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Two fluocinolone implants adherent to the macula and each other

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1. Case report

A 72 year-old diabetic female with 20/200 best-corrected visual acuity (BCVA) in the left eye (OS) had received numerous anti-VEGF (anti-vascular endothelial growth factor) injections and two dexamethasone implants (Ozurdex®, Allergan Inc., Irvine, CA, USA) injections over five years. Because of the persistent diabetic macular edema (DME) OS, a 0.19 mg fluocinolone acetonide intravitreal implant (Iluvien®, Alimera Sciences Ltd., Alpharetta, GA, USA) was injected intravitreally in the left eye. The 0.19 mg intravitreal fluocinolone acetonide (FAc) implant is a small, non-biodegradable cylindrical tube with a central drug-polymer matrix that provides an average release rate of 0.2 μg per day for the first three months followed by a maintained concentration of 0.5–1.0 ng/mL for up to 36 months. Three years later, after receiving numerous additional intravitreal anti-VEGFs, an additional fluocinolone acetonide intravitreal implant 0.19 mg was injected in the left eye because the first one had released all of it fluocinolone.

Approximately eighteen months after the second injection of fluocinolone acetonide intravitreal 0.19 mg implant, the SD-OCT, fundus and fluorescein angiography images OS showed two implants adjacent and aligned next to each other overlying the temporal macula OS (Figs. 1 and 2). The patient was asymptomatic with BCVA remaining consistently at 20/200. Attempts at positioning the patient's eye/ head failed to move the implants. Two months later, an intravitreal gas bubble 0.3 mL of 100% SF6 (sulfur hexafluoride) was injected in an attempt to displace the implants. The patient was properly positioned in the office and at home for one week without dislodging the implants. A pars plana vitrectomy may be the only method to dislodge them at this point. However, because she has no symptoms, she has elected to continue to observe them for the time being. Over the ensuing three years, the patient continued to receive intermittent intravitreal anti-VEGF injections in both eyes for DME and the implants remain in their same position.

2. Discussion

The cause of the implants adhering to each other in the macula and being perfectly aligned is curious. There have been a few reports of dexamethasone intravitreal implant that have attached to the macula with minimal to no complications.[1,2] Recently, a case report was published on how a dexamethasone implant penetrated the retina and choroid with no complications to the patient.[3] There have been no reports of fluocinolone acetonide implants adherent to the macula, much less to each other. The location of the implants in the posterior pole is likely due to gravity (presumed higher specific gravity of the implants compared to vitreous) and the patient's supine positioning during sleep. By this same reasoning, they should have fallen to the inferior vitreous base in the upright position during the day? However, if gravity were the only force bringing the implants together, they should have been easily dislodged with prone positioning.

3. Conclusion

The implants have not been easily displaced from the macular location suggesting a surface tension (hydrostatic) interaction of the implants with the surface of the retina as well. There is no apparent clinical evidence of toxicity in this patient. She does not have a posterior vitreous detachment. We suspect the casing of the implants may carry an electrostatic charge or surface tension properties causing them to adhere to each other. We hope this case study will invoke others to publish their experiences so that we can explain this unusual phenomenon.

Patient consent

Written consent to publish the case report was obtained from the patient. Additionally, this report does not contain any personal information that could lead to the identification of the patient.

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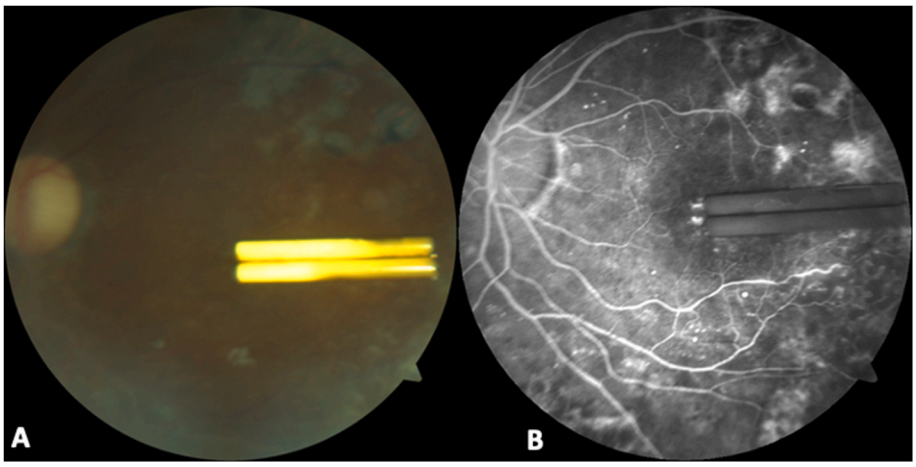

Fig. 1. Fundus and fluorescein angiography images of the left eye
Fundus image (A) and fluorescein angiography image (B) of the left eye showing two fluocinolone acetonide intravitreal implants adjacent and aligned next to each other overlying the temporal macula.

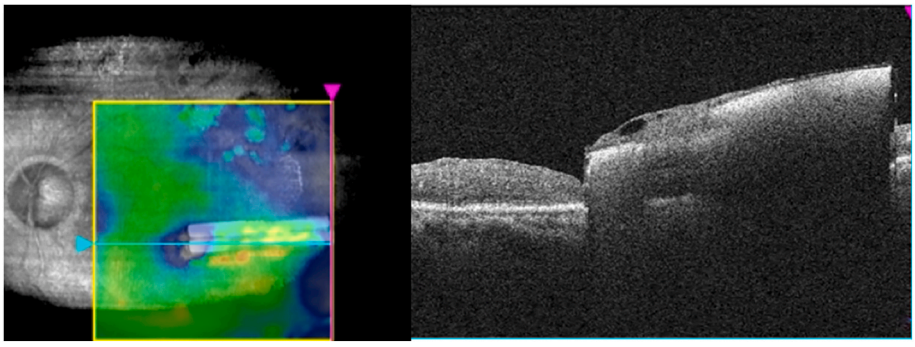

Fig. 2. SD-OCT image of the left eye
SD-OCT image of the left eye demonstrating the position of the two fluocinolone acetonide intravitreal implants overlying the temporal macula.

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Authorship

All authors attest that they meet the current ICMJE criteria for authorship.

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