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Original Research Paper

# Prevention of 'Argentinian flag sign' in Intumescent cataract patients by the use of simple safety pin.

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**ABSTRACT**:
**Aim & Objectives**: Prevention Argentinian flag sign in patients having Intumescent Cataract by reducing raised intralenticular pressure using simple safety pin to create a nick in the centre for capsulorrhexis. **Study**: Clinical Study (Case series). **Participants**: 25. **Materials and Methods**: For Intumescent cataracts; we used Safety pin (with round tip) to puncture the anterior capsule & create one or multiple punctures with round, smooth configuration, without any discontinuity allowing liquified lens matter to express. There by decompressing the bag without peripheral extension of tear. Round hole is used to create mini-rhexis(3mm) that is then converted to desired size (5.5-6 mm) capsulorhexis. Safety pin tip, with round tip Consequences of radial extension of capsulorhexis include: Vitreous loss Nucleus droop Capsular support loss IOL dislocate/decentred by the initial puncture intra lenticular fluid is expressed out. Round hole provides resistance to the force of sudden outburst of intra lenticular pressure & helps to prevent the splitting of anterior capsule. Once the decompression is completed, anterior chamber is reformed with viscoelastic substance. The central hole created using safety pin was then converted to mini- rhexis(3mm) after which capsulorhexis is completed till desired size rhexis (5.5-6mm) without the risk of peripheral extension. To express intra-lenticular fluid and thereby prevent Argentinian flag sign, • we can use Safety PIN with smooth, round, pointed tip with 0.6 mm diameter, either angled at 90 degrees or straight one , used to make Initial puncture in anterior capsule . Safety pin angled at 90 degree. Difference between tip and opening created by safety pin and 26 G needle. This was done with proper autoclave and precautions by an expert surgeon in cataract OT in Ophthalmology-Guru Gobindsinh Government Hospital in Department of M.P. Shah Government Medical College Jamnagar. **Results**: Out of 25 patients; 23 patients showed decreased intralenticular pressure and Argentinian flag sign was prevented. **Conclusion**: The technique of using safety pin is simple & effective way to decompress the capsular bag by initial puncture in anterior capsule which is round with regular configuration that provides resistance against the disruptive force triggered by high intra lenticular pressure to prevent Argentinian flag sign. It is simple yet highly effective tool to prevent Argentinian flag sign & its consequences.

***Keywords: Argentinian flag, Safety-pin, Intumescent cataract, Intralenticular, Capsulotomy.***

## INTRODUCTION:

Mature cataracts are often associated with various complications. They are due to high intra-lenticular tension and stretched out anterior capsule. Most common complications observed are- The 'Argentinian flag sign' –The pattern of Argentinian flag sign was first described by Daniel PERRONE.(2000) Perrone described it to be the sequalae of a raised intralenticular pressure. Different method used to neutralize/reduce raised intralenticular presser include: • Phaco capsulotomy • Mini rhexis • Two stage capsulotomy • Femtosecond laser assisted capsulotomy • Nano pulse capsulotomy • Small needle aspiration technique *Safety pin is an alternative technique used to manually create an opening in anterior capsule which has a round & regular configuration, instead of linear cut that is created by capsulotome.

## MATERIALS AND METHODS:

**Type of the study**: A Clinical Study- Case Series
**Selection of study subjects**:
**Inclusion criteria**: All patients presenting to Guru Gobindsinh Government Hospital Jamnagar with Intumescent cataract.
**Study setting**: Intumescent cataract patients presenting to Guru Gobind Sinh Government hospital Jamnagar
**Study duration**: 3 Months
**Consent**: All consents taken from participants.

## LITERATURE AND STUDY:

Mature cataract causes various complication due to high intralenticular tension and stretched out anterior capsule.

- The ***'Argentinian flag sign'*** *is* well known & most common complication observed during intumescent cataract surgery.

Perrone described it to be the sequalae of a raised intralenticular pressure.[1]

Different method use to neutralize/reduce raised intralenticular pressure include:

- Phaco capsulotomy[2]
- Pre-operative ND YAG laser single shot
- Mini rhexis
- Two stage capsulotomy[3]
- Femtosecond laser assisted capsulotomy
- Nano pulse capsulotomy
- Small needle aspiration technique[4]
- Sewing needle microcapsulotomy to avert Argentinian flag sign[5]

**Safety pin (**stainless steel material, colorless, rust less, sharp tip) is an alternative used to manually create an opening in anterior capsule which had a round & regular configuration, instead of linear cut that is created by Capsulotome.

By the initial puncture intra lenticular fluid is expressed out. Round hole provides resistance to the force of sudden outburst of intra lenticular pressure & helps to prevent the splitting of anterior capsule.

Once the decompression is completed, anterior chamber is reformed with viscoelastic substance.

The central hole created using safety pin is then converted to mini- rhexis(3mm) after which capsulorrhexis is completed till desired size rhexis (5.5-6mm) without the risk of peripheral extension.

Safety PIN, a readily available, affordable, and homely alternative that can be autoclaved, can be used to prevent Argentinean flag signs. 0.6 mm in diameter, smooth, round, sharp tip made of stain-resistant steel, paintless, and rust-free; it can be used straight or at a 90-degree angle to make the first puncture in the anterior capsule. Difference between 26 G needle and safety pin's tip and opening -The circular tip of the safety pin. A safety pin creates a rounded aperture during the initial puncture, which reduces the likelihood of the sharp needle margin extending into the periphery. Conversely, a vitrectomy trocar is more likely to do so. The following are some side effects of capsulorhexis's radial extension:

**vitreous demise**
**drip of the nucleus**
**lack of capsule support**
**IOL dislocate/decentred**

Safety pin (with round tip) is used to puncture the anterior capsule & create one or multiple puncture with round, smooth configuration, without any discontinuity allowing liquified lens matter to express. There by decompressing the bag without peripheral extension of tear. Round hole is used to create mini rhexis(3mm) that is then converted to desired size (5.5-6 mm) capsulorhexis.

**Out of 25 patients; 23 patients showed decreased intralenticular pressure and Argentinian flag sign was prevented.**

## CONCLUSION:

The technique of using safety pin (in 25 patient) is simple & effective way to decompress the capsular bag by initial puncture in anterior capsule which is round with regular configuration that provides resistance against the disruptive force triggered by high intra lenticular pressure to prevent Argentinian flag sign and hence serves as an efficient and equivalent; if not superior to other costly techniques available in the market.

It is simple yet highly effective tool to prevent Argentinian flag sign & its consequences as it is readily available in Indian scenarios and can be easily autoclaved for usage widely over all developing countries in the world.

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