Silicone Migration: An Unusual Eyelid Complication Following Intraocular Surgery

Tammy H. Osaki, MD, PhD; Midori H. Osaki, MD; Norma Allemann, MD, PhD; and Teissy Osaki, MD

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Ultrasound imaging is not traditionally employed to evaluate eyelid lesions. Nevertheless, this technology permits the delineation of static and dynamic changes and could be useful in evaluating eyelid masses by providing additional information to clinicians for optimal surgical planning, especially in facilities where a computed tomography (CT) scan is not readily available.

A 63-year-old woman presented in April 2014 with a painless mass in the right upper lid (RUL) associated with ptosis (Figure 1A) that had gradually developed during the previous 10 months. Retinopexy associated with vitrectomy with intraocular silicone oil filling was performed 15 months before to treat a retinal detachment in the right eye. Silicone oil was removed 8 months later. For the past 4 months, patient was under investigation for a breast nodule.

Marginal reflex distance (MRD-1) was −1 on the right and +3 on the left side. Levator function was 13 and 15 mm. Best corrected visual acuity was counting fingers 2 m and 20/20. Fundoscopy in right eye did not permit periphery evaluation due to poor dilation. The remainder of the ophthalmological examination revealed no abnormalities.

Differential diagnosis of a noninflammatory eyelid lesion includes benign and malignant tumors, eyelid metastasis, and vascular lesions. Since the patient had a history of a breast nodule, an eyelid metastatic lesion had to be ruled out. While we waited for CT scan, ultrasound examinations were performed. Ultrasound biomicroscopy (UBM) showed cystic formations with anechoic content underneath the muscular layer of the RUL. There was significant attenuation of the posterior structures, ruling out hematic, serous, or purulent content (Figure 2B,C). B-scan ultrasonography was next performed and showed a hypoechoic space in the RUL-containing material causing sound attenuation and an artificial lengthening of the echogram, suggesting the presence of a substance with a lower speed of sound propagation compared with the vitreous (Figure 2A). B-scan thus ruled out a tumor or a metastatic lesion but not a low-flow vascular lesion. Doppler examination showed a cystic and lobulated lesion, and flowmetry did not depict any internal blood flow, ruling out a vascular lesion (Figure 2D).

Figure 1. (A) This 63-year-old woman presented with a painless mass in the right upper eyelid associated with upper lid ptosis that had gradually developed for 10 months. (B) Final aspect 1 year after excision of the mass and reinsertion of the levator aponeurosis to the tarsus.

From the Department of Ophthalmology and Visual Sciences, Federal University of São Paulo/UNIFESP, São Paulo, SP, Brazil.

Corresponding Author:
Dr Tammy H. Osaki, Ophthalmic Plastic Surgery Division, Department of Ophthalmology and Visual Sciences, Federal University of São Paulo, Botucatu St, 821, 2nd Floor. São Paulo, SP 04023-062, Brazil. E-mail: tammyosaki@me.com
Orbit CT scan with contrast showed hyperdense, lobulated lesions in RUL topography without any signs of infiltration. A combined excisional biopsy and exploration of the levator aponeurosis associated with bilateral upper blepharoplasty was performed. The aforementioned mass was located within the levator aponeurosis layer and presented a clear color and hardened consistency (Figure 2E), yet was not entirely removed due to its extremely posterior location. After the removal of the mass, levator aponeurosis was reinserted into the tarsus. One month after surgery, the patient reported no complaints and MRD-1 was +3 in the right eye. One-year follow-up showed no recidivism of the lesion (Figure 1B).

Histopathology examination revealed a well-delimited mass with internal pseudocysts surrounded by variable degrees of fibrosis within a fat tissue and a mild chronic inflammatory infiltrate (Figure 2F,G). These findings associated with history and imaging highly suggested that the pseudocysts were previously filled with silicone oil.

CT scan is usually the most used imaging technology to evaluate an eyelid lesion, since it permits evaluating the extent of lesion invasion. However, this technology is associated with ionizing radiation and higher cost, and evaluation usually requires use of contrast. Ultrasound technologies, on the other hand, are noninvasive, do not involve ionizing radiation, and permit observation of the morphology of a lid lesion as well as the identification of vascular patterns. UBM is a noninvasive imaging modality that allows in situ cross-sections with microscopic resolution. UBM’s usefulness in the diagnosis and management of anterior segment abnormalities is well known; however, few studies analyzed this modality to evaluate eyelid lesions. Although UBM and Doppler may not be applicable to the average practitioner, B-scan ultrasonography is present in most facilities, is much cheaper than CT, and was useful to rule out a solid lesion in our case.

This patient was under investigation regarding a breast nodule. Though metastasis of the eyelids accounts for <1% of all malignant lesions, when they do occur, the most common primary tumor is breast carcinoma. The presence of silicone oil in eyelid tissues after intraocular surgery is uncommon; nonetheless, it should be considered as a differential diagnosis for patients submitted to intraocular surgery. Anterior migration of oil that leaked after vitreoretinal surgery and reached the eyelid is the most likely explanation.

Ultrasound imaging may be helpful in investigating the etiology of an eyelid mass. Ultrasound technologies may facilitate surgical planning by providing information about the anatomic field, morphologic features, dimensions, and perfusion.

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