

# Triple Deep Anterior Lamellar Keratoplasty

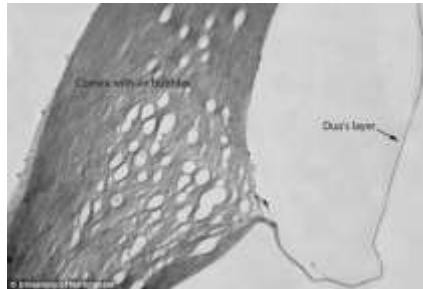
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- Triple DALK is a simultaneous cataract, IOL implantation together with DALK procedure done for cases with dense cataract and corneal lesions suitable for DALK procedure giving the patient all the advantages of DALK over PKP with rapid visual recovery.

- This is one of the clinical applications of the pre-descemetic Dua layer.
- As Dua: 2013 redefined the surgical anatomy of the posterior corneal layers by describing the tough and clear pre-descemetic layers in details, he also described the dynamics of the big bubble.



Dua et al. (2013) Human Corneal Anatomy Redefined: A Novel Pre-Descemet's Layer (Dua's Layer). *Ophthalmology*; 120 (9): 1778-1785

- Since then all corneal surgeons preferred to reach the pre-descemetic layer during DALK by getting type 1 bubble to be away from troubles as rupture or perforations of the fragile descemets membrane.

- We took advantage of using this layer as a tough and clear window to do cataract extraction under good visualization and stable anterior chamber.
- The main drawback of this procedure as in triple PKP is the inaccurate IOL power calculation.

**Eye**  
The International Journal of Ophthalmology

Epub (online) 2015 Mar 03; 33(3): 383-385.  
Publication online 2014 Oct 31; doi: 10.1080/09252638.2014.937030

PUBMED: 25208548  
PMID: 25208548

**Deep anterior lamellar keratoplasty—triple procedure: a useful clinical application of the pre-Desemet's layer (Dua's layer)**

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**Abstract**

**Objective:** To describe a technique which includes the transparency and lamellae of the pre-Desemet layer (Dua's layer) in the triple procedure deep anterior lamellar keratoplasty (DALK) and phacemulsification at the same time.

**Methods:** Three DALK procedures combined with phacemulsification were performed by the same surgeon using the Big Bag technique (BBK) technique as the standard technique of lamellar keratoplasty. First, Dura's layer was cut as a ring. The Big Bag (BBB) layer was advanced and the core was a triple PKP. During the phacemulsification, BBK was advanced. The capsule was then removed and phacemulsification was done using the Big Bag technique.

**Results:** DALK with phacemulsification and lens implant was carried out in both patients where a triple PKP was performed in a follow-up of 18 months. There was no corneal decompensation, the best corrected visual acuity was 20/20 in both eyes where a triple PKP was advanced, the BBK remained clear, transparent, and the pre-Desemet's layer in situ.

**The procedure was considered to be a penetrating keratoplasty without phacemulsification.**

**Conclusion:** Phaco a type of BBK is advanced keratoplasty (AKPK) and phacemulsification can be safely incorporated. This is a triple PKP which can be performed in the same patient as the lamellae of the lamellae, which can be used as a stable window for cataract surgery. This should not be advanced when a triple PKP is advanced.

**Introduction**

Patients who underwent corneal transplants had a visual acuity of 20/200 or worse. The standard approach for the triple procedure was to use a triple PKP. This triple procedure was an advanced technique which was first described by Saini et al. [1]. The triple procedure was a triple PKP with phacemulsification and lens implant. The triple procedure was an advanced technique which was first described by Saini et al. [1]. The triple procedure was a triple PKP with phacemulsification and lens implant. The triple procedure was an advanced technique which was first described by Saini et al. [1].

**Methods and results**

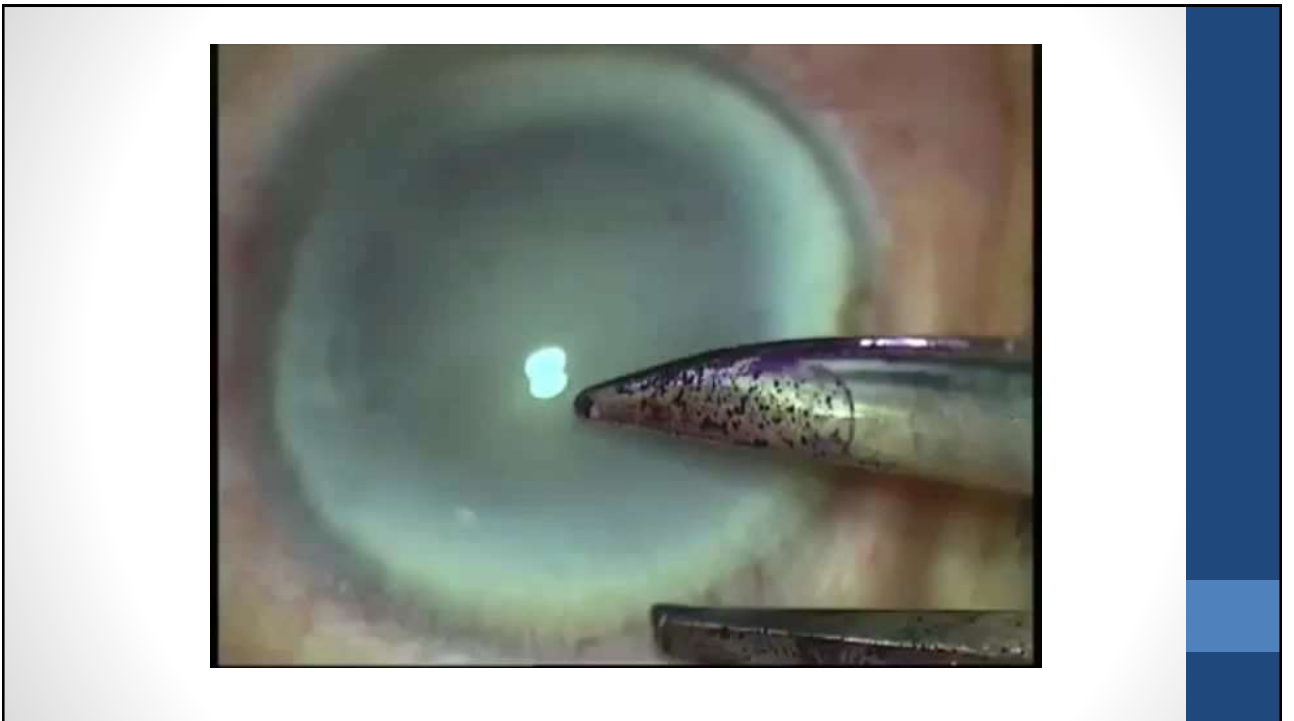
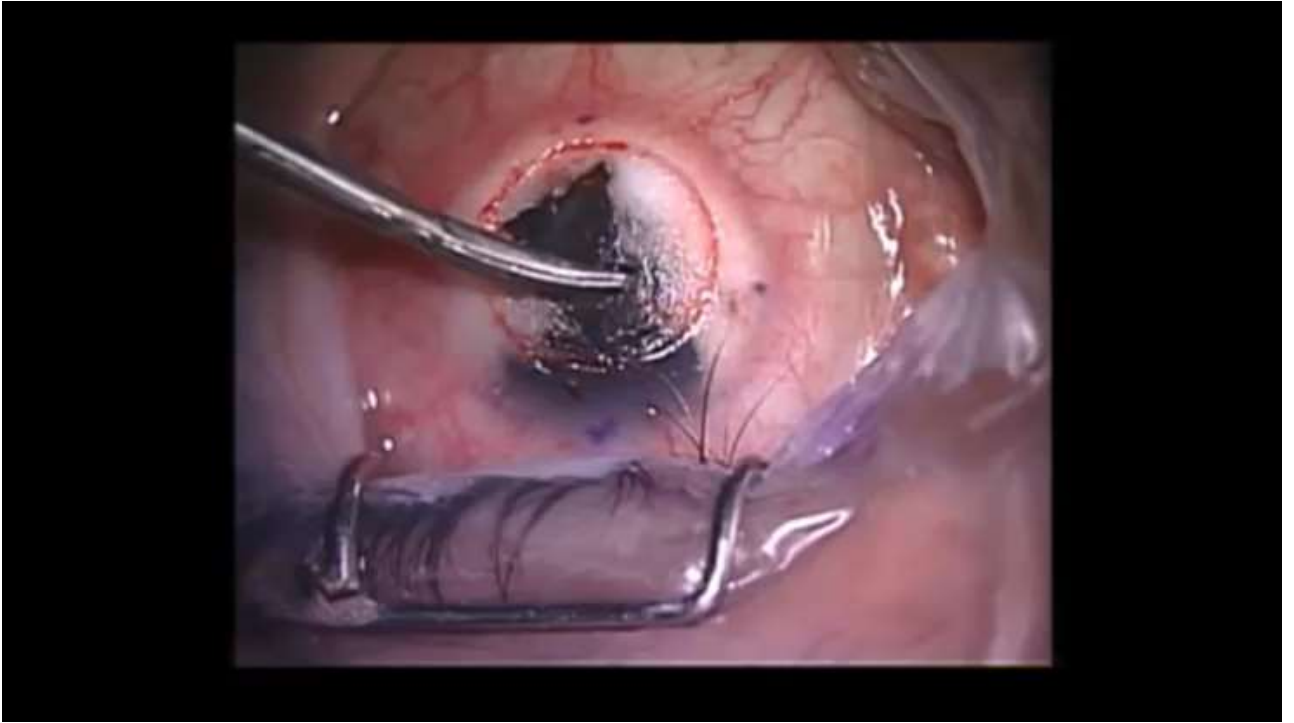
Three combined DALK with phacemulsification and lens implant were performed. The main reason for this was the lamellae keratoplasty (LAK) technique. The use of the Big Bag (BBB) technique was a triple PKP with phacemulsification and lens implant. The triple procedure was an advanced technique which was first described by Saini et al. [1].

**Discussion and conclusion**

The combined DALK with phacemulsification and lens implant was performed. The main reason for this was the lamellae keratoplasty (LAK) technique. The use of the Big Bag (BBB) technique was a triple PKP with phacemulsification and lens implant. The triple procedure was an advanced technique which was first described by Saini et al. [1].




Figure 1. Intraoperative photograph of the eye during the triple procedure. (a) Intraoperative photograph showing the cornea and lens. (b) Intraoperative photograph showing the cornea and lens.





## Advantages and Challenges

- One step operation with early visual recovery.
- More economic.
- All advantages of DALK over PKP.
- Good visualization and stable anterior chamber.
- Inaccurate IOL power calculation.
- Phaco incision is short and more posterior.
- Loss of some of the globe rigidity.
- Suturing of the phaco incision is a must.

Thank You