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Brief Report

Bariatric surgery and its impact on pseudotumor cerebri: A case report

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ABSTRACT

Purpose: Pseudotumor cerebri is a debilitating condition that causes severe headaches and progressive visual field loss. In this report, we present a patient with Class III obesity, with pseudotumor cerebri who failed medical management and attempted weight loss via diet and exercise.

Observations: After undergoing bariatric surgery, the patient had significant weight loss and improvement of visual field defects.

Conclusion and importance: These results suggest that bariatric surgery may be an effective option for patients with rapidly progressing visual loss due to pseudotumor cerebri.

1. Introduction

Pseudotumor cerebri, also known as idiopathic intracranial hypertension or benign intracranial hypertension, is a condition that typically affects young overweight females. It is estimated that the incidence of this disease is 21 per 100,000.[1] The standard of care for these patients is weight loss and acetazolamide. However, losing the recommended ten percent of weight is often very difficult to achieve. Also, acetazolamide, a carbonic anhydrase inhibitor, carries its own set of undesirable side effects that can result in medical noncompliance.[2] Surgical intervention with ventriculoperitoneal and lumboperitoneal shunts have been shown to work at reducing intracranial pressure, thereby improving both the symptom of headache as well as the risk of progressive visual field loss.[2] Unfortunately, these procedures are not only invasive, but also have a substantial failure rate. Optic nerve sheath fenestration surgery serves the purpose of decreasing compression to the nerve from the increased intracranial pressure, and can help halt visual field loss, but it typically does not improve headaches. This leaves few options for patients with this debilitating condition.

2. Case report

A 28-year-old female presents to the neuro-ophthalmology clinic, with the diagnosis of pseudotumor cerebri, to establish care. On initial evaluation, the patient had a BMI of 57.4 kg/m^2. The initial diagnosis was based on history of headaches, mild degree of papilledema, normal neuroimaging, and opening lumbar puncture pressure of 300 mmH_2O. She had been treated with acetazolamide 500 mg sequels twice a day which helped to control her headaches. Humphrey visual field 24–2 test at this visit showed faint superonasal arcuate defects bilaterally (Fig. 1A).

Four months later, the patient complained of severe worsening of headaches which now occurred daily. She was compliant with her medications but was unable to lose weight since her last appointment. The patient had gained 14 lbs with a new calculated BMI of 60 kg/m^2. A repeat visual field test was performed and demonstrated substantial constriction of her fields (Fig. 1B). Dilated fundus exam revealed persistent papilledema and mild edema of the neurofiber layers. The patient was sent to neurosurgery for evaluation. Neurosurgery deferred placement of lumboperitoneal or ventriculoperitoneal shunt until a scheduled bariatric procedure was completed the next week.

The bariatric surgery team performed an uneventful roux-en-y gastric bypass procedure with standard post-operative care. The patient was discharged home after 48 h. On her first follow-up appointment two weeks later, she reported a weight loss of 24 lbs with slight improvement in her headaches. Three weeks following surgery, she had lost an additional 5 lbs. Significantly, her visual field test on this visit had dramatically improved with only superior and nasal arcuate defects on this exam (Fig. 1C). Dilated fundus exam showed persistent, faint papilledema with improvement of the neurofiber layer edema. At her four-month follow-up after bariatric surgery, she had lost a total of 71 lbs with subsequent reduction in her hypertensive medications and significant reduction in headaches. Neuro-ophthalmology performed a final visual field test which showed continued improvement in her visual field to a level better than initial baseline (Fig. 1D). Six months after her surgery she continues to maintain a stable weight and no

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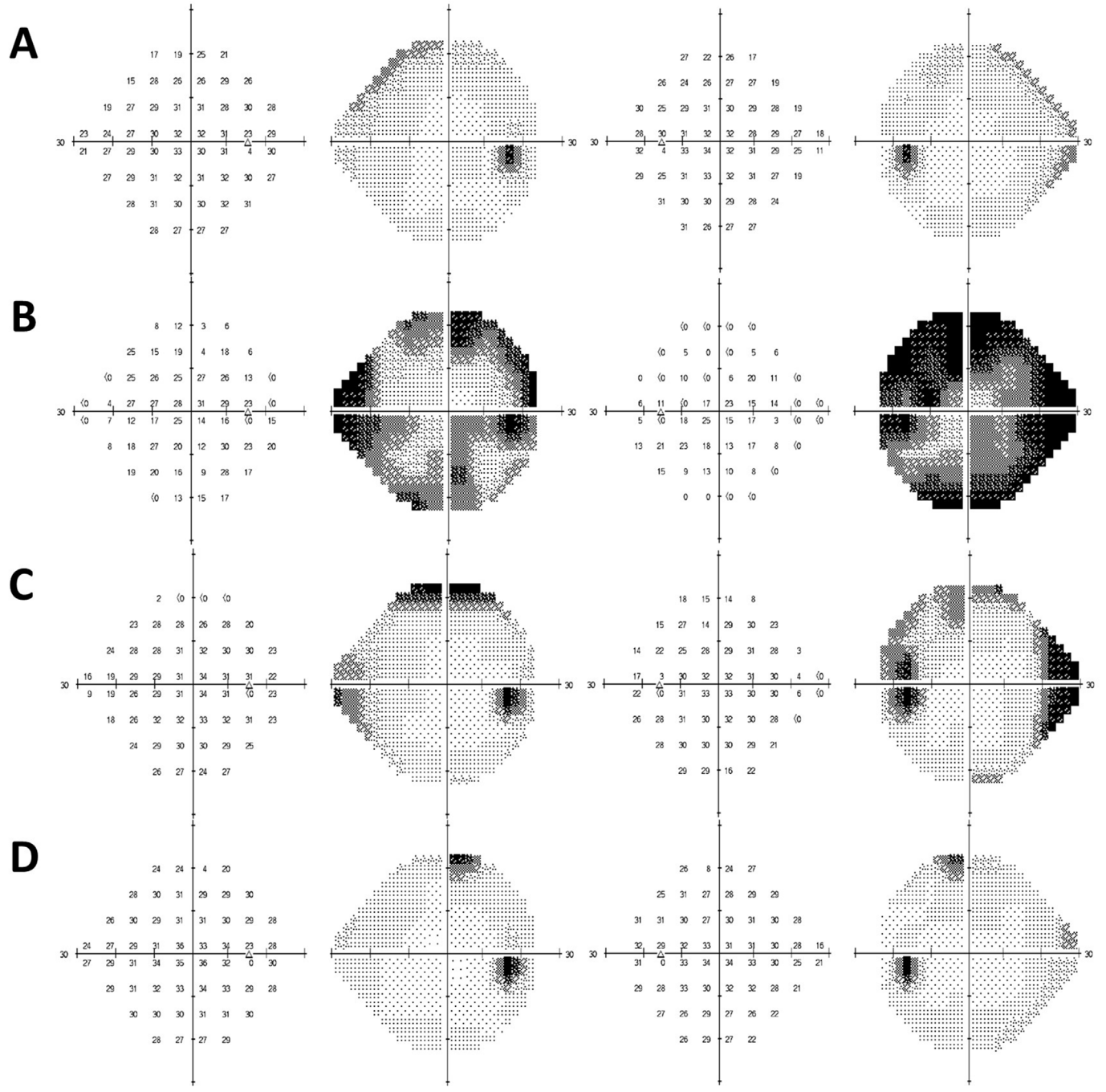

Fig. 1. Progression of visual fields. Initial presentation at time of diagnosis (A), four months later after patient had gained 14 lbs (B), three weeks after bariatric surgery (C), with a total weight loss of 29 lbs, (D) four months post bariatric surgery.

relapse of symptoms.

3. Discussion

Bariatric surgery appears to ameliorate the adverse effects of pseudotumor cerebri through substantial weight loss. In recent years this option has begun to gain interest because of its multiple health benefits to morbidly obese patients.[3] However, the current literature consists only of case reports or small retrospective studies that suggest that bariatric surgery is an effective treatment for pseudotumor cerebri.[1,4,5] The reports in the literature lack substantial data supporting the benefit from weight loss surgery. Most recently, Cazzo et al. report a similar case report with improvement in visual loss from their patient after bariatric surgery adding yet another successful outcome to the literature but without objective data to support the visual improvement after bariatric surgery.[4] Another review of the literature reports only one case series that monitored the visual fields in their patients and recommend that future studies include more qualitative data such as Snellen visual acuity, Humphrey visual fields, and lumbar puncture opening pressure.[6,7] Handley et al. also made the observation that many of the small case series and reports in the literature lacked sufficient objective data.[5] Therefore, they created a systematic review on bariatric surgery and its effect on patients with pseudotumor cerebri. In the 17 papers included in this review, there was an average decrease in LP opening pressure of 18.9 cmH2O and symptomatic improvement in virtually all patients.[5]

Our case illustrates the remarkable improvement in symptoms and provides objective data utilizing serial Humphrey visual field tests. Thereby we attempt to strengthen the literature on this topic by providing a case with data to support the use of bariatric surgery for the resolution of symptoms in pseudotumor cerebri. More studies are needed to further elucidate the benefits of bariatric surgery for the treatment of pseudotumor cerebri.

Patient consent

Consent to publish the case report was not obtained. This report does not contain any personal information that could lead to the identification of the patient.

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Conflicts of interest

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Authorship

All authors attest that they meet the current ICMJE criteria for authorship.

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