

# Sclero-Corneal Lamellar Patch Graft in Epithelial Downgrowth: A Rare Case Report

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## ABSTRACT

The aim of this study to discuss a patient who underwent scleral fixation intraocular lens implantation and developed epithelial downgrowth during follow-up and its treatment. A 57-year-old male patient was admitted to our clinic with the complaint of decreased vision in his right eye. Vitreous hemorrhage was diagnosed in his right eye. Posterior capsule rupture was observed during surgery and intraocular lens was not implanted and vitrectomy was completed. Best corrected visual acuity increased to 20/200 and scleral fixation with secondary intraocular lens implantation was performed. There was no postoperative complication and the patient had wound leakage at the 3rd week following the removal of the corneal sutures. In the ophthalmologic examination, seidel test was positive and the epithelium proliferated from the wound site to the inner surface of the cornea. The patient underwent wound exploration, cleaning of the wounds and membranes, lamellar keratectomy, suturing of the wounds and closure of the wound with a lamellar sclero-corneal patch graft. Postoperative follow-up showed stable wound site and no epithelial growth.

**Keywords:** Epithelial downgrowth, Scleral fixation, Sclero-corneal lamellar patch graft.

## INTRODUCTION

Epithelial downgrowth (EDG) is a rare but destructive complication that is difficult to treat. It can be seen after intraocular surgeries, especially cataract surgery and penetrating trauma.<sup>1</sup> As a result of the passage of epithelial cells into the anterior chamber, complications such as corneal decompensation and persistent glaucoma may have serious effects on vision.<sup>2</sup> Although different treatment options have been suggested in the literature, more than 95% of patients without surgical treatment have been reported to result in enucleation.<sup>1,3,4</sup> Treatment options are controversial because of toxic effects of antimetabolites and side effects of tissue resections on globe integrity.<sup>5</sup> Spontaneous regression has also been reported in patients with EDG.<sup>6</sup> In this study, clinical features and treatment of a case in which EDG developed after intraocular lens implantation with scleral fixation was discussed. Unlike the treatment methods reported in the literature, membrane cleaning and wound repair with lamellar sclero-corneal

patch grafts were performed without intraocular tissue resection.

## CASE REPORT

A 57-year-old male patient was admitted to our clinic with the complaint of decreased vision in his right eye. He has been followed up for type 2 diabetes and undergoing dialysis treatment for chronic renal failure. In addition, repeated anti-VEGF injections were performed in both eyes due to diabetic macular edema. Visual acuity of right eye was hand movements and his slit lamp examination demonstrated nuclear sclerosis. Posterior segment examination could not be performed due to vitreous hemorrhage. Ultrasonographic examination showed that the retina was attached. The patient was diagnosed as vitreous hemorrhage and pars plana vitrectomy was planned with cataract surgery. Posterior capsule rupture was observed during surgery and intraocular lens was not implanted and vitrectomy was completed. Postoperative

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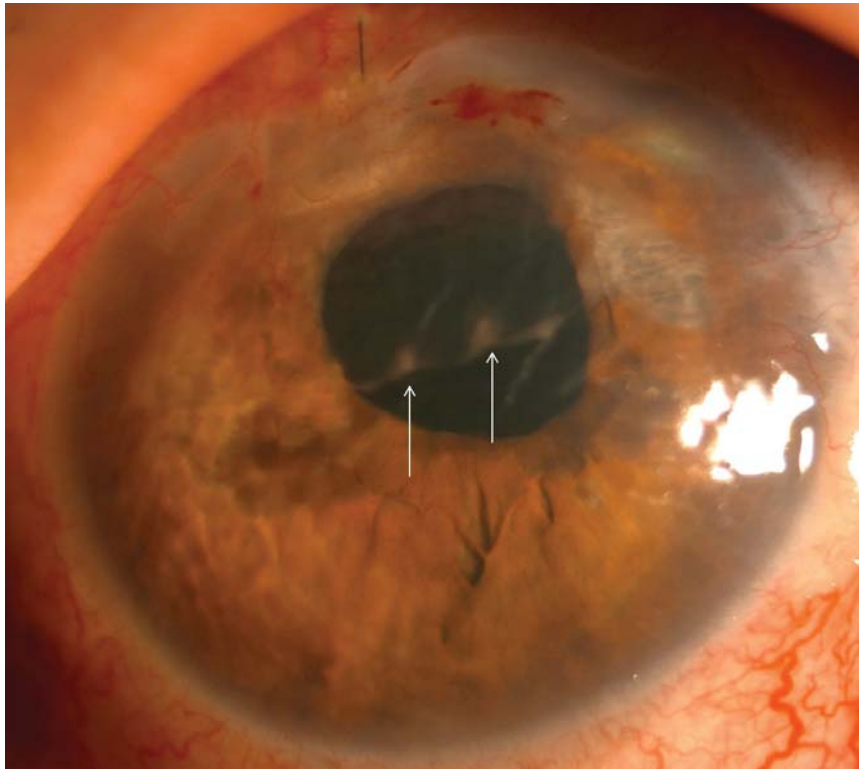
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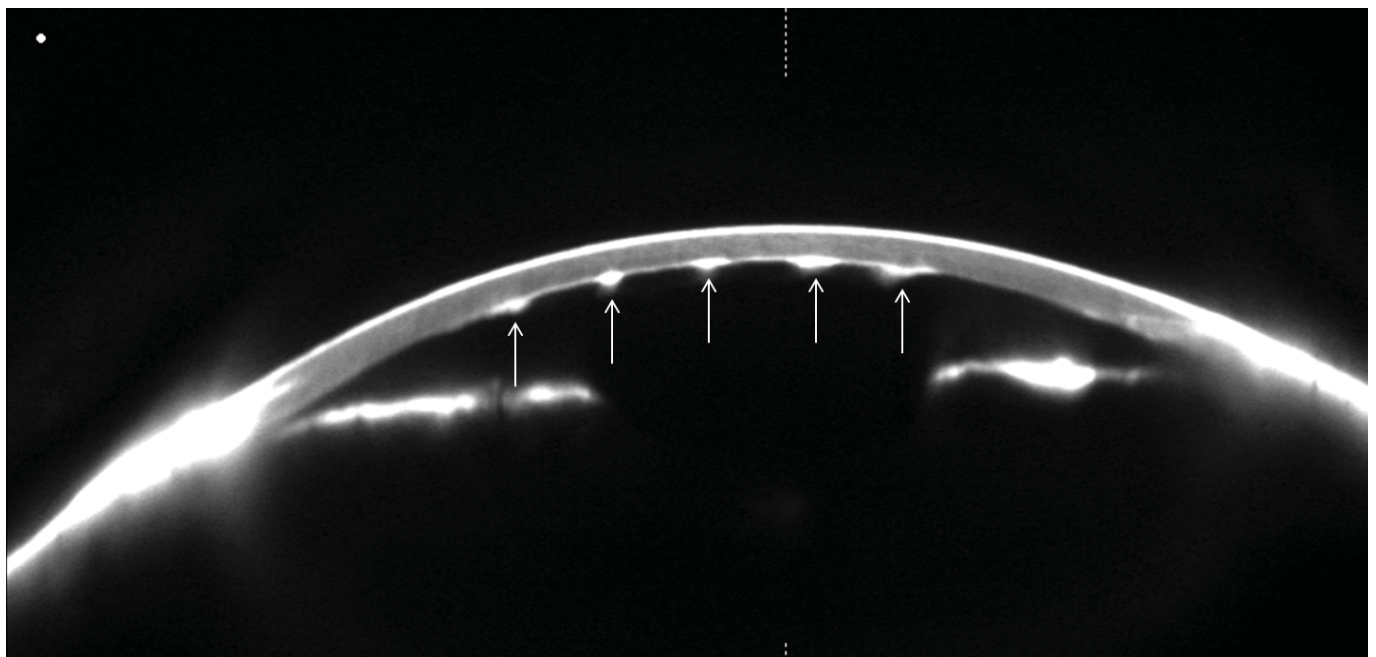
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best corrected visual acuity (BCVA) increased to 20/200. Scleral fixation and secondary intraocular lens implantation was performed 1 month after vitrectomy, and best corrected visual acuity reached 20/100. No postoperative complications were observed, and corneal sutures were removed at the postoperative third month. Leakage and

hypotonia were observed from the wound site in the 3rd week after removal of corneal sutures. Ophthalmologic examination revealed positive seidel test and proliferation of the epithelium from the wound to the inner surface of the cornea (Figure 1). Scheimpflug images showed epithelium ingrowth towards the endothelial surface (Figure 2).

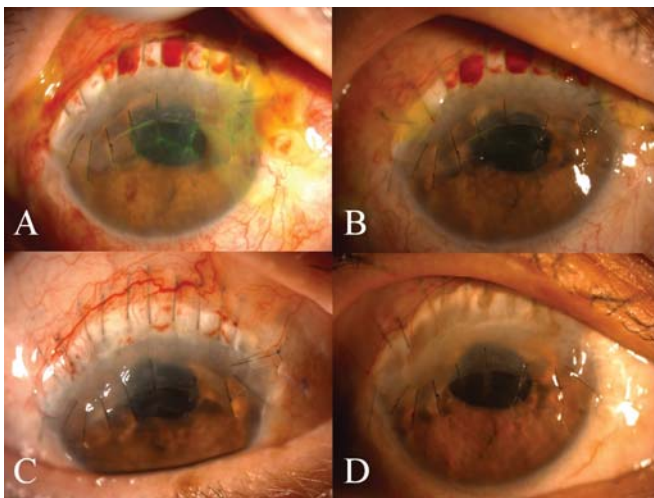


**Figure 1:** Epithelial tissue proliferating from the wound site towards the inner surface of the cornea (White arrows).

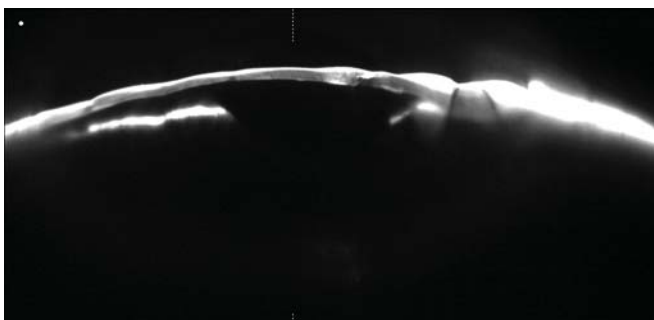


**Figure 2:** Scheimpflug imaging shows hyperreflective epithelial tissue extending towards the endothelial surface (White arrows).

Wound exploration was performed 4 times with two-day intervals but failed. Membranes from the iris surface and cornea endothelium was removed and a 10 x 6 mm lamellar keratectomy was performed in the affected donor area and a crescent-shaped graft of 12x8 mm was sutured this area. In the postoperative follow-up, the wound site was stable and a regression in EDG (Figure 3). In addition, epithelial growth was not observed in Scheimpflug images (Figure 4). The BCVA level was 20/400 postoperatively and there was no recurrence at one-year follow-up.



**Figure 3:** Postoperative 1st week (A), 2nd week (B), 1st month (C) and 3rd month (D) appearance, no recurrence is observed.



**Figure 4:** Postoperative Scheimpflug imaging showed no epithelial tissue or recurrence at the wound site.

## DISCUSSION

In recent years, it has been reported that the incidence of EDG has decreased in parallel with the development of microsurgical instruments and techniques.<sup>6</sup> However, despite all these developments, it is known that this condition may develop after cataract surgery. Fistulization of the wound site, iris or vitreous incarceration, surgical instruments used, or penetrating injuries to the anterior

chamber of the epithelium, especially delayed or inadequate wound healing, are considered to be important risk factors.<sup>7</sup> In this case, there was leakage at the wound site and EDG developed following corneal suture removal. The possible cause of this case is insufficient healing at the wound site and at the same time the patient's history of diabetes appears to be an important factor contributing to insufficient wound healing. In addition, repeated surgical interventions caused tissue defect at the wound site and the passage of epithelial cells into the anterior chamber could not be prevented despite suturing.

Epithelial downgrowth treatment is a very difficult complication and various treatment options have been suggested in the literature. The most classic of these treatments is wide resection of the affected tissues.<sup>3</sup> It is aimed to keep the globe in place with wide resection, but its use is controversial due to the effect of tissue resections on globe integrity and vision. Sivaraman and Snyder<sup>5</sup> have reported that localized EDG cases can be successfully treated with partial lamellar sclerokeratouvectomy instead of wide resection. In recent years, it has been shown that DSAEK can be performed as an alternative surgery in the treatment of patients with EDG and successful results can be obtained.<sup>8</sup> In addition, Kim et al.<sup>9</sup> suggested that DMEK surgery combined with argon laser and 5-fluorouracil (5-FU) may be an alternative in treatment.

In addition to surgical treatment options, alternative methods have been defined for the treatment of EDG. Among these treatments, intracameral 5-FU application and argon laser use are prominent.<sup>4,10</sup> It has been reported that with 5-FU application, EDG regression and no recurrence. On the other hand, Tomlins et al.<sup>11</sup> used intracameral 5-FU in the treatment of EDG after cataract surgery and was not successful. Possible side effects of antimetabolite drugs limit their use. Besides antimetabolites, argon laser has been reported to be successful and can be used both in diagnosis and treatment.<sup>12</sup> However, the possibility of re-proliferation of epithelial cells scattered to the environment during argon laser treatment by holding to different places in the anterior chamber seems to be a significant disadvantage of this treatment. In addition, patients with very large EDG and retropupillary extension have a low chance of successful treatment.

In this case, EDG tissue removal and re-suturing of the wound site were aimed primarily without tissue resection. However, success was not achieved despite repeated surgeries. The main reason for this failure is the presence of tissue defect at the wound site and the development of fistula towards the ocular surface EDG tissue extending

to the corneal inner surface and iris surface was widely explored and carefully cleaned in order to repair the existing tissue defect and prevent fistulization. The wound was then sutured and the sclero-corneal lamellar graft sutured to the previously prepared bed. In this way, both the tissue defect was repaired and a possible fistulization to the ocular surface was prevented. No recurrence was observed in the postoperative follow-up and globe integrity was maintained in this way. The most important disadvantage of this treatment is irregular astigmatism after surgery. However, if the main purpose of EDG treatment is to preserve globe integrity and to eliminate complications such as persistent glaucoma, this astigmatism can be accepted. In the presented case, visual acuity reached 20/400 despite irregular astigmatism, and it should not be forgotten that the present diabetic retinopathy is an important factor that decreases visual acuity.

In conclusion, in the treatment of EDG, the removal of proliferating epithelial tissue without aggressive tissue resection and repair of the wound with the aid of graft can be considered as an alternative treatment method in similar cases.

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*Written informed consent was obtained from the patient*

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