TOBACCO-ALCOHOL TOXIC-NUTRITIONAL OPTIC NEUROPATHY: A CASE REPORT

NEUROPATIA ÓPTICA TÓXICO-CARENCIAL POR TABACO-ÁLCOOL: RELATO DE CASO

NEUROPATÍA ÓPTICA TÓXICO-CARENCIAL POR TABACO Y ALCOHOL: REPORTE DE CASO

https://doi.org/10.56238/sevened2026.020-041

Anderson Gustavo Teixeira Pinto[1], Letícia Fernandes Barroso[2], Bruna Cordeiro Benvenutti Castro[3], Carla Duhau Boni[4], Gabriela Furlan Ribeiro Barbosa Netto[5], Gabriela Ponte Gutierres[6], Giulia Longoni Manfroi[7], Sara Oliveira Reis[8]

ABSTRACT

Introduction: Tobacco-alcohol optic neuropathy is a toxic-nutritional condition that causes damage to the optic nerve. While tobacco exerts a predominantly toxic effect, alcohol acts through nutritional deficiency, impairing the bioavailability of essential nutrients such as folate and B-complex vitamins. The pathophysiology is associated with mitochondrial DNA damage and the accumulation of free radicals.

Case Report: A 67-year-old male patient, with a history of alcoholism and smoking for more than 30 years, presented with progressive visual loss in the right eye (RE) for two weeks. The left eye (LE) had previous amaurosis due to trauma. On examination, visual acuity in the RE was counting fingers at 1 meter. Complementary examinations revealed temporal pallor of the optic disc and a cecocentral scotoma on computerized visual field testing. Following the diagnosis of tobacco-alcohol optic neuropathy, treatment was initiated with 5000 mcg of intramuscular vitamin B12 weekly for three weeks, in addition to counseling for smoking and alcohol cessation.

Results and Conclusion: After treatment, there was significant recovery of the visual field and improvement of visual acuity in the RE to 20/40. The visual prognosis of this condition depends directly on early diagnosis, duration of exposure to toxic substances, and the immediate cessation of alcohol and tobacco use in order to prevent irreversible damage.

[1] Dr. Ophthalmologist Physician. Professor of Ophthalmology Practices. Universidade Católica de Brasília. E-mail: anderson.lbo@uol.com.br
[2] Dr. Ophthalmologist Physician. Professor of Ophthalmology and Advisor to the Medicine Course. Universidade Católica de Brasília. E-mail: leticiafbarroso@gmail.com
[3] Completed Higher Education. Universidade de Brasília. E-mail: brunacbcastro@yahoo.com.br Orcid: https://orcid.org/0009-0003-1834-395X
[4] Completed Higher Education. Universidade de Brasília. Lattes: https://lattes.cnpq.br/5555713223859224
[5] Completed Higher Education. Universidade Católica de Brasília. E-mail: gabrielafurlannetto@gmail.com
[6] Completed Higher Education. Universidade Católica de Brasília. E-mail: gabrielapontegutierres@gmail.com
[7] Incomplete Higher Education. UniCEUB. E-mail: jujumanfroi@gmail.com
[8] Completed Higher Education. Uniceplac. E-mail: oliveirareissara@gmail.com

Keywords: Optic Neuropathy. Tobacco. Alcoholism. Vitamin B12. Cecocentral Scotoma.

RESUMO

Introdução: A neuropatia óptica por tabaco-álcool é uma condição de caráter tóxico-carencial que causa lesão ao nervo óptico. Enquanto o tabaco exerce um efeito predominantemente tóxico, o álcool atua de forma carencial, prejudicando a biodisponibilidade de nutrientes essenciais, como o folato e as vitaminas do complexo B. A fisiopatologia está ligada ao dano no DNA mitocondrial e ao acúmulo de radicais livres.

Relato do Caso: Paciente masculino, 67 anos, etilista e tabagista há mais de 30 anos, apresentou baixa visual progressiva no olho direito (OD) há duas semanas. O olho esquerdo (OE) apresentava amaurose prévia por trauma. Ao exame, a acuidade visual no OD era de conta dedos a 1 metro. Exames complementares revelaram palidez temporal no disco óptico e escotoma cecocentral na campimetria computadorizada. Com o diagnóstico de neuropatia tabaco-álcool, instituiu-se tratamento com 5000mcg de vitamina B12 intramuscular semanal por três semanas, além da orientação de suspensão do tabagismo e etilismo.

Resultados e Conclusão: Após o tratamento, houve recuperação significativa do campo visual e melhora da acuidade visual no OD para 20/40. O prognóstico visual desta condição depende diretamente do diagnóstico precoce, do tempo de exposição às substâncias e da interrupção imediata do consumo de álcool e fumo para evitar danos irreversíveis.

Palavras-chave: Neuropatia Óptica. Tabaco. Alcoolismo. Vitamina B12. Escotoma Cecocentral.

RESUMEN

Introducción: La neuropatía óptica por tabaco y alcohol es una condición de carácter tóxico-carencial que causa daño al nervio óptico. Mientras que el tabaco ejerce un efecto predominantemente tóxico, el alcohol actúa de forma carencial, perjudicando la biodisponibilidad de nutrientes esenciales, como el folato y las vitaminas del complejo B. La fisiopatología está relacionada con el daño al ADN mitocondrial y la acumulación de radicales libres.

Reporte de Caso: Paciente masculino de 67 años, alcohólico y fumador desde hacía más de 30 años, presentó disminución visual progresiva en el ojo derecho (OD) desde hacía dos semanas. El ojo izquierdo (OI) presentaba amaurosis previa debido a un traumatismo. En el examen, la agudeza visual en el OD era de cuenta dedos a 1 metro. Los exámenes complementarios revelaron palidez temporal del disco óptico y escotoma cecocentral en la campimetría computarizada. Con el diagnóstico de neuropatía óptica por tabaco y alcohol, se inició tratamiento con 5000 mcg de vitamina B12 intramuscular semanal durante tres semanas, además de orientación para la suspensión del tabaquismo y del alcoholismo.

Resultados y Conclusión: Después del tratamiento, hubo una recuperación significativa del campo visual y mejoría de la agudeza visual en el OD a 20/40. El pronóstico visual de esta condición depende directamente del diagnóstico precoz, del tiempo de exposición a las sustancias y de la interrupción inmediata del consumo de alcohol y tabaco para evitar daños irreversibles.

Palabras clave: Neuropatía Óptica. Tabaco. Alcoholismo. Vitamina B12. Escotoma Cecocentral.

1 INTRODUCTION

Tobacco-alcohol optic neuropathy is a condition that damages the optic nerve (NO) by a toxic-deficiency mechanism. Tobacco has a predominantly toxic effect and alcohol is predominantly deficient, since it affects the bioavailability of nutrients, especially B vitamins and folate, either by deficient absorption, by causing defects in metabolism or by hindering storage. The high incidence of smoking and alcoholism today reinforces the importance of describing clinical cases.

2 CASE DESCRIPTION

Male, 67 years old. She sought ophthalmologic care complaining of progressive visual impairment in her right eye 2 weeks ago. In her previous ophthalmological history, she reported perforating trauma in the left eye (LE) and cataract surgery in the right eye (RE); in addition to Covid for 45 days, alcoholism and smoking for more than 30 years as a previous pathological history. She denied other comorbidities and ophthalmological diseases in the family. On ophthalmologic physical examination, a corneal scar was observed in the left eye on ectoscopy with bilateral preserved ocular motility. Visual acuity without correction of the fingercount was 1 meter in RE and without light perception in LE, which did not change with refractive correction. Biomicroscopy of the anterior segment showed pseudophakia in RE and corneal scar in LE. Intraocular pressure of 12 mmHg bilaterally. Complementary tests for RE were requested, given the irreversibility of previous damage in LE.

Retinal mapping showed an oval optic nerve (NO), with mild temporal pallor, vessels emerging from the center, and papillary cupping of 0.3. Fluorescein angiography showed temporal hyperfluorescence in the optic disc (OD) due to a window defect in the late arteriovenous phase. Optical coherence tomography showed partial detachment of the posterior vitreous, adhered to the foveal region. Computerized campimetry showed an increase in blind spot with cecocentral scotoma. Based on the clinical history and the findings of the physical examination and complementary tests, the diagnosis of tobacco-alcohol neuropathy was established and, for the treatment, the administration of 5000mcg of intramuscular vitamin B12 weekly for 3 weeks was prescribed, in addition to the suspension of alcohol intake and smoking. Campimetry performed after treatment showed significant recovery of the visual field, with a decrease in the scotoma and improvement in visual acuity in RE to 20/40.

3 DISCUSSION

Tobacco-alcohol toxic-deficiency optic neuropathy mainly affects males, smokers and long-term drinkers. The pathophysiology primarily involves damage to mitochondrial DNA, impairing ATP production and accumulating free radicals that cause cell damage. Affected patients usually present with low visual acuity bilaterally, lesions in the maculopapillary bundle, central or cecocentral scotomas, and reduced color vision. The recommended treatment is supplementation with vitamin B12 and the immediate cessation of alcohol and smoking consumption. The prognosis depends on the time of exposure to the substances, an early diagnosis and the reversibility of nerve cell damage. The main differential diagnosis of this condition is Leber's hereditary neuropathy, which in its pathophysiology also involves a deficit in ATP production and accumulation of free radicals, but due to genetically inherited mutations in mitochondrial DNA, which is why this condition affects young people.

4 CONCLUSION

In view of the increasing incidence of smoking and alcoholism today, especially among young people, health professionals should pay attention to the signs of tobacco-alcohol toxic-deficiency optic neuropathy, which can acutely cause irreversible damage to vision, and advise patients about the other health impacts of the use of these substances.

Figure 1

Fundoscopic showing candle flame hemorrhage, drusen, oval optic nerve, with slight temporal pallor

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