

Will my patient co-operate for SICS under topical anesthesia?

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Abstract

The objective of this study is to provide an opinion on OPD-based Lying Down Looking Down (LDLD) test, which is used to assess patient's suitability for Assisted Topical Anesthesia (ATA) during Manual Small Incision Cataract Surgery (MSICS). To perform the LDLD test, a standard LED torch is shown in patient's eye after pupil dilation, with the patient in lying down position. At the same time elevate the upper eyelid digitally. A positive test is indicated by the ability to maintain downward gaze and the lack of squeezing of eyes or withdrawal. The authors concluded that the LDLD is a simple, highly specific, OPD-based test to determine patient suitability for MSICS under ATA.

Keywords: Topical SICS, LDLD test, Cataract surgery.

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Description

Small Incision Cataract Surgery (SICS) is still the surgery of choice in most eye camp settings as it is the most cost-effective procedure, especially with large volume load [1]. Multiple studies have showed that SICS can deliver results very close to phacoemulsification [2]. But from the patients' perspective, phacoemulsification being performed under Topical Anesthesia (TA) is certainly more popular. Not wearing an eye patch post surgery certainly has a zing to it. And this is made possible as the surgery is performed under topical anesthesia. If SICS is the most commonly performed procedure, then why is TA in SICS not as popular as it is in phacoemulsification?

The most basic difference between the two procedures is that where phacoemulsification is done over a very small area in cornea, with eye being coaxial all the time, for SICS the patient has to move the eye down for quite some time while making a sclero-corneal tunnel which for most of the surgeons is the rate-limiting step. The review of literature gave us only one study (Laninder test) [3] which used an objective test preoperatively to screen out patients who might be suitable for TA in phacoemulsification. We modified this technique to use in our patients undergoing SICS surgery: Lying Down, Looking Down (LDLD) test [4]. Here, a standard LED torch was used to shine light in the patient's eye after pupil was dilated while the patient was in lying down position with his upper lid simultaneously elevated using a finger. If the patient showed an involuntary (blepharospastic) eyelid closure or could not maintain downgaze on command or withdrew his head or eye away from the light source, the test was considered negative. Such patients were operated under peribulbar block (ALA-Assisted Local Anesthesia).

While performing SICS under topical anesthesia, the steps were slightly modified. Lignocaine jelly was used 5 minutes before starting the procedure. Intra-cameral lignocaine was used after paracentesis. A larger sclera-corneal tunnel was made to facilitate nucleus delivery *via* viscoexpression. Topical

0.5% proparacaine drop was used for subconjunctival steroid injection at the end of the procedure. Constant vocal encouragement was given to make the patients co-operate better during the procedure. This was the major reason why Assisted Topical Anesthesia (ATA) took statistically significantly more surgical time as compared to ALA (9.83 minutes in ALA group and 11.60 minutes in ATA group, t value=4.583, $p<0.001$).

Two main objectives of the study [4] were to compare the specificity and sensitivity of LDLD test and to compare the postoperative complications among the two groups. LDLD had a positive predictive value of 92.6% and specificity, ability to identify cases which were not suitable for ATA, of 93.5% (95% CI 87.98%–96.97%). The specificity of the Laninder test was similar 93.14% (95% CI% 88.23%–98.04%) for phacoemulsification surgeries. Determining the sensitivity of the test reliably required us to operate negative LDLD patients under ATA, which was not ethical. Only 7.4% of patient with positive LDLD had to be converted to 'assisted local anesthesia' (Peribulbar block); six patients due to excessive eye movements and three because of reduction in pupillary dilatation intraoperatively.

There was no statistically significant difference in the intraoperative complication rate among the two groups. However, postoperative complications showed few distinctive features. For example, grade 3 conjunctival congestion was significantly less in ATA group (10.9% vs. 6.3%), probably because no injection anesthesia was given to these patients. Visually significant corneal edema in the immediate post-operative period was more frequently seen in ATA group (6.2% vs. 0.7%). Wang L, et al. [5] in their series of 300 patients did not find visually significant corneal edema in any of the patients operated under combined topical-intra-cameral anesthesia. It is difficult to compare complications rate with other studies on topical SICS surgery as none of them have emphasized on intra- and post-operative complications and inflammation.

There are some questions that future studies can help to answer. Since the sclerocorneal tunnel was larger than usual, the difference in the surgical induced astigmatism can give an idea about the difference in unaided visual acuity. Peribulbar block provide analgesic effect postoperatively as well; so, monitoring the pain level of patients operated under TA can help us understand the analgesic effect of TA postoperatively.

Though topical anesthesia requires patient cooperation, has more intraoperative globe motility and may need top-up anesthesia occasionally, especially if the surgery gets prolonged or complicated; there is significantly lesser risk of trauma to orbit or eyeball [6,7]. In addition, it is the safest alternative in patients who are scared of needles. Performing SICS under TA can get messy if a proper patient selection is not performed. In addition to ocular features (non-complicated cataract with well dilated pupil), patient characteristics also play a major role in making that decision. Lying down, looking down test can answer your question? Will this patient co-operate for SICS under topical anesthesia, with good certainty. If selected well, operating SICS under topical anesthesia can be a gratifying procedure, both for the patient and the surgeon.

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