

## CASE PRESENTATION

34-year-old female with no significant past medical history presented with blurry vision, weakness and dehydration after fasting for 7 weeks during which she lost about 20 pounds. On physical examination, patient was hypertensive, tachycardic, and malnourished with a BMI of 21. She was noted to have vertical and horizontal nystagmus bilaterally as well as decreased visual acuity of 20/70, with no other focal neurological deficits. Laboratory data was remarkable for anion gap metabolic acidosis with elevated lactate level, hypophosphatemia, and mild transaminitis. Given the visual disturbance, MRI brain was done, however was unremarkable. Additional work up revealed low B1 and folate levels. B12 levels were increased. A neurologist and an ophthalmologist evaluated the patient. Patient's visual disturbance was attributed to nutritional optic neuropathy. She was started on folate and vitamin B12 replacement in addition to high-dose IV thiamine supplementation and eventually transitioned to an oral regimen upon discharge. Patient was tolerating oral intake. She was monitored closely for refeeding syndrome and electrolytes were repleted as needed. Patient's visual acuity improved throughout her hospital stay, up to 20/40 bilaterally on discharge. Her nystagmus improved as well. Patient was counseled on dietary and eating habits.

## DISCUSSION

Acquired optic neuropathy results from damage to the anterior visual pathway from toxins or nutritional deficiency. It is characterized by papillomacular bundle damage within the optic nerves, central or cecocentral scotoma, and reduction of color vision. It is more prevalent in regions of famine, such as in Africa and some parts of Central America. In these areas, the main cause is malnutrition associated deficiency of certain vitamins, such as vitamin B complex and folic acid, essential for the functioning of nerve fibers. In developed countries, it is more common among tobacco and alcohol abusers, as well as post-bariatric surgery patients.

## CONCLUSION

Although uncommon in the US, acquired optic neuropathy can still be encountered in certain patient populations who are subject to undernourishment. In this patient who denied tobacco and alcohol use, and had no history of bariatric surgeries, it was caused by vitamin deficiencies secondary to prolonged fasting. The cornerstone in the treatment of this condition is improved nutrition and vitamin supplementation. In patients compliant with the treatment regimen, and unless the loss of vision is already far advanced, the prospect for recovery or at least improvement is excellent.

## REFERENCES

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