Turkish Journal of Medical Sciences

Volume 38 | Number 4 Article 15

1-1-2008

Purtscher´s Retinopathy: An Unusual Association with a Complicated Mandibular Fracture

TONGABAY CUMURCU

HÜSEYİN YARDIM

MEHMET GÜVEN

RAŞİT KILIÇ

NİLÜFER ÖZKAN

TÜBİTAK

CASE REPORT

Turk J Med Sci
2008; 38 (4): 373-376

E-mail: medsci@tubitak.gov.tr

Purtscher's Retinopathy: An Unusual Association with a Complicated Mandibular Fracture

Tongabay CUMURCU[1]
Hüseyin YARDIM[1]
Mehmet GÜVEN[2]
Raşit KILIÇ[1]
Nilüfer ÖZKAN[3]

Abstract: We present a case of unilateral traumatic retinal angiopathy following a mandibular fracture. An 11-year-old child involved in a bicycle accident developed Purtscher's retinopathy in the left eye with retinal hemorrhages, cotton wool spots, and optic disc swelling on funduscopy. The visual acuity in this eye was counting fingers at one meter.

Key Words: Purtscher's retinopathy, mandibular fracture, visual loss

Purtscher Retinopatisi: Komplike Mandibula Kırığı ile Sıradışı bir İlişki

Özet: Mandibula kırığını takiben gelişen tek taraflı travmatik retinal anjiopatili bir vakayı sunmayı amaçladık. Bisiklet kazası sonrası sol gözünde Purtscher retinopatisi gelişen, 11 yaşında bir çocukta fundoskopide, sol gözde retina hemorajileri, atılmış pamuk tarzı eksudalar ve optik disk ödemi izleniyordu. Sol gözün görmesi bir metreden parmak sayma düzeyindeydi.

Anahtar Sözcükler: Purtscher retinopatisi, mandibula kırığı, görme kaybı

[1] Department of Ophthalmology, Faculty of Medicine, Gaziosmanpaşa University, Tokat - TURKEY
[2] Department of Ear, Nose and Throat, Faculty of Medicine, Gaziosmanpaşa University, Tokat - TURKEY
[3] Department of Ear, Nose and Throat, Oral and Maxillofacial Surgery, Faculty of Medicine, Gaziosmanpaşa University, Tokat - TURKEY

Introduction

Purtscher's retinopathy was first described in 1910 by Otmar Purtscher in a patient with severe head trauma. This retinopathy is characterized by bilateral retinal hemorrhages, cotton wool spots, and optic disc swelling seen on funduscopy (1). A similar retinal appearance has also been described in a variety of conditions including bone fracture, orthopedic surgery and acute pancreatitis (2-4). Visual acuity may decrease from 20/200 to counting fingers. Pigmentary changes and optic atrophy may occur in severe cases. The retinal lesions usually settle gradually over weeks and the retina may then appear normal (2). The majority of the cases have bilateral eye involvement, although rare unilateral involvement has also been described (2,5). We present a case of unilateral traumatic retinal angiopathy following a mandibular fracture.

Case Report

An 11-year-old child was referred to our clinic with loss of visual acuity in his left eye one day after a bicycle accident. He had a fracture in the left side of the mandibula due to the trauma. The fracture had been repaired surgically by the ear-nose-throat (ENT) department. There was no periorbital edema, ecchymosis or chemosis due to direct trauma in either eye. On examination, the patient had 20/20 vision in the right eye and counting fingers at one meter in the left eye. The anterior segments were bilaterally normal. The intraocular pressures were within normal limits in both eyes. The light reflex was positive bilaterally with no afferent pupil defect. Funduscopy showed scattered cotton wool spots in the left eye, with retinal hemorrhages in the central area and marked macula and optic disc edema (Figure 1). The right eye was normal. Visual field testing revealed a diffuse generalized suppression in the left eye (Figure 2). Computerized tomography of the mandible demonstrated a crush fracture (Figure 3). The patient received high-dose intravenous methylprednisolone (1 g/day) for three days

Received: November 14, 2007
Accepted: May 05, 2008

Correspondence
Tongabay CUMURCU
Department of Ophthalmology, Faculty of Medicine, Gaziosmanpaşa University, Tokat - TURKEY

tongabay@superonline.com

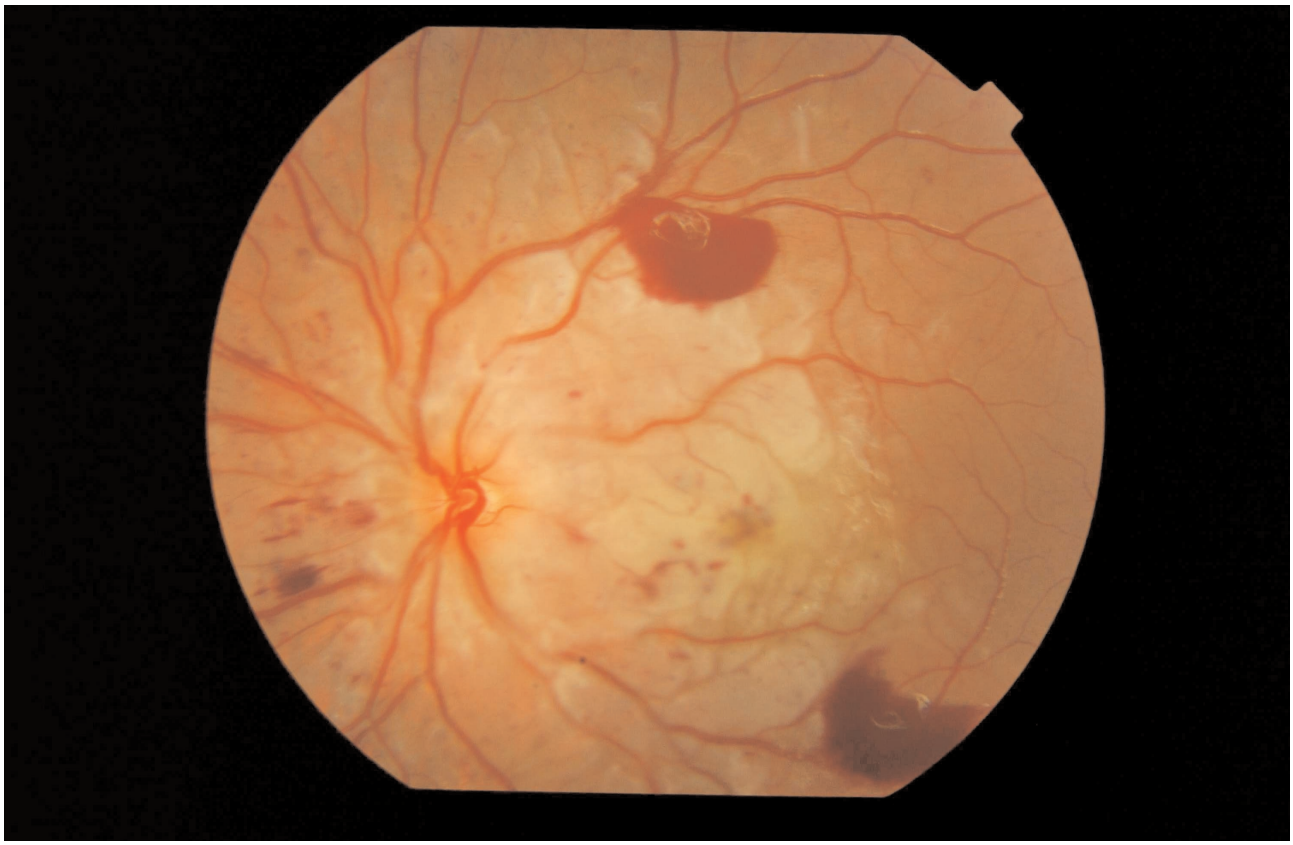

Figure 1. Retinal photograph, left eye.

continued with oral steroid treatment at a dose of 1 mg/kg for one week. One month later, visual acuity in the left eye was counting fingers from two meters, the cotton wool spots and hemorrhages had resolved, and the macula and optic disc edema continued although diminished. The visual field defect was still present.

Discussion

Arteriolar occlusion due to embolization is considered to be the main mechanism involved in the pathogenesis of Purtscher's retinopathy. Air, fat, granulocytes, or other blood product aggregates, formed after complement activation, have all been suggested as the cause of the emboli responsible for arteriolar occlusion (6,7). Purtscher's retinopathy is a rare entity, usually detected in young males as a consequence of trauma. We encountered only one case associated with mandibular fracture in the literature (8).

There may be various combinations of early clinical signs, such as multiple areas of polygonal retinal whitening between the retinal arterioles and venules (Purtscher flecken) and/or cotton wool spots in one or both eyes, typically restricted to the posterior pole, accompanied by minimal retinal hemorrhage despite no direct ocular trauma (9). These findings were also seen in our case.

Some case reports suggest that treatment of Purtscher's retinopathy with high-dose intravenous steroids may be beneficial (10,11). Spontaneous visual recovery of at least 2 Snellen lines is seen in half of the cases. There is some evidence that poor initial and final acuities may be associated with persistent acute changes in the retina (9). Although our case received high-dose intravenous methylprednisolone, no significant visual improvement was observed, in contrast to previous reports.

Most cases involve bilateral retinal changes, but unilateral effects may be seen rarely, as in our case.

In conclusion, a diagnosis of Purtscher's retinopathy should be considered in patients with visual symptoms following a history of traumatic injury.

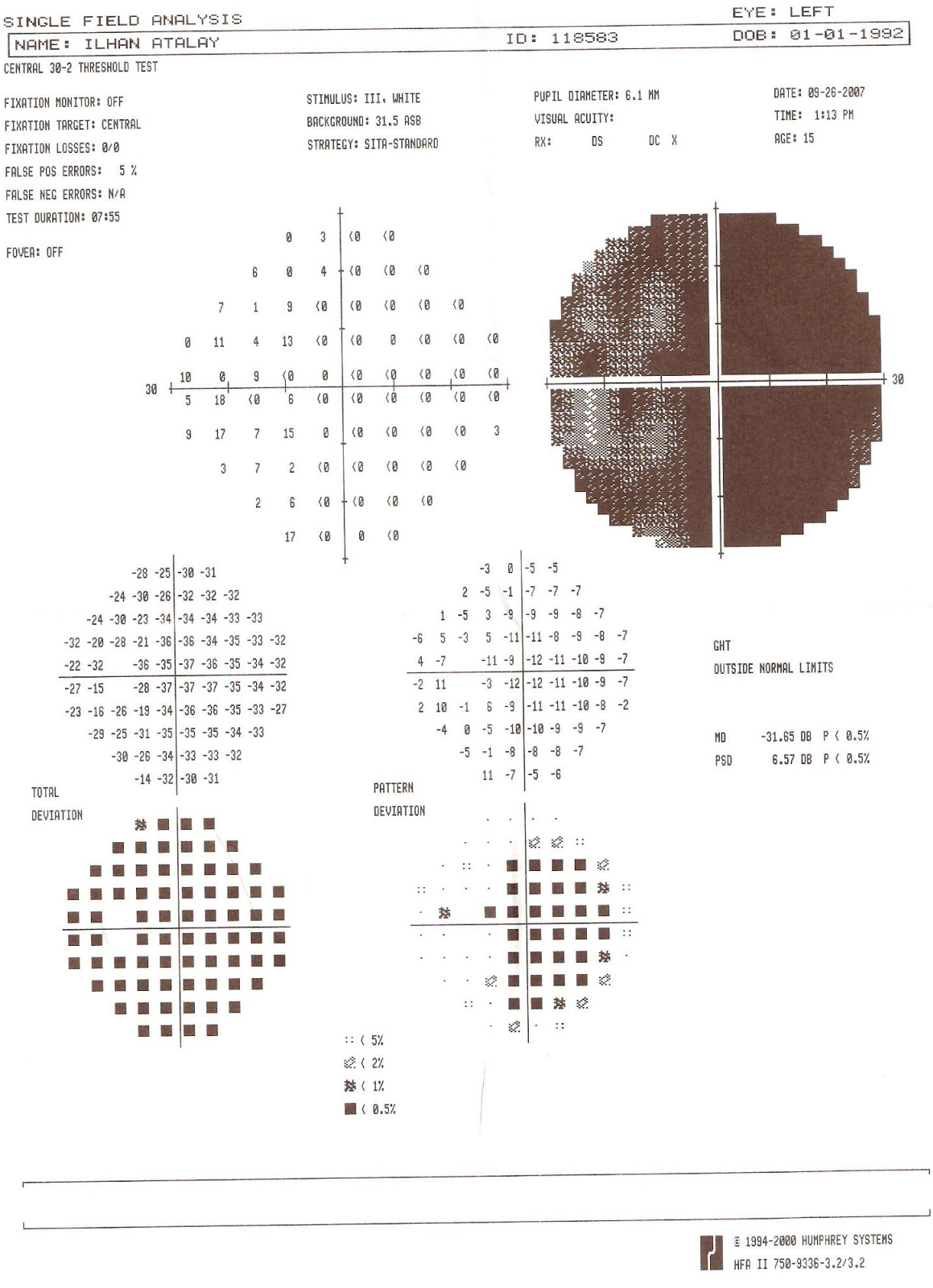

Figure 2. Visual field, left eye.

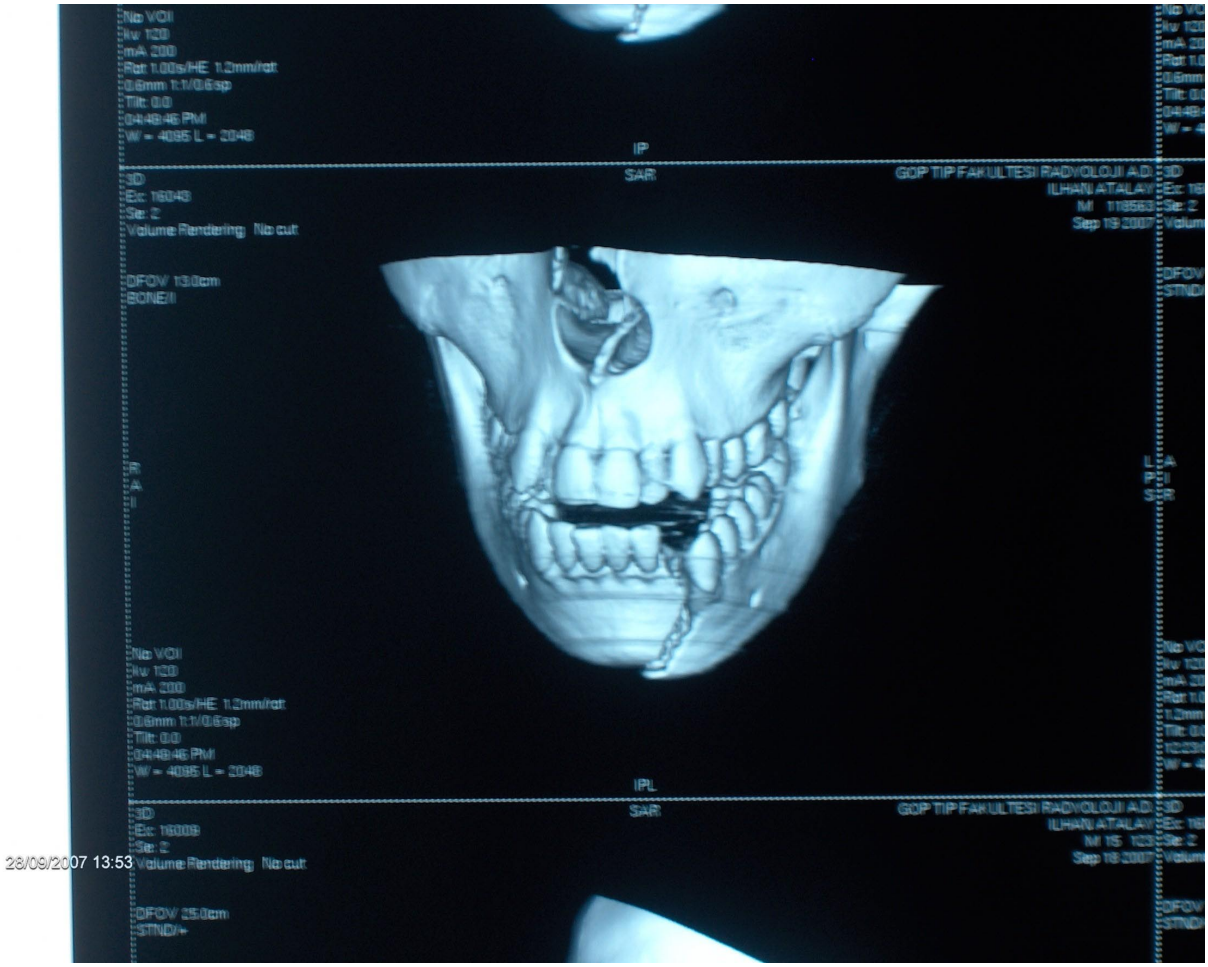

Figure 3. Computerized tomography image of the mandible.

References

1. Purtscher O. Angiopathia retinae traumatica: Lymphorrhagien des Augengrundes. Graefes Arch Klin Exp Ophthalmol 1912; 82: 347–71.
2. Nayak H, Harun S, Palimar P. Purtscher's retinopathy after fracture dislocation of shoulder joint. Emerg Med J 2005; 22: 831-2.
3. Agrawal A, Mc Kibbin MA. Purtscher's and Purtscher-like retinopathies: a review. Surv Ophthalmol 2006; 51: 129-36.
4. Nunez L, Cubiella J, Moreno C, Diez MS, Sanchez E, Vega M. Purtscher's retinopathy: a rare complication of acute non-alcoholic pancreatitis. Gastroenterol Hepatol 2003; 26: 541-4.
5. Kocak N, Kaynak S, Kaynak T, Oner HF, Cingil G. Unilateral Purtscher-like retinopathy after weight-lifting. Eur J Ophthalmol 2003; 13: 395-7.
6. Behrens-Baumann W, Scheurer G, Schroer H. Pathogenesis of Purtscher's retinopathy. An experimental study. Graefes Arch Clin Exp Ophthalmol 1992; 230: 286–91.
7. Roden D, Fitzpatrick G, O'Donoghue H, Phelan D. Purtscher's retinopathy and fat embolism. Br J Ophthalmol 1989; 73: 677–9.
8. Peled M, Rubin A, Pikkel J, Laufer D. Purtscher's retinopathy associated with mandibular fracture: a case report. J Trauma 1996; 40: 141-3.
9. Agrawal A, Mc Kibbin MA. Purtscher's retinopathy: epidemiology, clinical features and outcome. Br J Ophthalmol 2007; 91: 1456-9.
10. Tachfouti S, Karmane A, El Moussaif H, Boutimzine N. Purtscher's retinopathy with a favorable outcome after corticosteroids: case report. Bull Soc Belge Ophtalmol 2005; 298: 45-50.
11. Atabay C, Kansu T, Nurlu G. Late visual recovery after intravenous methylprednisolone treatment of Purtscher's retinopathy. Ann Ophthalmol 1993; 25: 330-3.