

# Mechanical Blepharoptosis and Eyelid Swelling Caused by Silicone Oil

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## ABSTRACT

The purpose of this article is to report a case of upper eyelid mechanical ptosis caused by silicone oil migration in a Jordanian patient after pars plana vitrectomy and intraocular silicone oil injection. A 20-year-old male patient was referred to the oculoplastic clinic for the management of a left upper eyelid swelling and complete ptosis that developed 12 years after pars plana vitrectomy and silicone oil placement for retinal detachment secondary to perforating eye injury. Eye examination showed upper eyelid swelling and a complete ptosis induced by the weight of inflammatory tissue and silicone oil, as proved by histopathologic examination. We presumed that silicone oil had leaked through the pars plana vitrectomy ports or through a subtle traumatic perforation of the posterior segment, which might have been aggravated by increased intra-ocular pressure postoperatively. In conclusion, mechanical ptosis caused by silicone oil migration after retinal detachment surgery is rare and this is one of the few reports in the literature. (J Optom 2009;2:27-28 ©2009 Spanish Council of Optometry)

**KEY WORDS:** silicone oil; blepharoptosis; lipogranulomatous; retinal detachment.

## RESUMEN

El objetivo de este artículo es describir un caso de ptosis mecánica del párpado superior causada por el desplazamiento del aceite de silicona. Este caso se observó en un paciente jordano tras someterse a vitrectomía pars plana y a una inyección intraocular de aceite de silicona. Un paciente varón de 20 años de edad fue derivado a la unidad de oculoplastia para el tratamiento de la inflamación del párpado superior izquierdo y de una ptosis completa, aparecidas 12 años después de someterse el paciente a una vitrectomía pars plana y a la colocación de aceite de silicona para el desprendimiento de retina que se produjo a consecuencia de un traumatismo ocular perforante. En la exploración ocular se apreció una inflamación en el párpado superior, así como ptosis completa provocada por el peso del tejido inflamado y por el aceite de silicona, tal y como demuestra el examen histopatológico. Supusimos que el aceite de silicona se había filtrado a través de los puertos de la vitrectomía pars plana o a través de una leve perforación traumática del segmento posterior, hecho que podría haberse visto agravado por un aumento de la presión intraocular ocurrido tras la operación. Como conclusión: la ptosis mecánica causada por el desplazamiento del aceite de silicona inyectado para tratar un desprendimiento de retina es poco frecuente; de hecho, éste es uno de los pocos casos que se encuentran en la literatura. (J Optom 2009;2:27-28 ©2009 Consejo General de Colegios de Ópticos-Optometristas de España)

**PALABRAS CLAVE:** aceite de silicona; blefaroptosis; lipogranulomatosis; desprendimiento de retina.

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## INTRODUCTION

Silicones are synthetic compounds and do not exist naturally. These materials are very stable, highly biocompatible, non-toxic, and insoluble in body fluids. Silicone oil was first used for the treatment of retinal detachment in 1962 by Cibis.<sup>1</sup>

The use of silicone gel in aesthetic surgery has been surrounded by controversy related to concerns about migration, toxicity and an unproven association with systemic diseases, leading to a restriction, issued by the FDA in 1992, on the use of silicone gel implants.

Migration of silicone oil from the vitreous cavity into the upper eyelid, after pars plana vitrectomy with intraocular silicone oil injection, is a very rare complication. We report here on a patient who developed a unilateral upper eyelid ptosis and swelling 12 years after vitreoretinal surgery with silicone oil injection.

## CASE REPORT

A 20-year-old male patient was referred to the oculoplastic clinic for the treatment of left upper eyelid swelling and ptosis on December 6, 2006. He had a history of perforating eye injury caused by hammering metal on metal in 1994. Primary repair of the corneal wound was done followed by cataract extraction; posterior sclera wound repair, and 3-port pars plana vitrectomy with intraocular silicone oil injection. The metallic foreign body was located behind the eyeball and adjacent to vital intra-orbital structures and, therefore, was left in place as it was not interfering with vision and no signs of orbital cellulitis were noticed (*Figure 1*).



**FIGURE 1**  
Imaging of the ocular areas.



**FIGURE 2**  
Preaponeurotic fat invaded by silicone oil globules.

The patient was lost to follow-up for 12 years and came back for the treatment of left upper eyelid swelling and ptosis that had started six months before presentation. The swelling was gradual on onset, red, painless, involving the upper eyelid and causing severe ptosis. Palpation of the eyelid revealed mobile subcutaneous small lumps that were not tethered to the skin. Computed tomography scan of the orbit showed a hyperdense homogenous oval opacity that occupied the anterior half of the left vitreous cavity (silicone oil), discrete hyperdense homogenous small opacities behind and above the eye and in front of the foreign body, and mild upper eyelid thickening. A metallic foreign body was also seen near the greater wing of the sphenoid above and medial to the middle of the lateral rectus muscle (*Figure 1*). One month later, surgical exploration was performed transcutaneously. The preaponeurotic fat was found to be invaded by silicone oil globules, which were semisolid (*Figure 2*). Excision of the globules was done and the levator aponeurosis, which was found to be dehiscenced, was then repaired. Histopathology showed cysts of silicone oil associated with lipogranulomatous inflammatory reaction. The patient was seen after one week postoperatively and there was a slight improvement of the ptosis.

## DISCUSSION

Silicone oil is essential for most cases of proliferative vitreoretinopathy and is often indicated for giant retinal breaks and large retinal defects. Silicone oil has less intrafacial tension (surface tension) than air or gas but does not absorb, and therefore remains in the eye indefinitely.

Intraocular silicone oil is associated with a number of complications (keratopathy, glaucoma, cataract, subretinal migration of silicone oil, re proliferation of epiretinal and subretinal fibrous membranes, subconjunctival and orbital migration) if left in situ for an extended period of time. In general, silicone oil removal should be attempted after 3 months to prevent the formation of secondary glaucoma or of cataract.<sup>2</sup>

Intraocular silicone oil can migrate into the subconjunctival space and orbit through an Ahmed glaucoma valve.<sup>3</sup>

Migration of silicone oil into the upper eyelid from the vitreous cavity after traumatic retinal detachment surgery is

very rare and few cases have been described in the literature. Quintyn et al.<sup>4</sup> described in 2003 a case of silicone oil intrusion in the upper eyelid, expressed by ptosis occurrence 19 years after surgery. They presumed that the silicone oil leak developed through the trans-scleral drainage lumen and worsened with ocular hypertension. They also supposed that the ptosis was induced by the weight of the inflammatory tissue, which consequently prompted the development of a lymphoedema. Two years later, Donker et al.<sup>5</sup> reported the case of two patients who had presented with unilateral upper eyelid swelling and ptosis 1 and 8 years, respectively, after vitreoretinal surgery with intraocular silicone oil injection. They presumed that for the first patient silicone oil had leaked from the eye during or after surgery, whereas for the second patient silicone oil had probably been left behind in the space previously occupied by the epibulbar buckle. In this case, the patient had a history of perforating eye injury by a high-velocity object, for which primary and secondary repair with 3-port pars plana vitrectomy and silicone oil injection were done. We think silicone oil may have leaked through the pars plana vitrectomy ports and posterior scleral wound (foreign body exit) during or after surgery, which might be aggravated by increased intraocular pressure postoperatively. It is known that intraocular silicone oil emulsification can lead to increased intraocular pressure. Our patient was lost to follow up for 12 years. During that period, intraocular silicone oil emulsification might have occurred that lead to an intraocular pressure increase that aggravated silicone oil leakage outside the eye.

The migration of silicone oil from the sub-Tenon space across the levator complex into the pre-aponeurotic fat might be due to a plane opened by the foreign body or to intraoperative trauma.

Dehiscence of the levator aponeurosis, which was seen intraoperatively, could be due to the weight of the silicone oil and to the lymphoedema caused by the inflammatory reaction to the silicone foreign body (siliconoma).

We describe a case of silicone ptosis, a posttreatment complication of retinal detachment treated by silicone oil injection. Silicone oil ptosis occurred when silicone oil was left in situ for an extended period of time, so it is recommended to remove intraocular silicone oil after 3 months to prevent complications, and long term follow-up is needed for those patients who have to retain silicone oil for extended periods of time.

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