Research Article

An Uncommon yet Correctable Cause of Brain Hemorrhage in the Young

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Abstract

Intracranial bleed in the young is frequently due to congenital aneurysms, and infrequently due to secondary causes of hypertension. Hence, a detailed work-up of these patients is the need of the hour so as to promptly diagnose and treat such patients, thereby preventing future morbidity and mortality. We, hereby, present a case of intracranial bleed presenting in a patient with undiagnosed coarctation of aorta.

Keywords: Hypertension, Coarctation, Intracranial bleed

Introduction

Intracranial bleed presenting in young patients must be evaluated for underlying etiology, which may range from secondary hypertension to congenital aneurysms and structural defects. Among secondary hypertension, renal and renovascular causes are the most frequent. However, a detailed cardiovascular and systemic examination cannot be over emphasised to rule out other infrequent but potentially correctable causes.

We present a case of a young patient presenting with accelerated hypertension and intracranial bleed, who in detailed examination and investigation was diagnosed as coarctation of aorta, which was then corrected by surgery.

Case Report

A 35-year-old male resident of Bhadurgarh, laborer by occupation, presented to emergency with complaints of headache associated with sudden onset of weakness of right upper limb and lower limb for one day. The patient also gave history of deviation of angle of mouth, and slurring of speech. There was no preceding history of fever, seizures, head injury, photophobia or loss of vision. Patient had no complaints of chest pain, palpitation, or headache. There was no history of treatment for hypertension or diabetes mellitus.

At the time of presentation, the patient was conscious and oriented to time, place and person. Pulse rate was 96/min, regularly regular, good volume and slow rising. Bilateral radial and brachial pulses were palpable and bilateral femoral, popliteal and dorsalis pedis pulsations were absent. Blood pressure was 220/140 mm Hg in right arm and 210/130 in left arm and not recordable in bilateral lower limbs. Respiratory rate was 30/min. There was no pallor, icterus, clubbing, cyanosis or lymphadenopathy.

In cardiovascular system examination, there was ejection systolic murmur, harsh in character, heard in 3rd intercostal space just left lateral to sternal border, Grade 3 in intensity which was heard best at the end of expiration, non-radiating,

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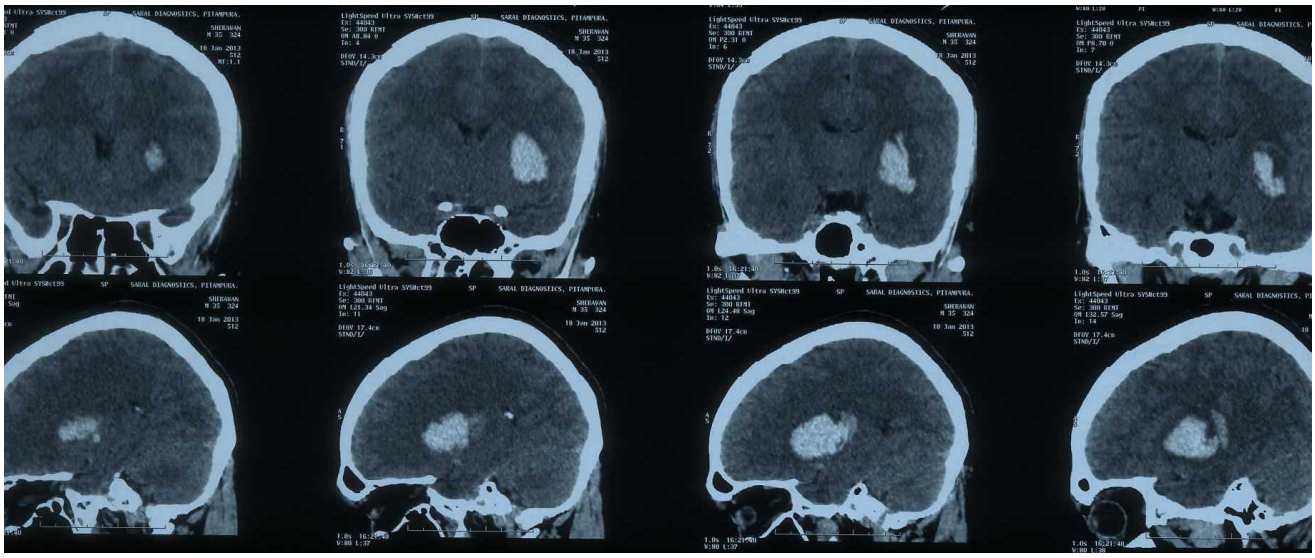
and not associated with thrill. There was also a continuous murmur heard at back in inter and infrascapular area. No renal bruit was heard.

Respiratory and abdominal systems were normal. Higher mental functions were intact. There was right-sided upper motor neuron type of 7th cranial nerve palsy. Power was 3/5 at all joints in upper limb and lower limb on right side and 5/5 on left side associated with sensory loss on the same side. Fundus showed bilateral papillodema initially and on follow up visit, patient had bilateral Grade 2 hypertensive changes. Electrocardiograph had left axis deviation and echocardiography was suggestive of marked concentric LVH with bicuspid aortic valve, no regional wall motion abnormality, normal chamber dimension and LV ejection fraction of 64%. The hematological investigations were grossly normal (Table1).

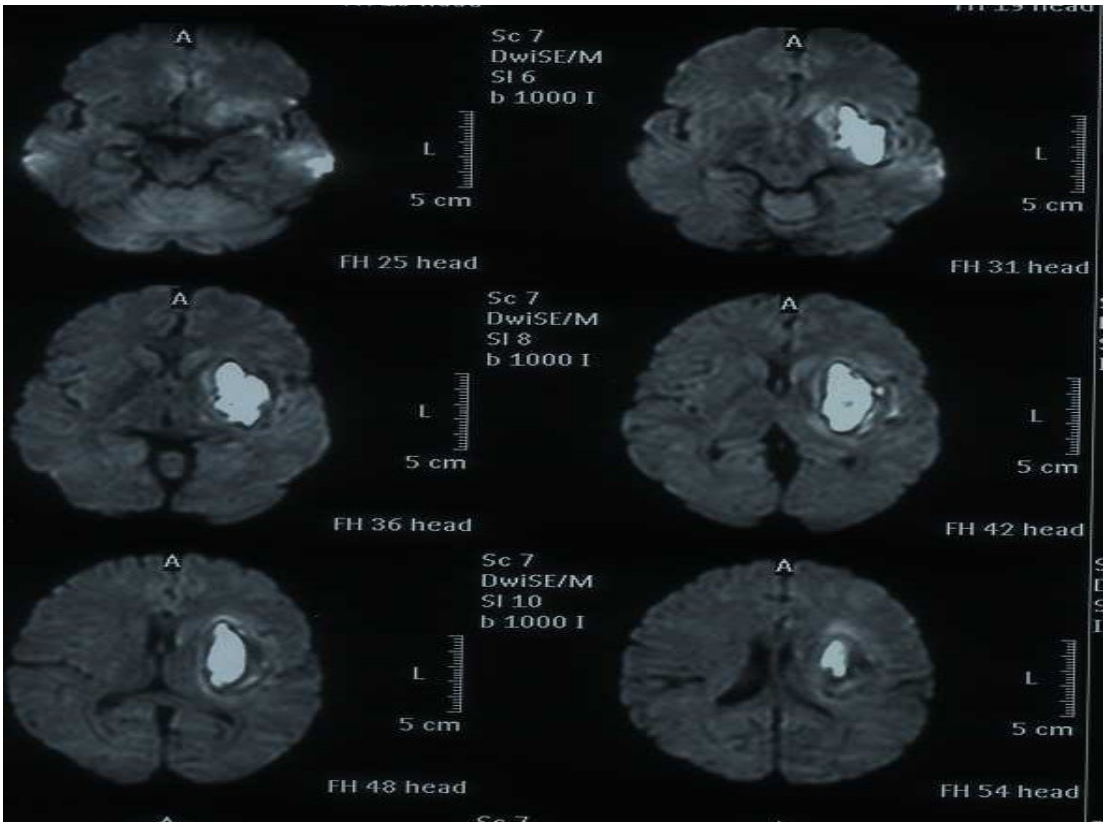
Table 1.Hematological Investigations

	Admission	Discharge
Hemoglobin (GM%)	13.2	13
Total Leukocyte Count	7000	6500
Differential Count (Neutrophil/Lymphocyte)	86/10	87/11
Platelet Count	3.5 lac	3.0 lac
Serum Bilirubin	0.3	0.3
Blood Urea (Mg%)	57	39
Blood Sugar	97	98
Electrolyte (Sodium/Potassium)	141/4.8	142/4.0

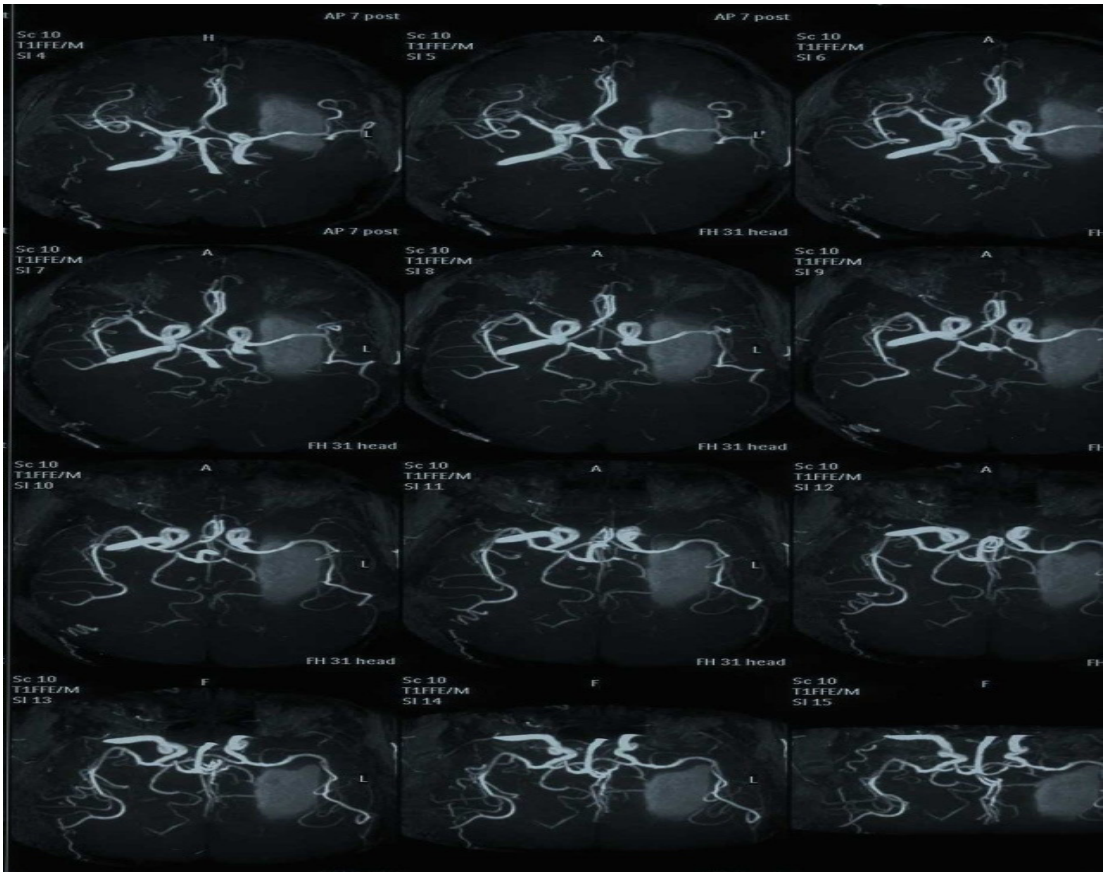
Non-contrast CT head (Picture 1) was suggestive of acute intrparenchymal bleed in left basal ganglia with mild mass effect, which was confirmed in MRI brain (Picture 2). MR angiography of brain (Picture 3) did not reveal any collaterals or aneurysm; however, MR angiography of aorta (Pictures 4 to 6) was done in view of clinical examination, which revealed bicuspid aortic valve with postductal type of coarctation of aorta.



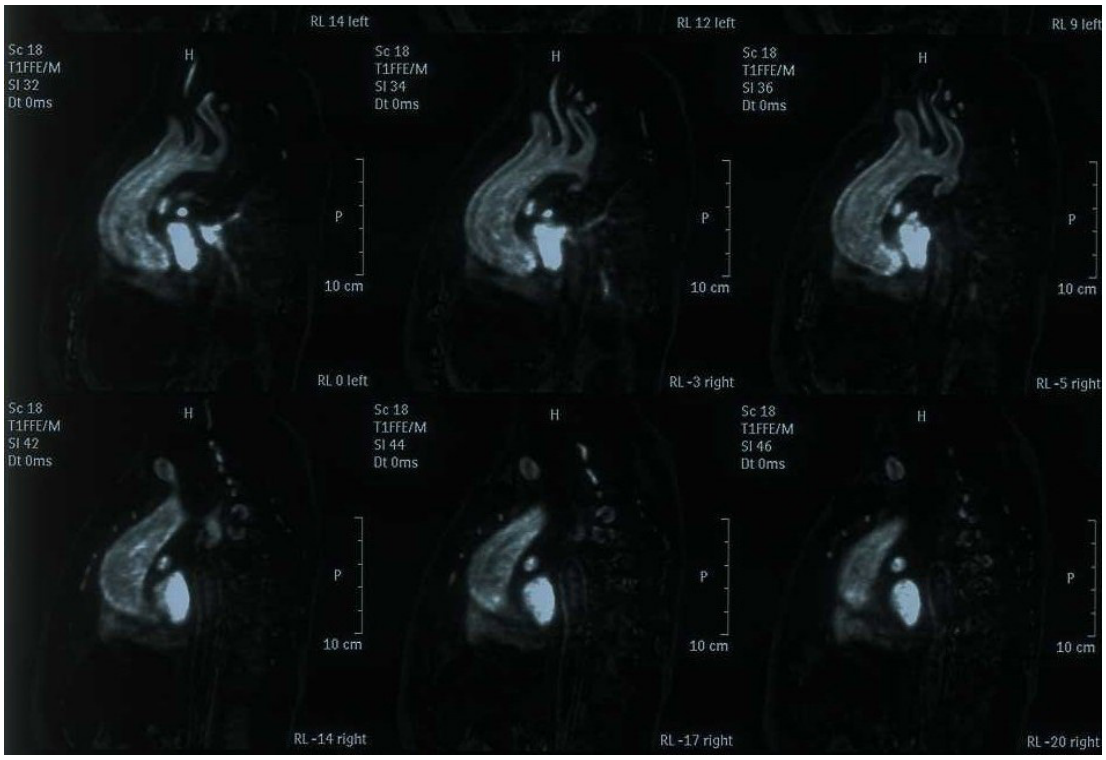
Picture 1.NCCT Head

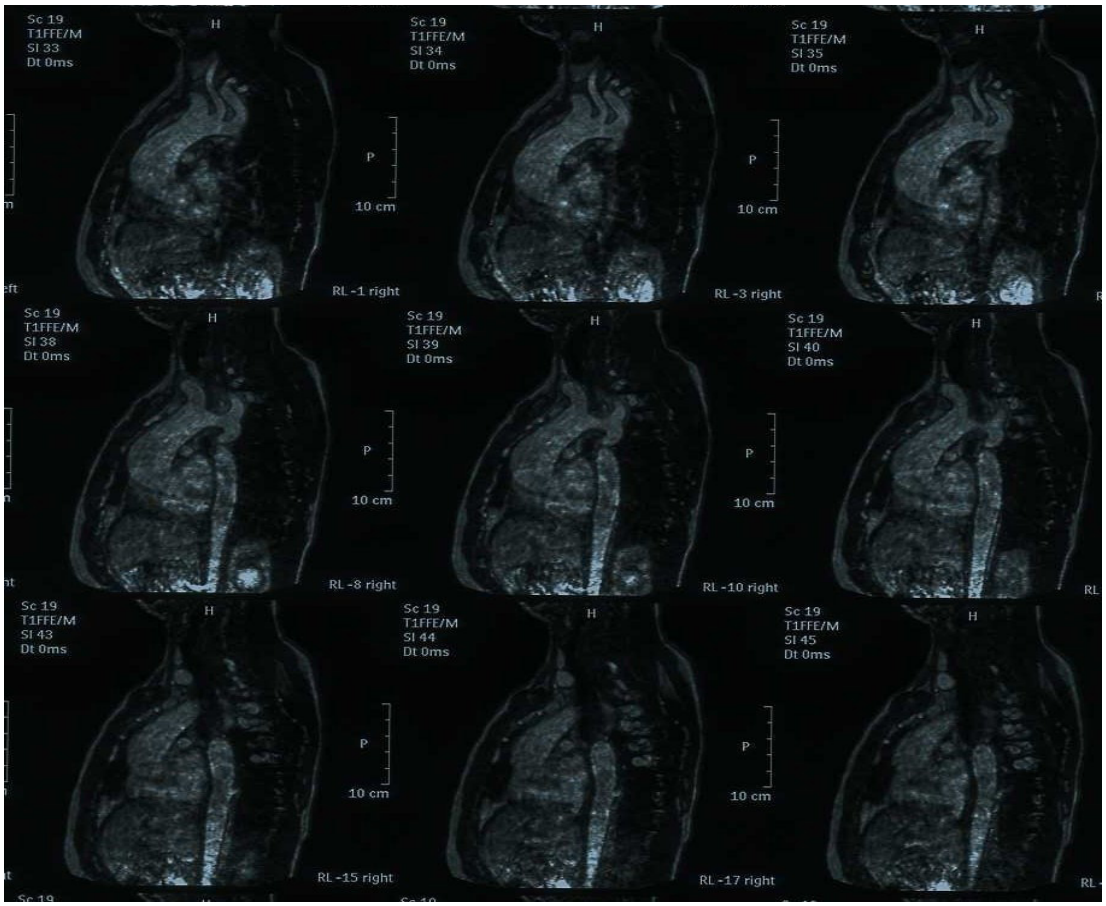


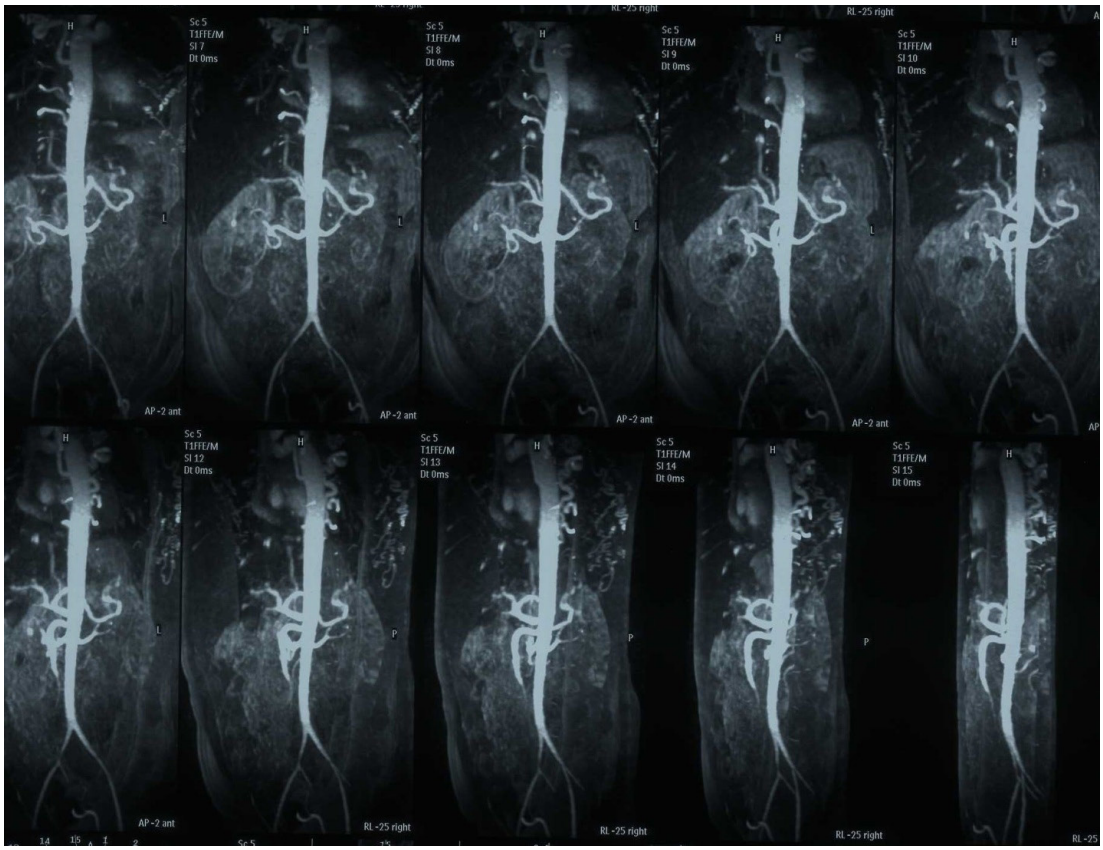
Picture 2.MRI Brain



Picture 3.MR Angiography Brain


RL 14 left
Sc 18
T1FFE/M
SI 32
Dt 0ms
RL 0 left
Sc 18
T1FFE/M
SI 34
Dt 0ms
RL 12 left
Sc 18
T1FFE/M
SI 36
Dt 0ms
RL -3 right
RL 9 left
RL -5 right
Sc 18
T1FFE/M
SI 42
Dt 0ms
RL -14 right
Sc 18
T1FFE/M
SI 44
Dt 0ms
RL -17 right
Sc 18
T1FFE/M
SI 46
Dt 0ms
RL -20 right
10 cm


Sc 19
T1FFE/M
SI 33
Dt 0ms
RL -1 right
Sc 19
T1FFE/M
SI 34
Dt 0ms
RL -3 right
Sc 19
T1FFE/M
SI 35
Dt 0ms
Sc 19
T1FFE/M
SI 38
Dt 0ms
RL -8 right
Sc 19
T1FFE/M
SI 39
Dt 0ms
RL -10 right
Sc 19
T1FFE/M
SI 40
Dt 0ms
Sc 19
T1FFE/M
SI 43
Dt 0ms
RL -15 right
Sc 19
T1FFE/M
SI 44
Dt 0ms
RL -17 right
Sc 19
T1FFE/M
SI 45
Dt 0ms
10 cm



Pictures 4–6.MR Angiography Aorta

Hence a final diagnosis of accelerated hypertension with hypertensive bleed with right-sided hemiparesis with right 7th nerve palsy UMN-type with postductal type of coarctation of aorta was made.

Patient was given mannitol for two days and then put on syrup glycerol to reduce intra cranial tension. Patient's headache was relieved. Weakness of right-sided limbs started showing improvement in terms of power and coordination. Patient was referred to higher center of cardiac surgery, where patient underwent balloon angioplasty and stenting. Patient had improvement in his power, coordination and hypertension control over his follow-up visits.

Discussion

Coarctation of aorta accounts for not more than 7% of patients who are born with a congenital heart disease. It may occur isolated or in association with other lesions, most commonly bicuspid aortic valve. The diagnosis of coarctation of the aorta may be missed unless a high index of suspicion is maintained, and diagnosis often is delayed until the patient develops congestive heart failure, which is frequent in infants, or hypertension, which is frequent in adults. It can be easily diagnosed by echocardiography, and surgically repaired. If left untreated, it can present in adulthood as cardiac failure, aortic rupture, bacterial endarteritis, and intracranial haemorrhage.[1] Spontaneous sub-arachnoid hemorrhages have been reported in literature with coarctation due to intracranial aneurysms.[2] However, there are infrequent case reports of intraparenchymal bleed in patients, without any aneurysm in patients with coarctation of aorta, in which the chief mechanism remains accelerated hypertension.[3]

Thus we report such a case of coarctation of aorta leading to accelerated hypertension leading to intraparenchymal bleed so as to stress on the need for high index of suspicion required for it and also because the presentation was unusual in that the hypertension was never detected until the patient presented with a stroke. The natural history of untreated coarctation is that of premature death from stroke and coronary heart disease or sudden death. However, this commonly occurs early on in childhood for patients that are not treated.

Hence, to conclude, a detailed history and physical examination to evaluate for etiology of hypertension in the young and similarly stroke in the young is the key to early diagnosis and effective treatment which can reduce future morbidity and mortality from the same.

Conflict of Interest: None

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