Aortic Coarctation Presenting As Acute Abdominal Pain In A Child

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Citation

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Abstract

Coarctation of aorta is the most common correctable cardiovascular cause of hypertension and early diagnosis is often not made. We report a 9-year-old child who was admitted with severe intractable abdominal pain as the presenting symptom of post-subclavian aortic coarctatation with hypertension. His pain resolved after control of the hypertension with parenteral anti-hypertensives and narcotic analgesics in the pediatric intensive care unit. He subsequently underwent transcatheter balloon dilatation of the aortic coarctation and remains well with normal blood pressure on follow up.

INTRODUCTION

Acute abdominal pain can be a distressing experience for a child as well as the treating doctor. Symptoms associated with surgically correctable causes include bile stained vomitus, asymmetric pain, local tenderness and peritonism.

This communication reports the case of a 9-year-old child who was admitted to our hospital with severe intractable abdominal pain as the presenting symptom of post-subclavian aortic coarctatation with hypertension, the delay in its diagnosis and the definitive treatment given.

CASE REPORT

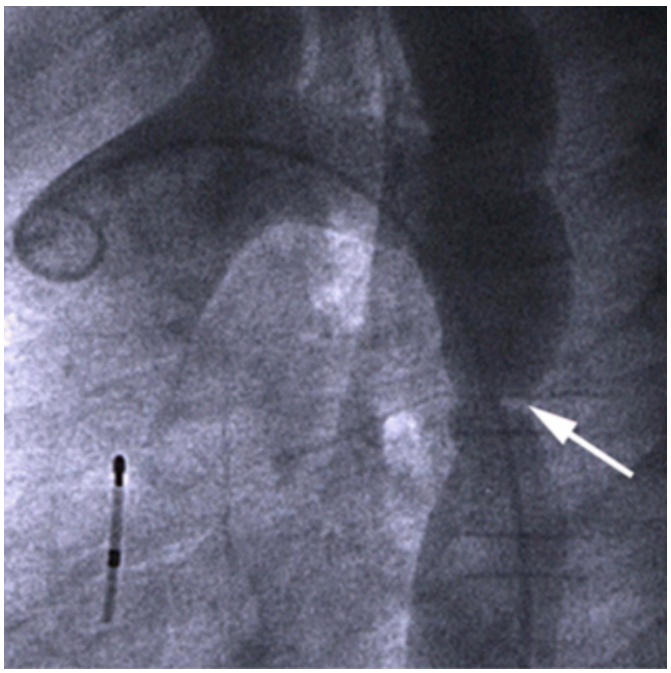
A 9 year old, previously healthy boy was admitted to the pediatric surgical ward of our hospital with acute abdominal pain. He was having severe colicky pain in the upper abdomen associated with vomiting for the previous 5 days with no relief of symptoms with parenteral antispasmodics. There was no history of fever, cough, skin rashes, diarrhea or dysuria. He looked sick, mildly dehydrated with a pulse rate of 86/min, respiratory rate of 28/min and blood pressure (BP) of 143/87 mm of Hg in the right upper limb. Local examination revealed a soft, flat abdomen with tenderness in the epigastrium and both iliac fossae. He was kept nil orally but needed frequent parenteral antispasmodics and narcotic analgesics for control of his severe abdominal pain. All baseline investigations including full blood count, sickle screen, blood sugar, urea, electrolytes, liver function tests and serum amylase were normal. His urine was negative for porphobilinogen and culture. A day later he developed greenish vomitus but passed normal stools. Abdominal X-ray and ultrasound examination were normal. A barium meal and follow through examination was done to rule out malrotation and it was also normal.

In view of persistence of severe pain 3 days after admission, a pediatric medical consultation was requested. Abdominal examination was not contributory. However a detailed cardiovascular examination revealed feeble femoral pulses with systolic hypertension in the upper extremities (BP in left arm 173/105 mm of Hg, left leg 128/98 mm of Hg). Precordial examination showed normal heart sounds, systolic ejection click and grade 3/6 ejection systolic murmur in the upper left sternal border. The ocular fundi were normal. Electrocardiogram revealed evidence of left ventricular hypertrophy. Chest X-ray showed cardiomegaly with the aortic indentation producing the reverse “E” or “3” sign. Echocardiogram showed severe post subclavian coarctation of aorta with a bicuspid aortic valve and a pressure gradient of 50 mm of Hg by Doppler. The abdominal pain was considered secondary to the severe hypertension with reduction in renal and enteric blood flow ($_{1}$), as no other cause of pain could be identified. The child was shifted to the pediatric intensive care unit and started on labetalol and morphine infusions for the control of severe hypertension and abdominal pain. Color Doppler study of the celiac axis and superior mesenteric artery were normal. 24 hours later his hypertension and abdominal pain resolved. He was started on oral propranolol and cardiac catheterization done later revealed classical post-subclavian

coarctation (Fig 1).

Figure 1

Figure 1: Aortography showing post-subclavian coarctation



He subsequently underwent elective transcatheter balloon dilatation of aortic coarctation in our hospital and remains well with normal blood pressure on follow up.

DISCUSSION

Acute abdominal pain can be a distressing experience for a child and elucidation of its cause sometimes difficult for the treating doctor. Symptoms associated with surgically correctable causes include bile stained vomitus, asymmetric pain, local tenderness and peritonism ([2]). Common causes of acute abdominal pain in children include appendicitis, mesenteric adenitis and non specific abdominal pain. Uncommon causes include infective diarrhea, food poisoning, sickle cell crisis, gall stones, pancreatitis, peptic ulcer disease, acute intermittent porphyria, malrotation, intussusception, ureteric calculi, urinary tract infection, pneumonia, diabetic ketoacidosis and Henoch-Schonlein purpura. Coarctation of aorta is the most common correctable cardiovascular cause of hypertension. It occurs in 6 % to 8 % of all cases of congenital heart defects and twice as common in males. The diagnosis is often missed unless the patient develops congestive heart failure usually in early infancy or presents with a cardiac murmur and hypertension usually in older children. Symptoms of late presentation may also include headache, fatigue, chest pain, pain in the legs after exercise or rarely intracranial hemorrhage. The diagnosis of aortic coarctation was obviously delayed in the surgical ward for the above child, due to lack of attention to the admission BP of 143/87mm of Hg while in pain, an incomplete clinical examination and absence of a chest Xray in the initial work up. Acute abdominal pain which responded only to parenteral antihpertensives and narcotic analgesics is a rather unusual presenting symptom of aortic coarctation with hypertension and poorly documented in the medical literature ([3] , [4]). It has been reported after balloon dilatation or surgical repair (post coarctectomy syndrome) due to mesenteric arteritis ([1], [5]). Aortic dissection is extremely rare in childhood. Complications of aortic coarctation include hypertension, left ventricular failure, aortic dissection, premature coronary artery disease, infective endocarditis, and cerebrovascular accidents ([6]). Surgical repair or balloon angioplasty is indicated in patients with a transcoarctation pressure gradient of more than 30 mm of Hg. Post procedure complications include residual or recurrent hypertension, recurrent coarctation, development of aortic aneurysm and the possible sequelae of a bicuspid aortic valve. In a recent review regarding early diagnosis of coarctation of aorta, the mean and median ages at referral were 8.4 and 5.8 years respectively ([7]). Since early detection and treatment are essential to prevent the complications, routine measurement of upper and lower limb blood pressures during at least one physical examination after the neonatal period is advisable.

CONCLUSIONS

In conclusion we report the atypical presentation of post-subclavian aortic coarctation in a 9-year-old child with severe intractable abdominal pain, the delay in its diagnosis and the relief of symptoms with appropriate therapy. It also underscores the importance of the traditional method of a complete physical examination, including measurement of the pulse and blood pressure in both upper and lower limbs.

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