

A WATERSHED INFARCT CASE PRESENTING TREATMENT RESISTANT DEPRESSIVE SYMPTOMS

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INTRODUCTION

Cerebrovascular diseases should be considered in the presence of treatment resistant psychiatric conditions. The association of neuropsychiatric disorders with cerebrovascular disease includes depression, anxiety disorder, apathy, cognitive disorder, mania, psychosis, pathological affective display, catastrophic reactions, fatigue and anosognosia (Robinson & Jorge 2015). Stroke from cerebrovascular diseases may reveal treatment resistant psychiatric conditions. Stroke is defined as a sudden loss of blood supply to the brain leading to permanent tissue damage caused by thrombotic, embolic, or hemorrhagic events. Almost 85% of strokes are ischemic, while 12% are hemorrhagic (Mozaffarian et al. 2015). Border zone and watershed infarcts occur at the border of two arterial zones and may occur with hemodynamic disturbances (D'Amore & Paciaroni 2012). Increased risk of watershed infarction as a result of some hemodynamic mechanisms (Klijn & Kappelle 2010). Anterior watershed infarction is located between ACA and MCA, resulting in aphasia and mood disorder (Paciaroni et al. 2005). When this infarct is localized in the right hemisphere, mood disorders such as apathy and euphoria occur. In some cases, apathy may be very severe and may lead to clinical picture of akinetic mutism (Lim et al. 2007). A sharp drop in the systemic blood pressure is the most frequent cause of watershed infarcts (Torvik 1984). Abnormal hemodynamic changes such as, intense endometrial bleeding for women can lead to watershed infarction. Sometimes patients may come to the clinic with psychiatric symptoms instead of neurological presentation. A study performed suggested that psychiatric symptoms may present as a manifestation of silent cerebral infarction (Fujikawa et al. 1993). In the light of this information, we will present a case of watershed infarct after severe endometrial bleeding that we followed in our outpatient clinic for 1.5 years, then treated inpatient clinic and diagnosed in this process.

CASE

45 years old, married, primary school graduate, housewife female patient applied to us with complaints of depressed mood, loss of interest and pleasure, insomnia,

loss of appetite, forgetfulness. The patient stated that he had depressive complaints in winter every year between 2001-2015 and that these complaints regressed in the summer months. In this process, he used a variety of psychotropic drugs that he could not remember. Towards the end of August 2015 the patient presented to the psychiatry outpatient clinic with complaints of unhappiness, loss of interest and pleasure, insomnia, loss of appetite. Patient functionality was impaired. We considered major depression with seasonal pattern. The patient was started on agomelatin 25 mg/day and venlafaxine 75 mg/day. After the 2 months the patient has addition to depressive symptoms irritability, distractibility, increased energy and activity. She diagnosed manic episode and agomelatin 25mg/day, venlafaxine 75mg/day was discontinued and lithium 600 mg/day and olanzapine 5 mg/day were started. Irritability, distractibility, increased energy and activity regressed at 2 months follow-up, but her depressive symptoms were still present. In 2016, the patient's depressive complaints did not regress, and lithium treatment was increased to 900 mg/day, and olanzapine 5mg/day were continued at the control in August 2016. The patient who had used this treatment until 4 months and whose complaints continued, in the patient's examination was found to have hands tremor, hyporeflexia, nausea and vomiting. Lithium intoxication was considered in the patient, 1000cc isotonic iv was given to the patient in the emergency department, lithium and olanzapine treatment was discontinued and lithium intoxication findings regressed after a while. The patient, whose depressive symptoms became resistant to treatment, persistent and had an apathic face appearance for the last 1.5 years, was admitted to inpatient clinic for further examination and treatment. The patient was evaluated in our clinic and routine blood tests were performed. As a result of routine blood tests, hemoglobin value was found to be 7.4 g/dl. When the patient's medical record were examined retrospectively, it was determined that there was an intense period of menometrorrhagia lasting approximately 5 months in last 1.5 years and recurrence of bleeding during inpatient service was observed. It was found that Hgb value decreased to 6.3 g/dl during intensive bleeding period. brain MRI was planned after these findings. Cortical and deep watershed infarction was detected in the area

between the ACA-MCA irrigation areas in the frontal and parietal lobes of the patient's brain MRI. Internal medicine consultation was requested and blood transfusion was performed. Obstetric consultation was requested and hysterectomy was recommended with the diagnosis of abnormal recurrent endometrial bleeding control. Quetiapine was selected as monotherapy, started at 100 mg/g and gradually increased to 500 mg/g. After the bleeding control, blood transfusion and quetiapine treatment; the patient's resistant depressive symptoms began to regress from day 15, and remission was observed on day 29 symptoms. Depressed mood, loss of interest and pleasure, insomnia, loss of appetite, and apathic facial appearance significantly regressed inpatient clinic and she was discharged with quetiapine 500 mg/day.

DISCUSSION

It is known that there are many medical conditions associated with mood changes in depression. Post stroke depression is characterized by decreased interest, pessimism, restlessness, general fatigue, and is a common complication of cerebrovascular disease (Li et al. 2017). Approximately one third of patients after stroke are associated with depression. There is a scenario in which the two way relationship between depression and stroke becomes more complex; stroke increases the risk of depression, depression adversely affects the rehabilitation ability of patients (Villa et al. 2018)

In our case; we present after severe endometrial bleeding, watershed infarct and psychiatric presentations. Severe endometrial bleeding may cause cerebrovascular diseases. In our case we found watershed infarct at the border of two arterial zones and may occur with hemodynamic disturbances with the cranial MRI. Anterior watershed infarction is located between ACA and MCA, resulting in aphasia and mood disorder (Paciaroni et al. 2005). When this infarct is localized in the right hemisphere anterior region, mood disorders such as apathy and euphoria occur (Lim et al. 2007). Increased risk of watershed infarction as a result of some hemodynamic mechanisms. Hypovolemia caused by bleeding or anemia are precipitating factors of hemodynamic stroke (Klijn & Kappelle 2010). Lithium intoxication might occur due to the deterioration of hemodynamics. Hemorrhage should be reviewed in unexpected lithium intoxications.

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All authors made a substantial contribution to the design of the work, acquisition of patient' history, drafting the article, and revising it critically for important intellectual content. All of them approved the version to be published.

References

1. D'Amore C & Paciaroni M: Border-zone and watershed infarctions. In *Manifestations of Stroke*. Karger Publishers 2012; 30:181-184
2. Fujikawa T, Yamawaki S & Touhouda Y: Incidence of silent cerebral infarction in patients with major depression. *Stroke* 1993; 24:1631-1634
3. Klijn CJ & Kappelle LJ: Haemodynamic stroke: clinical features, prognosis, and management. *The Lancet Neurology* 2010; 9:1008-1017
4. Lim YC, Ding CSL & Kong KH: Akinetic mutism after right internal watershed infarction. *Singapore medical journal* 2007; 48:466
5. Li J, Luo Y, Li Y, Wu R et al: Research progress on diagnosis and screening tools of post stroke depression. *Nurs Res China* 2017; 31:1298-1300
6. Mozaffarian D, Benjamin EJ, Go AS, Arnett DK, Blaha MJ, Cushman M et al: Executive summary: heart disease and stroke statistics—2015 update: a report from the American Heart Association. *Circulation*, 2015, 131.4: 434-441.
7. Paciaroni M, Caso V, Milia P, Venti M, Silvestrelli G, Palmerini F et al: Isolated monoparesis following stroke. *Journal of Neurology, Neurosurgery & Psychiatry* 2005; 76:805-807
8. Robinson RG & Jorge RE: Post-stroke depression: a review. *American Journal of Psychiatry* 2016; 173:221-231
9. Torvik ANSGAR: The pathogenesis of watershed infarcts in the brain. *Stroke* 1984; 15:221-223
10. Villa RF, Ferrari F & Moretti A: Post-stroke depression: Mechanisms and pharmacological treatment. *Pharmacology & therapeutics* 2018; 184:131-144

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