BENIGN FASCICULATION SYNDROME

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Received on 14. 3. 2025. *Reviewed on 6. 4. 2025.* *Accepted on 6. 5. 2025.*

ABSTRACT

Fasciculations are uncontrolled and uncoordinated muscle twitches that most commonly occur in healthy individuals but can cause concern and anxiety. In this paper, we analyze benign fasciculation syndrome (BFS), which is diagnosed after excluding other pathological causes. Although the prevalence of benign fasciculations is considered high, the symptoms of BFS persist and may last for years without serious consequences. The focus on the relationship between BFS and anxiety is also important, as anxiety can exacerbate feelings of discomfort and lead to health anxiety or hypochondria. There is a significant fear of motor neuron diseases, such as amyotrophic lateral sclerosis (ALS), which further complicates the clinical picture for patients. Long-term monitoring shows that most patients with BFS do not develop ALS, but recommendations for further monitoring and support remain crucial. This paper suggests that, despite the benign nature of fasciculations, patients should consult a neurologist to exclude more serious conditions, and in cases of significant anxiety, consider medical or psychosocial assistance. The results indicate that patients with persistent fasciculations are on the path to better diagnosis and symptom reduction through professional help and support.

Key words: benign, fasciculation, syndrome
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INTRODUCTION

Fasciculations

Fasciculations are uncontrolled and uncoordinated muscle twitches that can manifest as simultaneous contractions of entire bundles or fascicles of muscle fibers (1). Many healthy individuals occasionally experience fasciculations, particularly in the calf and arm muscles as well as around the eyes and nose. They can last almost continuously for days or weeks, and even years in some individuals, without causing weakness or muscle wasting (2). It is believed that constant benign fasciculations are common in the population, affecting more than 1% of individuals (3), while over 70% of the healthy population experiences them at some stage in their lives (4).

Benign fasciculations represent a type of fasciculations wherein all other potential pathological causes have been excluded, leading to a diagnosis known as Benign Fasciculation Syndrome (BFS). The diagnosis typically requires a standard neurological examination and electromyography (EMG) (5).

In addition to benign fasciculations, they can be part of neurological injuries such as radiculopathies (6), autoimmune diseases (7), peripheral nerve hyperexcitability syndromes (8), or fasciculations may be the first symptom of motor neuron disease, i.e., a progressive neurodegenerative disorder (9).

The etiology of benign muscle fasciculations is still unknown, but is associated with stress, anxiety, caffeine, electrolyte imbalances, smoking, and excessive exercise. Although sometimes an initial cause, such as anxiety, may fade, fasciculations as a symptom often continue to persist (10).

BENIGN FASCICULATION SYNDROME AND ANXIETY

The relationship between anxiety and benign fasciculation syndrome (BFS) is frequently discussed and is quite complex. It is believed that the association is bidirectional, with anxiety potentially triggering or exacerbating fasciculations, while fasciculations can provoke or amplify anxiety, even leading to hypochondria. The benign fasciculation syndrome can create such anxiety in individuals that it is recommended for neurologists to pay particular attention to the anxiety levels of patients with BFS; if reassuring advice does not help, they should not hesitate to refer the patient for psychiatric help (11). In some cases, anxiety can be so severe that it meets the criteria for a condition known as Health anxiety disorder. This psychiatric disorder is characterized by a persistent preoccupation with the fear of having a serious physical illness, leading to significant emotional distress despite negative findings and reassurances, a condition synonymous with hypochondria (12).

Undoubtedly, the greatest concern for patients regarding muscle fasciculations is the association with motor neuron disease known as Amyotrophic Lateral Sclerosis (ALS), famously named after the baseball player Lou Gehrig, who was diagnosed with this disease in 1939 (13). Research has shown that patients with benign fasciculation syndrome (BFS) have similar levels of depressive and anxiety symptoms compared to patients who actually have motor neuron disease. It is also interesting to note that patients with BFS exhibit a higher frequency of psychosomatic symptoms, stress, and a higher rate of previous psychiatric disorders, which has

led some researchers to speculate that BFS could be a form of somatization disorder (14). It is noteworthy that this condition is quite common among professionals in the medical field (15).

BFS leads to such high levels of anxiety because patients fall into a vicious cycle of self-observation and excessive unnecessary analysis of internal bodily sensations, which aims to achieve immediate relief from anxiety, although this ultimately leads to increased anxiety. Searching online forums about BFS, constant self-testing of muscle strength, and inspecting for potential muscle deficits are just some of the behaviors that burden patients under the assumption that they may suffer from motor neuron disease. Insomnia, muscle spasms, swallowing problems, and tingling are symptoms that patients somatize, believing they have ALS (11).

AMYOTROPHIC LATERAL SCLEROSIS VS. BENIGN FASCICULATION SYNDROME

Amiotrophic lateral sclerosis (ALS) is a progressive neuromuscular disease with a fatal outcome, characterized by the degeneration of motor neurons, both upper and lower, resulting in dysfunction of somatic muscles in the body. ALS is the most common form of motor neuron disease, with an average incidence of 2.8 per 100,000 in Europe and an average prevalence of 5.40 per 100,000 in Europe (Chio et al. 2013). Men are slightly more affected than women, and the median survival after the onset of the disease is typically 2 to 4 years and does not depend on sex (16). The clinical picture of ALS usually consists of focal muscle weakness and atrophy that spreads with disease progression. Weakness most often appears in the limb muscles, more frequently in distal muscles than in proximal muscles. In approximately 25-30% of cases, the disease begins bulbarly, presenting with dysarthria, dysphagia, dysphonia, or, less frequently, weakness of the masseter muscles used for chewing (17).

When symptoms of BFS occur without weakness or atrophy, and the electromyography (EMG) is normal, it has been considered that the diagnosis of ALS is excluded. This statement is supported by a follow-up study of 121 patients diagnosed with benign fasciculation syndrome, none of whom developed ALS during a follow-up period of 2 to 32 years (18).

However, more recent findings have emerged. Research conducted at the neurology and neurosurgery center in Liverpool published a paper on four cases of individuals who had benign fasciculation syndrome and cramps, who later developed ALS over time. Therefore, it is recommended that patients be monitored for 4-5 years before making a final decision that fasciculations and cramps are of a benign nature (19). There is a clinical condition related to BFS, which is further characterized by increased muscle cramping and is called the Syndrome of Cramps and Fasciculations (20).

The potential connection of fasciculations with one of the worst neurological diseases often leads patients to experience health anxiety or hypochondria, resulting in various somatizations. This is significantly contributed to by cyberchondria, specifically the attempt to find solutions online, even when the symptoms are not severe, which leads to a spiraling effect and a vicious cycle from which patients cannot escape (21). Although BFS is of a benign nature, it does not completely

resolve over time, although in half of the cases, there is a tendency for some improvement (22). Some studies show that cognitive-behavioral therapy provides excellent results in treating health anxieties (23,24).

CONCLUSION

The benign fasciculation syndrome represents a chronic, non-progressive condition characterized by fasciculations, or involuntary and uncontrolled muscle twitches, most commonly in the lower extremities, and is not associated with other clinical or neurophysiological abnormalities. Long-term monitoring of these cases has confirmed the benign nature of the disease.

Although there is significant concern among patients regarding the occurrence of fasciculations, they are generally benign in nature and are classified as benign fasciculation syndrome. Excessive analysis and self-observation of various bodily sensations tend to further exacerbate anxiety and generally delay the escape from the vortex in which they find themselves.

Seeking professional help as soon as possible, with the aim of eliminating more serious pathology and establishing a favorable diagnosis of BFS, can significantly reduce symptoms and calm the patient. Experts recommend performing electromyography (EMG) and, additionally, to confirm the exclusion of serious pathology, an MRI of the brain and spine is suggested.

If normal findings do not reassure the patient, further psychiatric help in the form of cognitive-behavioral therapy is recommended.

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SAŽETAK

Fascikulacije su nekontrolirano i nekoordinirano trzanje mišića, koje se najčešće javljaju u zdravih osoba, ali mogu uzrokovati zabrinutost i anksioznost. U ovome radu analiziramo benigni fascikulacijski sindrom (BFS), koji se dijagnosticira nakon isključenja drugih patoloških uzroka. Iako se smatra da je prevalencija benignih fascikulacija visoka, simptomi BFS-a perzistiraju i mogu trajati godinama bez ozbiljnih posljedica. Fokus na vezi između BFS-a i anksioznosti također je važan, budući da anksioznost može pojačati osjećaj nelagode i dovesti do zdravstvene anksioznosti ili hipohondrije. Uočen je značajan strah od bolesti motoneurona, poput amiotrofične lateralne skleroze (ALS), što dodatno komplicira kliničku sliku pacijenata. Dugotrajno praćenje pokazuje da većina pacijenata s BFS-om ne razvija ALS, ali preporuke o daljnjem praćenju i podršci ostaju ključne. Ovaj rad sugerira da se, unatoč benignoj prirodi fascikulacija, pacijenti trebaju konzultirati s neurologom radi isključenja ozbiljnijih stanja, a u slučajevima značajne anksioznosti razmotriti medicinsku ili psihosocijalnu pomoć. Rezultati sugeriraju da su pacijenti s konstantnim fascikulacijama na putu ka boljoj dijagnozi i smanjenju simptoma kroz profesionalnu pomoć i podršku.

Ključne riječi: benigni, fascikulacijski, sindrom

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