



A missed diagnosis of multiple intraocular foreign bodies for 21 years



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ARTICLE INFO

Keywords:

Intraocular foreign body

Glass

Asymptomatic

Ocular trauma

ABSTRACT

A 30-year-old patient went to the emergency department because of a chemical burn to the left eye more than 10 days ago by toilet cleanser. Surprisingly, a small piece of glass was found in the inferior anterior chamber in the same eye. The visual acuity was counting fingers. There was conjunctival congestion, corneal oedema and Descemet's membrane striae. And there was also a corneal leukoma around 4 to 5 o'clock. Through repeated questioning he recalled that he was injured by an exploded light bulb around 21 years ago. He was asymptomatic until he saw "something moving" in front of the left eye one month ago. Computed tomography (CT) scanning, ultrasonography, ultrasound biomicroscopy (UBM), anterior segment optical coherence tomography (AS-OCT) verified the presence of multiple intraocular foreign bodies (IOFBs) in the anterior chamber and vitreous cavity. B-scan verified the IOFB in the vitreous cavity. Thus, he was diagnosed with corneal chemical burn, IOFBs and corneal leukoma of the left eye. The IOFB in the anterior chamber was removed through surgery. An attempt was made to remove the IOFB in the vitreous cavity with electromagnet, but it was not successful. Vitrectomy could not be performed as it was hindered by the opacity of cornea. After surgery, the visual acuity remained counting fingers and the corneal oedema still existed. This case is a reminder that a detailed history taking, a thorough physical examination and modern imaging techniques are beneficial for establishing the diagnosis and treatment of IOFBs.

1. Introduction

Ocular traumas account for 7% to 9.22% in a total number of all body injuries [1]. Open eye injuries may pose a devastating threat to vision or globe and are often related to intraocular foreign bodies (IOFBs), which account for 18%-41% of open globe injuries [2]. Most of IOFBs stay in posterior segment and those in the anterior chamber are not common, making up only approximately 15% of all IOFBs [3]. IOFB can present with diverse symptoms and signs such as impaired vision, pain, ocular rupture, cataract, vitreous hemorrhage, metallosis and endophthalmitis. However, the patient may have only minimal discomfort when the small, high-velocity projectile penetrates the eyeball especially in explosive condition [4]. Furthermore, small IOFBs composed of inert materials such as glass, stone, zinc, aluminum and silver, which do not cause significant inflammation and infection, can be missed at the first visit and remain in the globe for many years [5]. Here reports a case of missed multiple glass IOFBs in the anterior chamber and vitreous cavity for 21 years without any symptom, which is rare clinically and not diagnosed until he was injured by a chemical burn in the same eye.

2. Case report

A 30-year-old otherwise healthy man presented to the emergency department of West China Hospital of Sichuan University in September 2016 after a chemical burn to the left eye more than 10 days prior. The chemical agent was toilet cleanser, which was a kind of acid agent. The patient complained of visual loss and ocular pain, accompanied by redness, tears and photophobia. Then the affected eye was flushed with large amounts of water. On examination, the visual acuity was 1.0 in the right eye and counting fingers in the left eye respectively. The intraocular pressure of right eye was 14.2 mmHg and that of left eye could not be measured by noncontact tonometer but touched normal. The external eye, anterior and posterior segments of right eye had no obvious abnormality. However, there was conjunctival congestion, corneal oedema and Descemet's membrane striae in the left eye. Surprisingly, there was a small corneal leukoma around 4 to 5 o'clock of limbus and a piece of shiny glass in the inferior anterior chamber (Fig. 1). There was no cell or flare in the anterior chamber. The pupil was round with 3 mm diameter and sensitive light reflex, which was similar to that of the fellow eye. The lens looked transparent but was

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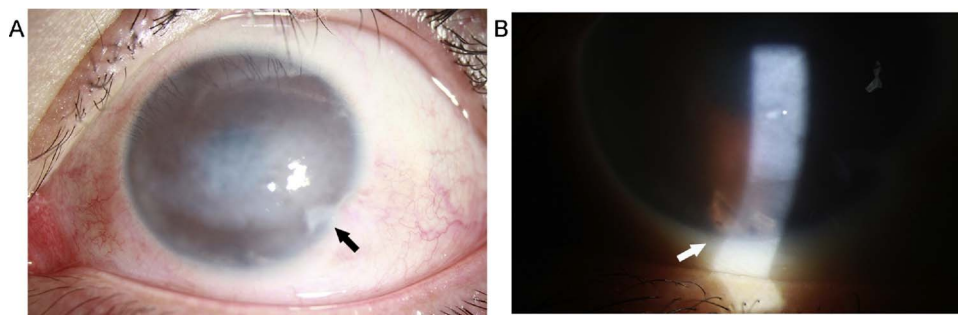


Fig. 1. (A) A slit lamp photograph shows a small scar (arrow) around 4 to 5 o'clock of limbus on the left eye. (B) The arrow indicates the site of IOFB in the inferior anterior chamber.

not very clear. Fundus examination was not evaluated clearly.

Through repeated questioning the patient recalled that he was injured by an exploded light bulb around 21 years ago. This patient had just a little transient foreign body sensation in the left eye and only saw a physician at a small clinic at that time. On that presentation, no abnormality was found and no treatment was given. The foreign body sensation disappeared after a few days. During the 21 years, the vision in left eye has not been affected. And this patient did not feel any sensation until one month ago when he always saw “something moving” in front of the left eye, without complaints of ocular pain and blurred vision. However, the patient did not see any ophthalmologist until this accident of chemical ocular burn.

On this presentation, computed tomography (CT) revealed multiple IOFBs with high density in the anterior chamber and posterior segment (Fig. 2). The ultrasound sonography confirmed the presence of a high spiking lesion in vitreous cavity of left eye (Fig. 3). Anterior segment optical coherence tomography (AS-OCT) also demonstrated a highly reflective lesion in the inferior anterior chamber confirming the IOFB and showed the thicker cornea confirming corneal oedema compared to the fellow eye (Fig. 4). Ultrasound biomicroscopy (UBM) confirmed the presence of anterior chamber IOFB (Fig. 5). Thus, he was diagnosed with corneal chemical burn, IOFBs and corneal leukoma of the left eye.

The patient was admitted to treat the chemical ocular burn and IOFBs. Repeated irrigation of conjunctival sac was performed. Levofloxacin eye drops and protein-free calf blood extract eye gel were given. After informed consent was signed, the IOFB in the anterior chamber was removed through surgery. An attempt was made to remove the IOFB in the vitreous cavity with electromagnet, but it was not successful. Vitrectomy also could not be performed as it was hindered by the opacity of cornea. The removed IOFB was glass-like. After surgery, the feeling of “something moving” disappeared. However, the visual acuity remained counting fingers and the corneal oedema still existed.

3. Discussion

A high incidence of IOFB injuries is found in China for the

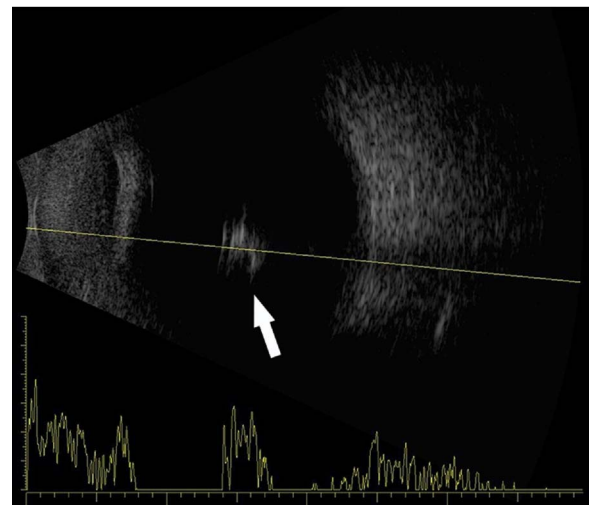


Fig. 3. B-scan ultrasonography of the left eye: the arrow indicates the IOFB (arrow) in the posterior segment.

deficiency of adequate occupational health and safety training, and these injuries pose significant threats of vision loss [6]. Usually, IOFB is detected at first visit. But in this patient, the IOFB was not revealed earlier owing to the following reasons. First, this patient felt just a little and transient discomfort after the trauma and did not seek any professional advice from any ophthalmologist. Only a physician at a small clinic checked for him, but a negative result was given due to austere environment, lack of ophthalmological knowledge and equipment of examination for the physician. Second, the patient hadn't felt obvious sensation and had not followed further medical advice or eye examination for more than 20 years. The composition of IOFBs determined the tolerance of tissue reaction [7]. In this patient, the glass piece was inert, which did not lead to obvious inflammation or infection. The corneal penetrating wound was sharp and small, so it was closed immediately. Moreover, the wound was so close to the limbus

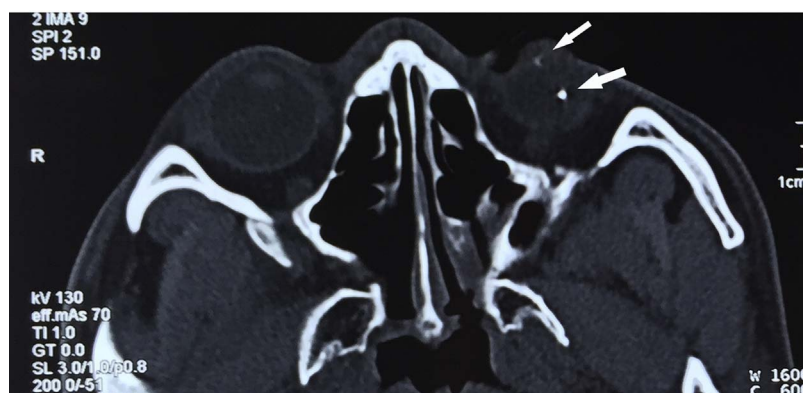


Fig. 2. CT scanning exhibits the location of IOFBs (arrows) in the anterior chamber and vitreous body.

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