UNIVERSITATEA DE STAT DE MEDICINĂ ȘI FARMACIE „NICOLAE TESTEMIȚANU” din REPUBLICA MOLDOVA

CLINICA INTERNAȚIONALĂ

Platelet Rich Growth Factor in the treatment of complex corneal disorders

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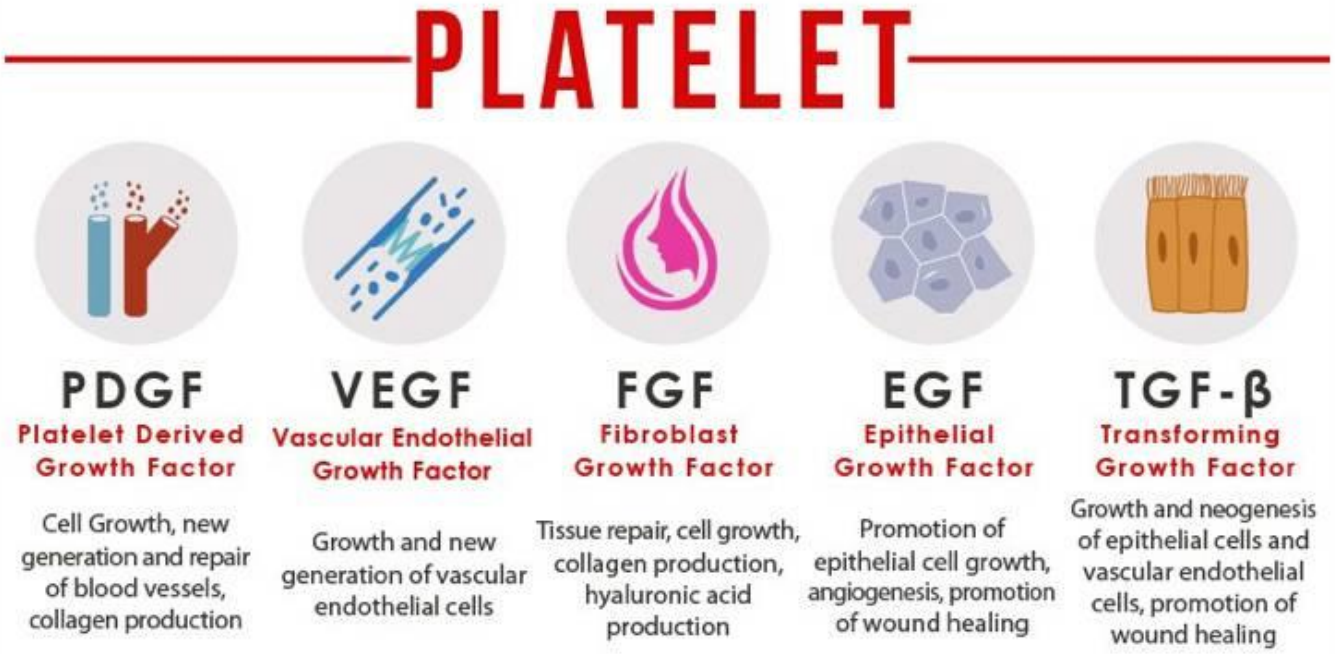
I have no financial interest to disclose

PLATELETS

- main components of the blood
- contain more than 1100 different proteins, 1500 protein-based bioactive factors: **growth factors** , enzymes and their inhibitors
- primary function in hemostasis and coagulation
- important for normal healing response and tissue repair
- recruitment of reparative cells

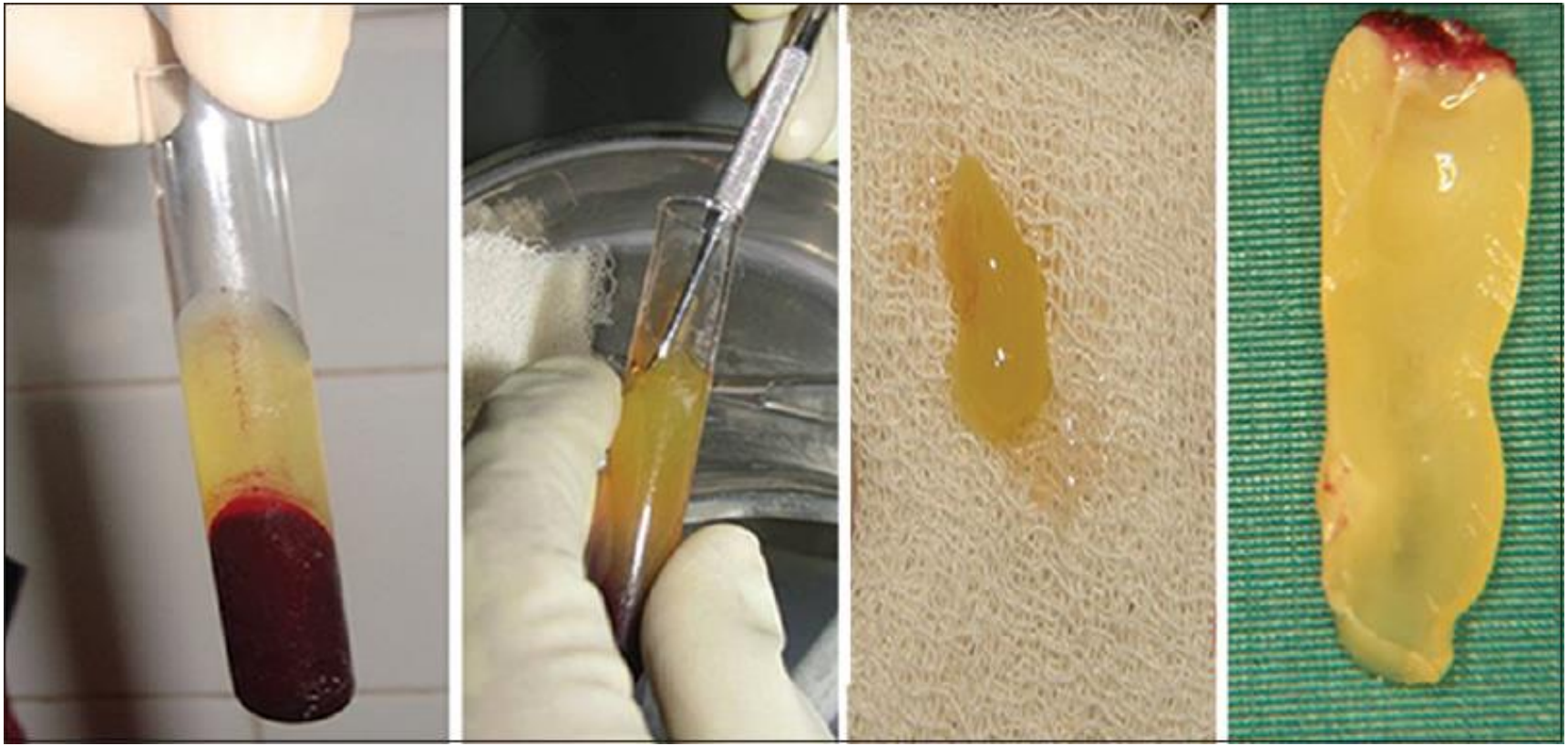
GROWTH FACTORS



WHAT IS PLATELET RICH GROWTH FACTOR (PRGF)?

- Autologous blood product rich in proteins and growth factors
- Can be rapidly obtained from patient blood
- PRGF has 5 to 10 times more platelets than what is typically found in blood
- The release of growth factors from the PRGF clot starts 5 to 10 minutes after clotting and continues for at least 60 to 300 minutes
- Clinically, it is an affordable treatment with potentially broad spectrum of applications in ophthalmology especially in the treatment of complex or refractory corneal wounds.

WHAT IS PLATELET RICH GROWTH FACTOR (PRGF)?



ADVANTAGES

- Immediate availability
- Simplicity of preparation
- Affordability
- No immune response
- Safe and natural -> own cells are used

AIM OF THIS STUDY

To evaluate the efficiency of autologous platelet rich growth factor in the treatment of complex corneal disorders.

METHOD (Choukroun's technique)

- 4 sterile glass coated plastic tubes
- 10 ml peripheral blood in each tube
- 12-minute centrifugation time
- 2700 rpm

Ghanaati et al. Advanced Platelet-Rich Fibrin: A New Concept for Cell Based Tissue Engineering by Means of Inflammatory Cells. Journal of Oral Implantology. Vol. XL /No. Six /2014

METHODS

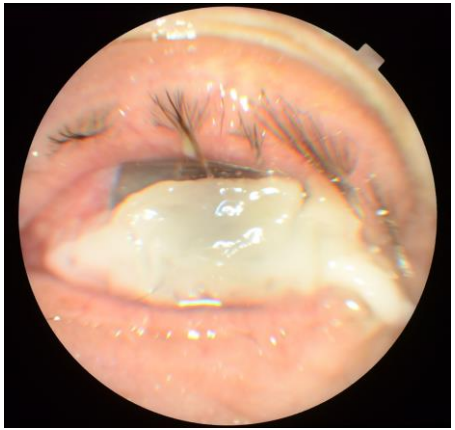
- 17 patients with corneal surface disorders:
- 5 patients with chemical burns
- 8 patients with corneal ulcers
- 4 with neurotrophic keratopathy
- Visual acuity varied from hand motion to 0.1
- Solid PRGF was either just placed on the corneal surface or sutured with 2 nodes of 10-00 nylon suture at conjunctiva. If necessary, the procedure was repeated.
- All patients had corneal OCT scan before and after the treatment.

RESULTS

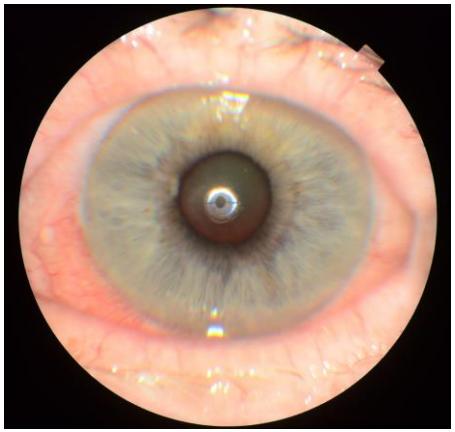
- Improved visual acuity and less subjective symptoms were observed in all patients.
- Complete healing of cornea was observed in all patients with chemical burns.
- Considerable improvement experienced 7 of 8 patients with corneal ulcers (reduced size and depth of the ulceration, improved visual acuity, smaller conjunctival injection).
- An improvement was seen in 2 of 4 patients with neurotrophic keratopathy.
- None of the patients reported general or local side effects of the treatment.

CLINICAL CASE 1

Before treatment BCVA = 0.05



2nd day BCVA = 0.3



5nd day BCVA = 0.6

- Female, 78 y. o.
- Chemical alkaline burn OS
- Deep epithelial defect
- BCVA OD = hand motion (wet AMD)
- BCVA OS = 0.05 (0.6 before the incident)

CLINICAL CASE 2

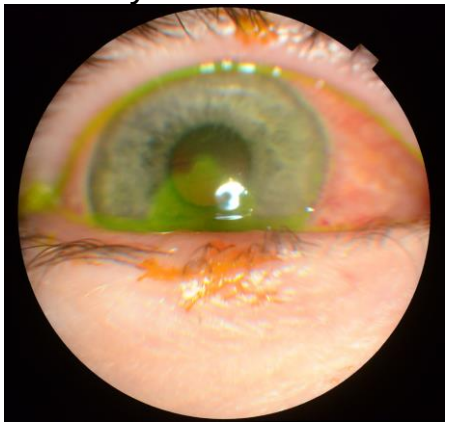
- Female, 54 y. o.
- Chemical alkaline burn OD
- Deep epithelial defect
- BCVA OD = 0.05
- BCVA OS = 1.0

CLINICAL CASE 2

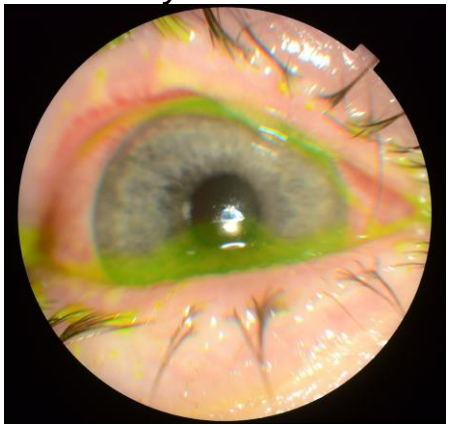
BCVA = 0.05

2nd day BCVA = 0.1

4 day BCVA = 0.4

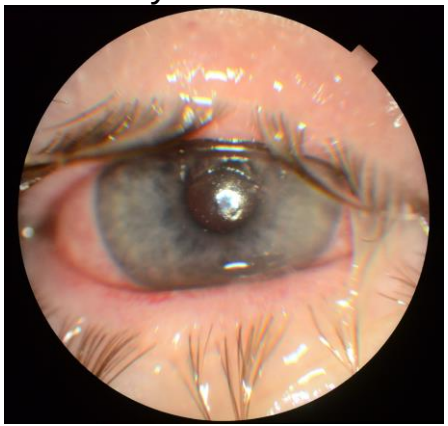


7 day BCVA = 0.6



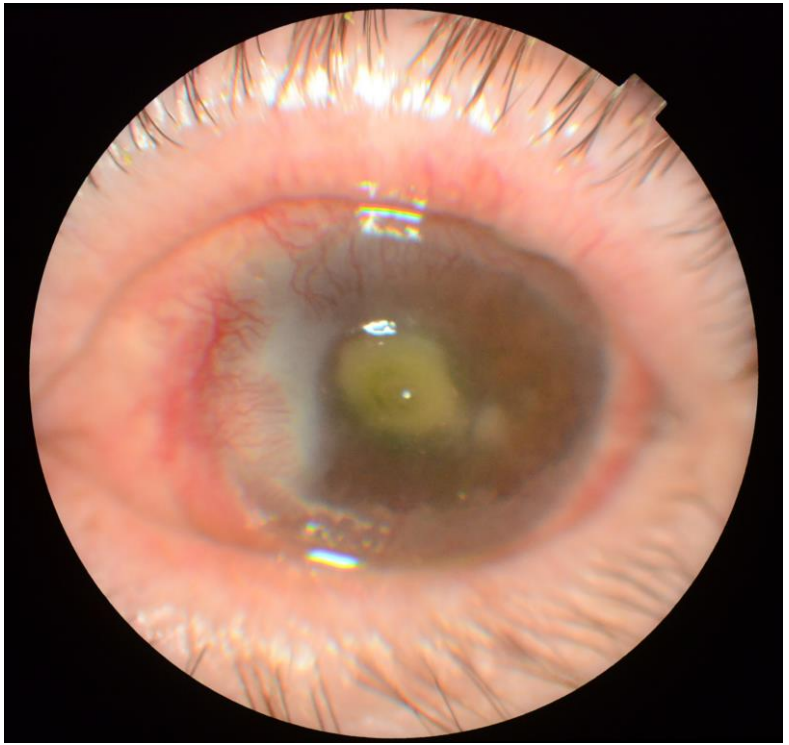
10 day BCVA = 0.8

14 day BCVA = 1.0



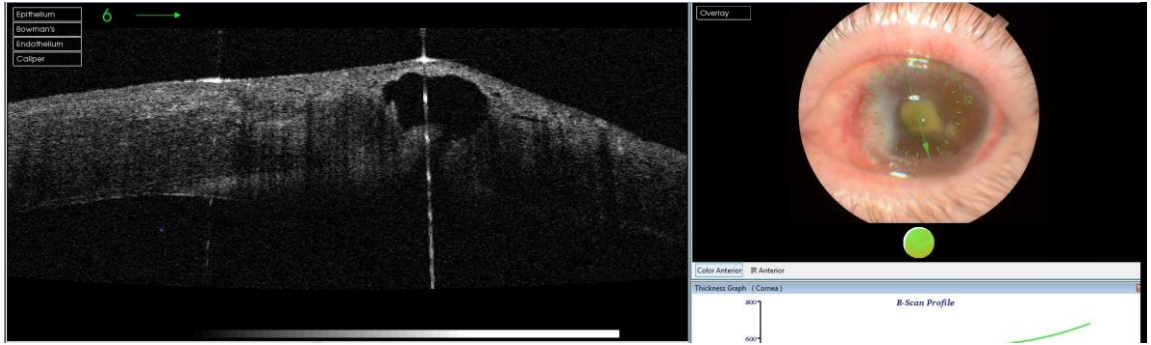
CLINICAL CASE 3

- Male, 80 y. o.
- OS - Neurotrophic keratopathy with almost perforated ulcer
- BCVA OD = 0.4
- BCVA OS = hand motion
- Primary open-angle glaucoma OU
- Repeated PRGF placement

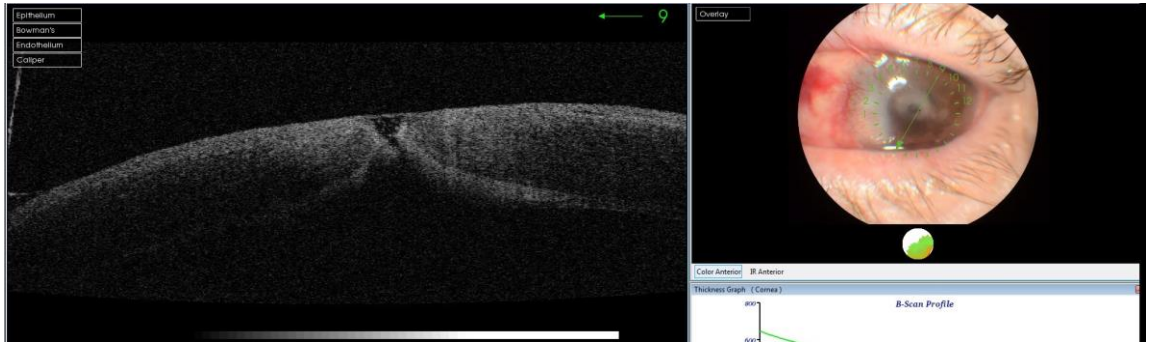


CLINICAL CASE 3

before the treatment



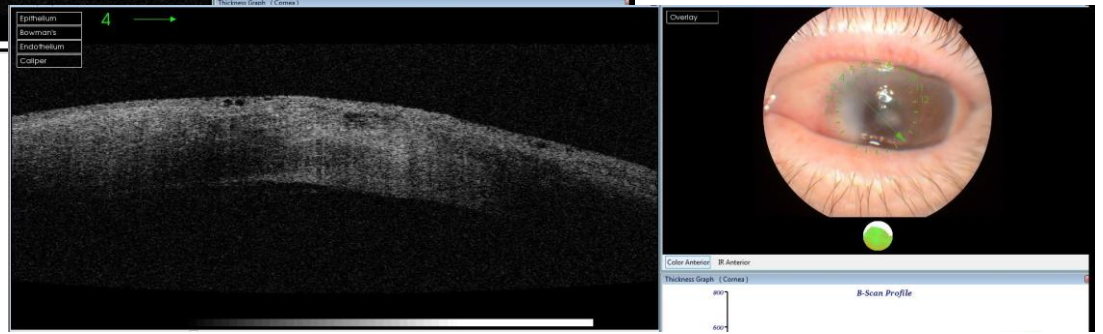
2nd day after



CLINICAL CASE 3

4th day after

7th day after



1,5 month follow up

CONCLUSION

Platelet rich growth factor is a reliable and effective therapeutic tool to promote wound healing in complex corneal disorders