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Hyphema Post Intravitreal Injection of Bevacizumab

Lucrèce Joanelle Vydalie Eriga [a*], Arnaud Hugues Yempabou Yonli [a], Ricardo Mendes [a], Yassine Mouzari [a] and Abdelbarre Oubaaz [a]

[a] Department of Ophthalmology, Hôpital Militaire D'instruction Mohammed V, Rabat, Morocco.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Objective: To describe a case of total hyphema after intravitreal injection of Bevacizumab. **Results:** This is a 54 years old patient diagnosed with exudative age-related macular degeneration who was admitted for injection of Bevacizumab in the right eye. The visual acuity was 02/10 in both eyes, and the injection was performed after eliminating the contraindications on biomicroscope examination. The immediate evolution after injection was marked by a total hyphema. The management was based on antibiotic and anti-inflammatory eye drops, rehydration and monitoring. The hyphema disappeared after ten days with visual acuity remained at 02/10.

Keywords: Hyphema; bevacizumab; exudative; macular.

1. INTRODUCTION

Age-related macular degeneration (AMD) is a blinding pathology, representing the main cause of legal blindness after the age of 50 [1]. Treatment in its exudative form relies on intravitreal anti-VEGF injections such as Ranibizumab, Aflibercept or Bevacizumab [2-3].

**Corresponding author: E-mail: eriga760@gmail.com;*

These intravitreal injections can lead to many ocular complications. In the literature, some complications were described such as endophthalmitis, retinal detachment and cataract have been described. There are some studies which report ocular inflammatory reactions [4], ocular hypertension, vitreous hemorrhage, central retinal artery occlusion and retinal ischemia after injections of Bevacizumab and Ranibizumab [5-6]. All these complications occur at a rate of less than 0.1% [7]. The hyphema has been reported only once as a complication of intravitreal injections of anti-VGEF Ranibizumab or Bevacizumab in 2011 [7].

2. MATERIALS AND METHODS

Report of a case of hyphema after intravitreal injection of Bevacizumab.

3. CASE

The patient was aged 54, with no previous pathological history or specific ongoing treatments, diagnosed with exudative AMD of the right eye. The diagnosis was confirmed by fluorescein angiography and macular OCT (pictures not available). Then the patient was referred for intravitreal injection of Bevacizumab after her consent.

The visual acuity was graded at 2/10.

At biomicroscopic examination, there was no external inflammatory sign. The exam of the anterior segment was normal, with a clear cornea, an anterior chamber of good depth, no thyndall sign, and an iris of good trophicity and coloration. There was not iris neovascularization but a nuclear cataract at lens examination. Fundus examination showed poor macular reflex with sign of macular oedema, while the rest of the retina was normal. The intra ocular pressure was 17 mm hg.

After some explanations of the different types and specifications of anti-VEGF available on the market, the patient chose bevacizumab despite the absence of a marketing authorization given its low price. Then after the clear consent, the intravitreal injection of Bevacizumab was performed approximately at 4 mm from the sclero-corneal limbus in the supra-temporal quadrant, using a 30-gauge needle.

The injection was performed under strict aseptic conditions.

The immediate evolution of the injection was marked by the formation of a hyphema which rapidly evolved into a total hyphema (pictures not available).

A b-mode ultrasound scan (Fig. 1) carried out within the hour showed an anechoic vitreous and two parallel hyperechoic lines showing the needle's path through the vitreous.

Post-injection care consisted of antibiotic/corticoid eye drops, rest and rehydration.

The evolution was marked at 48 hours by a regression of the hyphema, and after ten days by a total disappearance of the hyphema with restoration of the initial visual acuity (pictures not available).

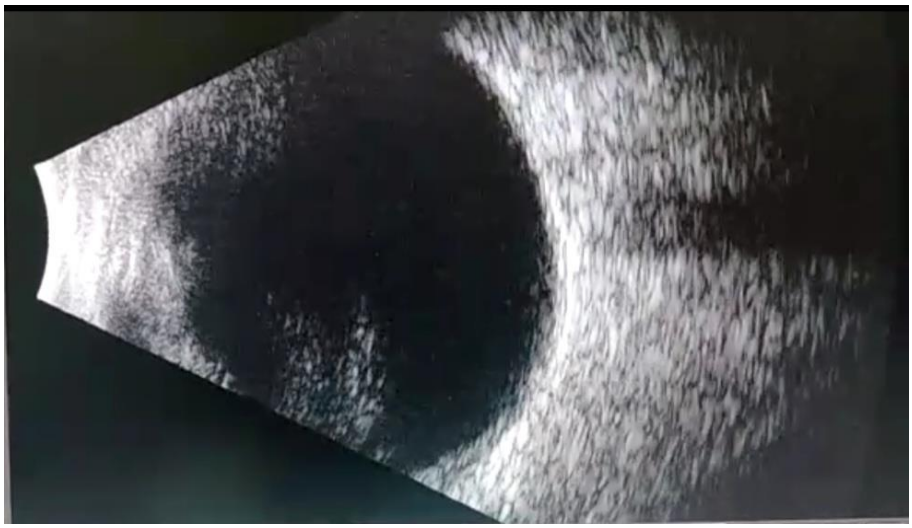

Fig. 1. B-mode ultrasound

4. DISCUSSION

Age-related macular degeneration is the leading cause of blindness in the elderly in developed countries [8]. Two types are described in the literature: exudative and atrophic. The atrophic or dry form corresponds to the progressive disappearance of the cells of the retinal pigment epithelium (RPE), followed by the disappearance of the photoreceptors located in the macula. The exudative or wet form is characterized by the proliferation of new abnormal vessels. These fragile vessels leak serum, causing the retina to lift, and/or blood, leading to retinal bleeding. Only the exudative form can be treated by anti-VEGF injections [9-10]. Although intravitreal injections have improved the prognosis of AMD, they can be a source of complications, some of which are often serious. These complications are rare, and include endophthalmitis, retinal detachment, intravitreal bleeding, occlusion of the central retinal artery and ocular hypertonia [11,12,13]. Hyphema after intravitreal injection was first described in the literature in 2011 by Ushar M. Ranchod. In a series of 26,184 intravitreal injections (IVT) over a two-year period (18,804 with Ranibizumab and 7,380 with Bevacizumab), only three cases of hyphemia after IVT were found [7]. This is a very rare complication, which can occur even when the principles of injection are respected. Injection is performed under strict aseptic conditions, 3.5 mm from the sclero-corneal limbus for pseudophakic patients and 4 mm for phakic patients, as in this patient [14].

According to the literature, the origin of hyphema is bleeding from the pars plicata, the anterior pars plana, or the posterior part of the ciliary body. It is therefore a bleed following an injection located further anteriorly than expected, or even in the presence of defective anatomy [7-15]. Unlike post-injection intravitreal bleeding, in hyphema the needle path is located at a distance from the base of the vitreous [16]. Blood then passes from the posterior chamber to the anterior chamber, filling it progressively according to its intensity. In the three cases described in the literature, the hyphema was asymptomatic and disappeared spontaneously after ten days [7]. In this case, there was not abnormal anatomy so the cause of hyphema was due to an injection located anteriorly than expected. After that, the patient's vision was reduced to a luminous perception. Then, after ten days, the hyphema disappeared completely, and visual acuity returned to 02/10 as before.

5. CONCLUSION

Hyphema after anti-VEGF injection is an exceptional complication with good evolution under rehydration. Some measures must be respected, especially asepsis, the angulation of the injection syringe to avoid these complications. A better understanding of this complication would enable patients to be better informed beforehand, and better managed when it occurs.

CONSENT

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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