

Bariatric Surgery in an Epilepsy Patient: Results from Follow-Up

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Abstract

Obesity is a growing public health problem and it is more common in people with epilepsy (PWE) than general population. Possible reasons of this increased comorbidity are intrinsic mechanisms of disease that it has higher prevalence in idiopathic generalized epilepsy patients, side effects of some of the anti-epileptic drugs (AED) and to choose sedentary health style. Bariatric surgery is used for treatment of obesity for decades but effectiveness and safety is not so far studied in PWE. Here, we present a case of drug resistant idiopathic generalized epilepsy patient who is treated surgically for his obesity and 14-months follow up results shows it is safe and effective, which may also help to control his seizures.

Keywords: Obesity, bariatric surgery, epilepsy, anti-epileptic drugs

INTRODUCTION

Weight gain is one of the common adverse effects of some antiepileptic drugs include valproic acid (VPA), gabapentin (GBP), pregabalin (PRG), vigabatrin (VGB) and potentially carbamazepine (CBZ). Comorbid psychiatric issues as well as sedentary life style can contribute to being overweight in epilepsy and obesity can lead to non-compliance with treatment. Although it is causing weight gain, VPA is still the cornerstone of generalized and unclassifiable seizures which is better tolerated than topiramate and more efficacious than lamotrigine [1].

Bariatric or weight loss surgery is performed since 1960s and currently includes variety of technics which helps to fight against obesity. The most common procedures are gastric bypass, laparoscopic sleeve gastrectomy (LSG), adjustable gastric band (ADB), and biliopancreatic diversion with duodenal switch. Each surgery has its own advantages and disadvantages. All of these procedures cause weight loss by restricting the amount of food the stomach can hold or by causing malabsorption of nutrient [2].

Here we wish to present short-term follow-up results from a patient with idiopathic generalized epilepsy which is not well controlled before bariatric surgery.

CASE

Twenty-three year-old male patient has mainly generalized tonic clonic seizures (GTCs) since the age of 15. Most of his seizures were nocturnal and happens

several times a year. He does not describe myoclonic or absence seizures. His EEG shows 3-4 Hz generalized spike-and-wave discharges (**Figure 1**) and brain MRI was by and large normal except mild lateral ventricular asymmetry (**Figure 2**).

In his initial visit calculated body mass index (BMI) was 38.0. (height 176 cm / 69 inches and weight 117 kg / 258 lbs). He was using sodium valproate (VPA) 1250 mg/day and the seizures were not well controlled. Longest seizure free period was one and a half year. Neither increase VPA dose nor add levetiracetam (LEV) has helped to control seizures. Instead after LEV his seizure frequency mildly increased and began to happen as a cluster (seizure diary is on the right). He did not obey suggested diets and following year his weight was increased gradually to 130 kg / 286 lbs.

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Sleeve gastrectomy was done in the first days of January, 2017 without any serious complication but he not allowed the take his oral medications almost a week. He was using oral VPA 2000 mg /day and lamotrigine (LTG) 25 mg /day before surgery. Following surgery he only received 1600 mg/day intravenous (IV) VPA and after started oral

feeding his IV VPA changed with the similar therapy which he receives before surgery. This change has tolerated well and he has not experienced seizure during post-operative period.

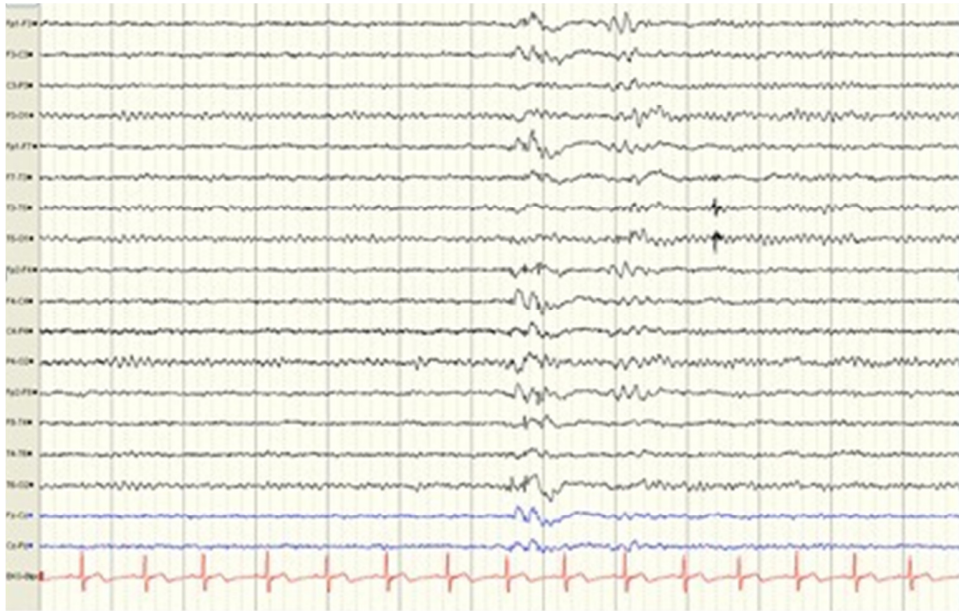


Figure 1. EEG shows 3-4 Hz generalized spike-and-wave discharges.

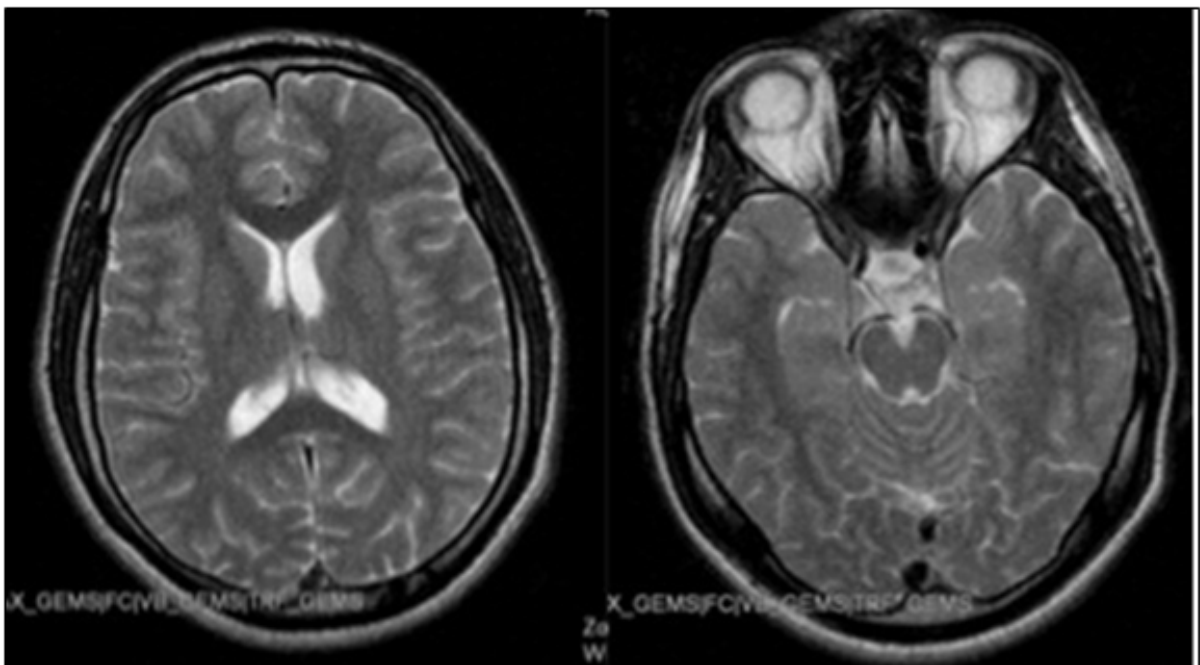


Figure 2. Brain MRI was by and large normal except mild lateral ventricular asymmetry.

He was seizure free during the first 8 month after surgery. Early August he diagnosed with lung infection and hospitalized. While staying at the hospital he received 1000 mg ampicillin + sulbactam twice a day, and then have another GTC seizure which is probably triggered with this penicillin therapy. He has lost weight gradually and measured 92 kg/ 203 lbs in his last visit.

Table 1. Seizure diary

Date	Seizure	Treatment
2014 (April)	3	VPA 2x750 mg/d
2015 (July)	2	VPA 2x1000 mg/d
2016 (October)	2	VPA 2x1000 mg/d LEV 2x750 mg/d
2016 (November)	7 (cluster)	VPA 2x1000 mg/d LEV 2x1000 mg/d LTG 1x 25 mg/d
2017 (August)	1	VPA 2x750 mg/d LTG 2x25 mg/d

DISCUSSION

Our patients did not show a significant worsening of seizures after sleeve gastrectomy. It shows similar properties to the literature.

Most weight loss surgeries today are performed using minimally invasive techniques (laparoscopic surgery). Current procedures consider safe and well established treatment of obesity. Sleeve gastrectomy is a non-reversible procedure and has a potential disadvantages for a long term vitamin deficiencies [3].

Immediately after the surgery, while the patient not allowed taking orally, antiepileptic drugs (AEDs) with IV formulation have to be used. Therefore if shift is needed, it should be done appropriately before surgery.

One of the important complications of bariatric surgeries is depression but it is generally mild. One study found that self-harm risk increased from 2.33 events per 1000 patients a year prior to the surgery to 3.63 per 1000 patients after bariatric surgery -a mean increase of approximately 50%. It is important to check patients routinely for depression and suicide risk after surgery [3].

There are AEDs causing weight loss (topiramate, zonisamide, felbamate) but VPA is still the first choice for the most generalized seizures [4].

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