

An Unusual Cause of Vertigo Following Laparoscopic Sleeve Gastrectomy: A Case Report

Case Report

Moneer E. Almadani^{1,2}

Departments of ¹Clinical Medicine, College of Medicine, Almaarefa University, ²Surgery, Alhabib Medical Group, Altakhasusi Project, Riyadh, Saudi Arabia.

ABSTRACT

Background: The laparoscopic sleeve gastrectomy (LSG) is one of the most commonly performed surgical procedures for weight reduction with high success rate and few chronic complications. Ear complication following the procedure is rarely encountered. Few reports have discussed the possible causes of vertigo following LSG which relayed mostly to weight loss that affects the Eustachian tube and caused ear muscle disorganization and dysfunction. However, none of them has reported Meniere's disease as one of the possible causes

Patients and Methods: We report a 38-year old man who complained of severe vertigo and tinnitus followed by loss of consciousness 8 months following LSG. His haematochemical laboratory tests were within normal range. Full evaluation and clearance were performed by different specialties including cardiology, neurology, endocrinology and psychiatry. However, the ENT assessment revealed abnormalities in the Audiometry results that have confirmed Meniere's disease.

Conclusion: Further reports are required to specify the exact correlation.

Key Words: Bariatric surgery, Laparoscopic sleeve gastrectomy, Meniere's disease, Vertigo.

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Corresponding Author: Moneer E. Almadani, MD, Department of Clinical Medicine, College of Medicine, Almaarefa University, Department of Surgery, Alhabib Medical Group, Altakhasusi Project, Riyadh, Saudi Arabia. **Tel.:** +966503308590, **E-mail:** mmadani@um.edu.sa

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INTRODUCTION

Meniere's disease is one of the disorders that affect the inner ear. Classically, it has linked to endolymphatic hydrops where excess lymphatic fluid accumulates in the membranous labyrinthine system in the inner ear and causes ganglion damage. It has typical symptoms of vertigo, hearing loss, tinnitus and aural fullness^[1]. Despite having multifactorial etiology, none of them has correlated to weight reduction following bariatric surgery. In this case report we present a 38- year old man who was complaining of severe vertigo and tinnitus followed by loss of consciousness 8 months following LSG.

CASE REPORT

We present a 38-year old man with history of morbid obesity. His initial body mass index was 50.64 (Height 189cm Weight 180.9Kg). The patient has history of mild, well-controlled depression on a single medical therapy. He has a regular follow up with his psychiatrist. He has undergone laparoscopic sleeve gastrectomy with an uneventful postoperative course. He has been compliant with his follow-up care and essential vitamins and

minerals supplements have been maintained. Eight months following the surgical procedure of weight reduction, he presented to the clinic with history of progressive and recurrent severe vertigo, throbbing headache that was associated with photophobia, and tinnitus followed by loss of consciousness for few minutes. There were no specific triggering factors to these symptoms. Upon initial assessment, he was seen to have lost 45kg since the time of surgery. Additionally, his essential laboratory tests showed no abnormalities. Accordingly, he was referred to different specialties including cardiology, neurology, endocrinology, and psychiatry where he was cleared after doing the additional relevant laboratory tests, radiological images and pertinent necessary tools, which included Computed tomography (CT) and Magnetic Resonant Imaging (MRI) of the brain, Holter monitor, Electroencephalogram (EEG) and Echocardiography. The ENT team had evaluated the patient thoroughly and found to have an abnormal Audiometry in the form of mild sensorineural hearing loss in both low frequency at 250HZ and high frequency at 4-8 KHZ zones, but normal hearing in mid-frequencies which confirms the diagnosis of Meniere's disease (Figure 1).

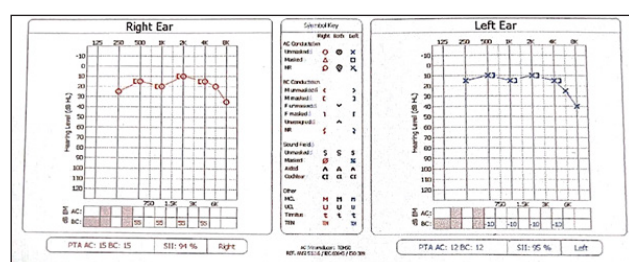


Figure 1: Findings in the Audiometry.

DISCUSSION

Laparoscopic sleeve gastrectomy (LSG) is one of the widely performed surgical procedures to successfully manage obesity worldwide^[2]. Ear complication following the procedure is rarely encountered. No previous published studies have reported Meniere's disease following bariatric surgeries.

There are common causes of vertigo including nutritional deficiencies and dehydration^[3,4]. Also, previous studies showed the positive correlation between significant weight loss and inactivity of the nervous system that resulted in syncope. Other reports showed the direct effect of the weight loss on the Eustachian tube which led to disorganization and dysfunction of ear muscles^[5,6,7]. Our patient has normal serum iron, serum glucose and vitamins' levels with good hydration status. He has lost 45Kg over 8- month following LSG.

Audiometry is one of the essential tools used to diagnose Meniere's disease. The classic pattern in the early course of the disease is normal hearing in mid-frequencies, but sensorineural hearing loss in low or combined low and high frequencies. However, over time the hearing loss can affect all frequency ranges^[8]. Our patient has typical audiometric findings of sensorineural hearing loss.

As our patient has history of mild depression which was well controlled on medication, he was referred back to his psychiatrist to reevaluate the possibility of disease progression or development of other psychiatric illnesses, however he was cleared from the psychiatric clinic with no likelihood of the relation between the patient's main complaint and his depression.

Some studies have reported asymptomatic accumulation of endolymphatic hydrops^[9,10]. Despite of being completely asymptomatic prior to the surgical procedures, whether our patient was having an asymptomatic disease prior to the surgery then was provoked following weight loss or not, remains a question as we do not do screening Audiometry as a routine investigation prior to LSG.

Further studies are required to specify the exact correlation between laparoscopic sleeve gastrectomy and Meniere's disease.

CONFLICT OF INTERESTS

There are no conflicts of interest.

REFERENCES

1. Nakashima T., Pyykkö I., Arroll MA., Casselbrant ML., Foster CA., Manzoor NF., Megerian CA., Naganawa S., Young YH. (2016). Meniere's disease. *Nat Rev Dis Primers*. May 12;2:16028. doi: 10.1038/nrdp.2016.28. PMID: 27170253.
2. Long-term and midterm outcomes of laparoscopic sleeve gastrectomy versus Roux-en-Y gastric bypass: a systematic review and meta-analysis of comparative studies, *Surgery for Obesity and Related Diseases*, Volume 13, Issue 2, (2017)., ISSN 1550-7289, <https://doi.org/10.1016/j.soard.2016.08.011>.
3. Hong X., Christ-Franco M., Moher D., Tse D., Lelli DA., Schramm D., Caulley L., Kontorinis G. (2022). Vitamin D Supplementation for Benign Paroxysmal Positional Vertigo: A Systematic Review. *Otol Neurotol*. Aug 1;43(7):e704-e711. doi: 10.1097/MAO.0000000000003586. PMID: 35878631.
4. Slomski A. (2020). Vitamin D and Calcium Prevent Recurrent Vertigo. *JAMA*. Oct 27;324(16):1599. doi: 10.1001/jama.2020.18695. PMID: 33107939.
5. Poe DS. (2007). Diagnosis and management of the patulous eustachian tube. *Otol Neurotol*.; 28(5):668–677. doi:10.1097/mao.0b013e31804d4998
6. Seibert JW., Danner CJ. (2006). Eustachian tube function and the middle ear. *Otolaryngol Clin North Am*.; 39(6):1221–1235. doi:10.1016/j.otc.2006.08.011.
7. Muñoz D., Aedo C., Der C. (2010). Patulous eustachian tube in bariatric surgery patients. *Otolaryngol Head Neck Surg*.; 143:521–524. doi:10.1016/j.otohns.2010.07.004
8. Harcourt J., Barraclough K., Bronstein AM. (2014). Meniere's disease. *BMJ*. Nov 12;349:g6544. doi: 10.1136/bmj.g6544. PMID: 25391837.
9. Aina J. Gulya, Harold F. Schuknecht, (1982). Classification of endolymphatic hydrops, *American Journal of Otolaryngology*, Volume 3, Issue 5, Pages 319-322, ISSN 0196-0709, [https://doi.org/10.1016/S0196-0709\(82\)80003-3](https://doi.org/10.1016/S0196-0709(82)80003-3).
10. Sperling NM., Paparella MM., Yoon TH., Zelterman D. (1993). Symptomatic versus asymptomatic endolymphatic hydrops: a histopathologic comparison. *Laryngoscope*. Mar;103(3):277-85. doi: 10.1288/00005537-199303000-00007. PMID: 8441315.