

Outcome of Infero Temporal Suture Less and Glue Free Conjunctival Autograft in Patients with Pterygium at a Tertiary Care Hospital of Vidarbha Region

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Abstract

Introduction: Pterygium is a common degenerative condition of the conjunctiva specially in the dry and arid climate. There are numerous treatment options for pterygium. Gluefree & Sutureless conjunctival autografting is one of the popular method to reduce its (Pterygium) recurrence.

Purpose: To study outcome of inferior temporal conjunctival autografting which is sutureless & gluefree in Pterygium patients.

Material and Method: A Prospective study was carried out on 104 out of 123 patients, which met Inclusion criteria. Pterygium surgery procedure include, pterygium excision followed by inferior conjunctival autografting without any glue and suture. The patients were followed up post-operatively on day 1, 1 week, 15 days, 1 month, 2 months. They all were examined for complications such as graft displacement, recurrence, haemorrhage along with routine post- operative examination.

Results: The age of Patients varied between 21 to 70 years. 62.50 % of which were Male. Common age group in our study was 41-50 years. Redness & watering was most common symptoms in our study. Recurrence was seen 09 patients & graft displacement was seen in 7 patients. Recurrence was most commonly seen in patients having grade 3 Pterygium.

Conclusion: Pterygium excision followed by inferior conjunctival grafting has an advantage of leaving the superior conjunctiva (commonly used in conjunctival autografting procedure) for glaucoma or cataract surgery if need arises . its also economical in context to our Country. The study aims at exploring options to improve the quality of life in cosmetically and visually challenged patients

Keywords: Pterygium, Inferior conjunctival autografting, glue-free and suture less, superior conjunctival autografting, Recurrence, graft displacement.

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Introduction

Pterygium is a common degenerative condition of the conjunctiva specially in the dry and arid climate. Pterygium has high prevalence rates all over the world including India which is part of “ Pterygium belt” described by Cameron¹. Nasal side pterygium is more common than Temporal side of Pterygium. There are numerous treatment options for pterygium, surgery

being the mainstay. Kenyon and colleagues proposed the use of free Conjunctival autograft for preventing recurrence, which is main complication, after surgery². Conjunctival superior autografting is a commonly used procedure nowadays. Other option include Fibrin glue but carries potential risk of prion and viral transmission and anaphylaxis³. The latest techniques include glue free and suture less inferior conjunctival autograft placement

Aims and Objective: To study the efficacy and outcome of glue free and suture less inferior conjunctival autograft placement for treatment of pterygium.

Inclusion Criteria:

Both genders

Age above 20 years

Exclusion Criteria:

Patients with history of recurrent pterygium.

Severe dry eye patients

Pseudo pterygium

Material and Method

This was a prospective non comparative study duration from august 2019 to January 2020, in the Dept. of Ophthalmology at Datta Meghe Medical College, SHMRC Hospital Nagpur in collaboration with Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Sawangi, Meghe Wardha. Primary pterygium patients managed by surgical interventional procedure include excision of pterygium with infero conjunctival autograft which was glue free and suture less from the same eye. An informed consent from all patients was taken before the procedure and concerned patients were told to instil plain antibiotic eyedrop moxifloxacin four times a day two days prior to a surgery.

Surgical procedure: Patients who were enrolled undergo pterygium excision followed by infero conjunctival autografting under peri bulbar block.

Confirmation of the eye of the patient which is to be operated done by the operating surgeon and then only peri bulbar block was given along with on table instructions. Betadine painting and draping done under aseptic conditions. the pterygium was excised by using Bard Parker knife with number 11 blade which was continued

up to the limbus. The surgeon tried to clean and free the pterygium which had encroached the cornea. Then by holding the pterygium at the apex and by stretching it a little, it was cut with the help of conjunctival scissors and bare sclera was created. Scleral bed was cleaned by cauterization and we made sure that it would free from Tenon's capsule. Castor – Vejjo calliper was used to determine the size of the scleral bed. The graft was marked approximately (1mm) larger than scleral bed on the inferior conjunctiva (mostly temporal side). After giving a nick the thinnest possible continuous graft was obtained which was free from tenon's capsule. Once the limbus was reached the graft was flipped over and on to the cornea. The graft was meticulously dissected from tenons attachment. The graft was then placed on the bare sclera by maintaining the orientation i.e the limbal side of the graft to the limbal side of the bare sclera. The graft's position was checked after 4 to 5 mins by using Macphearsons's forceps. A single drop of an antibiotic eye drop was put in the operating eye, which was then pad bandaged. Patient was kept as an indoor patient for a day and then discharged after day 1 post op examination. Patient was asked to follow up after 7 days, 15 days, 1 month and two months from the day of surgery. All surgeries were performed by the same surgeon.

Scope of the study: Vidarbha region and its surroundings have dry, hot & dusty climate.

Main occupation of the people in this place is farming and daily labourers, mostly outdoor occupation. The study aims at exploring options to improve the quality of life in cosmetically and visually challenged patients

Observations and Results

Out of 123 patients registered in our pterygium surgery OT register. 104 cases were analysed which met the Inclusion criteria. Cases were divided into four arbitrary grades as shown in table 1

Table No. 1: Slit-Lamp Gradation

Grades of pterygium	Patients
Grades 1 Pterygium- invading the limbus	20
Grades 2 of Pterygium- midway between limbus & pupil	56
Grade 3 of Pterygium- Reaching up to pupillary margin	24
Grade 4 of Pterygium- Crossing pupillary margin	04

Above table shows no. of patients enrolled in different grades of pterygium most common patient in our study were having grade 2 pterygium

Table No. 2: Distribution of cases according to sex

Males	Females	Ratio
65	39	1.66 : 1

Above table shows us sex (gender) wise distribution in our study. Males are in majority compared to females.

Table 3: Distribution of patients according to age.

Age group in years	Male	Female	Total cases
21-30	03	06	09
31-40	12	02	14
41-50	21	18	39
51-60	16	11	27
61-70	13	02	15

Above table shows us different age group and total no. Cases enlisted in it. 39 out of 104 cases belong to 41 to 50 yrs of age group.

Table 4: Complaints of the Patients at the time of admission.

Complaints	No. of patients
Redness & watering	54
Foreign body sensation	35
Cosmetic blemish	10
Diminution of Vision	05

Table no 4 shows us what symptoms brought them to eye opd. Redness with watering was most common symptom in our study.

Table 5: Post operative complications in Cases.

Complication	No. of Cases
Graft displacement	07
Granuloma formation	03
Conj cyst	02
Recurrence	09
Sub. Conj haemorrhage	03

Above table shows of different complications after surgical intervention. Recurrence was troublesome & common complication

Table 6: Recurrence rate according grade of Pterygium.

Grade of Pterygium	No. of patients
Grade 1	nil
Grade 2	02
Grade 3	06
Grade 4	01

Above table shows us grade of pterygium in which recurrence was seen. Patients i.e. out of 9 cases of recurrence 6 were having grade 3 Pterygium. Grade 1 pterygium patients had no recurrence

Discussion

Out of 104 cases which we enrolled in our study, we found 56 cases belong to grade 3 pterygium, according to Slit lamp gradation. In percentage wise maximum ie 53.84%. Distribution of cases according to Gender, Male predominance seen . 62.50% male & 37.50% female. Male to female ratio was 1.66 : 1, according to TABLE NO 2. These finding are not similar to a study done by Priya VR et al⁴ showed that 69% were female and 31% were male. But our findings are replicated in study done by Poonam Bhargava et al⁵ where male predominance is seen. According to age wise distribution, We found that highest no. patients were seen in age group 41- 50 yrs, total 39 cases (21 male patient and 18 female patient) . 37.5 % of total cases. Which is replicated in the study done by Thangjam Amit Singh & et al found to be more marked in the 4th-5th decade of life⁶. Next common age group was 51- 60 yrs. Total cases 27 (16 male and 11 female patient) 25. 96 % of total cases.

One interesting observation was seen in age group 21-30 yrs, out of 9 cases 6 female and only 3 male. Female predominance seen in only this age group. Subjective pre-operative complaints were also taken under consideration, we found that in our region redness with watering is there main symptoms which mostly brought them to hospital.

In this Study, Recurrence remain to be most common post operative complication . It was seen in 9 patients which was approx. 8.65 % of total cases. Recurrence occurred in 3 out of 9 patients after 1month post operatively & remaining 6 patients after 1.5 – 2 months after Surgery, which is more than a study done by Vichare N et al⁷ showed that at the end of final follow up at 6 months, 3 cases (10%) from suture group and

1 case (3.33%) from fibrin group had recurrence. Also more than another study done by Thangjam Amit Singh & et al⁶ where recurrence rate was 1.28% after pterygium excision with conjunctival autografting using fibrin glue (group A) and 2.24% after excision and autografting with suture (groupB). Recurrence of pterygia was more common in patients younger than 40 yrs.

Displacement of the graft was 2 nd most common complication seen in our study, as we are procuring inferior graft, sometimes it was difficult to get ideal graft cause surgeons handedness and surgical maneuver compared to superior conj .grafting . this complication was marginally higher in our study compared to study done by Poonam bhargava et al⁵(in 300 cases 16 cases show graft displacement ie 5.33%) . in our study 7 cases found to have graft displacement ie 6.73 %

According to Table no. 6, recurrence was more common in grade 3 pterygium. TAN DTH & et al, suggested that fleshy Pterygium had a greater chance of recurrence than thin pterygia⁸

India is a country of 1.32 billion. The World Health Organization recommends, one doctor to serve 1,000 people, across all levels of care⁹

In India, there are >100 million elderly people who often have comorbidities that are often neglected¹⁰. Vision 2015 of MCI emphasizes on ‘Competency-based learning’ and insists for assessment of newer learning experiences, competencies, along with certification of essential skills¹¹. Due attention is needed on patient specific systemic conditions like diabetes¹²⁻¹⁷, hypertension¹⁸⁻²⁶, respiratory and renal disorders²⁷⁻³³.

Conclusion

Pterygium excision followed by inferior conjunctival grafting has an advantage of leaving the superior conjunctiva (commonly used in conjunctival autografting procedure) for glaucoma or cataract surgery if need arises. it’s also economical with minimum to moderate complications such as recurrence & graft displacement considering existing ways of management of Pterygium.

Limitations: Shorter follow up time may underestimate the recurrence rate.

Ethical Clearance: Taken from institutional ethics committee.

Source of Funding: Self.

Conflict of Interest: Nil.

References

1. Cameron ME. Pterygium through the world. Springfield, III: Charles C Thomas, 1965
2. Kenyon KR, Wagoner MD, Hettinger ME. Conjunctival autograft transplantation for advanced and recurrent pterygium. *Ophthalmology*, 1985;92:1461-1470
3. 18. Ang LP, Chua JL, Tan DT. Current concepts and techniques in pterygium treatment. *Curr Opin Ophthalmol*. 2007; 18: 308-313.
4. Priya VR, Hedge SS. A prospective comparative study to evaluate the outcome of fibrin glue versus sutures for conjunctival autografting after primary Pterygium excision. *Int J Health Sci Res* 2015;5(1):93-9.
5. Bhargava P, Kochar A, Joshi R. Pterygium excision followed by sutureless and gluefree infero-temporal conjunctival autograft. *Delhi J Ophthalmol* 2019;30;32-35; Doi <http://dx.doi.org/10.7869/djo.475>
6. OSR Journal of Dental and Medical Sciences (IOSR-JDMS) e-ISSN: 2279-0853, p-ISSN: 2279-0861. Volume 18, Issue 11 Ser.6 (November. 2019), PP 68-78 www.iosrjournals.org DOI: 10.9790/0853-1811066878 www.iosrjournals.org 68 | Comparative Study of Conjunctival Autograft with Suture and Fibrin Glue in Primary Progressive Pterygium Thangjam Amit Singh¹, Nameirakpam Mamota², Varsha Uday K³, Loitangbam Braineer⁴, Suman Sarkar⁵, Ningotrin Raingam⁶, Khundrakpam Lokeshwari
7. Vichare N, Choudhary T, Arora P. A comparison between fibrin sealant and sutures for attaching conjunctival autograft after pterygium excision. *Med J Armed Forces India* 2013;69(2):151-5.
8. Tan DT¹, Chee SP, Dear KB, Lim AS Effect of pterygium morphology on pterygium recurrence in a controlled trial comparing conjunctival autografting with bare sclera excision. *Arch Ophthalmol* 1998 Apr;116(4):552
9. Zodpey, S., A. Sharma, Q.S. Zahiruddin, A. Gaidhane, and S. Shrikhande. “Allopathic Doctors in India: Estimates, Norms and Projections.” *Journal of Health Management* 20, no. 2 (2018): 151–63.

- <https://doi.org/10.1177/0972063418763651>.
10. Kumar, S., S. Jain, A. Wanjari, and S. Mandal. "Development and Validation of a Modified Frailty Risk Index as a Predictor of Mortality in Rural Elderly People." *Asian Journal of Gerontology and Geriatrics* 14, no. 1 (2019): 15–22. <https://doi.org/10.12809/ajgg-2018-315-0a>.
 11. Goyal, R.C., S.G. Choudhari, and S.R. Tankhiwale. "Assessment of Competency Based Medical Internship Training with 'Cumulative Grade Points Average System'- An Innovative Step towards Meeting 'Vision 2015' of Medical Council of India." *Indian Journal of Public Health Research and Development* 9, no. 8 (2018): 155–62. <https://doi.org/10.5958/0976-5506.2018.00713.1>.
 12. Bhinder, H.H.P.S., and T.K. Kamble. "The Study of Carotid Intima-Media Thickness in Prediabetes and Its Correlation with Cardiovascular Risk Factors." *Journal of Datta Meghe Institute of Medical Sciences University* 13, no. 2 (2018): 79–82. https://doi.org/10.4103/jdmimsu.jdmimsu_58_18.
 13. Cladius, S., U. Jadhav, B. Ghewade, S. Ali, and T. Dhamgaye. "Study of Diabetes Mellitus in Association with Tuberculosis." *Journal of Datta Meghe Institute of Medical Sciences University* 12, no. 2 (2017): 143–47. https://doi.org/10.4103/jdmimsu.jdmimsu_62_17.
 14. Rathi, N., B. Taksande, and S. Kumar. "Nerve Conduction Studies of Peripheral Motor and Sensory Nerves in the Subjects with Prediabetes." *Journal of Endocrinology and Metabolism* 9, no. 5 (2019): 147–50. <https://doi.org/10.14740/jem602>.
 15. Walinjkar, R.S., S. Khadse, S. Kumar, S. Bawankule, and S. Acharya. "Platelet Indices as a Predictor of Microvascular Complications in Type 2 Diabetes." *Indian Journal of Endocrinology and Metabolism* 23, no. 2 (2019): 206–10. <https://doi.org/10.4103/ijem.IJEM-13-19>.
 16. Nagoba, B., M. Davane, R. Gandhi, B. Wadher, N. Suryawanshi, and S. Selkar. "Treatment of Skin and Soft Tissue Infections Caused by *Pseudomonas Aeruginosa*—A Review of Our Experiences with Citric Acid over the Past 20 Years." *Wound Medicine* 19 (2017): 5–9. <https://doi.org/10.1016/j.wndm.2017.09.005>.
 17. Phadnis, P., M.A. Kamble, S. Daigavane, P. Tidke, and S. Gautam. "Prevalence and Risk Factors – Hemoglobin A1c, Serum Magnesium, Lipids, and Microalbuminuria for Diabetic Retinopathy: A Rural Hospital-Based Study." *Journal of Datta Meghe Institute of Medical Sciences University* 12, no. 2 (2017): 121–32. https://doi.org/10.4103/jdmimsu.jdmimsu_59_17.
 18. Yadav, S., M. Agrawal, C. Hariharan, D. Dewani, K. Vadera, and N. Krishna. "A Comparative Study of Serum Lipid Profile of Women with Preeclampsia and Normotensive Pregnancy." *Journal of Datta Meghe Institute of Medical Sciences University* 13, no. 2 (2018): 83–86. https://doi.org/10.4103/jdmimsu.jdmimsu_70_17.
 19. Papalkar, P., S. Kumar, S. Agrawal, N. Raisinghani, G. Marfani, and A. Mishra. "Heterotaxy Syndrome Presenting as Severe Pulmonary Artery Hypertension in a Young Old Female: Case Report." *Journal of Gerontology and Geriatrics* 66, no. 2 (2018): 59–61.
 20. Charan, N., M. Choudhari, M. Sonkusale, and R. Deshpande. "Anesthetic Management of Chronic Thromboembolic Pulmonary Hypertension for Pulmonary Endarterectomy." *Journal of Datta Meghe Institute of Medical Sciences University* 12, no. 4 (2017): 289–91. https://doi.org/10.4103/jdmimsu.jdmimsu_40_17.
 21. Gaikwad, K.B., N.G. Joshi, and S.P. Selkar. "Study of Nitrosative Stress in 'Pregnancy Induced Hypertension.'" *Journal of Clinical and Diagnostic Research* 11, no. 3 (2017): BC06–8. <https://doi.org/10.7860/JCDR/2017/23960.9396>.
 22. Yadav, S., M. Agrawal, C. Hariharan, D. Dewani, K. Vadera, and N. Krishna. "A Comparative Study of Serum Lipid Profile of Women with Preeclampsia and Normotensive Pregnancy." *Journal of Datta Meghe Institute of Medical Sciences University* 13, no. 2 (2018): 83–86. https://doi.org/10.4103/jdmimsu.jdmimsu_70_17.
 23. Kumar, S., P. Bhayani, D. Hathi, and J. Bhagwati. "Hyponatremia Initial Presenting Feature of Normal Pressure Hydrocephalus in Elderly Patient: A Rare Case Report." *Journal of Gerontology and Geriatrics* 66, no. 3 (2018): 156–57.
 24. Bhinder, H.H.P.S., and T.K. Kamble. "The Study of Carotid Intima-Media Thickness in Prediabetes and Its Correlation with Cardiovascular Risk Factors." *Journal of Datta Meghe Institute of Medical Sciences University* 13, no. 2 (2018): 79–82. https://doi.org/10.4103/jdmimsu.jdmimsu_58_18.

25. Khatib, M.N., R. Kirubakaran, S. Gaidhane, A.H. Shankar, and Z. Quazi Syed. "Yoga for Improving Functional Capacity, Quality of Life and Cardiovascular Outcomes in People with Heart Failure." *Cochrane Database of Systematic Reviews* 2017, no. 7 (2017). <https://doi.org/10.1002/14651858.CD012015.pub2>.
26. Varyani, U.T., N.M. Shah, P.R. Shah, V.B. Kute, M.R. Balwani, and H.L. Trivedi. "C1q Nephropathy in a Patient of Neurofibromatosis Type 1: A Rare Case Report." *Indian Journal of Nephrology* 29, no. 2 (2019): 125–27. https://doi.org/10.4103/ijn.IJN_353_17.
27. Dhar, R., S. Singh, D. Talwar, M. Mohan, S.K. Tripathi, R. Swarnakar, S. Trivedi, et al. "Bronchiectasis in India: Results from the European Multicentre Bronchiectasis Audit and Research Collaboration (EMBARC) and Respiratory Research Network of India Registry." *The Lancet Global Health* 7, no. 9 (2019): e1269–79. [https://doi.org/10.1016/S2214-109X\(19\)30327-4](https://doi.org/10.1016/S2214-109X(19)30327-4).
28. Dhamgaye, T.M., and D.S. Bhaskaran. "An Unusual Pulmonary Metastatic Manifestation of Gestational Choriocarcinoma: A Diagnostic Dilemma." *Lung India* 34, no. 5 (2017): 490–91. https://doi.org/10.4103/lungindia.lungindia_77_14.
29. Balwani, M., C. Bawankule, V. Ramteke, and A. Pasari. "Hepatitis C Virus, Directly Acting Antivirals and Guillain-Barré Syndrome." *Saudi Journal of Kidney Diseases and Transplantation : An Official Publication of the Saudi Center for Organ Transplantation, Saudi Arabia* 29, no. 5 (2018): 1237–39. <https://doi.org/10.4103/1319-2442.243969>.
30. Balwani, M.R., C. Bawankule, P. Khetan, V. Ramteke, P. Tolani, and V. Kute. "An Uncommon Cause of Rapidly Progressive Renal Failure in a Lupus Patient: Pauci-Immune Crescentic Glomerulonephritis." *Saudi Journal of Kidney Diseases and Transplantation : An Official Publication of the Saudi Center for Organ Transplantation, Saudi Arabia* 29, no. 4 (2018): 989–92. <https://doi.org/10.4103/1319-2442.239632>.
31. Balwani, M.R., A. Pasari, A. Meshram, A. Jawahirani, P. Tolani, H. Laharwani, and C. Bawankule. "An Initial Evaluation of Hypokalemia Turned out Distal Renal Tubular Acidosis Secondary to Parathyroid Adenoma." *Saudi Journal of Kidney Diseases and Transplantation : An Official Publication of the Saudi Center for Organ Transplantation, Saudi Arabia* 29, no. 5 (2018): 1216–19. <https://doi.org/10.4103/1319-2442.243965>.
32. Dande, R., A.R. Gadobail, S. Sarode, M.P.M. Gadobail, S.M. Gondivkar, M. Gawande, S.C. Sarode, G.S. Sarode, and S. Patil. "Oral Manifestations in Diabetic and Nondiabetic Chronic Renal Failure Patients Receiving Hemodialysis." *Journal of Contemporary Dental Practice* 19, no. 4 (2018): 398–403. <https://doi.org/10.5005/jp-journals-10024-2273>.
33. Balwani, M.R., A. Pasari, and P. Tolani. "Widening Spectrum of Renal Involvement in Psoriasis: First Reported Case of C3 Glomerulonephritis in a Psoriatic Patient." *Saudi Journal of Kidney Diseases and Transplantation : An Official Publication of the Saudi Center for Organ Transplantation, Saudi Arabia* 30, no. 1 (2019): 258–60.