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# Fabry Disease Diagnosis in a Young Stroke Patient: A Case Report

## Genç İnme Hastasında Fabry Tanısı: Olgu Sunumu

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We have observed a male patient with ischemic stroke, and diagnosed with Fabry disease. Here we would like to present a rare disease.

Fabry disease (FD) is a rare hereditary X-linked recessive inherited lysosomal storage disorder, caused by the mutations of α-galactosidase A (GLA) gene resulting in the deficient activity of the enzyme α-galactosidase A (α-Gal A). This pathology is responsible for the progressive neutral glycosphingolipid depositions in the lysosomes of the blood vessel walls throughout the body leading a multi-systemic disease (1). The incidence of FD is estimated at 1:40,000 in general population (2, 3). FD may cause various clinical manifestations. It is recognized that central and peripheric neurological complications are frequently seen in the course of FD, and stroke is often the first cause of hospitalization. The patients usually diagnosed late after the development of renal, cardiovascular and cerebrovascular complications that increase morbidity and mortality (1, 4). In this paper a young male FD patient who was admitted to our clinic with acute ischemic stroke attack was presented.

A 39-year-old man who presented with dysarthria and left hemihypoesthesia was evaluated. Brain magnetic resonance images (MRI) showed a left pontine infarct (Figure 1). Findings on carotid ultrasonography were normal. Electrocardiography showed sinus rhythm and echocardiography revealed left ventricular hypertrophic concentric cardiomyopathy (HCM) with an ejection fraction of 72%. Therefore, a cardioembolic origin was considered at first. A detailed family history revealed that his nephew (his sister's son) got diagnosed with FD. We learned that our patient has been experiencing typical clinical manifestations of the FD such as recurrent fever, neuropathic pain in distal extremities, painful acroparesthesias, intolerance to cold and heat, hypohidrosis, and gastrointestinal disturbances since age 7. He had no angiokeratomas or corneal symptoms. His α-Gal A activities were low (0.1 nmols/h/mL; nv >1.2), and GLA gene study revealed (c.[680G >A] (p.[R227Q])) a previously identified missense mutation with dried blood spot (DBS) method, then FD was diagnosed. He was discharged without any neurological symptoms. However, 3 months later a chronic kidney disease developed. He showed proteinuria in urine analysis, and

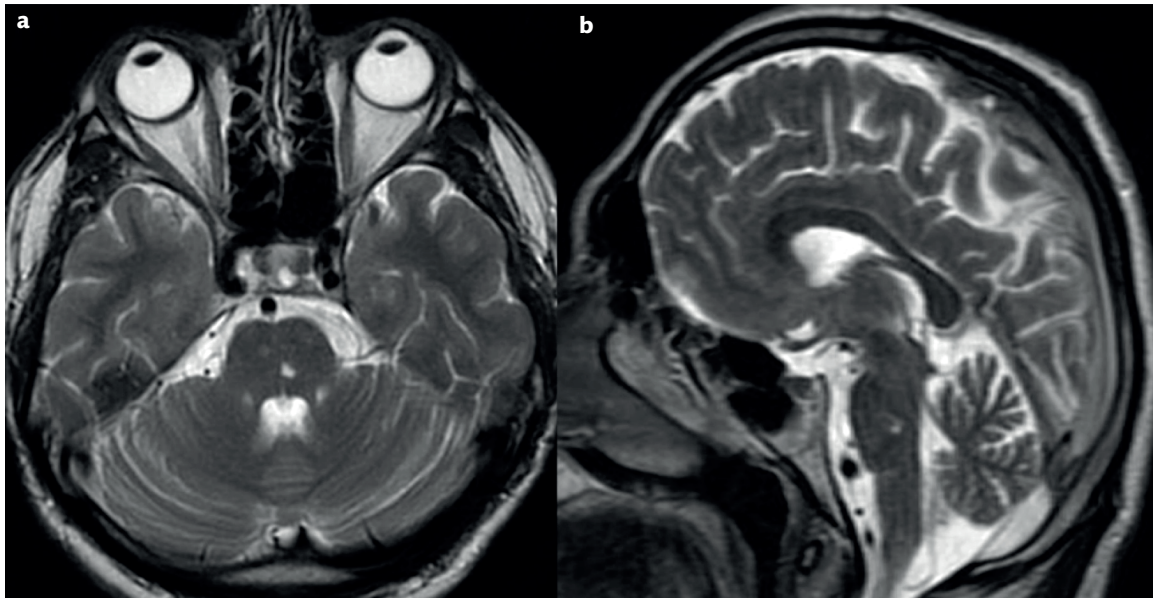


**Figure 1a,b.** Brain MRI revealed a hyperintense lesion in left side of the pons in the axial (a) and sagittal (b) T2 weighted images

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serum urea was elevated (270 mg/dL). Hence the patient was referred to the department of nephrology, and administered enzyme replacement therapy (ERT) with agalsidase-β. Recently, by age 43, he has been receiving ERT for one year. He has not developed another stroke attack but renal status progressed to end-stage requiring hemodialysis.

Cerebrovascular diseases are one the major manifestations of FD, and the patients commonly experience a stroke attack before the diagnosis (5, 6). In young males (age 25–44) the frequency of stroke may occur up to 12 times more frequent compared to general population. FD is also associated with white matter lesions, and vertebrobasilar artery dolichoectasia (7, 8).

In classical form of FD with deficient activity of α-galactosidase A, acroparesthesias, angiokeratomas, hypohidrosis, hearing loss, and corneal dystrophy are presented in early childhood. Due to the progressive lysosomal lipid accumulation in the vascular endothelium, renal failure, cardiac or cerebrovascular disease occurs in adulthood (9). HCM is one of the cardiovascular risk factor for stroke (10, 11). FD may cause arrhythmias, valvular heart disease and HCM. Thus a FD patient may also develop a cardioembolic stroke (6). Further investigation for FD must be performed especially in cases with combination of cerebral stroke in the vertebrobasilar artery system and proteinuria (12).

Despite the presence of a cardiovascular risk factor for stroke, our paper demonstrates the value of taking a proper medical treatment and family history while evaluating a young stroke patient. Early diagnose of the disease is important for treatment with ERT.

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