A Case Report on Sodium Valproate Induced Pitting Pedal Edema with Myoclonus

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Abstract*—Sodium valproate, an established anticonvulsant and mood stabilizer, is widely used in the management of epilepsy, bipolar disorder, and migraine prophylaxis. While its efficacy is well-documented, sodium valproate is associated with a range of adverse effects, including hepatotoxicity, weight gain, and thrombocytopenia. Pedal edema is a relatively rare side effect of sodium valproate and is often underreported. Understanding the pathophysiology, presentation, and management of sodium valproate-induced pedal edema is crucial for optimizing patient care. This report details the case of a 45-year-old female with a history of bipolar disorder, managed with sodium valproate for the past two years. The patient developed bilateral pedal edema, which was initially attributed to other potential causes, such as cardiac or renal dysfunction. However, after extensive investigations ruled out these causes, a correlation was made between the onset of edema and sodium valproate therapy. Discontinuation of sodium valproate resulted in a significant reduction of edema, confirming the diagnosis. Sodium valproate-induced pedal edema is an uncommon adverse effect, and its exact mechanism remains unclear. Proposed mechanisms include vasodilation, altered vascular permeability, and sodium retention. This case highlights the importance of a thorough differential diagnosis in patients presenting with pedal edema while on sodium valproate. The management primarily involves discontinuation or dose reduction of the drug, and in some cases, diuretic therapy may be necessary. Clinicians should be aware of sodium valproate as a potential cause of pedal edema, particularly in patients with no other identifiable risk factors. Early recognition and management can prevent unnecessary investigations and improve patient outcomes. Discontinuation of sodium valproate often leads to resolution of the edema, underscoring the importance of considering medication side effects in the differential diagnosis.

I. INTRODUCTION

Sodium valproate, a widely used antiepileptic drug, has a broad spectrum of action and is commonly prescribed for the treatment of epilepsy, bipolar disorder, and migraine prophylaxis. Despite its effectiveness, sodium valproate is associated with various side effects, ranging from mild gastrointestinal symptoms to more severe complications like hepatotoxicity, weight gain, and hematological abnormalities [1]. One of the less common but notable side effects is peripheral edema, particularly pedal edema. This condition, characterized by swelling of the lower extremities, can significantly impact a patient's quality of life and may be mistaken for other systemic conditions such as heart failure, renal dysfunction, or deep vein thrombosis [2]. The pathophysiology of sodium valproate-induced pedal edema is not well understood, but it is believed to involve mechanisms such as vasodilation, increased capillary permeability, and sodium and water retention. Given the potential for misdiagnosis, it is essential for clinicians to be aware of this rare adverse effect and to consider it in patients who present with unexplained edema while on sodium valproate therapy [3].

II. CASE PRESENTATION

The patient presented with swelling of both feet and ankles that had progressively worsened over the past

three months. She reported no pain, shortness of breath, or recent changes in physical activity or diet. The edema was more seen during at the end of the day and improved slightly with elevation of the legs. Physical examination revealed bilateral pitting edema extending up to the mid-calf level. Blood pressure was within normal limits. Laboratory tests, including renal function tests, liver function tests, and electrolytes, were all within normal ranges. An echocardiogram showed normal cardiac function, given the lack of evidence for other causes of edema and the association with sodium valproate therapy, a diagnosis of sodium valproate-induced pedal edema was considered. The past week she deliberately took 8 tablets of sodium valproate 500mg at a single time thinking that her condition would resolve faster. The patient was advised to discontinue sodium valproate under close monitoring, and a gradual switch to lithium carbonate 300mg was initiated. Over the course of two weeks, the edema significantly reduced, confirming the diagnosis. The patient remained stable on lithium carbonate, with no recurrence of edema.

III. DISCUSSION

Pedal edema is a relatively rare but important side effect of sodium valproate. The exact pathophysiology remains unstudied, with several proposed mechanisms. Sodium valproate is known to cause fluid retention by increasing capillary permeability and altering sodium and water balance. It may also induce peripheral vasodilation, contributing to the pooling of fluid in the lower extremities. Although peripheral edema is typically mild, it can become clinically significant, particularly in patients with pre-existing conditions such as obesity or venous insufficiency. In this case, the patient developed pedal edema after prolonged use and an overdose of sodium valproate, with no other identifiable causes. The resolution of symptoms following discontinuation of the drug strongly supports the diagnosis. This case underscores the importance of considering medication side effects in the differential diagnosis of pedal edema, particularly when common causes have been ruled out. Management of sodium valproate-induced pedal edema typically involves discontinuing the drug or reducing the dosage. In cases where discontinuation is not feasible, adjunctive therapies such as diuretics may be used, though they are not always effective. Switching to an alternative anticonvulsant or mood stabilizer, as done in this case with lithium carbonate, is often necessary to manage the underlying condition without compromising patient safety.

IV. CONCLUSION

Sodium valproate-induced pedal edema is a rare but significant adverse effect that can easily be overlooked. This case highlights the need for clinicians to maintain a high index of suspicion for drug-induced edema, particularly in patients with no other apparent causes. Early identification and management, including discontinuation of the offending agent and substitution with an alternative therapy, are crucial for resolving symptoms and preventing further complications. Future research should focus on elucidating the mechanisms underlying this side effect to improve prevention and treatment strategies.

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