

JANUARY ANSWERS

QUESTIONS

1. What is the likely diagnosis for his hypertension?
 - a. Renal artery stenosis
 - b. Coarctation of the aorta
 - c. Conn's syndrome
 - d. Pheochromocytoma
2. Which of the following diagnoses is a cause of secondary hypertension?
 - a. Renal artery stenosis
 - b. Coarctation of the aorta
 - c. Conn's syndrome
 - d. Pheochromocytoma
 - e. All of the above
3. What would be the next investigation for this gentleman?
 - a. CT/MRI aortogram
 - b. MRI renal arteriogram
 - c. 24 hour urine for catecholamines
 - d. All of the above
4. What are the possible treatment options?
 - a. Medical treatment
 - b. Surgical repair
 - c. Transcatheter angioplasty/stenting
 - d. All of the above

ANSWERS

1. b 2. e 3. a 4. d

Coarctation of the aorta is a congenital heart problem with an incidence rate of about 1 in 1550. Patients usually develop persistent systemic hypertension, which may present in childhood, but sometimes it may be undetected until adulthood. These patients may develop premature coronary artery disease. Most cases occur sporadically but an autosomal-dominant inheritance has been observed. It is often associated with a bicuspid aortic valve (in 50–85% of cases). Potentially catastrophic complications include aortic rupture or dissection, and cerebral berry aneurysm rupture. The mean survival for untreated patients is 35 years, with a 25% survival rate beyond 50 years.

Other than hypertension, they may present with headaches, nosebleeds, cool extremities, leg weakness, or claudication with exertion. Physical examination may include a systolic ejection murmur, upper extremity hypertension, and diminished and delayed femoral pulsation.

ECG in coarctation may reveal evidence of left ventricular hypertrophy. Chest X-ray may reveal cardiomegaly, dilated ascending aorta, rib notching, and the classic '3' or inverted-E sign. Echocardiography may reveal the pressure gradient of coarctation, resultant left ventricular hypertrophy, and any associated defects such as bicuspid aortic valve and mitral valve defects. MRI and CT imaging provides excellent anatomical information. Cardiac catheterization may reveal more precise data on the pressure gradient. A gradient more than 20 mmHg signifies haemodynamic significance and warrants intervention, while a gradient of >50 mmHg generally mandates intervention.

Surgical therapy has been the mainstay of treatment for many years, especially in neonates and infants. It may be a resection of the stenosed segment with end-to-end anastomoses, it may involve the use of a subclavian flap, or a patch aortoplasty. Major surgical complications include paraplegia caused by a perioperative spinal cord ischaemia, residual coarctation, aneurysm formation and, rarely, death. Survival rates of more than 90% at 10 years and 84% at 20 years have been reported.

In recent years, percutaneous balloon angioplasty has been introduced for coarctation of the aorta as a less invasive treatment. It is less effective than surgery for neonates and infants, with a higher rate of recurrence and aneurysm formation. Stent implantation is now the preferred treatment for the percutaneous approach, with a lower recurrence rate and aneurysm formation than angioplasty alone. It has become a more and more preferred treatment in adults with coarctation of the aorta.



Figure. The CT aortogram of this patient.