Blepharoplasty: to suture or to use cyanoacrylate?

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ABSTRACT

Objective: To study the safety and surgical time required when using the tissue adhesive 2-ethyl-cyanacrylate compared with conventional suture in upper lid blepharoplasty.

Method: A retrospective study was performed on 40 eyes of 20 patients who underwent bilateral upper lid blepharoplasty. In 7 patients, continuous non-absorbable suture (6-0 nylon monofilament Ethilon®, Ethicon Inc., Somerville, NJ) was used for closure of the incision and in 13 patients 2-ethyl-cyanacrylate (Epiglue®, Meyer-Haake, Germany) was used. The variables studied were intraoperative time required to close the incision, the cost of the material used and the incidence of infections and suture dehiscence.

Results: The average time taken to close the incision was 6.069 minutes with cyanoacrylate and 11.914 minutes with conventional suture (P<.05). The price of surgical material used was practically similar. No cases of infection or wound dehiscence were found.

Conclusion: The closure of the incision in upper lid blepharoplasty using 2-ethyl-cyanacrylate is a safe, effective, and faster, but not less expensive method than conventional suture.

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Blefaroplastia: ¿suturar o usar cianocrilato?

RESUMEN

Objetivo: Estudiar la seguridad y el tiempo quirúrgico requerido al usar el adhesivo tisular etil-2-cianocrilato comparado con la sutura convencional en la blefaroplastia superior.

Métodos: Se realizó un estudio retrospectivo en 40 ojos de 20 pacientes intervenidos de blefaroplastia superior bilateral. En 7 pacientes para el cierre de la incisión se utilizaron puntos continuos de sutura no reabsorbible (monofilamento nailon (6-0 Ethilon®, Ethicon Inc., Somerville, NJ) y en 13 pacientes se usó etil-2-cianocrilato (Epiglue®, Meyer-Haake, Alemania). Las variables estudiadas fueron el tiempo intraoperatorio requerido para el cierre de la incisión, el coste del material utilizado y la incidencia de infecciones y/o dehiscencia de sutura.
Introduction

Blepharoplasty is a frequently utilized procedure nowadays, considering cosmetic and functional requirements in today’s society, both for men and for women.

In upper eyelid blepharoplasty, redundant skin and muscle of the upper skinfold are eliminated, also removing fatty tissue if any excess is found.\(^1\),\(^2\) Conventionally, for closing the incision a reabsorbable suture is utilized even though a non-reabsorbable suture can also be used for making separate or continuous stitches.

Cyanoacrylate is a single component adhesive which can solidify in a few seconds in contact with water. It has been used for closing skin wounds since 1949, even though its use in ophthalmology began in the seventies. Since then, numerous studies have confirmed the efficacy and safety of this adhesive.\(^3\)

The antimicrobial properties of cyanoacrylate have been studied and the adhesive has demonstrated a bacteriostatic and bactericidal properties against gram-positive microorganisms.\(^4\),\(^5\)

Tissue adhesives also offer additional advantages for the patients because they exclude sutures to be withdrawn and there is no risk of injury due to faulty stitching by the surgeon or the assistant.

In this study we have statistically verified the advantages of the use of cyanoacrylate compared to conventional suture in superior blepharoplasty.

Materials and methods

A retrospective, observational and descriptive study type was carried out, which included the patients intervened for bilateral upper blepharoplasty in the ocular plastic service of the University Clinic Hospital of Valencia between October 2008 and March 2009. All the patients were informed verbally and in writing about the surgical procedure, requesting the signature of an informed consent.

The exclusion criteria were as follows: patients who had previous surgery in upper eyelids, those who required another surgical procedure at the time of the superior blepharoplasty such as elevator shortening, suspension to the front of muscle or another procedure, as well as those who did not attend the respective postop checkups 24 hours, one week and one month after the procedure.

Results

The mean time we utilized for closing the incision with cyanoacrylate was of 6.069 minutes, whereas with suture the time of 11.914 minutes, finding a statistically significant difference between both procedures, with a T value of 20.344 (p<0.05).
In what concerns the cost of surgical material utilized in closing the incision with conventional suture, (6-0 nylon single filament 6-0 Ethilon®, Ethicon Inc., Somerville, NJ) it amounted to 7.66 €, whereas cyanoacrylate (Epiglue®, Meyer-Haake, Germany) amounted to 8.29 € for bilateral upper blepharoplasty performed in the same surgical session.

During the postop, the patients included in the study were assessed 24 hours after the intervention, and then one week and one month later, without finding any case of infection or wound dehiscence with conventional suture or cyanoacrylate (figs. 3-5).

**Discussion**

In what concerns the time utilized for closing the blepharoplasty, with cyanoacrylate the mean time was of 6.069 minutes, whereas with conventional suture the mean time was of 11.914 minutes, finding statistically significant differences. This finding matches the majority of studies review prior to our study involving the use of cyanoacrylate. By reducing the surgical time with the use of cyanoacrylate, surgery room costs are indirectly reduced, thus allowing a higher number of surgical interventions. There is a controversy about the cost of cyanoacrylate compared to that of suture. Most of the conservative studies conclude that cyanoacrylate is more expensive than conventional suture although in our study the costs of this adhesive was similar to that of the suture. Many authors referred that even though the cost of cyanoacrylate is higher than conventional suture, the latter does not require dressings and that its use in other areas such as emergency wards for closing wounds would reduce costs in general because surgical instruments and assistance would not be required due to the ease and immediacy of application.

In our study we did not find differences as regards the risk of infection with both techniques because none of the patients exhibited this complication. According to some studies, cyanoacrylate has a bacteriostatic and bactericidal effect because its degradation products are toxic for bacteria, even though this antibacterial activity is limited to gram-positive microorganisms. In addition, cyanoacrylate also protects against infections in comparison with conventional suture due to the disappearance of the risk of infection because needles are not utilized.

Both techniques demonstrated to be safe in our study; no wound dehiscence or any other complication arose. The authors recommend surgeons to adopt corneal protection in the use of this new technique in order to avoid injuries at the anterior pole level.

As regards the limitations of the study, the main restriction was that, as it was carried out in a public health service hospital, blepharoplasty was performed when a functional but not aesthetic indication arose. For this reason, the size of the sample is limited. In addition, due to the different dermatological characteristics of each patient, it would have been much more specific to apply both techniques in the same individual (one for each eye) in order to make a comparison under the same dermatological conditions for both procedures. Considering the limiting aspects mentioned above, in the future it would be interesting to carry out a prospective study comparing the welfare of the patient applying a different technique for each eye, as well as increasing the number of the sample.

Within this study, we can conclude that the closure of the upper blepharoplasty incision with cyanoacrylate is an effective and safe procedure that is not cheaper than conventional suture for superior blepharoplasty interventions.

**Conflict of interest**

None of the authors have declared any conflict of interest.

**References**