

## Bilateral tardus-parvus waveform in kidneys secondary to mid-aortic syndrome in a hypertensive child

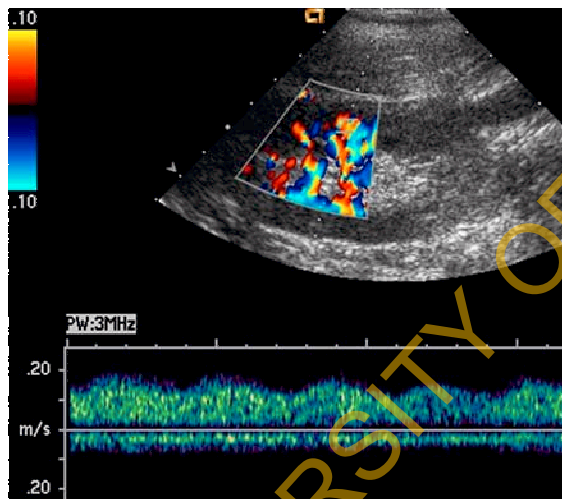
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Received: 17 November 2007 / Revised: 6 March 2008 / Accepted: 17 March 2008 / Published online: 9 May 2008  
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A 10-year-old girl who presented with hypertension and an elevated renin level underwent a renal US examination that demonstrated abnormal Doppler waveforms in both kidneys, characterized by the tardus-parvus pattern with prolonged acceleration time, decreased peak systolic velocity and elevated diastolic flow (Fig. 1). The child was further evaluated with conventional angiography that

syndrome. In addition, narrowing of the superior mesenteric artery was seen (Fig. 2, long arrow) as well as mild narrowing of both proximal bilateral renal arteries.

Although hypertension is typically essential (primary) in older children and adolescents, in approximately 10% of children it is due to underlying renovascular disease [1]. When tardus-parvus waveforms are present in bilateral kidneys, however, aortic coarctation or mid-aortic syndrome should be considered in addition to bilateral renal artery stenosis [1, 2].



**Fig. 1** Right kidney demonstrates abnormal Doppler waveforms

demonstrated marked narrowing of the abdominal aorta starting just below the level of the superior mesenteric artery (Fig. 2, short arrows) consistent with mid-aortic



**Fig. 2** Abdominal aortogram

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