Chapter 10
Aortic Coarctation and Complicated Infective Endocarditis

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Abstract Aortic coarctation is an example of congenital disorders with a high risk of development of endocarditis and endarteritis. In the presurgical era, infective endarteritis constituted a frequent complication of aortic coarctation and was responsible for 20% of death of these patients. Here in, we describe a case of coarctation endarteritis with pseudoaneurysm formation in an adult and review the echocardiographic findings of this condition.

Adult coarctation endarteritis is a rare entity but sometimes represents the initial presentation of coarctation. Diagnosis is critically important given the risk of rupture. Transesophageal echocardiography can be helpful in diagnosis and management.

Keywords Aortic coarctation · Infective endarteritis · Transesophageal echocardiography · Pseudoaneurysm · Aortic valve replacement

Case Presentation and Discussion

26-year-old young man with dyspnea and palpitation (FC II-III), Low aptitude, low-grade fever, and weight loss, Soft S1, SM II/VI in LSB, DM III/VI in LSB and specially in RUSB & low-Pitched apical diastolic murmur. Three sets of blood cultures grew viridans group streptococci. Here is the TTE and TEE findings (Figs. 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.7, 10.8, 10.9, 10.10, 10.11 and 10.12):

He underwent two-staged surgeries (at first repair for coarctation and then excision the pseudoaneurysm) and Aortic valve replacement 8 days later.

Macroscopic examination of the operative piece revealed a false aneurysm corresponding to the post stenotic dilatation communicating with the aortic lumen by a small hole.

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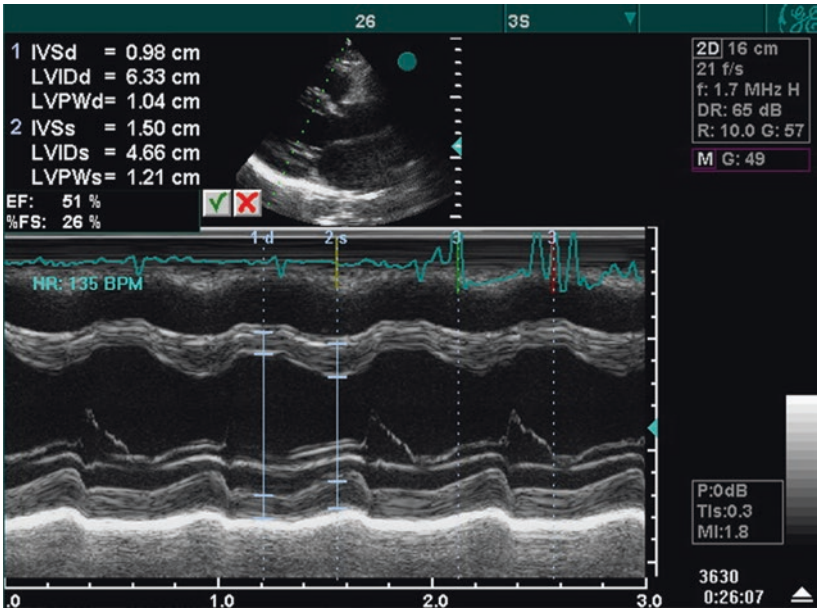

Fig. 10.1 M-mode tracing of LV, significant LV enlargement with LVEF = 50%

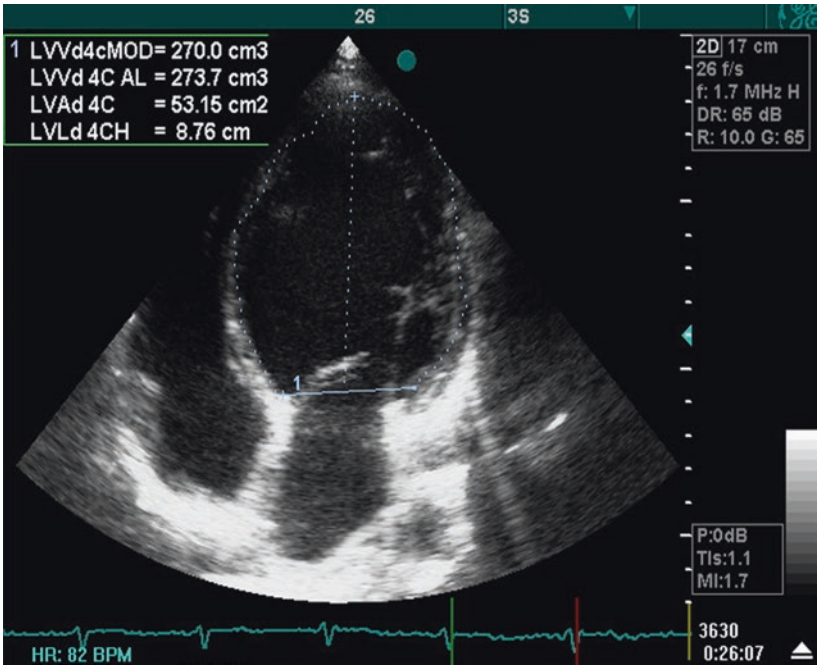

Fig. 10.2 Apical four-chamber view, severe LV enlargement with LVEF = 50%

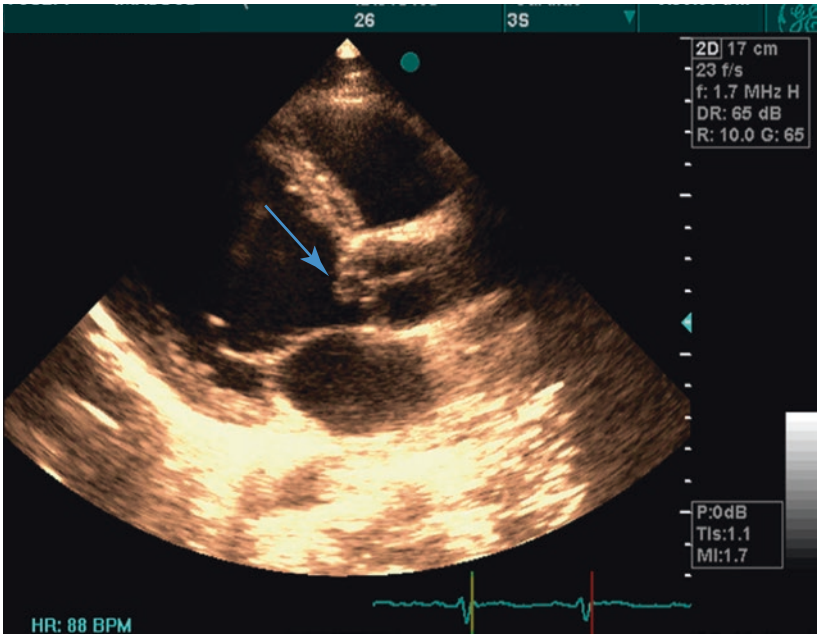

Fig. 10.3 Parasternal long-axis view, severe LV enlargement, bicuspid AV, vegetation on AV (arrow)

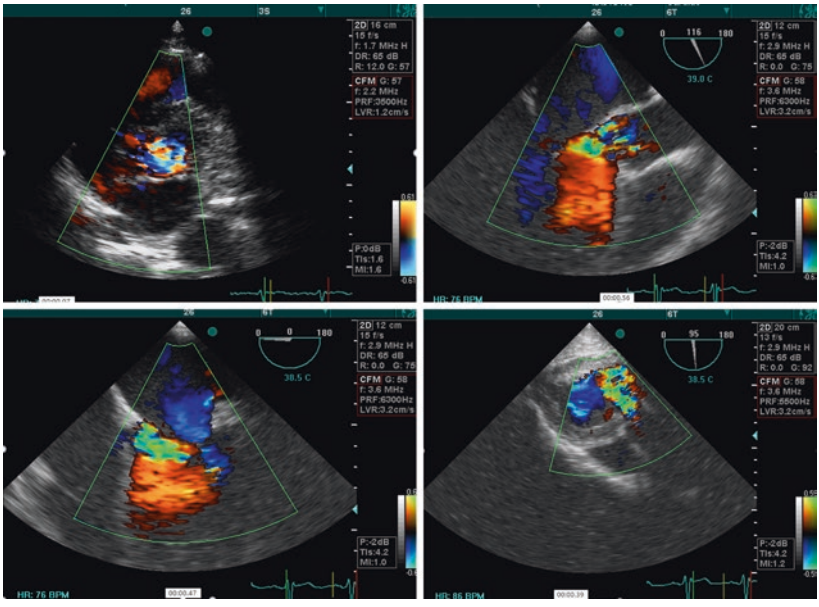

Fig. 10.4 Severe multi-jet AI due to destructed and perforated bicuspid aortic valve because of IE. Upper left: Parasternal short-axis view; Upper right: TEE, ME, 120′ view; Lower left: TEE, ME, 0′ view; Lower right: TEE, Trans-gastric, 90′ view

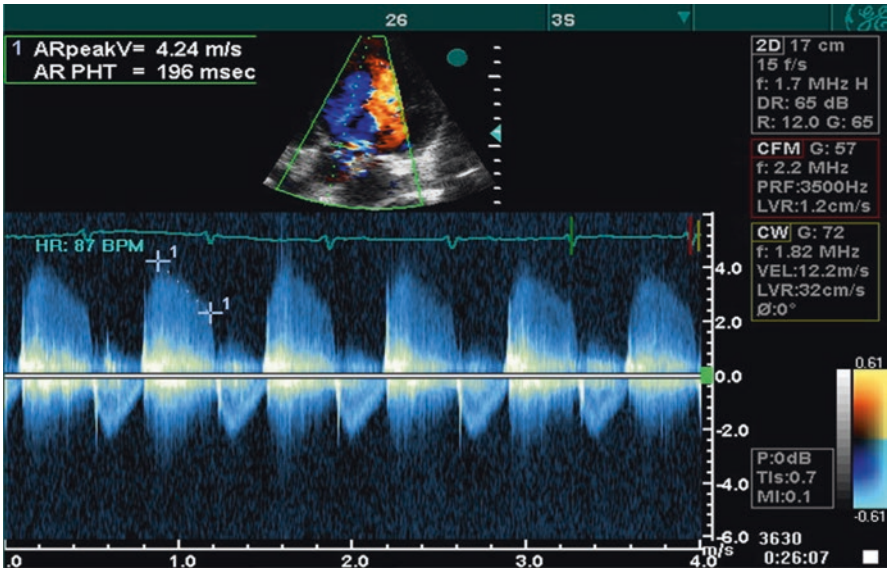

Fig. 10.5 Color-Doppler flow of Severe AI, AI flow PHT = 196 ms

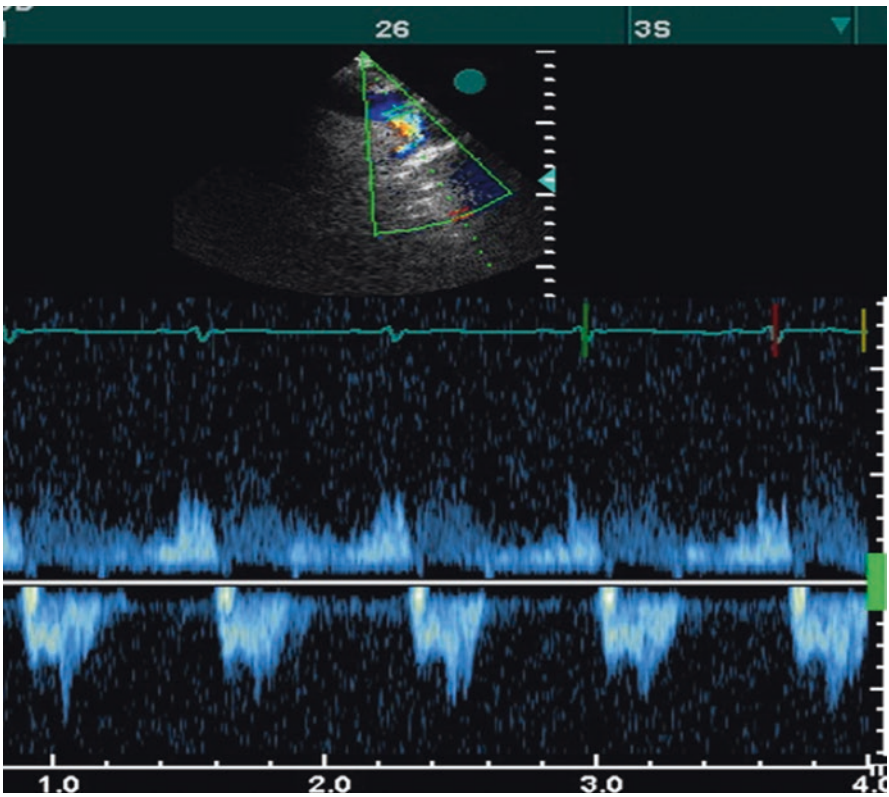

Fig. 10.6 Holo-diastolic flow reversal in the proximal part of descending aorta due to severe AI

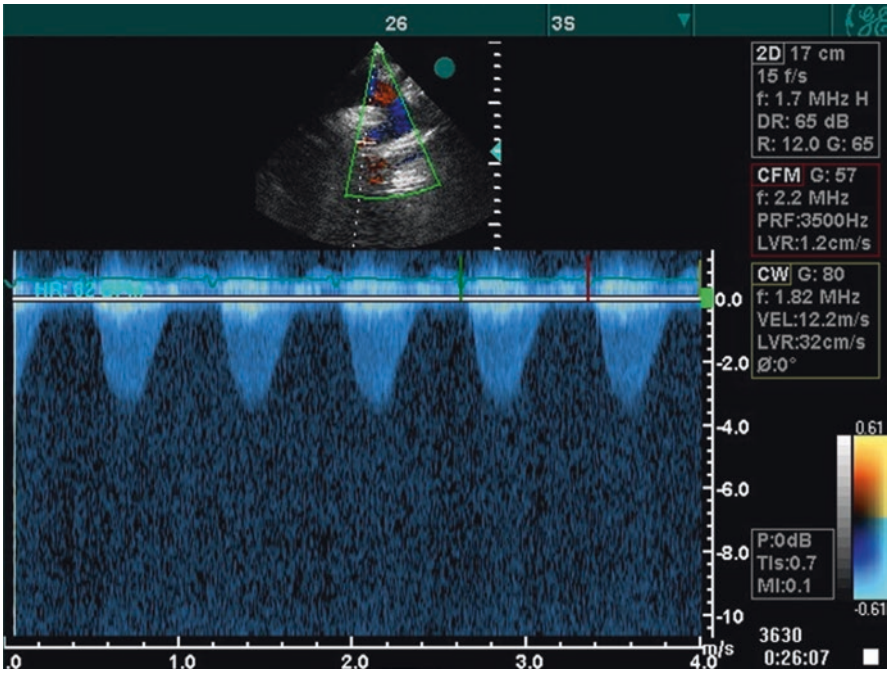

Fig. 10.7 Coarctation of aorta; flow velocity = 3.7 m/s

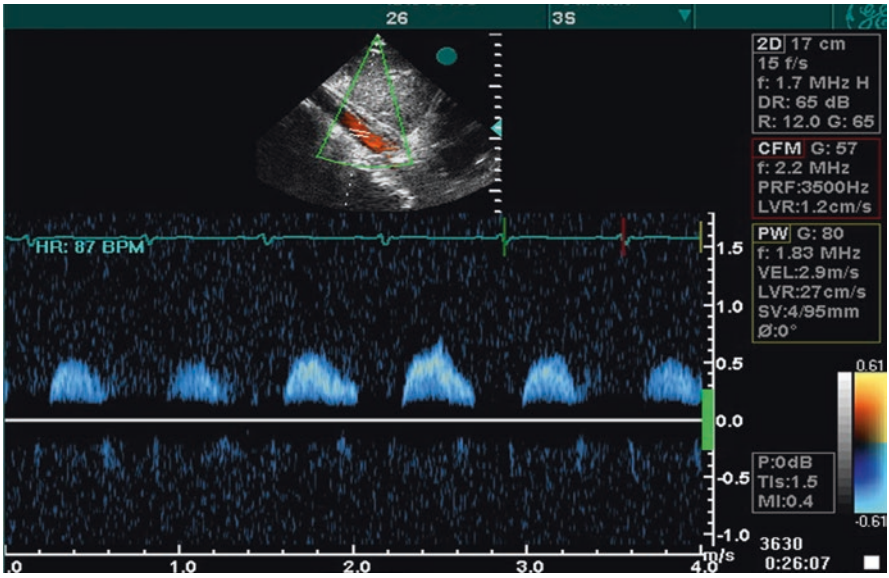

Fig. 10.8 Typical Doppler flow for aortic coarctation of abdominal aorta

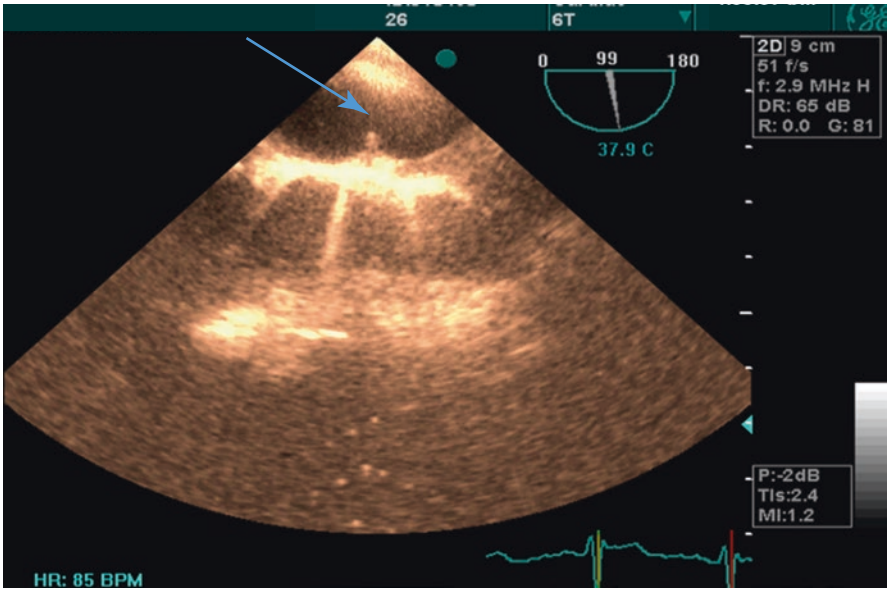

Fig. 10.9 TEE view. UE. 90′. Coarctation of aorta (arrow)

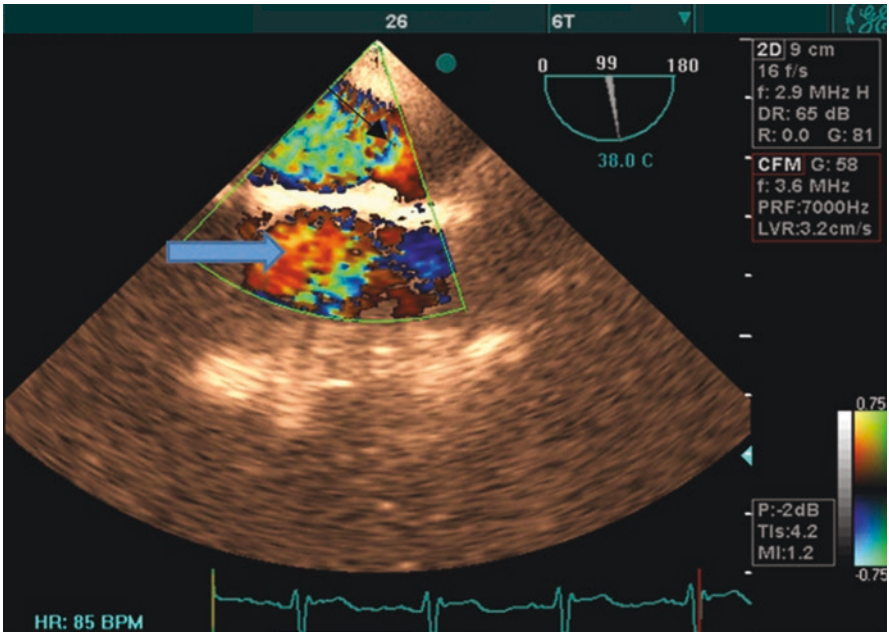

Fig. 10.10 Color flow of coarctation site (black arrow); Mirror artifact (wide arrow)

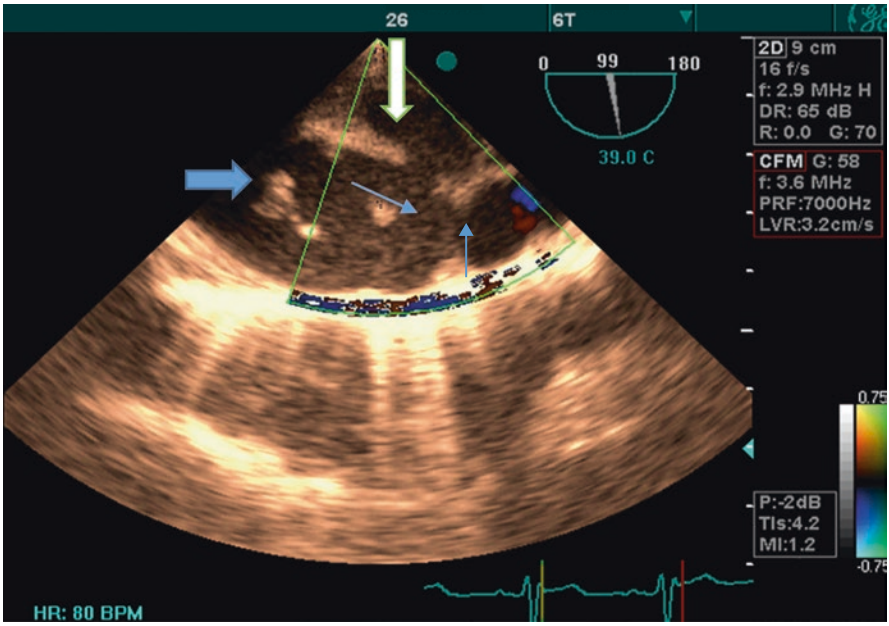

Fig. 10.11 Transesophageal echocardiography; descending aorta, Coarctation site (blue arrow); intraluminal vegetations (wide blue arrow); associated with a complex pseudoaneurysm (wide white arrow)

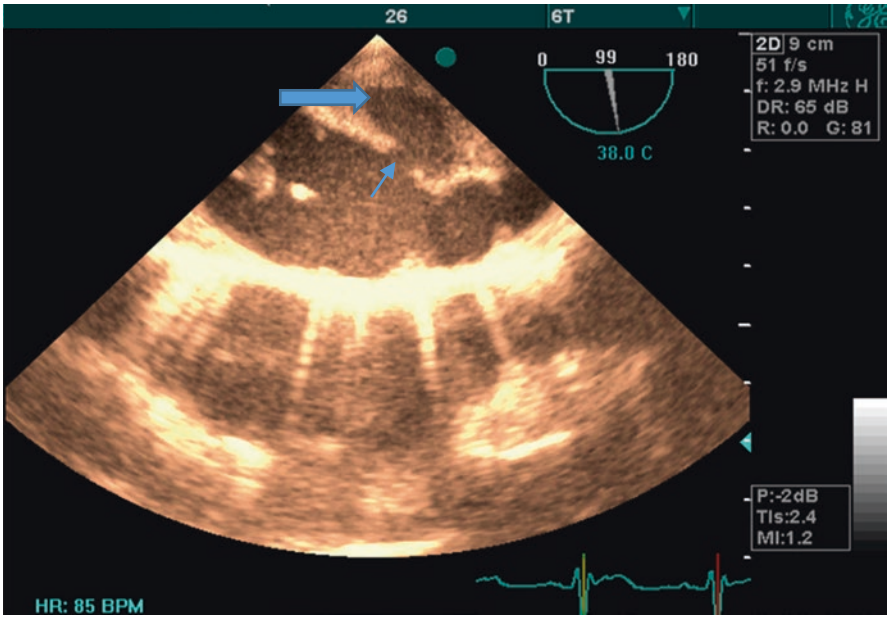

Fig. 10.12 Coarctation and vegetations and Pseudoaneurysm (wide blue arrow); also the neck of pseudoaneurysm is seen clearly (narrow arrow)

Postoperatively, the patient felt well with no complications. TEE study did not show any abnormality at the level of the dacron tube.

The last TTE before discharge includes: Severe LV enlargement and dysfunction (LVEF = 20–25%). Mild RV enlargement with moderate dysfunction. Acceptable AV prosthesis hemodynamic study with normal range of motion, no vegetation. Normal flow in Gore-tex and No PE.

So, aortic coarctation is an example of congenital malformation with a high risk of development of endocarditis-endarteritis. In aortic coarctation, blood flows through a narrowing in the aorta at high velocity, resulting in a lower-pressure "sink" in the area distal to the stenosis. Bacteria may attach to the aortic wall in this low-pressure region, especially when there is concurrent endothelial injury. In coarctation, endothelial injury is likely precipitated by shear stress forces [1–5].

References

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