

R1 R2 R3 PG0 PG1 Estagiário Tecnólogo PIBIC

Last Name - Lima

First Name - Luiz Henrique

Middle - Soares Gonçalves

Service (sector)

Doheny Eye Institute

University of Southern California (USC)

Nº CEP

(Comitê de Ética em Pesquisa da Universidade Federal de São Paulo – UNIFESP)

Transretinal Fixation of Polyimide Strips

Author: L.H. Lima

Other authors: J. Wang, W. Liu, J. Weiland, R. Agrawal, M. Humayun

Purpose: To study long term effects of transretinal fixation of polyimide strips

Methods: Polyimide strips of 2 different lengths were inserted into subretinal space in pigmented rabbits, after a routine 2-port vitrectomy. In group A (7 rabbits), the strip was 6 x 0.5 mm, while in group B (10 rabbits), it was 4 x 0.5 mm. Group B rabbits received laser photocoagulation around the retinotomy site. The rabbits were followed up for 6 months, with routine evaluations like indirect ophthalmoscopy, intraocular pressure measurements, fundus photography, fluorescein angiography (FA) and optical coherence tomography (OCT). Rabbits were euthanized in the event of failed surgery or retinal detachment.

Results: Fifteen of 17 rabbits underwent successful subretinal implantation of the strip. The polyimide strip created sufficient retinotomy in all cases. There were no immediate complications noticed on follow-up, including dislocation, vitreous hemorrhage or retinal detachment. Subretinal fluid was noticed around the retinotomy site in fewer cases in group B compared to group A. Four of 7 cases in group A had strip dislocation (average time: 4.5 months), while one of 8 cases in group B showed dislocation (average time: 3 months). FA or OCT did not reveal any significant findings. Gross ocular examination after euthanasia did not reveal any significant changes like retinal detachment or proliferative vitreoretinopathy.

Conclusions: Polyimide strips of specific lengths can be surgically inserted into the subretinal space and show stable localization, without significant side-effects. Further work is in progress to study other methods of fixation and electrical stimulation.