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Original Research Article

Role of intravenous tranexamic acid in reducing peri-operative blood loss and post-operative ecchymosis in gynecomastia surgery

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Abstract

Background: TXA or Tranexamic acid has gained in significance in reducing blood loss in various gynaecological, oncological and orthopaedic surgeries. Its role in plastic surgical procedures is relatively new. TXA in reducing blood loss and ecchymosis in gynecomastia surgeries specifically has not been studied and no enough literature exists.
Methods: Authors studied 20 consecutive cases operated by a single surgeon retrospectively, ten of whom had received TXA and other had not. The peri-operative blood loss by seeing the lipo-aspirate and ecchymosis were looked for on post-operative day.
Results: The lipo-aspirate was clearer in TXA group and bloodier in non TXA group. None of the TXA group had ecchymosis while 3 had ecchymosis in non TXA group.
Conclusion: TXA appears to reduce blood loss and chances of ecchymosis in gynecomastia surgeries.
Level of evidence: 4.

Keywords: Tranexamic acid, TXA, liposuction, gynecomastia

Introduction

Gynecomastia surgeries are one of the common cosmetic procedures performed by plastic surgeons. Blood loss during these procedures is relatively less and hence the literature regarding methods to reduce blood loss in these cosmetic procedures is sparse. Use of Tranexamic Acid (TXA) is well established in gynaecological procedures, menorrhagia, oncosurgical procedures in reducing blood loss. The use in Plastic Surgical procedures particularly in burns, craniomaxillofacial is established in literature. However, the use of TXA in reducing blood loss in peri-operative period liposuction is not clearly established. Hence, we present our retrospective study of 20 cases of gynecomastia surgery with and without the use of TXA in reducing blood loss and post-operative ecchymosis.

Methods

A single senior plastic surgeon operated 20 cases of gynecomastia by standard suction assisted liposuction and glandular excision by orange peel excision [1]. The patients aged from 18 years to 30 years. The grade of the gland ranged from grade 1 to grade 3. All of them had

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had fatty and glandular component. Ten of these patients had received 5ml of TXA of 0.5g/ml intravenously at the time of induction. Other 10 of them had not received intravenous TXA. The selection of these patients for TXA was random by the anaesthetist and the operating surgeon was blinded to the use of TXA.
The grade of gynecomastia, size of the gland, age of the patient etc were not taken into account while using TXA.
All the patients were operated under general anaesthesia and airway was secured with LMA. The operative site was infiltrated with a tumescent anaesthesia which was prepared by 1000ml of Ringer Lactate, 1ml of 0.5% adrenaline and 20 ml of 2% lignocaine. After waiting for 20 minutes after infiltration, suction assisted liposuction was performed. The residual glandular tissue was excised by infra areolar approach using orange peel excision technique.
The lipo-aspirate was analysed by the anaesthetist for quality of aspirate, and blood in the suction machine. Ecchymosis at the end of the procedure and on 10th post-operative day were assessed by the surgeon and anaesthetist.

Results

The images of the aspirate and post-operative pictures were analysed retrospectively. The aspirate appeared relatively bloodier (fig 1) in all the cases where no TXA was used and ecchymosis (fig 2) were noticed in 3 of the cases. There was no ecchymosis (fig 3) in any of the patients where TXA was used. The ecchymosis in three of the patients eventually cleared by 3 weeks the lipo-aspirate appeared clearer (fig 4) and quite yellowish in cases with the use of TXA. None of the patients in either group had any complications and didn't report diarrhoea.

Fig 1: Lipo-aspirate showing bloodier aspirate (non-TXA)

Fig 2: Ecchymosis (non-TXA)

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Fig 3: No ecchymosis (TXA)

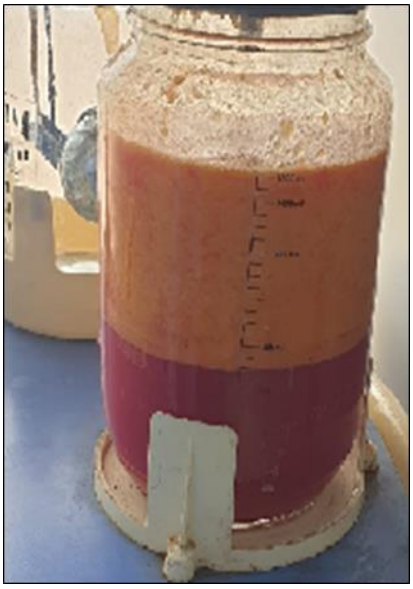

Fig 4: less bloody aspirate (TXA)

Discussion

Gynecomastia is common cosmetic procedure performed by plastic surgeons. The incidence of gynecomastia is increasing and the surgical treatment of gynecomastia is becoming increasing popular due to safety of the procedure, day care surgery, quick recovery and minimally invasive nature of these procedures.

Although blood loss is not the major concern of gynecomastia surgeries, post-operative ecchymosis could be cause of patients' aesthetic concerns. The blood loss in gynecomastia surgeries is less with the use tumescent solution. The adrenaline in tumescent solution reduces the blood loss significantly.

The use of TXA in significantly reducing blood loss has been studied extensively in menorrhagia [2], gynaecological surgeries and hereditary bleeding [3] disorders since 1960s. TXA has been used widely through intravenous, oral and local irrigation and local infiltration [4]. TXA has been used in burn surgeries and craniofacial surgeries and has established role in reducing blood loss in these procedures.

Use of TXA in cosmetic procedures like liposuction [5-7], rhinoplasty [8], facelift [9] and breast reduction [10] surgeries is being reported to be useful in reducing blood loss. The use of TXA is still not a standard protocol in cosmetic procedures despite its safety index and fewer side effects and contraindications.

In our study we noticed clearer lipo-aspirate in TXA group and bloodier in non-TXA group.

We didn't perform hematocrit of the aspirate nor of the patient after surgery. More falls in patients' haematocrit would have suggested more blood loss. More haematocrit of the

aspirate also would mean more blood loss. That is the major limitation of our study. No ecchymosis was noted in any of TXA group meant less bleeding in the operative site. It's encouraging to use TXA in these surgeries as it appears to make the aspirate less bloody, ecchymosis chances on post-operative day 10 to be nil. The patient's satisfaction will be definitely be better on POD10 with no ecchymosis as it is one of concerns for the patients along with contour. Sample size in our study is small; it's retrospective in design and can have observer bias. Measuring haematocrit pre-operatively and immediate post-operatively would have more objective evidence of blood loss. The appearance of the aspirate alone can be subjective and biased.

We feel a prospective randomized controlled study with a bigger sample size would clear the role of effectiveness of TXA in reducing blood loss in peri-operative period and incidence of ecchymosis in gynecomastia surgery as the existing literature is limited.

Conclusion

TXA appears to reduce peri-operative blood loss and incidence of ecchymosis in gynecomastia surgery in our study. Considering small sample size and possibilities of observer bias in our study authors feel the need for a prospective randomized control study for better understanding the effectiveness of TXA.

Disclosure

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