

**Pentacam Changes in Sutured and Sutureless  
Vitreotomy**

**A comparative Study**

*Thesis*

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## **Abstract:**

**Introduction:** Pars planavitrectomy (PPV) is a surgical procedure that involves removal of vitreous gel from the eye. PPV was first introduced in 1972, when Machemer invented a single port, multifunctional 17-gauge cutter called the vitreous infusion suction cutter (VISC). PPV was a major advance because for the first time it allowed for the removal of vitreous through a closed system, rather than through an open sky technique. In 1975, O'Malley and Heintz described the use of a 20-gauge 3 port system. 20-gauge 3 port PPV became the gold standard and remained so for at least 3 decades.

Smaller vitrectomy instruments may minimize surgical trauma at the sclerotomy sites, allowing self-sealing sclerotomies, which may improve the surgical efficiency and postoperative recovery. Trans-conjunctival Cannulated 20-gauge vitrectomy (TC20V) is a technique carrying the advantages of the sutureless techniques, and can be done in almost all cases. TC20V does not induce significant changes in postoperative corneal topography, and thus, the procedure exerts little influence on the cornea's optical quality.

**Patients and methods:** Our study included 20 eyes who underwent parsplanavitrectomy that were randomly divided into two groups : A and B .**Group (A):** included 10 eyes performed using 20 conventional PPV and **group (B):** included 10 eyes performed using sutureless 20 gauge pars planavitrectomy system.

We evaluated astigmatic changes after 20 gauge conventional vitrectomy and 20 G TSV using vector method of calculating SIA, and we were able to evaluate not only changes in astigmatism magnitude, but also changes in its direction and we also evaluated CCT preoperative and postoperative as an indicator of surgical trauma of each procedure .

**Results:** We found that surgical induced astigmatism is minor in the early postoperative period after PPV with the 20-gauge TSV system. However, we found significant surgical induced astigmatism because of the scleral sutures in the early postoperative period after 20-gauge PPV which returned to near the preoperative values by 3 months after the operation.

Comparing between the CCT changes in both groups, there was no statistically significant difference all through the study .

**Conclusion:** Surgical induced astigmatism is minor in the early postoperative period after PPV with the 20-gauge TSV system .However, we found significant surgical induced astigmatism because of the scleral sutures in the early postoperative period after conventional 20-gauge PPV which returned to near the base line by 3 months after the operation.

Comparing between the central corneal changes between both groups (20 gauge conventional vitrectomy and the 20-gauge TSV system), there was no significant difference

**Keywords:** Pentacam changes , Sutured Vitrectomy, Sutureless Vitrectomy.