Local anaesthetic-only upper blepharoplasty: a viable alternative?

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Abstract

Introduction: Local anaesthetic-only upper blepharoplasties are not routinely performed in the clinic in Australia. There is a lack of data to demonstrate whether they are any less safe or efficacious compared with upper blepharoplasties performed with sedation or general anaesthesia (GA) in theatre. Perioperative and postoperative antibiotics may also be administered for surgical site infection (SSI) prophylaxis. This paper aims to determine whether local-only upper blepharoplasties are safe and efficacious compared with upper blepharoplasties performed with sedation or GA, and whether prophylactic antibiotic use is indicated.

Method: A retrospective analysis of patients undergoing upper blepharoplasties from a single surgeon’s private clinic was performed from March 2014 to October 2018. The clinic’s database was interrogated and patient age, anaesthetic type, operative site, use of peri- or postoperative antibiotics, and complications were recorded including infection, return to theatre, chemosis and asymmetry noted by the patient and requiring revision surgery.

Results: A total of 97 patients were included for analysis. Complication rates of local-only upper blepharoplasties performed in the clinic were not higher than when performed under sedation or GA in theatre. When analysing antibiotic use, although 32 of the 97 patients (33%) were not prescribed antibiotics preoperatively, postoperatively, or pre- and postoperatively, no patients developed infections.

Conclusion: When performed by a qualified surgeon with appropriate equipment, local-only upper blepharoplasties carried-out in the clinic are as safe and efficacious as those performed with sedation or GA in theatre. Prophylactic antibiotic use demonstrated no advantage in SSI prevention for patients undergoing upper blepharoplasties.

Keywords: blepharoplasty, anaesthesia, surgical wound infection, eyelids, Australia
Introduction

As the central aesthetic unit of the face, the eyes and periocular area are of considerable interest to the reconstructive surgeon. First described in 1896 by Kotaro Mikamo, a Japanese physician who documented the first double-eyelid procedure for cosmesis, blepharoplasties have become increasingly popular. Blepharoplasty was the third most common cosmetic procedure in the USA in 2017, with the number of procedures increasing by 26.3 per cent on the previous year.

Often performed under general anaesthesia (GA) or local anaesthesia with sedation in theatre, there is a risk of patients having adverse reactions to sedatives. In addition, there are higher costs associated with anaesthetists and equipment required to monitor patients. To the best of the authors’ knowledge, local anaesthetic-only blepharoplasties are not routinely performed in the clinic in Australia, with a lack of data in the literature determining whether there are cosmetic or functional differences in outcome that preclude this technique’s use here. In addition, there is a paucity of data analysing whether antibiotic use and surgical site infections (SSI) are correlated in this population of patients.

This paper aims to determine whether local anaesthetic-only blepharoplasties performed in the clinic with an appropriately trained specialist surgeon are a safe and efficacious alternative to the procedure performed with sedation or GA in the operating theatre, and also whether prophylactic antibiotic use is indicated in blepharoplasties.

Methods

A retrospective analysis of patients undergoing blepharoplasties from a single surgeon’s private clinic was performed from March 2014 to October 2018. The clinic’s database was interrogated and patient age, anaesthetic type, operative site, use of peri- or postoperative antibiotics and complications were recorded including infection, return to theatre due to operative complications, chemosis and asymmetry noted by the patient requiring revision surgery. Patients undergoing local anaesthetic-only blepharoplasty had the procedure performed in the surgeon’s private rooms with every effort made to ensure that the physical equipment in the procedure room was comparable with that of an operating theatre including instruments and medicines such as diathermy, resus trolley with emergency medication and airway adjuvants. Patients undergoing the procedure with sedation or GA had it performed in an operating theatre with sedation or GA managed by an anaesthetist. For patients undergoing local anaesthetic-only blepharoplasty, 1.5–2 mL of local anaesthetic was infiltrated across both upper eyelids, and additional local anaesthetic was administered as required, with the aim to allow the patient to open their eyes during the procedure to assess asymmetry. Upper blepharoplasty was performed with skin and muscle excision, with tarsal fixation of the pretarsal segment routinely performed with 6-0 polydioxanone suture (PDS). In cases where post-septal fat reduction was deemed necessary, additional local anaesthetic (less than 0.5 mL) was infiltrated into the region prior to removal. Xylocaine 1 per cent with adrenaline (epinephrine) was initially used but the surgeon’s practice has now changed to 0.5 per cent Marcain with adrenaline (epinephrine). Perioperative antibiotics, where given, were administered after induction of anaesthesia.

Results

A total of 97 patients were included for analysis. The mean age was 39.2 years (range 17–85 years old), with 86 females (89%) and 11 males (11%). The overall satisfaction rate was 95 of 97 patients (97.9%).

Of the total, 22 patients (23%) underwent the procedure with GA, 11 (11%) with sedation and 64 (66%) with local anaesthetic-only in the surgeon’s private rooms. Of the patients undergoing local anaesthetic-only procedure, none developed infection or chemosis or required return to theatre and one (1.6%) noted asymmetry requiring revision surgery. Of the patients undergoing blepharoplasty with sedation managed by an anaesthetist, none developed chemosis or noted asymmetry requiring revision surgery. Of the patients undergoing blepharoplasty with GA managed by
an anaesthetist, none developed postoperative infection or required return to theatre, one (4.5%) developed chemosis and one (4.5%) noted asymmetry requiring revision surgery (Table 1).

Table 1. Complications associated with anaesthetic type

<table>
<thead>
<tr>
<th>Complications</th>
<th>Local</th>
<th>Sedation</th>
<th>General anaesthesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Return to theatre</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Chemosis</td>
<td>0</td>
<td>0</td>
<td>1 (4.5%)</td>
</tr>
<tr>
<td>Asymmetry necessitating revision surgery</td>
<td>1 (1.6%)</td>
<td>0</td>
<td>1 (4.5%)</td>
</tr>
</tbody>
</table>

Table 2 shows the number of patients who were administered antibiotics perioperatively, postoperatively both peri- and postoperatively, or not at all, in the local anaesthetic-only and anaesthetist-managed sedation and GA procedure groups.

Table 2. Antibiotic use associated with anaesthetic type

<table>
<thead>
<tr>
<th>Antibiotic Use</th>
<th>Local</th>
<th>Sedation</th>
<th>General anaesthesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perioperative</td>
<td>0</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>Postoperative</td>
<td>32</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Peri- and postoperative</td>
<td>0</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>No antibiotic</td>
<td>32</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Discussion

Multiple operations including carpal tunnel release, previously performed under sedation have shown similar patient satisfaction and functional outcomes when performed under local anaesthetic with sedated patients requiring longer hospital admissions and facing risks associated with anaesthesia.7,8 Facial cosmetic surgery patients are exposed to a higher anaesthetic risk, with all deaths in this group of patients being anaesthesia related.3 Furthermore, there are increased costs to the patient associated with anaesthetic administration, monitoring and theatre costs.

The complications arising from blepharoplasty are well documented and include oedema, haematoma and conjunctival haemorrhage, infection, asymmetry and chemosis.9–12 Our data demonstrate that the complication rates of local anaesthetic-only blepharoplasty are no higher than those associated with blepharoplasty performed with sedation or GA managed by an anaesthetist, with the added benefit of reduced anaesthetic risk. This is despite the expectation that patient factors, such as movement without sedation or GA, may interfere with the operation, increasing the technical difficulty which would manifest as increased complication rates. Hence, after careful screening to ensure that a patient is suitable to tolerate a local anaesthetic-only procedure, offering the patient the choice of such a procedure in the clinic is, in the authors’ opinion, a viable option. This is with the caveat that the procedure is performed by an appropriately trained surgeon in a facility, be it a private or hospital clinic, with equipment comparable with that available in theatre to ensure patient safety is still maintained.

Surgical site infections (SSI) are the most common postoperative complication, with as many as 1 per cent of patients undergoing clean operations reported to develop SSI. Multiple strategies including antibiotic administration before and after surgery have been proposed and adopted. However, there is growing evidence that antibiotics are used excessively for SSI prevention, particularly in clean wounds, and that this may be contributing to antibiotic resistance, as well as exposing patients to medication side effects including gastrointestinal symptoms, organ toxicity and, in severe cases, anaphylaxis.13–15 This is consistent with data from the literature demonstrating that procedures undertaken without the use of prophylactic antibiotics are rarely complicated by SSI, and those patients who do develop SSI respond well to antibiotic therapy.15,16 Our data demonstrate varied use of antibiotics, with no clear trend to preventing SSI. No patients developed confirmed SSI regardless of antibiotic use, demonstrating that, in blepharoplasty procedures, maintaining a sterile surgical field alone was adequate not to necessitate antibiotic use, whether in the theatre or clinic setting and regardless of anaesthetic used.

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**References**


**Conclusion**

Our data demonstrate that local anaesthetic-only blepharoplasties performed in a clinic by an appropriately trained surgeon with appropriate equipment are no less efficacious than those performed with sedation or GA managed by an anaesthetist in theatre but with the benefits of reduced risk of anaesthesia and lower costs to the patient and hence are a viable surgical option. This is in addition to evidence that for patients undergoing upper blepharoplasties, peri- and/or postoperative antibiotic use is not associated with a reduction in SSI and hence should not be routinely prescribed unless specific risk factors are present.