If You Don't Seek, You Won't Find: Case Report of a Large Retinal Hole Following Blunt Trauma

Se Não Procuras, Não Encontras: Relato de um Caso de um Grande Buraco na Retina Após um Traumatismo Contundente

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Recebido/Received: 2023-10-22 | **Aceite/Accepted:** 2024-01-02 | **Published online/Publicado online:** 2024-05-14 | **Published/Publicado:** 2024-06-27

DOI: https://doi.org/10.48560/rspo.33129

ABSTRACT

Ocular trauma with blunt objects is the most common cause of closed traumatic eyeball injuries, often leading to retinal lesions such as tears or dialysis. Although traumatic retinal breaks account for a small portion of cases, they are more frequently associated do retinal detachment and have a greater potential for vision loss. The purpose of this report is to describe a case of an atypical large operculated retinal hole following trauma with an iron bar.

A 58-year-old woman was admitted after a closed left eye periocular trauma with an iron bar. She complained of decreased visual acuity and floaters. Naked-eye inspection of the face was innocent, and slit-lamp anterior segment evaluation did not show any signs of ocular damage. Fundoscopy revealed a large operculated hole in the supero-temporal periphery of the retina, with an extensive area of retinal tissue suspended in the vitreous and mild vitreous hemorrhage. She immediately underwent extensive LASER retinopexy of the lesion, which was then reinforced after 3 days. The vitreous hemorrhage completely subsided, and she achieved 20/20 visual acuity 2 weeks after the episode. No other complications developed in the remaining follow-up.

A blunt trauma to the face may show no signs of damage to naked-eye inspection and may present with a completely innocent anterior chamber examination, despite causing a severe retinal lesion. A high level of suspicion must be held after a blunt periocular trauma, and a detailed fundoscopy should always be done. Prompt diagnosis and treatment may prevent the development of potentially sight-threatening complications.

KEYWORDS: Eye Injuries; Retinal Detachment/etiology; Retinal Perforations.

RESUMO

O trauma ocular fechado é uma das causas mais frequentes de lesão traumática ocular, e está frequentemente associado ao desenvolvimento de lesões da retina como rasgaduras ou diálise. Apesar das rasgaduras da retina traumáticas corresponderem a uma pequena proporção de casos, têm um maior risco de desenvolvimento de descolamento da retina com subsequente perda

irreversível de visão. O objectivo deste trabalho é descrever um caso de um buraco operculado da retina de grandes dimensões na sequência de um traumatismo periocular com uma barra de ferro.

Uma mulher de 58 anos recorreu ao serviço de urgência por um traumatismo periocular esquerdo com uma barra de ferro, com 2 horas de evolução. Apresentava queixas de diminuição da acuidade visual e miodesopsias. A inspeção a olho nu da região facial era inocente e o exame do segmento anterior na lâmpada de fenda não evidenciava quaisquer sinais de envolvimento ocular. A fundoscopia revelou um buraco operculado de grandes dimensões na retina periférica supero-temporal, com uma área extensa de tecido retiniano em suspensão no vítreo e hemovítreo ligeiro. A doente foi imediatamente submetida a retinopexia LASER, que foi posteriormente reforçada após 3 dias. Duas semanas após o episódio, o hemovítreo reabsorveu por completo (20/20). Não foram registadas outras complicações.

Um traumatismo periocular fechado pode não demonstrar qualquer lesão à inspeção a olho nu e estar associado a um segmento anterior totalmente inocente, apesar de ter o potencial de causar lesão grave da retina. É importante a adoção de um alto grau de suspeição após um trauma periocular, que deverá sempre incluir a realização de uma fundoscopia detalhada. O diagnóstico e tratamento atempados são fundamentais para prevenir o desenvolvimento de complicações graves a longo prazo.

PALAVRAS-CHAVE: Descolamento da Retina/etiologia; Lesões Oculares; Perfurações da Retina.

INTRODUCTION

Ocular trauma with blunt objects is the most common cause of closed traumatic eyeball injuries.[1] The resulting damage is the combined effect of four mechanisms: compression, decompression, overfitting, and oscilation.[1] The most common retinal defects in closed globe injury are retinal dialysis, most commonly in the superior nasal or inferior temporal quadrants, and peripheral retinal tears, with horseshoe-shaped tears being the most common, typically in the inferior temporal quadrant.[2,3] Angle recession, iridodonesis, iridodialysis, phacodonesis, lens subluxation or luxation may also be present in the context of a blunt trauma and should be excluded upon presentation.

Retinal detachment is the most feared complication following traumatic retinal tears, and there may be a significant delay between the initial traumatic injury and the onset of the detachment. Although traumatic retinal breaks account for a small portion of cases, they are much more prone to lead to detachment and have a greater potential for subsequent vision loss, so careful examination is paramount to detect traumatic breaks, which should be repeated if vitreous hemorrhage or pre-retinal blood obscure the view.[2,4] Particular attention should be given to the superior nasal and inferior temporal quadrants. It is recommended that all acute retinal tears are treated during the first 24-72 hours,[5] and the most common treatment modality is laser photocoagulation, which creates a thermal burn and subsequent retinal adhesion surrounding the tear, which limits the flow of liquified vitreous through the tear, reducing the risk of retinal detachment from 30% to less than 1%.[6,7]

The purpose of this work is to report a case of an atypical large operculated retinal hole, following blunt ocular trauma with an iron bar.

CASE REPORT

This clinical case was based on the clinical history, objective examination, and complementary exams, which are described in the following section. The patient was observed in Hospital Pedro Hispano – ULSM, Portugal. Given that the research involved negligible risk and only involved the use of existing data records with non-identifiable patient data, the ethics committee of Pedro Hispano Hospital waived the need for ethical approval. Informed consent was obtained from the study participants, and the guidelines outlined in the Declaration of Helsinki were followed.

A 58-year-old woman was admitted to the emergency department after a closed left periocular trauma with an iron bar, 2 hours prior. At admission, she complained of decreased visual acuity and floaters on her left eye (OS). She had no relevant medical or surgical history, and only took anxiolytics as medication.

On inspection, no obvious signs of trauma were present, since she did not have edema or erythema of the periorbital soft tissues. The pupillary examination was normal, and eye movements were unrestricted. Visual acuity (VA) in her OS was 10/20 and intraocular pressure was 16 mmHg. Slit lamp examination showed no conjunctival or ciliary hyperemia. There were no conjunctival or corneal lesions. The anterior chamber was deep, without the presence of flare or cells. The patient subsequently underwent pharmacological mydriasis, and fundoscopy was performed using a Goldmann 3 mirror lens, which showed the presence of a mild central vitreous hemorrhage, and a large operculated hole in the supero-temporal periphery of the retina, with an extensive area of retinal tissue suspended in the vitreous. No other peripheral retinal lesions were observed, and the

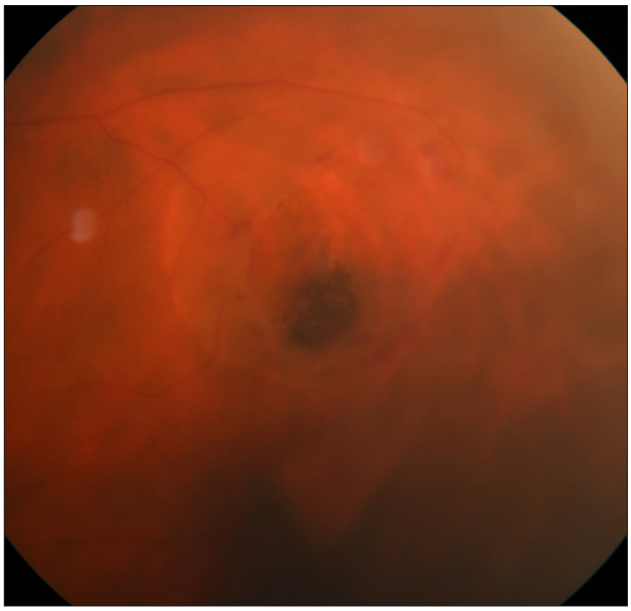

Figure 1. Color fundus photography showing a large operculated hole in the supero-temporal periphery of the retina, with an extensive area of retinal tissue suspended in the vitreous.

optic disc had a normal appearance.

The patient immediately underwent extensive 360° LASER retinopexy of the lesion, and a cranial computed tomography (CT) was requested since she hadn't had any imaging exams before being referred to ophthalmology. The CT scan did not reveal any fractures of the orbit, changes in periorbital tissues, or intracranial lesions. She was discharged, and subsequently observed 3 days later, when she underwent another session of LASER, to further reinforce the retinopexy after most of the vitreous hemorrhage had deposited. Two weeks after the episode, the vitreous hemorrhage had completely reabsorbed, and she achieved a VA of 20/20. She remained asymptomatic and no other complications developed in the remaining follow-up.

DISCUSSION

Ocular trauma is a major cause of morbidity and socioeconomic impact, and unlike most ocular diseases, it may affect patients from all age groups, being four times more common in men.[8] Both its causes and consequences are highly variable and may lead to potentially irreversible damage to various anatomical structures of the orbit or the eyeball itself, which may lead to severe functional loss.[9] A recent report carried out in the north of Portugal, which studied this topic over the last 15 years, concluded that home was the most common location of trauma, followed by industrial premises, farms, recreation, and sports. This study also reported that trauma with blunt objects was the most common, corresponding to about one-third of the cases, followed by sharp objects, and fall accidents. According to the types of globe injury, only 21.3% of cases consisted of closed globe injuries, with the majority of cases being open globe injuries, whether rupture, penetrating, intraocular foreign body, or perforating. Regarding the affected anatomic structures, they found an apparent decrease in progression from more anterior to posterior structures, with the exception of the vitreous and the lens. In this report, the retina was involved in 41% of cases, with retinal detachment being present in about half of those patients.[8]

This clinical case shows a peculiar presentation where, after a relatively high-energy trauma to the face, no signs of damage were visible on the periorbital soft tissues and structures on naked-eye inspection, since no periorbital edema or hematomas were present. Even in the slit-lamp examination of the anterior segment, typical findings after trauma affecting the eyeball were not present, such as subconjunctival hemorrhage, corneal lesions, or anterior chamber inflammatory reaction. This demonstrates the importance of a complete ophthalmological examination in the event of any type of periorbital trauma, including fundoscopy, which should always be completed with the use of a Goldmann 3 mirror lens, whenever possible. The presence of vitreous hemorrhage, even if mild, should increase the suspicion of a retinal injury, such as a retinal tear or dialysis, which may occur even when the rest of the exam seems innocent, as demonstrated in this patient. Eye movement, visual acuity testing, and intraocular pressure should also be carefully examined, since intraorbital structures may be compromised, or an intraorbital hemorrhagic process may occur following the trauma, especially if the patient is taking anticoagulant or antiplatelet medication. Orbital CT scans should always be considered in the presence of abnormal eye movements, diminished visual acuity, or other signs such as proptosis or variations in the relative position of the eyeball. The presence of new-onset headaches, nausea, vomiting, or alterations of consciousness always requires a head CT to be done.

The presence of retinal tears, holes, or other defects should lead to treatment as soon as possible. In cases where retinal detachment has not yet developed, LASER retinopexy is a relatively non-invasive treatment modality, which exponentially reduces the risk of future complications.[7] The decision to perform it in conventional operculated holes is not consensual, since in most cases, after the hole has formed, there is no residual vitreoretinal traction, and the risk of subsequent detachment is low. In our case, we opted for treatment because the hole was very large in size and formed as a direct result of the trauma. The patient should always be re-evaluated several times during the following weeks, in order to exclude possible progression of the retinal lesions and to consider further treatment reinforcement. The appearance of other retinal lesions should also be excluded since some post-traumatic injuries may develop after the acute episode, not being evident during the initial observation.

The purpose of this report was to demonstrate that, in rare occasions, facial trauma may lead to minimal or practically non-existent damage to the soft tissues of the face, which may appear innocent to naked eye inspection, despite having led to severe retinal lesions. We reinforce the impor-

tance of a high degree of suspicion in the event of any periocular trauma, and the need for a careful ophthalmological examination, which should always be complemented by detailed fundoscopy to exclude posterior pole lesions. Prompt diagnosis and treatment may prevent the development of potentially sight-threatening complications.

CONTRIBUTORSHIP STATEMENT / DECLARAÇÃO DE CONTRIBUIÇÃO:

RCB: Wrote the article.

All other authors collaborated equally in data collection, analysis and in the discussion of the results.

All authors approved the final version to be published.

RCB: Escreveu o artigo.

Todos os outros autores colaboraram igualmente na recolha de dados, na análise e na discussão dos resultados.

Todos os autores aprovaram a versão final a ser publicada.

RESPONSABILIDADES ÉTICAS

Conflitos de Interesse: Os autores declaram a inexistência de conflitos de interesse na realização do presente trabalho.

Fontes de Financiamento: Não existiram fontes externas de financiamento para a realização deste artigo.

Confidencialidade dos Dados: Os autores declaram ter seguido os protocolos da sua instituição acerca da publicação dos dados de doentes.

Consentimento: Consentimento do doente para publicação obtido.

Proveniência e Revisão por Pares: Não comissionado; revisão externa por pares.

ETHICAL DISCLOSURES

Conflicts of Interest: The authors have no conflicts of interest to declare.

Financing Support: This work has not received any contribution, grant or scholarship.

Confidentiality of Data: The authors declare that they have followed the protocols of their work center on the publication of data from patients.

Patient Consent: Consent for publication was obtained.

Provenance and Peer Review: Not commissioned; externally peer reviewed.

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