

Presumed Copper Keratopathy from Prolonged Sunflower Seeds Usage

A.Hambardzumyan¹, S.Martirosyan² and A.Hovakimyan³

Ophthalmologic Centre after S.V.Malayan, Yerevan, Armenia

***Corresponding Author:** A.Hambardzumyan, Ophthalmologic Centre after S.V.Malayan, Yerevan, Armenia.

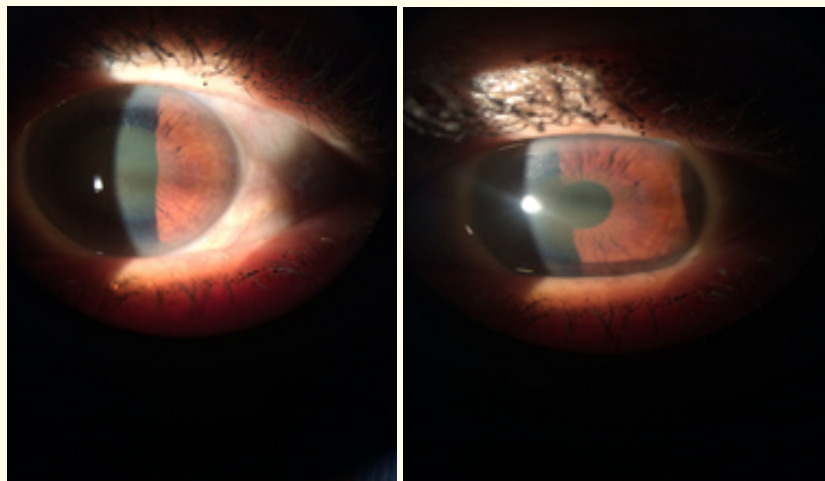
Received: October 03, 2016; **Published:** October 25, 2016

One of the causes of metallic toxic keratopathy could be accumulation of copper in the in the layers of cornea. This has been reported in patents with Wilson's disease [1-3], chronic lymphocytic leukemia [4]. The abuse of copper containing meals can also result in accumulation of copper in layers of cornea.

Wilson disease is a rare genetic disorder characterized by excess copper stored in various body tissues, particularly the liver, brain, and corneas of the eyes. The disease is progressive, has autosome-recessive transmission and, if left untreated, it may cause liver (hepatic) disease, central nervous system dysfunction, and death. Early diagnosis and treatment may prevent serious long-term disability and life threatening complications. Treatment is aimed at reducing the amount of copper that has accumulated in the body and maintaining normal copper levels thereafter [5].

Chronic lymphocytic leukemia (CLL) is a type of slow growing leukemia that affects developing B-lymphocytes (also known as B-cells). These cells are specialized white blood cells. Under normal conditions they produce immunoglobulins (antibodies) that help protect our bodies against infection and disease. In people with CLL, lymphocytes undergo a malignant (cancerous) change and become leukemic cells [6,7].

We are presenting a case of 72 years old female who got uncomplicated cataract phacoemulsification surgery one eye 4 years ago and other eye 2 years ago with Alcon IQSN60 lenses. One year ago, during regular checkup bilateral green vertical corneal opacification at the level of Descemet membrane was noted by slit lamp, which six months later got discoid shape (Figure 1,2).



Work up for Wilson disease, leukemia, infections, systemic diseases was negative. The blood test for copper level showed 89,2 mkmol/l (norma 24,34) was observed with normal level of ceruloplasmin. Urine test of copper was within the normal limits (0,2 mmol/day). Liver functional tests were also in normal limits. The patients claimed of eating every day sunflower seeds (2 - 3 packs per day) for two years. 100g sunflower seeds giving 97% of copper need for body, and one pack of sunflower seed is about 250g. So, one could conclude that the reason of hypercooperemia in this particular case was the over intake of sunflower seeds.

Conclusion

The abuse of copper containing meals, particularly sunflower seeds could result in hypercooperemia and deposition of copper in deep cornea.

This is the first report alimentary caused metallic keratopathy to our knowledge. Countries, where sunflower seeds are used as meals, should have public reports on TV reporting people on possible metallic keratopathy development.

Bibliography

1. Schilsky ML. "Wilson's Disease: Genetic Basis of Copper Toxicity and Natural History". In: *Seminars in Liver Disease*. New York, NY: Thieme Medical Publishers 16.1 (1996): 83-95.
2. El-Youssef M. "Wilson disease". *Mayo Clinic Proceedings* 78.9 (2003): 1126-1136.
3. Ferenci P, et al. "Diagnosis and phenotypic classification of Wilson disease". *Liver International* 23.3 (2003): 139-142.
4. Anthony J Aldave, et al. "Corneal Copper Deposition Associated With Chronic Lymphocytic Leukemia", *American Journal of Ophthalmology* 142.1 (2006): 174-176.
5. Pellecchia MT, et al. "Clinical presentation and treatment of Wilson's disease: a single-centre experience". *European Neurology* 50.1 (2003): 48-52.
6. Dameshek W. "Chronic lymphocytic leukemia— an accumulative disease of immunologically incompetent lymphocytes". *Blood* 29.4 (1967): 566-584.
7. Rozman C and Montserrat E. "Chronic lymphocytic leukemia". *New England Journal of Medicine* 333.16 (1995): 1052-1057.

Volume 4 Issue 1 October 2016

© All rights reserved by A.Hambardzumyan, et al.