A Case Report of Bilateral Subthalamic Hemorrhages

Bilateral Subtalamik Hemoraji: Olgu Sunumu

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ÖZET

Spontan bilateral intraserebral hemorajiler oldukça nadirdir. Biz bilateral subtalamik hemorajisi olan, sağ üst ekstremite monoplejisi ve bilinç kaybı ile başvuran 60 yaşında hipertansif hastayı literatürü de gözden geçirerek sunduk.

Anahtar Kelimeler: Serebral hemoraji, subtalamik nükleus.

ABSTRACT

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Spontaneous bilateral intracerebral hemorrhages are extremely rare. To further characterize this rare event, we report a 60-year-old man with chronic hypertension, who presented with bilateral subthalamic hemorrhages that consequently resulted in monoplegia in the right upper extremity and loss of consciousness. The literature is reviewed regarding this condition.

Key Words: Cerebral hemorrhage, subthalamic nucleus.

INTRODUCTION

Spontaneous intracerebral hemorrhage (ICH) usually occurs at one site in the brain, while multiple ICHs occur in less than 3% of these cases (1,2). However, spontaneous bilateral ICHs are extremely rare (1,3). To further characterize this rare event, we describe herein a patient with bilateral subthalamic hemorrhages secondary to hypertension, and we review the existing literature regarding this condition.

CASE

A 60-year-old man suddenly developed loss of consciousness and was transferred to our hospital within 45 minutes after the onset of symptoms. He had a history of hypertension but was not receiving medication regularly. He gave no history of using antiaggregant or anticoagulant drug. On admission, his blood pressure was 200/100 mmHg. The patient was stuporous. His pupils were miotic and only slightly reactive to light. His eyeballs were fixed and deviated downward and inward. He had monoplegia of the right arm, but other extremities showed withdrawal response to painful stimuli. Routine hematologic and biochemical tests were normal (platelet count: 201.000, hemoglobin: 13.2 g/dL, international normalized ratio (INR): 1.1, activated partial thromboplastin time (aPTT): 36 seconds (s), prothrombin time (PT): 12 (s). A non-contrast cranial computed tomography (CT) scan revealed high density areas in the both subthalamic nuclei as well as in the left tegmentum (Figure 1). Since his blood pressure was persistently high, three oral antihypertensive agents (ramipril/hydrochlorothiazide, amlodipine and doxazosin) were added to the therapy. A 1.5 Tesla brain magnetic resonance imaging (MRI) scan with contrast performed six days after the onset revealed increased T1 and T2 signals in the same regions. In the T2 images, the signals were overall very intense at the lesion site, with lower intensity inside the lesion and greater intensity outside the lesion. These findings suggested a diagnosis of bilateral, late-subacute hemorrhages in the subthalamic nuclei (Figure 2). There was no gadolinium enhancement on MRI scan (Figure 3). The patient's consciousness level improved to normal within a week of anti-hypertensive treatment. However, slight monoparesis in the right arm and downward deviation of the eyeballs persisted. He was discharged from the hospital on the eighth day of admission with instructions to continue taking the antihypertensive agents.

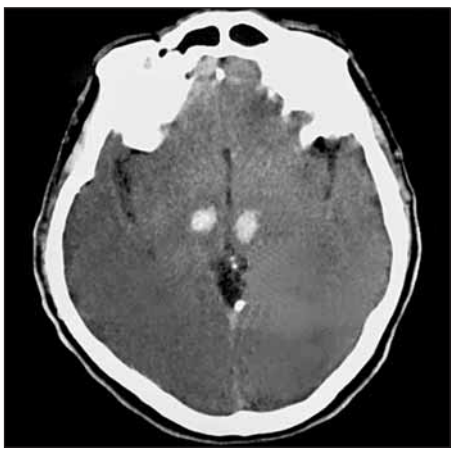

Figure 1. Cranial CT showing bilateral subthalamic hemorrhages.

DISCUSSION

In a previous large series study, Weisberg et al. investigated 600 consecutive patients with ICH, and observed that 12 cases had multiple ICHs (2). Only two of them were found to be associated with hypertension, and none of the cases had bilateral localization. Lin et al. reported six cases with spontaneous multiple ICHs in 553 ICH patients,

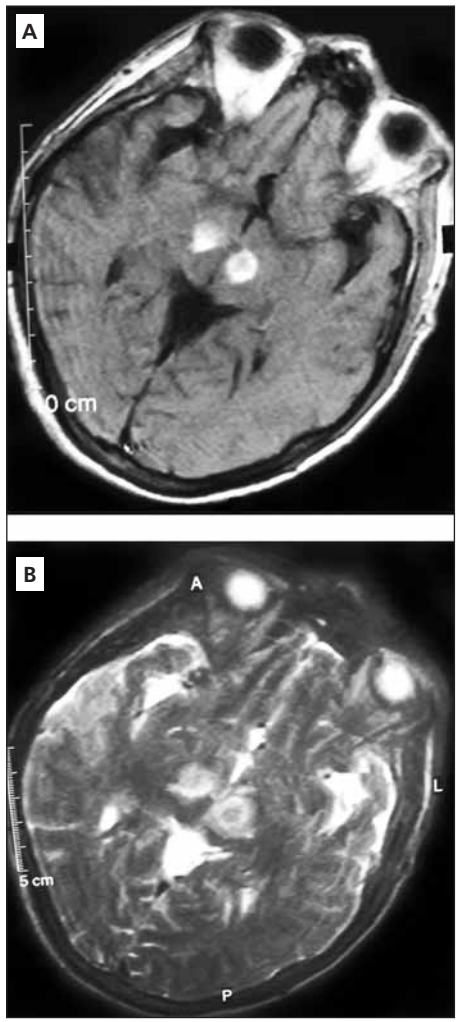

Figure 2. T1-weighted axial image showing late-subacute hemorrhages in subthalamic nuclei bilaterally and tegmentum on the left side **(A)**. The hyperintense lesion in T1-weighted images is seen hyperintense, with a lower intensity inside and a higher intensity outside in T2-weighted images **(B)**.

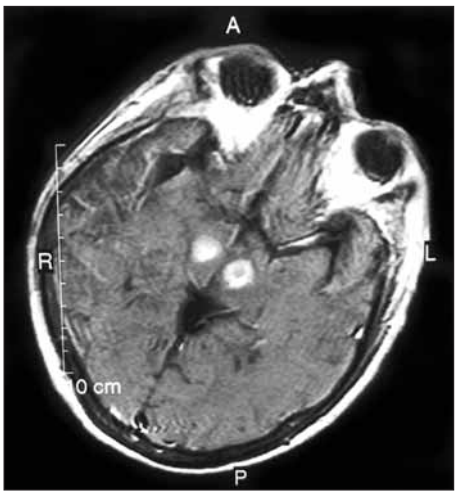

Figure 3. T1-weighted axial image after gadolinium injection showing unenhanced hyperintense lesions in both subthalamic nuclei.

and two of the lesions were bilateral (1). Tanno et al. reported spontaneous multiple ICHs in five of 679 cases, two of which were bilateral (4). In a larger cohort study by Yen et al. the researchers investigated 1.555 consecutive patients with ICH and observed that 12 cases had spontaneous multiple ICHs; in three of these patients, ICHs were bilateral (3). Given the incidence rates, spontaneous bilateral ICHs are an extremely rare event. In addition to these studies, there are also a few case reports in the literature (5-10). Thalamic and putaminal ICHs have been the most common locations for bilateral ICHs. We believe that this is the first known case in the literature in which the ICH was located symmetrically in the subthalamus.

Multiple ICHs may be due to various factors such as asphyxia, deep cerebral venous thrombosis, neoplasms, intravenous administration of tissue plasminogen activator (tPA) and coagulopathies (11). However, hypertension seems to have an important role in multiple ICHs, as was seen in our case and in the literature. Yen et al. reported that in patients with multiple ICHs, the mean duration of hypertension was significantly longer than that in the solitary ICH group (3). They hypothesized that for patients with long-standing hypertension and advanced cerebrovascular degeneration, dysfunctional autoregulatory activities in other arterial territories might exist and this may cause a second ICH. Our patient had no history of asphyxia, neoplasia or coagulopathy, and there was no sign of cerebral venous thrombosis or metastatic tumor in either the CT or the MRI with gadolinium. The patient experienced severe hypertension that was controlled by three antihypertensive agents. However, his hypertension had been left uncontrolled for approximately 10 years. Thus, we decided that in this case, the multiple ICHs were secondary to the hypertension. Our case had a good prognosis, in contrast to the previous cases. The reason for the discrepancy was not clear, but may be due to the different localization of the ICHs.

In summary, bilateral subthalamic ICHs are extremely rare, and long-standing uncontrolled hypertension has an important role in the etiology. The patients may have a better prognosis than with other multiple ICHs with different localizations, if the hypertension is controlled properly.

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