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Título: COMPARATION BETWEEN FLACS, ND: YAG LASER, AND MANUAL CAPSULOTOMY IN PREVENTING ARGENTINIAN FLAG SIGN IN INTUMESCENT WHITE CATARACTS

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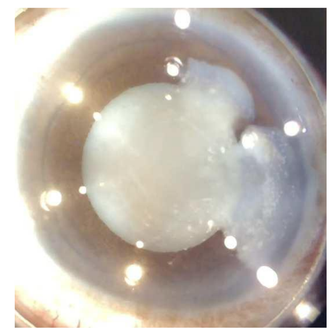
Palavras-chave: White catarats, argentinian flag signal, comparation.



INTRODUCTION

There is a high risk of radial extension of capsulorrhexis to the periphery in intumescent white cataracts due to the high intralenticular pressure, forming a radial tear that produces the Argentinian Flag Sign. This may lead to complications such as posterior capsule tears, vitreous loss, dropped nucleus to vitreous, and intraocular lens (IOL) decentration. Several techniques have been described to avoid incomplete capsulorhexis in these cases, including the use of trypan blue dye, high-molecular-weight ophthalmic viscosurgical devices creating a sealed anterior chamber, decompression of the intralenticular pressure, 2-stage capsulorhexis, and small needle aspiration technique. We used this prospective trial to compare FLACS, ND: YAG laser, and manual capsulotomies in white intumescent cataract cases.
Our study focused on comparing the lens capsule-related complications resulting from these three different surgical methods to perform capsulotomies in white intumescent cataracts.

MATERIALS AND METHODS

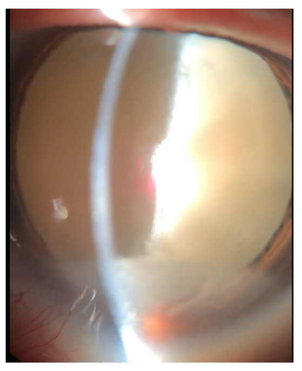
This prospective comparative study was carried out from July 2020 to December 2021. The population consisted of 45 eyes of 45 patients with white intumescent cataracts with release of the liquefied cortex were enrolled at the University of Ribeirão Preto. The patients were divided into three groups, each consisting of 15 eyes. The procedures were randomly divided into three groups according to a random number table.

In Group 1, preoperative surgical planning was performed on a LenSx femtosecond laser system. If there were micro adhesions or incomplete capsulotomy after FLACS, if any, we used Utrata capsulorhexis forceps to complete CCC. In Group 2, a Nd: YAG Laser was used to perform capsulotomy, if there was notated liquefied cortex falling in the anterior chamber and we noted the formation of a cortex level in the anterior chamber, the patient was included in the group. In Group 3, manual capsutomy was performed with Utrata capsulorhexis forceps. In all groups, the capsule was stained with trypan blue dye 0.06%, and the anterior chamber was filled with cohesive viscoelastic before completing or catching capsulorhexis. Then, surgeries were continued with conventional phacoemulsification.

A statistic value was used to analysis and determine whether the means between the three populations were significantly different. Three parameters, anterior chamber depth, axial length, and lens thickness, were compared between groups because they are related to the occurrence of the sign of the Argentine Flag in the intumescent white cataract.

RESULTS

In the FLACS group, the capsule was completely detached in 68.75% of eyes, but in five cases, 33,33%, the capsule had a few bridges that detached easily without endangering the capsulorhexis integrity. The Nd: YAG laser Group had CCC that was complete in all cases, and in the manual group, there were two discontinuous capsulorhexis, Argentine Flag Sign (13.33%), that did not extend to the posterior pole.



DISCUSSION

The incidence of incomplete capsulorrhexis that is associated with white cataract surgery has been reported to vary from 3.85% to 28.3%. The great challenge of white intumescent cataract surgery is how to determine which cataracts are intumescent with high intracapsular pressure, which could lead to extension of capsulotomy to the periphery.

In our study, performing capsulotomy with ND YAG laser, showed good results without complications. Using FLACS for capsulotomies. In our study, 33.33% of patients had incomplete capsulotomy with FLACS, but none had an extension of the capsulotomy to the periphery. And performing capsulotomies with Utrata forceps, we had two eyes that had incomplete capsulorhexis with evidence of the Argentinian Flag Sign (13.33%).

In conclusion, the results confirmed the safety and efficacy of the three techniques in performing capsulotomies. FLACS presented a larger number of incomplete capsulotomies that were completed to CCC with Utrata forceps but did not bring any complications. The ND: YAG laser is a safe and cost-effective procedure and accessible for most ophthalmologists. Manual capsulotomy with Utrata forceps showed more complications, but the difference was not statistically significant.