CLINICAL QUIZ

A 20-Year-Old Male with Hypertension and Leg Cramps

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Case Presentation

A 20-year-old male presented with frontal, throbbing headaches for 3 months, worse with exercise, and leg cramps when running that were better with rest.

Past Medical History: Healthy, not significant.

Family History: Father with hypertension at age 40. No known cardiac disease.

Social: Non-smoker.

On Examination

Vitals: BP 168/82 mmHg (right arm), 160/80 mmHg (left arm). HR 88, RR 18.

Pulses: Brachial pulses strong and bounding. Femoral pulses weak and delayed vs. brachial (radio-femoral delay). Dorsalis pedis barely palpable.

CVS: Systolic ejection murmur, grade 3/6, at the left upper sternal border, radiating to the back between the scapulae. No edema.

Respiratory / Abdomen / Neuro: Normal.

Questions

Q1. What is your provisional diagnosis, and why?

Q2. What 3 key findings support it on exam?

Q3. What is the most appropriate next investigation?

Q4. What associated congenital anomaly must you rule out?

Q5. What are 2 treatment options if confirmed?

Answers & Teaching Points

A1. Diagnosis: Coarctation of the Aorta. *Reason:* Upper limb hypertension plus radio-femoral delay.

A2. Key Exam Findings:

1. Radio-femoral pulse delay: the femoral pulse arrives late and feels weaker compared to the brachial pulse.

2. Back murmur: collateral circulation produces a systolic murmur over the interscapular area.

A3. Next Investigation: Transthoracic echocardiogram with Doppler. Confirms the site/severity of narrowing. Chest X-ray may show “rib notching.”

A4. Associated Anomaly: Bicuspid aortic valve. Present in 50–80% of coarctation cases; increases risk of aortic stenosis, regurgitation, and endocarditis. The aortic valve must be checked on echo.

A5. Management Options:

1. Surgical repair: resection with end-to-end anastomosis — gold standard for children/teens.

2. Balloon angioplasty ± stent: minimally invasive, common in adolescents/adults.

Medical: Antihypertensives if blood pressure remains high post-repair.