

## CASE REPORT

## Medial Rectus Dehiscence following Buckling

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### Abstract

Migration of silicone explants through rectus muscle insertion is a rare complication with very few cases reported. Anterior migration of a solid silicone band may occur if it is tight, placed anterior to the equator or not properly anchored to the sclera. The band slowly erodes through the tendon of one or more recti muscles allowing them to reattach spontaneously with scar tissue behind migrating element. The authors describe a rare case of anterior migration of the buckle following encirclage by a 4mm silicone band resulting in spontaneous disinsertion of medial rectus muscle where muscle disinsertion had not been performed peroperatively. This migration occurred in the absence of any predisposing factors. The muscle disinsertion was so gradual that the muscle got reinserted almost to its original insertion as a result of which there was no heterotropia .

### Key words

Retinal detachment, Encirclage, Muscle disinsertion

### Introduction

Encirclement by silicone explants in retinal detachment includes all surgical procedures producing a continuous, self retaining buckle around circumference of globe. Long term complications of these include heterotropia, secondary glaucoma, and exposure of buckling element. Migration of silicone explants through rectus muscle insertion is a rare complication with extensive search of PubMed revealing very few reported cases (last accessed on June 16, 2007). The band slowly erodes through tendon of one or more recti muscles allowing them to reattach spontaneously with scar tissue behind migrating element(1). Ocular motility disorders may or may not result from the same (2-6). We report a case of anterior migration of the buckle following encirclage by a silicone band in the absence of any predisposing factors, resulting in spontaneous disinsertion of medial rectus. The disinserted muscle

got reinserted almost to its original insertion without causing heterotropia.

### Case

A 65 year old male patient presented with painless loss of vision in right eye for three months. The same eye had undergone cataract extraction without IOL implantation one year back. The best corrected visual acuity in right eye was an accurate PR, and in left eye was counting fingers at half meter. Ocular movements were normal in all directions of gazes without any deviation in primary position. Intraocular pressure was 7.1 and 12.2 mm of Hg in the right and left eye, respectively. Fundus examination of right eye showed a total rhegmatogenous retinal detachment with PVR D2, and two retinal holes close to each other at 1 O'clock meridian. Left eye had nuclear sclerosis and a normal fundus. Axial length was 23.75 and 23.69 mm in right and left eye, respectively.

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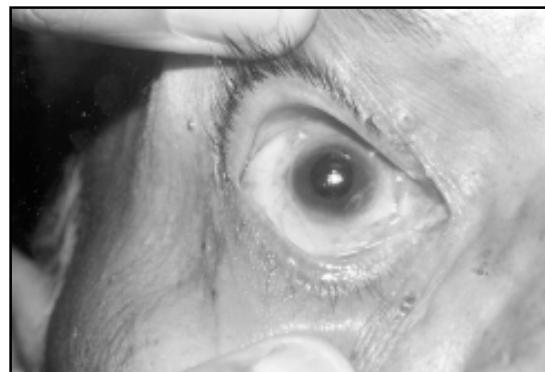
He underwent encircling procedure with a 4mm silicone band, which was secured to the sclera in all four quadrants with '5 0' merselene sutures. Sub-retinal fluid drainage and cryopexy of retinal holes was done. Pars plana vitrectomy with silicone oil injection was also performed. Conjunctiva was stitched with '8 0' vicryl suture. Retina was settled on table.

Post-operatively there was a slight limitation of ocular movements in all directions of gazes, without any deviation of eyes in primary position. Right eye fundus showed slightly hazy media due to vitritis. Retina was settled and buckling effect was good with retinal tears on the buckle. Vitritis responded to systemic steroids, and patient was able to count fingers at 1 meter. Ocular movements improved progressively becoming almost normal by three months.

At five months follow-up, exposure of encircling band was noted on nasal side with retraction of conjunctiva and migration of the band anteriorly just under insertion of the medial rectus (Fig. 1). Overlying conjunctiva was slightly congested. There was no deviation of eyes in primary position. Ocular movements were normal except for a slight limitation of adduction of right eye (mechanical effect). Retina was settled and retinal breaks were sealed. Anterior shifting of the explant had led to decreased buckling effect particularly on nasal side. The patient refused explant removal. Two months later he reported with foreign body sensation, congestion and watering from right eye. Silicone band was lying not under but in front of medial rectus (Fig.2). Eyes were straight in primary position with normal ocular movements except for slight limitation of adduction of right eye. Force duction test was negative in both abduction and adduction. Removal of exposed silicone band revealed that medial rectus had been neatly sheared off at its insertion and reattached to the globe just behind the buckle (about 3mm posterior to its original insertion). Minimal adhesions that were present were not dissected. The new insertion of medial rectus was left undisturbed since eyes were straight with normal ocular movements. Culture of removed silicone band was sterile.



*Fig. 1: Silicone band lying just under the insertion of medial rectus muscle.*



*Fig. 2: Silicone band lying not under, but in front of the medial rectus muscle.*

### Discussion

Anterior migration of a solid silicone band may occur if it is tight, placed anterior to equator or improperly anchored to sclera(1).

Yoshizumi considered temporal and / or anterior placement, large and broad implant, thin sclera /scleral dehiscence, multiple operations and bacterial contamination as factors associated with or contributing to exposure of intra-scleral implant(7).

Macleod and Morris reported two cases where silicone scleral explants eroded through superior rectus insertion causing distressing vertical diplopia, combined with underaction of superior rectus and hypodeviation of the eye(2).

Wu *et al* detected disinsertion of five recti (two superior, two medial, and one lateral) from the globe at the buckle on MRI of six patients with long-standing, large-angle strabismus after monocular or binocular scleral buckling (3). Interference by a meridional explant

and myopic staphyloma led to restrictive strabismus in one patient with suspected inferior rectus disinsertion. Three patients had anterior migration of silicone element with transection through rectus. Disinserted muscles were retrieved successfully by transconjunctival surgery in four patients and orbitotomy in one patient, markedly improving alignment even as long as 5 years after disinsertion.

Ashkenazi *et al* recorded anterior migration of a 2mm silicone band through lateral rectus in a patient undergoing multiple retinal detachment surgeries (4).

Lanigan *et al* reported five patients where the explant cheese-wired through rectus muscle insertion following retinal detachment surgery (5). Ocular motility problems occurred in only two patients. Maguire *et al* described two cases of anterior migration of solid silicone encircling element through all the four recti muscles after retinal detachment surgery, with preservation of rectus muscle function (6). Intra ocular pressure was persistently elevated in both. Excessive tension on the encircling band probably contributed to anterior migration. Besides, in one of these cryo application in the area of scleral tunnels might have weakened the sclera further allowing anterior migration.

Osman *et al* reported a case where an extruded explant cheese-wired forward through superior and medial rectus insertions and straddled the cornea (8).

Marrakchi *et al* described two cases of spontaneous rectus disinsertion following buckling with soft silicone sponges (9).

Kreis *et al* also reported transmural migration of silicone band(10).

In the present case the buckle slipped forwards and disinserted medial rectus even in absence of any predisposing factors for its exposure and migration (such as per-operative muscle disinsertion, repeated surgeries,

post-operative infection, tight / anteriorly placed / improperly secured band). A 4 mm buckle was also not large considering axial length of the eye. As shearing process was gradual, a constant pressure on blood vessels of the muscle prevented excessive bleeding and cut end of the rectus got inserted just posterior to the buckle, very close (three mm posterior) to its original insertion. This could be considered as self recession of medial rectus by as little as 3mm. Since this does not cause much weakening, no heterotropia resulted.

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