

Cauterization Versus Suture in Primary Pterygium Surgery in Patients from La Selva

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Abstract

The objective of this study is to demonstrate the use and effectiveness of the technique with autoplasty fixed with bipolar cautery compared with autoplasty fixed with stitches in pterygium surgery in patients diagnosed with primary pterygium at La Selva Ophthalmology Clinic. The study was analytical, cross-sectional, retrospective, divided into two populations. The first group of 40 patients were operated using the electrocautery technique, and the second group of 40 patients were operated with the conventional technique. Patient data was collected at 24 postoperative hours, 72 hours, one month and the sixth month to assess symptoms and incidence of recurrence. The results obtained showed that the group operated on with 10/0 nylon sutures presented 82.5% tearing, 80% foreign body sensation followed by 77.5% pain/burning compared to the group operated on with electrocautery, which presented 15% stinging and tearing, followed by 12.5% pain/burning. It is concluded that the symptomatology of the group of patients operated on with electrocautery decreases considerably, which leads to postoperative recovery with greater efficiency and better taken by the patient.

Keywords: Pterygium; Cauterization; Autograft; Technique

Introduction

Pterygium is a degenerative fibromuscular overgrowth of the bulbar conjunctival tissue on the limbus and towards the cornea [1,2]. One of the main causes of primary pterygium is known to be the influence of ultraviolet radiation, which induces damage with the following elastoid degeneration of the subepithelial connective tissue [3], the same which plays a greater role in the pathogenesis of pterygium and correlates its higher prevalence in the equatorial zone and the Amazon region, where its incidence ranges from 14% [4], associated with areas with tropical climates and high heat, dryness and wind [5]; at the level of the general population a prevalence of 10% [6].

Surgical removal using different techniques described over time is the therapy of choice, however, there is a possibility of recurrence [7,8]. The technique of choice is conjunctival autograft after removal of the pterygium [7], which has a recurrence rate of approximately 5.5% to 11.9% [9,10]. This technique is considered the best option, the same that varies in the form of fixation of the autograft; among which the one universally used with the use of sutures stands out, followed by tissue glue, glue of autologous origin and the little-known electrocautery [11-13]. Previous studies mention a similarity in the recurrence rate, with the degree of variability in post-surgical symptoms being the difference between them [8].

The autograft fixation technique using bipolar cautery is poorly described in the literature [14] and with limited access to results of its use in the South American continent [15], the same one that we have been carrying out in the San Martín Region in Peru for approximately 10 years.

Methodology

The pterygium exeresis surgery is with the conventional technique, being the variation at the time of fixation of the conjunctival autograft in the scleral bed with previous hemostasis and drying of the area. The process of the technique consists of the use of bipolar cautery at the level of the inner third of the upper and lower borders and basal border of the plasty with the free border of the conjunctiva of the bed, which is faced with an elevation of both borders with the .12 forceps, at equidistant intervals starting at the inner corners and using the least cautery power as the intent is to confront and not create tissue burns. Once the electrocautery has been used, the bipolar is opened first and then the .12 clamp. This process is repeated as many times as necessary, leaving a space between each cauterization point of approximately 3 mm and respecting the limbal area in which we complement its fixation with the placement of a soft contact lens, which is removed 72 hours after surgery, depending on the degree of the pterygium. Additionally, within the technique performed at the institution, we instill 75% alcohol with a swab on the head of the pterygium before keratectomy for 3 to 5 seconds, which allows an easier exeresis since it defines a plane for its referral and, finally, a smoother cornea.

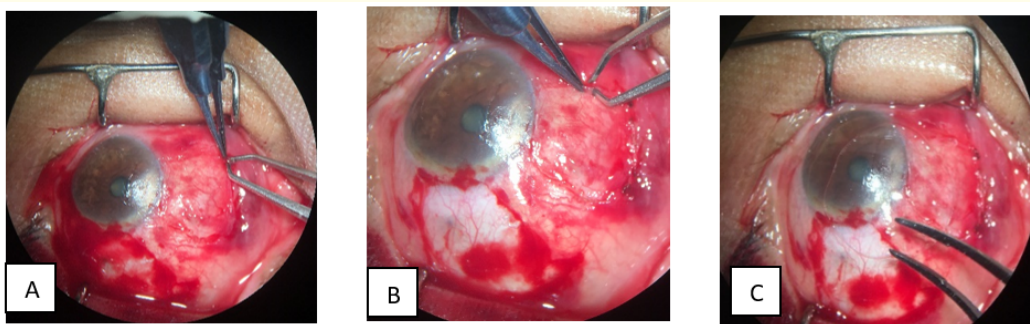


Figure 1: (A) Point 12 facing plasty and conjunctival edge below the bipolar in the lower corner of the base. (B) Initial opening of the bipolar followed by opening of point 12 below it in the inner half of the lower border of the operative area. (C) Placement of soft contact lens, the same one that faces the plasty at the limbal level and external third of it.

The study was carried out at the La Selva Ophthalmology Clinic located in Tarapoto, San Martín Region in Peru, which was analytical, cross-sectional, retrospective, divided into two populations. The first group of 40 patients were operated using the electrocautery technique, and the second group of 40 patients were operated with the conventional technique. Patient data was collected at 24 postoperative hours, 72 hours, one month and the sixth month to assess symptoms and incidence of recurrence.

Results

Variables		Treatment groups	
		Group I	Group II
Grade	II	6 (15%)	3 (7.5%)
	III	24 (60%)	25 (62.5%)
	IV	10 (25%)	12 (30%)

Table 1: Number and percentage of cases by degree of pterygium.

According to the degree of the pterygium, there was an almost equal prevalence between the two groups, the pterygium of grade III which is followed by grade IV in most cases on the nasal side, this is due to the fact that the population studied was predominantly rural and that dedicated to agriculture, so the degree of exposure to ultraviolet radiation is greater.

Variables		Treatment groups	
		Group I	Group II
Pre-operative clinical characteristics	Red eye	31 (77.5%)	33 (82.5%)
	Burning	22 (55%)	19 (47.5%)
	Foreign body sensation	21 (52.5%)	24 (60%)
	Stinging	27 (67.5)	23 (57.5%)
	Tearing	25 (62.5%)	21 (52.5%)
	VA decrease	12 (30%)	14 (35%)

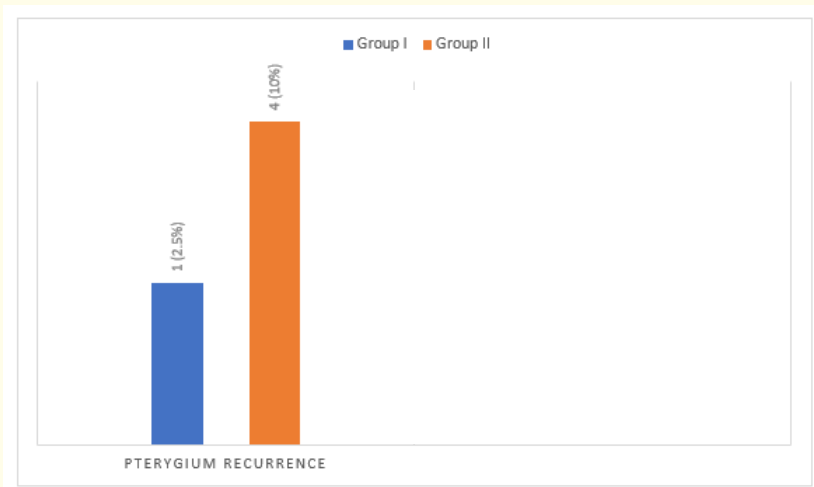
Table 2: Number and percentage of preoperative clinical characteristics.

According to the symptoms presented in the preoperative period, red eye was the most prevalent in both groups (77.5% and 82.5%) followed by foreign body sensation (60%) and itching (67.5%); as minor symptom for both groups was the decrease in visual acuity with 30% and 35% respectively.

Variables		Treatment groups	
		Group I	Group II
Post operative clinical characteristics	Pain/burning	5 (12.5%)	31 (77.5%)
	Foreign body sensation	1 (2.5%)	32 (80%)
	Stinging	6 (15%)	18 (45%)
	Tearing	6 (15%)	33 (82.5%)
	Subconjunctival hemorrhage	1 (2.5%)	2 (5%)
	Tear plasty	0	0
	Granuloma	0	1
	Recurrence	1 (2.5%)	1 (2.5%)

Table 3: Number and percentage of postoperative clinical characteristics.

The results were taken 72 hours after surgery. The group operated on with 10/0 nylon sutures presented 82.5% tearing, 80% foreign body sensation followed by 77.5% pain/burning compared to the group operated on with electrocautery, which presented 15% stinging and tearing, followed by 12.5% pain/burning. As we can see, the symptoms decrease considerably, which leads to a postoperative recovery with greater efficiency and better taken by the patient.



Graph 1: Recurrence percentage.

Our study obtained a recurrence rate of 5% at the sixth month in those operated with the electrocautery technique compared to 10% recurrence in those operated with sutures.

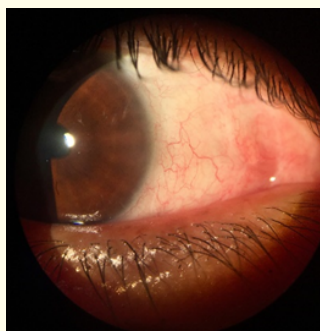


Figure 2: Postoperative patient with use of electrocautery on day 7.

Discussion

Pterygium surgery has currently made great advances in order to reduce the recurrence rate and improve postoperative comfort [16], one of the causes of the patient's discomfort being the placement of sutures, which explains the increase in discomfort after the first post-operative day. Maiti., *et al.* found no significant difference comparing the fixation of the plasty with tissue glue and autologous serum clot [17]. While Xu., *et al.* compared the efficacy and safety between fixation with electrocautery versus the use of sutures, finding a shortening in the operative time [12]. In our study, in turn, we found a shorter surgical time due to a shortening in the duration of the operation, but above all, a better symptomatic tolerance of the postoperative patient, which leads to a reduction in its recovery time; with a lower recurrence rate and equivalent to other literatures.

Conclusion

The use of electrocautery in the fixation of the conjunctival plasty in pterygium surgery is effective, simple and economical, especially in areas with a high prevalence of pterygium such as the northeast of Peru (San Martin Region), the same where there is a limitation in access to the use of tissue glue due to its high cost and the use of sutures due to poor follow-up of patients in their postoperative controls.

Additionally, the use of alcohol on the head of the pterygium at the time of keratectomy is another crucial factor for the rate of lower recurrence with this technique.

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