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CardioEgypt 2018

Stenting In Aortic Interruption [Functional Aortic Atresia]



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Background

- Aortic interruption or atresia results in complete loss of anatomical and luminal continuity between the ascending and descending thoracic aorta.
- Usually diagnosed in newborn babies following spontaneous closure of PDA and requires urgent surgical repair
- It may be diagnosed rarely in an adult patient
- Represent functional atresia due to severe and longstanding coarctation of the aorta.
- This type of aortic interruption is a challenge and is usually treated surgically to establish aortic continuity

Acquired Aortic Atresia: Catheter Therapy Using Covered Stents

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Introduction: To maintain aortic continuity, aortic arch interruption is usually treated surgically. We present our experience of aortic arch reconstruction using percutaneous implantation of covered stents and mid-term follow-up. **Objective:** To describe the feasibility, safety, and effectiveness using percutaneous placement of covered stents for functional aortic atresia and mid-term follow-up. **Methods:** Nine patients (7 males), mean age of 30.8 ± 16.2 years (range 13–58 years) and mean body weight of 65.7 ± 14.9 kg (range 52–95 kg), were investigated for systemic hypertension and found to have functional aortic interruption. All were treated with percutaneous perforation, combined with balloon dilation and implantation of covered stents. After stent implantation, control angiograms were performed. **Results:** All the patients had functional aortic interruption and continuity was established by perforating the atretic segment with trans-septal Brockenbrough needle or the stiff end of a guide wire. A covered Cheatham-Platinum CP stent was used to establish the luminal continuity of the aortic arch. Angiograms after stent deployment showed good forward flow through the stent and hemodynamic assessment revealed minimal gradients across the stent. The mean invasive descending aortic systolic blood pressure before stenting was 86.6 ± 14.3 mm Hg, which increased to 116.5 ± 16.3 mm Hg, after stenting ($P = 0.004$). The mean invasive descending aortic diastolic blood pressure before stenting was 63.6 ± 8.1 mm Hg, which increased to 79.7 ± 13.3 mm Hg after stenting ($P = 0.002$). **Conclusion:** Percutaneous treatment of functional aortic atresia with covered stents is feasible, safe, and effective alternative to surgery with excellent short- and mid-term results. © 2015 Wiley Periodicals, Inc.



Ain Shams Experience

- 5 cases [3 males and 2 female]
- 10-59 years
- Presentation
 - 3 with chest pain and discovered during coronary angio – All were hypertensive
 - 2 with uncontrolled hypertension
 - Both females were married and had children [30 and 55 years]
- All had successful stenting to establish aortic continuity using CP covered stents
- Procedure time ranged from 76-139 min [average 109min]



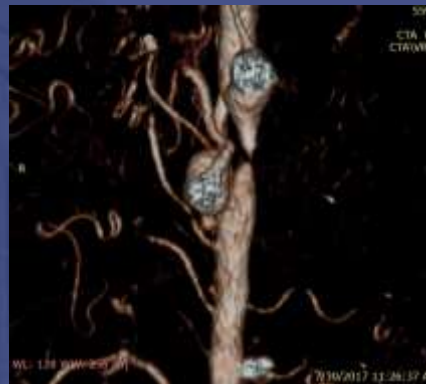
Chest X-ray:



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Technique

- Access
 - Right femoral and left or right brachial
 - Brachial access- 5 mg verapamil, 100 μ Tridil
 - 100units/kg Heparin – ACT > 200



- 30 years old female married with 2 children presenting with uncontrolled hypertension
- Diagnosed as CoAo with interruption
- Referred for stenting



Acess – right femoral –left brachial



Conclusion

- Percutaneous treatment of functional aortic atresia is feasible and a safe alternative to surgery with excellent immediate results
- Using PTCA wires is safe with minimal complications
- Requires a well equipped lab
- ? Time and radiation exposure [fluoroscopic acquisition]
- Life long follow up is required

CSI Africa 2018 Cairo, Egypt

November 30 – December 1, 2018

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