CASE REPORT

Air entry into the anterior chamber post intravitreal injection of Eylea

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Accepted 4 July 2016

SUMMARY

An 84-year-old man had air entry into the anterior chamber following intravitreal injection. The air bubble was reabsorbed over time without any complications. No further problems occurred with subsequent intravitreal injections.

BACKGROUND

Intravitreal injection of any therapeutic solution is known to occasionally introduce air bubbles from the syringe into the vitreous cavity.¹ However, air entry into the anterior chamber after intravitreal injection has not been reported before to the best of our knowledge.

CASE PRESENTATION

An 84-year-old man with wet macular degeneration had his ninth intravitreal injection of aflibercept to

his left eye in November 2104. Both eyes were phakic. The procedure was routine and no complications were noted. Immediately postprocedure, the injecting doctor observed an air bubble in the anterior chamber. This is shown in [figure 1](#). The patient was asymptomatic. His intraocular pressure postprocedure was 22 mm Hg and fundal examination was unremarkable. No further action was taken. On review 8 weeks later, the air bubble had reabsorbed. This is shown in [figure 2](#). He continued to have further intravitreal injections without further incident. He also had intravitreal aflibercept injections to his right eye without any complications.

The patient had a fall previously leading to bilateral subdural haematoma that required surgical drainage. He denied any direct trauma or surgery to his eyes. He did not have any other previous ocular problems. Slit lamp examination of the anterior segment of the eyes was normal. Both his eyes were phakic.

Figure 1 Air bubble in the anterior chamber immediately postintravitreal injection.

Figure 2 Photograph taken 8 weeks after intravitreal injection showed that the air bubble has reabsorbed.

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To cite: Lim WS, Sikandar M, Jackson H. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2016-216247

DISCUSSION

The lens zonules are not always an impenetrable barrier between the anterior chamber and vitreous cavity. Substances that have been reported to traverse the zonules include silicone oil² and air³ from the vitreous cavity to the anterior chamber and trypan blue⁴ from the anterior chamber into the vitreous cavity.

In this patient it is possible that there was a focal defect of the zonules related to his previous fall. We believe that air entered the intravitreal cavity first at the injection site as shown by the conjunctival haemorrhage in figure 1 which was 4 mm from the limbus through the pars plana. The high injection pressure and the direction the needle was pointing may have pushed the air through the zonules into the anterior chamber. The other possible scenario would be that the injecting needle might have penetrated through the zonules injecting air directly into the anterior chamber.

Assuming that the volume of the anterior chamber in our patient is 0.17 mL,⁵ the volume of air injected into the anterior chamber in this case appears to be ~0.03 mL, assuming that the air bubble is about 1/6th the volume of the anterior chamber. The usual volume of aflibercept intravitreal injection is 0.05 mL. The volume of air injected in this patient could mean that the injecting doctor had inadvertently left air-filled spaces in the tip of syringe and needle before injecting. Prefilled Eylea injections will probably reduce the risk of accidental air entry into the eye.

We believe this is the first report of air entry into the anterior chamber after intravitreal injection.

Contributors All authors made substantial contribution to the conception and design, drafting the article or revising it critically, final approval of the version published and agreeing to be accountable for the article.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

Learning points

- It is possible that air may enter into the anterior chamber from intravitreal injections.
- Be careful to remove any air bubbles in the injection syringe before injecting.
- Air in the anterior chamber is unlikely to cause any problems but air travel before resolution could cause the expansion of the bubble and dramatically raise the intra ocular pressure.

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