days, this condition usually occurs as a complicated neonatal surgical emergency. In this type of abnormality there is gap between the **ascending** and **descending thoracic aorta**. In a sense it is the complete form of a coarctation of the **aorta**. Majority patients also have other cardiac anomalies, including a ventricular septal defect (VSD), **aorto**-pulmonary window, and truncus arteriosus.

## Classification

According to the Celoria-Patton classification, IAA can be classified into three types according to the location of the anomaly:

- **type A:** second most common, the interruption occurs distal to the left subclavian arterial origin
- **type B:** most common (>50%), the break occurs between the left common carotid and left subclavian arterial origins
- **type C:** rare, interruption occurs proximal to the left common carotid arterial origin

Each type is divided into three subtypes <sup>7</sup>:

- **subtype 1:** normal subclavian artery
- **subtype 2:** aberrant subclavian artery
- **subtype 3:** isolated subclavian artery that arises from the ductus arteriosus.

This is patient of Type A – interrupted arch of aorta with normal Subclavian artery.

Patient history:-

Patient was presented with following complaint

- Recurrent headache with flashing of face.
- Recurrent numbness of lower limb with chest pain.
- Palpitation with accerated hypertension at young ages.
- Pressure different between upper and lower limb.

Vital: - BP: - 250/100 at Upper limb, 100/60 at lower limb.

RS: - Clear, AEBE. CVS: - S1S2 Normal, CNS: – Normal.

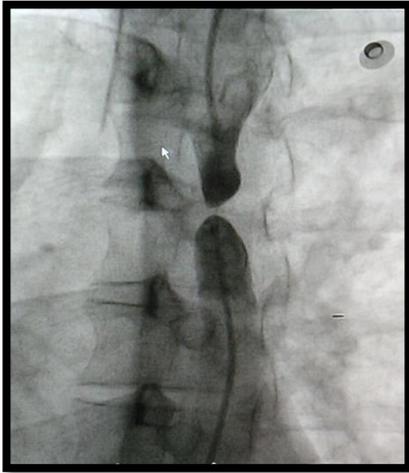
### 2D Echo show (Pre Procedure-D: - 24-12-16) show :-

- ? Interrupted Aortic Arch Type – A.
- Bicuspid Aortic Valve.
- No AS, Mild AR.
- Moderate to Severe LVH.
- Good Biventricular function.

For rule out further Cardiac abnormality, Plan for Aortography was done by Dr. Dhaval shah.

### **Aortography report showed following finding:-**

Descending thoracic aorta distal to origin of subclavian artery occluded and distal aorta is reformed by Collateral circulation. Gradient between upper and lower segment is 150 mmHg. But there is normal Subclavian artery which suggestive of Interrupted Aortic arch type A.



### **Now two options for treatment:-**

1. Surgical correction.
2. Aortoplasty by self-expandable stent.

As young lady so first options is not suitable and 2<sup>nd</sup> option had complication related to rupture or aneurysm or not passed a guide wire or emergency cardiac surgery.

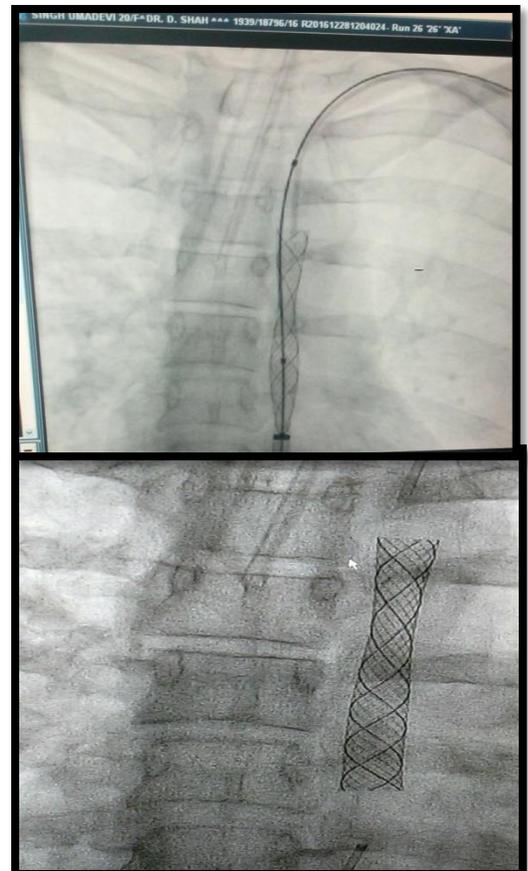
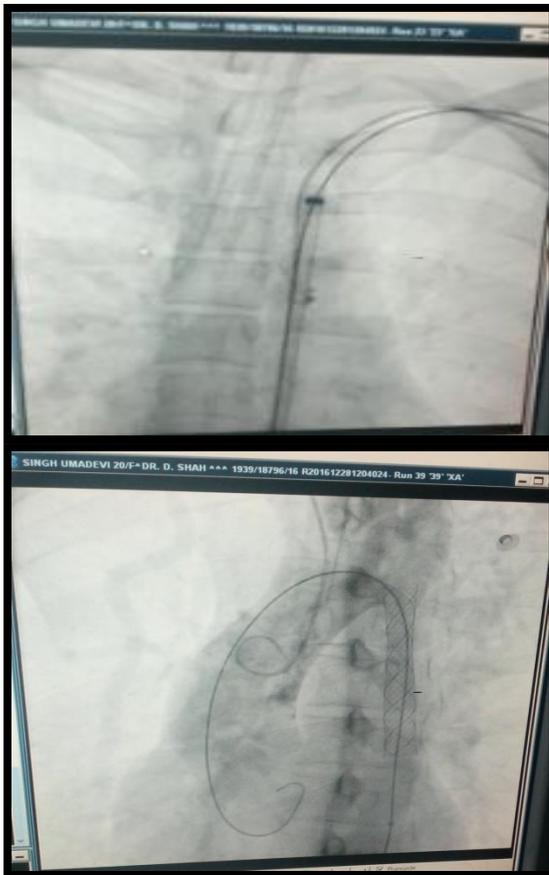
But after proper explanation and standby cardiac surgical operation theater, plan for aortoplasty was done by Dr. Dhaval Shah and Dr. Snehal Patel.

### **Aortoplasty Procedure:-**

- 4 access – RFA, RFV and both Radial Arteries.
- Angiography in AP view, Lateral 90 and LAO 40 with catheters at both ends.
- Tried to poke from above, but could not enter lower segment due to C shaped curve of upper part. So Tired from RFA with hard end of PTCA wire and successfully poked in the 1<sup>st</sup> attempt.
- Then made 5F MPA II very Close and tight and tried passing terumo 25 after removing

PTCA wire. Passed it successfully.

- Entered Upper part with same catheter with multiple angios in different views to check position.
- Passed amplatz super stiff wire, followed by 12 F ASD delivery system.
- In the end due to short length of the stent 90 cm, Removed the Y connector and had to cut the delivery system at groin and quickly pass the entire stent system.
- Then slowly with multiple angio shoot delivered stent 10 mm X 50 mm Boston Scientific self-expanding stent, dilated it with balloon and completed canalization between distal part of aorta with Descending thoracic aorta.
- Post procedure, Post stent 15 mm gradient between both ends. BP came down from 200/100 mm Hg to 100/76 mmHg.



### **Post-operative management inside ICU:-**

- Patient stable post operatively without any complication.
- Complaint of flushing and headache is decreased.
- Post procedure different of Blood pressure between upper limb and lower limb is decrease.
- No any other complication seen.

### **Post procedure echo By Dr. Snehal Patel**

- S/p Stunting of Type-A Interrupted Aortic Arch
- Gradient across stent , Max PG : 42 mmHg , Mean PG : 22 mmHg
- Gradient across arch to stent , Max PG : 62 mmHg , Mean PG : 30 mmHg
- Bicuspid Aortic Valve
- Aortic Annulus=24 mm, Sinus=38 mm, STJ=33 mm, As Ao = 34 mm
- No AS, Mild AR
- Moderate LVH (LVID= 51/32 mm, IVS/PW= 8/8mm)
- Good biventricular function. ( EF: 68 % , FS : 38 % )
- No PAH
- No pericardial effusion.

### **Discharge:-**

Patient was discharge uneventful without any complication on 2<sup>nd</sup> January, 2017 with antiplatelet drug and antihypertensive drug.

### **Follow Up:-**

Patient come follow up after 7 day. Patient stable and 2D Echo screening was done which does not show any complication.

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