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Multiple simultaneous hypertensive supratentorial and infratentorial hemorrhages: A rare kind of hypertensive bleed

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Abstract

Multiple simultaneous intracranial hemorrhages are very uncommon and both supra- and infratentorial hemorrhages are even more rare. Here we report a case of 56 year old hypertensive male with no other significant medical history who presented with a hypertensive emergency. Emergency head computed tomography showed bilateral basal ganglia and midbrain hemorrhages extending to right cerebellar peduncle. The patient made a progressive recovery and finally achieved functional independence. This report shows that hypertension may cause multiple simultaneous supra- and infratentorial hemorrhages and have good prognosis.

Key words: Hemorrhages, hypertensive, emergency, tomography.

Inroduction

Multiple simultaneous intracerebral hemorrhages (MSICHs) are defined as bleeding occurring at the same time in different arterial territories which have similar radiodensity.[1] Intracerebral hemorrhage (ICH) commonly occurs, often resulting in high mortality and morbidity. Basal ganglia, thalamus, cerebellum and pons are the usual locations of hypertensive hemorrhages. However, multiple simultaneous hypertensive intracerebral hemorrhages are very rare and account for only 2-3 % of intracranial hemorrhages.[1] This type of clinical event has been associated with hypertension, amyloid angiopathy, venous sinus thrombosis, coagulopathy, vasculitis, vascular anomalies and illicit drug use.[2] This report presents a very rare case which is unique among such few cases where this patient has had exceptional recovery. Implications of this case report include that physcians need to be aware of this catastrophic complication of untreated/or uncontrolled hypertension, the differential diagnosis of which entails an entirely different clinical approach to management.

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Case Report

A 56 year old male presented to the emergency department of Manipal Teaching Hospital, Pokhara, Nepal in a state of unconsciousness for three hours. It began with a sudden onset of headache and one episode of vomiting. His relatives noticed his face droop towards the left side. Generalized tonic clonic seizure also occurred in this period few minutes after facial droop was noticed. His past medical history revealed untreated hypertension for seven years,

smoking 2-3 pack years, and no consumption of alcohol or illicit drugs.

At presentation, his Glasgow Coma Scale was 8/15 (E2V2M4) and his blood pressure was 230/150 mmHg. In the Intensive Care Unit, blood pressure was reduced in a controlled manner and closely observed for raised intracranial pressure.

Emergency non-enhanced brain Computed Tomography done revealed hemorrhage in left basal ganglia extending superiorly to centrum ovale, right basal ganglia (head of caudate nucleus and lentiform nucleus). Lesion was also there in the midbrain (tectum) that extended inferiorly to right cerebellar peduncle with intraventricular extension into the fourth ventricle (See figures 1A, 1B and 2). He regained full consciousness after 48 hours at which time the power of his lower limbs were Medical Research Council (MRC) grade 3/5 and upper limbs had normal power. He had right-sided upper motor neuron facial palsy and right lateral rectus palsy with occasional jerky nystagmus. Laboratory finding showed no coagulopathy or thrombocytopenia. Screening test for Collagen Vascular Disease was negative. Fasting lipid profile was within normal limit (total cholesterol 167 mg/dl, HDL 44 mg/dl, LDL 82 mg/dl, TG 205 mg/dl and VLDL 21 mg/dl). The patient made an uneventful recovery and was discharged from the hospital with functional independence to do most of his activities of daily living.

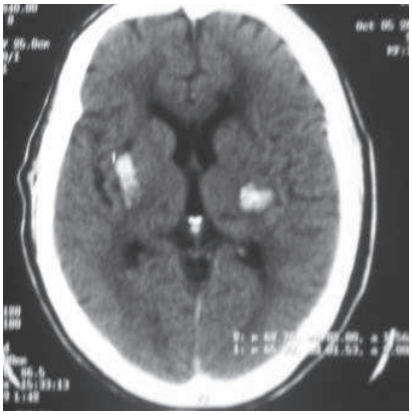

Figure-1A:Hemorrhages in bilateral basal ganglia (Lentiform nuclei)

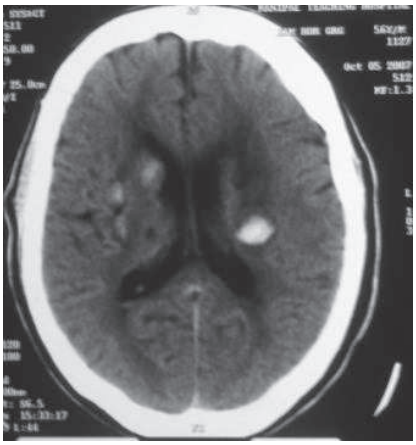

Figure-1B: Bleeding is there also in head of caudate nucleus (R)

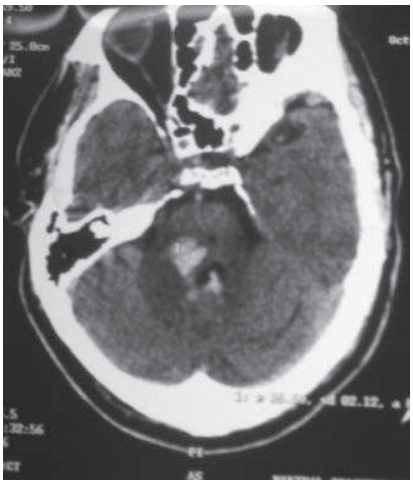

Figure-2:Hemorrhage in the Midbrain (tectum) that extends inferiorly to right cerebellar peduncle and fourth ventricle

Discussion

MSICHs have been reported in only 2-3% of hemorrhagic strokes.[1] Of the 500 cases of hemorrhagic strokes admitted in our institution in the last seven years this is the first of its kind. In a series of 11 cases reported by Shiomi N et al, both supra- and infra-tentorial hematomas were observed in 80% of the patients with simultaneous hypertensive intracerebral hemorrhages.[3]

Hypertension, previous strokes, hypercholesterolemia, diabetes mellitus, heart disease, and smoking are the commonly recognized risk factors in association with MISCHs.[2] Previously untreated hypertension and smoking were only risk factors present in our case consistent with the case reported by Cheng-Ta Hsieh.[4] Location and size of hemorrhages go against cerebral amyloid angiopathy.[5] It can be inferred that hypertension was the etiology of the spontaneous, multiple hemorrhages in our case, because of their typical location and the patient's history of chronic untreated hypertension This is further substantiated by the fact that he presented with hypertensive emergency.[6]

Pathogenesis of simultaneous ICH remains speculative. The direct cause of a hypertensive ICH is felt to be rupture of an arterial microaneurysm.[6] However, it is possible that a unilateral hematoma was formed by a ruptured microaneurysm, and subsequently, a contra lateral hemorrhage developed in a relatively short time due to circulatory disturbance.[7]

MSICHs cases in the literature reveal more neurological deficits than in the spontaneous ICH group.[1, 2] The locations of hematomas affect clinical signs and symptoms, including altered consciousness, motor deficits, and headache [2]. The Yen study reported 70% of patients had quadriparesis and lower Glasgow Coma Scale (<8).[2] In addition, the Maurino report noted higher results on the National Institute Health Stroke Scale (NIHSS) and modified Rankin Scale in MSICHs cases compared with the spontaneous group[1]. Overall, the prognosis of MSICHs was poorer than in the spontaneous ICH group. The mortality rate accounts for approximately 33-100%.[1-7] Severe morbidity remains in survivors of MSICHs. Early gain in consciousness and satisfactory recovery in a relatively shorter period was an unusual finding in the case presented herein, as the outcome is poor in almost all cases.[8-10] Hemodynamically, poor cerebral blood flow and diaschisis phenomenon may contribute to the poor prognosis in these patients.

Surgeries such as evacuation of hematomas or ventriculostomy for hydrocephalus seem to have little effect on clinical outcome.[2] Nevertheless, one report noted that removal of cerebellar hematomas had a better prognosis if the supratentorial hematoma was small.[3] Therefore, the evacuation of cerebellar clots may be controversial.

In conclusion, MSICHs due to hypertension are an uncommon entity. Patient usually present with severely depressed mental status and profound neurological deficit, making the case presented here exceptional. A management protocol has not yet been formulated. Prognosis is still grave in the reported cases.[11] Our case emphasizes the recognition of deviant mode of presentation of common presentation of hypertension that can give rise to severe morbidity if not properly worked out.

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