

## USE OF PRESERVATIVE CONTAINING VS PRESERVATIVE FREE INTRAOCULAR STEROID DURING VITRECTOMY

Nayana Prabhu<sup>1</sup>, Vishnu Prabhu<sup>2</sup>, Nameeth D'Souza<sup>3</sup>, May D'Souza<sup>4</sup>, Pratima B. Patil<sup>5</sup>

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**ABSTRACT:** Triamcinolone is a corticosteroid that is used to treat many ophthalmic diseases. Recently, its use has been advocated to aid in visualization of transparent tissue in ophthalmic surgery. It can be used in anterior segment surgery to help manage vitreous loss during complicated cataract surgery. It has been used to visualize the posterior cortical vitreous during pars plana vitrectomy. In addition, it can be useful in the visualization and peeling of the internal limiting membrane. Triamcinolone has been advocated in surgical repair of proliferative vitreoretinopathy both for its visualizing properties and its anti-inflammatory properties. Overall, triamcinolone use in surgery is safe with low incidence of complications including elevated intraocular pressure, cataract and endophthalmitis.

**KEYWORDS:** cataract surgery, chromovitrectomy, epiretinal membrane, internal limiting membrane, vitrectomy, triamcinolone acetonide.

**INTRODUCTION:** Intravitreal injection<sup>1</sup> of triamcinolone is not only an important therapeutic tool for a variety of vitreo-retinal disorders,<sup>2</sup> but has also been employed to aid visualization of vitreous and peeling of epiretinal membranes (ERMs)<sup>3</sup> and internal limiting membranes (ILMs) for various vitreoretinal diseases during pars plana vitrectomy:<sup>4</sup>

- Intravitreal triamcinolone crystals attach to the surface of the vitreous cortex, bursa premacularis or retina itself allowing better visualization and a controlled vitreous removal.
- Peyman and colleagues and Enaida and colleagues noted that during surgery, water-insoluble triamcinolone<sup>5</sup> particles could easily integrate into the collagen matrices of the vitreous gel.
- Moreover, triamcinolone particles were much more freely mobile in the fluid-filled posterior hyaloid space compared to the vitreous gel body, further aiding removal of the posterior hyaloid.<sup>6</sup>

**AIM:** To compare preservative containing steroid versus preservative free steroid Triamcinolone Acetonide (TA) used intraocularly<sup>7</sup> to assist during vitrectomy procedures for various indications are the use of preservative.

### MATERIALS & METHODS:

- Two groups of patients one who underwent vitrectomy with preservative containing steroid (Triamcinolone 40mg with 0.9% benzylalkonium alcohol) and the other who underwent vitrectomy<sup>8</sup> with preservative free steroid (Triamcinolone 40mg) were compared.
- 23 gauge pars plana vitrectomy was done for various conditions like retinal detachment, diabetic vitrectomies etc. In all these cases fresh vials containing the steroids<sup>9</sup> was used.

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### RESULTS:

- It was found that in cases where preservative free triamcinolone was used for staining the vitreous, the staining was better and more uniform with better visualization during all steps of vitrectomy, as compared to cases where preservative containing steroid was used.<sup>10</sup>
- In cases with preservative containing steroid the view was hampered due to dispersion of triamcinolone and non-uniform staining of anterior hyaloid in certain cases.<sup>11</sup>

- **TOTAL NO CASES:30**

|  | <b>PRESERVATIVE<br/>CONTAINING STEROID<br/>TOTAL NO CASES: 30</b> | <b>PRESERVATIVE FREE<br/>STEROID<br/>TOTAL NO CASES: 40</b> |
|--|---|---|
| Poor Visibility during surgery         | 10  | 1   |
| Adhesion of TA to Post Lens Capsule    | 6   |   |
| Delayed clearance from vitreous cavity | 12  | 1   |
| Excessive Clumping of TA particles     | 4   | 0   |

CONTAINING STEROID  
TOTAL NO CASES: 30  
TOTAL NO CASES: 30

### PRESERVATIVE CONTAINING:

- In non-preserved TA, particles sticking to the Posterior lens capsule<sup>12</sup> was noted resulting in hampering of visualization.<sup>13</sup>
- It was of greater concern in phakics<sup>14</sup> as attempt to displace it would result in lens touch resulting in cataract and further deterioration of the view.
- Clearance and removal was quicker in preservative free triamcinolone.

### DISCUSSION:

- Visualization of cortical vitreous during vitrectomy is difficult due to its transparency.<sup>15</sup>
- Presently we use triamcinolone to stain the residual hyaloid membrane on the retinal surface as the steroid particle adheres<sup>16</sup> to the vitreous fibres.
- The preservative benzyl alcohol used in TA<sup>17</sup> influences the aggregation property of crystals of TA and is even known to cause an inflammatory reaction.<sup>18</sup>

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- Thus preservative free TA provides a more uniform and controlled staining of the vitreous and prevents clumping thereby<sup>19</sup> providing better visualization during surgery, especially in phakics.
- The preservative benzyl alkonium is known to cause retinal toxicity in several experimental studies.<sup>20</sup>

### CONCLUSION:

- Use of intraocular steroid preparation like triamcinolone for staining of the vitreous for better visualization and a more complete vitrectomy is a renowned practice which is used by retinal surgeons worldwide.
- In this study it was concluded that preservative free preparation was better for staining the vitreous uniformly. Also since it doesn't disperse it leads to better visualization and in turn leading to better surgical outcome.

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### AUTHORS:

1. Nayana Prabhu
2. Vishnu Prabhu
3. Nameeth D' Souza
4. May D'Souza
5. Pratima B. Patil

5. Assistant Professor, Department of Anaesthesia, M. R. Medical College, Gulbarga.

### PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of Obstetrics and Gynaecology, Srinivas Medical College, Mangalore.
2. Professor and HOD, Department of Ophthalmology, Srinivas Medical College, Mangalore.
3. Consultant Ophthalmologist, Department of Ophthalmology, Mangalore.
4. Assistant Professor, Department of Ophthalmology, Fuller mullers Medical College, Mangalore.

### NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Vishnu Prabhu,  
Professor and HOD,  
Department of Ophthalmology,  
Srinivas Medical College, Mangalore.  
Email: nayana.nethralaya@gmail.com

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