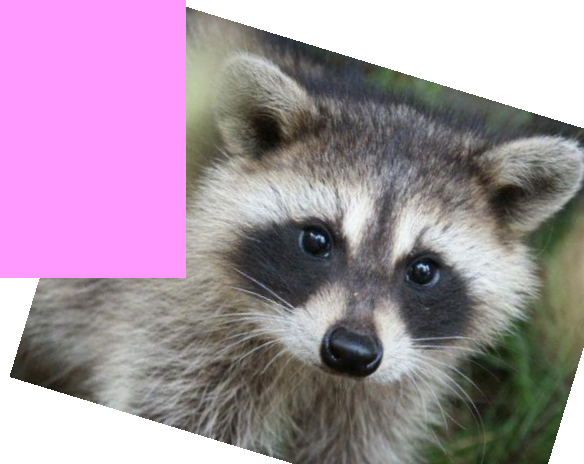
Periorbital Hiperpigmentasyonu Nasıl Tedavi Edelim?

Prof Dr Yelda Kapıcıoğlu

Muaynehane &

İstanbul Florence Nightingale Dermatoloji



Periorbital Hiperpigmentasyon Önemli Bir Kozmetik Sorundur

How To Cover Up Dark Circles Like A Supermodel

Periorbital Hiperpigmentasyon

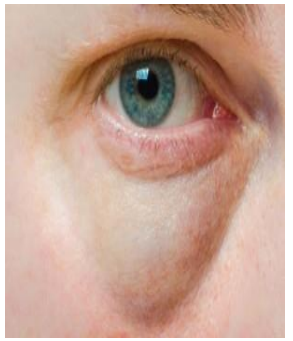
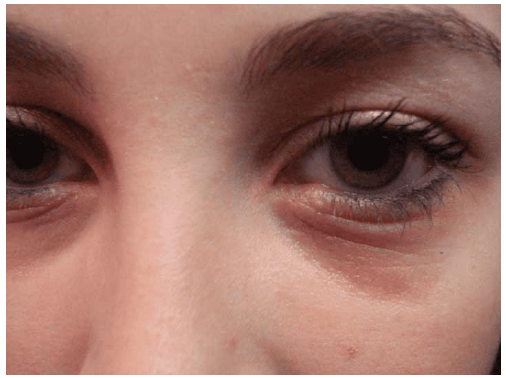
Psikolojik ve Sosyal Olarak Etkiler

9 Shocking Reasons That Give You Dark Circles And You Are Not Aware Of Them

Periorbital Hiperpigmentasyon Terminoloji ??

koyu halkalar, alt göz kapağı torbaları, infraorbital koyulaşma, infraorbital renk değişikliği, periorbital melanoz periokuler hiperpigmentasyon




POH'nin sınıflandırılması

1. **Yapısal-** Alt göz kapaklarının derisinde koyu kahverengiden siyaha kadar kavisli pigmentasyon bandı

2. **PIH Enflamasyon sonrası-** düzensiz koyu kahverengi / gri pigmentasyon.

3. **Vasküler-** Alt göz kapaklarında mavimsi renk değişikliği ve üstteki derinin gerilmesiyle daha belirgin hale gelen yeşilimsi mavi damarların varlığını içerir.

4. **Gölge etkisi-** Alt göz kapağında aydınlatma ile kaybolan oluk

5. **Miks-** Palpebral torbalar, blefaroptoz ve kemik çıkıntılı yağ kaybı ile ilişkili şişkinlik ile periorbital mavi, mor veya pembe renk tonu

Sekoder Nedenlere Dikkat!

- Hemosiderin Birikimi
- Hormonal Değişiklikler
- Atopi Ve Kontakt Dermatit
- Oral Kontraseptifler, Oftalmik Prostaglandin F2a Damla
- Uykusuzluk, Sigara, Alkol Kullanımı Ve Güneşe Maruz Kalma
- İnce Deri, Yaşlanma
- Veya Çok Faktörlü Etiyoloji Yer Alabilir

Periorbital Hiperpigmentasyon

- Dermal melanin inkontinans
- Artmış melanin granülleri,
- Perivasküler lenfositik infiltrat
- Dağınık dermal melanofajlar ile hipermelanize bazal ve alt malphigian katmanları

Tedavide seçenekler nelerdir? Nasıl Tedavi Edelim?

- Topikal depigmente kremler
- Peelingler
- Mezoterapi
- PRP, FRP
- SVF
- Dolgu
- Lazerler
- İğneli radyofrekans
- Mikroiğneleme
- Karboksiterapi

Topikal Depigmente Kremler

Topikal Depigmente Kremler

En Yaygın Olarak Kullanılan Yöntemdir.

- Tirozinaz Aktivitesinin ↓
- Melanogenezin İnhibisyonu ↑
- Deride Kollajen Üretimi ↑

Table 1. Mechanistic classification of depigmenting agents

Stage of melanin synthesis	Mechanistic class	Active compounds
Before melanin synthesis	Tyrosinase glycosylation inhibitor	Hyaluronic acid
During melanin synthesis	Tyrosinase inhibitors	α-Arbutin, azelaic acid, D-glucoronic acid, dihydrochalcone, fucoxanthin, genistein, glabridin, xymenynic acid
	5-lipoxygenase inhibitor	Boswellic acid
	Superoxide scavenger	Cyanidin-3-glucoside
	Reactive oxygen species scavengers	Beta-carotene, curcumin, lycopene
After melanin synthesis	Melanosome transfer inhibitor	Niacinamide
	Skin turnover accelerators	Lactic acid, retinoic acid
	Collagen synthesis activators	Asiaticoside, caffeine, chrysin, dipalmitoyl-hydroxyprolene, b-glucogallin, salidroside
	α-SMA activator	Arabinoxylans
	Hyaluronic acid synthesis activator	Pycnogenol

POH tedavisinde en etkili depigmente edici ajanlar

- Kombinasyon tedavilerinde
- %3 Kafein
- Arbutin
- Dihidrokalkon
- Cyanidin-3-glucoside,
- Tephrosia purpurea tohum özü %2,5
- E.Crustaceum plankton özü %3
- Hieracium pilosella %2
- Bellis perennis çiçek özü %2

PEELİNGLER

Ferulic acid 12% peel: An innovative peel for constitutional type of periorbital melanosis—Comparing clinical efficacy and safety with 20% glycolic peel and 15% lactic peel

Surabhi Dayal | Bhavya Sangal

Abstract

Background: Periorbital hyperpigmentation (POH) is a very common, yet unexplored

colic acid peel followed by ferulic acid peel and lactic acid peel. The incidence of side effects in the form of erythema and itching was maximum with glycolic acid followed by lactic acid and least with ferulic acid, which did not necessitate cessation of therapy.

Conclusion: Glycolic acid produced the best results among the three peels; however,

Chemical peeling with trichloroacetic acid and lactic acid for infraorbital dark circles

Charitomeni Vavouli, MD,[1] Andreas Katsambas, MD, PhD,[2] Stamatis Gregoriou, MD, PhD,[3] Anca

Background Periorbital dark circles are relatively common, affecting individuals regardless of age, sex, and race. Available treatment includes bleaching creams, topical retinoid acid, chemical peels, laser therapy, autologous fat transplantation – injectable fillers, surgery (blepharoplasty), and chemical peeling.

Objective To evaluate the efficacy of a combination of trichloroacetic TCA 3.75% and lactic acid 15% on improving the periorbital hyperpigmentation.

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edema, frosting, dryness, and telangiectasias. The effects of treatment remained for at least 4–6 months in the majority of patients with appropriate sun protection.

Conclusion The combination of trichloroacetic TCA 3.75% and lactic acid 15% showed encouraging results on improving periorbital hyperpigmentation.

Keywords: dark circles, infraorbital hyperpigmentation, chemical peeling, trichlo-

Phenol–Croton Oil Chemical Peeling Induces Durable Improvement of Constitutional Periorbital Dark Circles

Seaver L. Soon, MD,* Carlos G. Wambier, MD, PhD,† Peter R. Rullan, MD,‡§ J. Bart Sterling, MD,|| Harold J. Brody, MD,¶ Kachiu C. Lee, MD, MPH,** Oliver P. Kreyden, MD,†† and Marina Landau, MD,‡‡ on behalf of the International Peeling Society

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Case Reports > Actas Dermosifiliogr. 2022 Nov-Dec;113(10):T988-T990.
doi: 10.1016/j.ad.2022.09.010. Epub 2022 Sep 23.

Efficacy and Safety of Phenol and Trichloroacetic Acid Combination Peel for the Management of Dark Circles

[Article in English, Spanish]

E Platsidaki [1], A Stravodimou [2], A Kouris [2], V Markantoni [2], G Kontochristopoulos [2]

PEELİNGLER

%30 Fenol + %0.5 Kroton yağı +
%12 TCA

Dr Çağhan Baytekin'in olgusu

LAZERLER

Assessing the effectiveness of the combination therapy with fractional Er-YAG laser and platelet-rich plasma in treatment of periorbital dark circles patients: A clinical trial

Mohammad Ali Nilforoushzadeh MD[1,2] | Maryam Heidari-Kharaji PhD[1,2] | Shiva Alavi MD[1] | Mona Mahmoudbeyk PhD Candidate[1] | Elham Torkamaniha PhD Candidate[1,2] | Aisan Peyrovan BSc[1] | Maryam Nouri MD[1] | Sona Zare PhD[1]

[1]Skin and Stem Cell Research Center, Tehran University of Medical Sciences, Tehran, Iran

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Abstract

Background: Numerous therapeutic techniques for periorbital hyperpigmentation have been suggested.

Aim: In this comparative intrapatient study, the effectiveness of combination therapy included fractional Er: YAG laser and autologous platelet-rich plasma (PRP) compared to Er: YAG laser in periorbital hyperpigmentation treatment.

Patients/ Methods: Thirty-two patients were enrolled. The right periorbital sides of patients received combination of Er: YAG laser and autologous platelet-rich plasma (PRP) and the left side received Er: YAG laser (three sessions with 4 weeks' intervals). PRP was used in two ways included injection and topical. Patients were evaluated by biometric characteristics, patients, and physician assessments. Also, the patient's satisfaction was assessed and side effects were evaluated.

Results: The mexameter results showed that the melanin content in the right side of the periorbital of the patients was significantly decreased compared to left side. Also, significant increase was observed in the skin lightness of the right side in compare to left. The visioface results showed the decrease in the percent change of the color and wrinkle in both sides, but in the right side these changes were significantly more than left side. The patients and physician assessment confirmed the measured results.

Conclusion: Combination of Er: YAG laser and PRP is significantly effective for periorbital hyperpigmentation.

Assessing the effectiveness of the combination therapy with fractional Er-YAG laser and platelet-rich plasma in treatment of periorbital dark circles patients: A clinical trial

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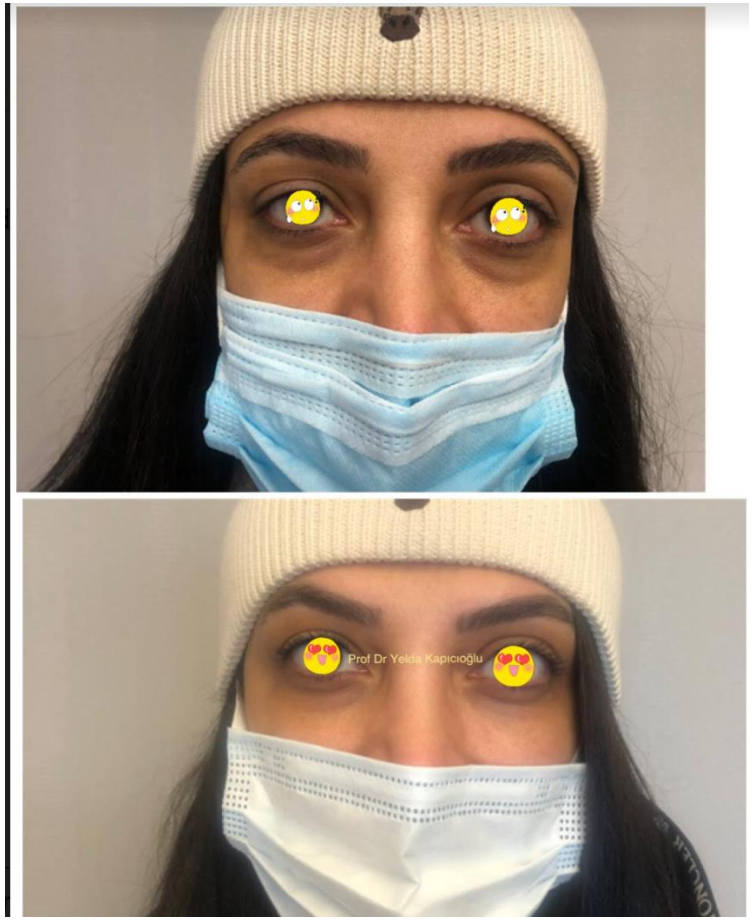

- Er:YAG frax lazer
- PRP
- Orta yüz ve göz altı dolgu

Journal of Lasers in Medical Sciences

J Lasers Med Sci 2022;13:e16

Original Article

http://journals.sbmu.ac.ir/jlms

10.34172/jlms.2022.16

Evaluation of Efficacy and Safety of Low-Fluence Q-Switched 1064-nm Laser in Infra-orbital Hyperpigmentation Based on Biometric Parameters

Shiva Alavi[1], Azadeh Goodarzi[2], Mohammad Ali Nilforoushzadeh[1], Parvin Mansouri[1*], Mohammad Amin Jafari[2], Somayeh Hejazi[1], Zahra Azizian[1]

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Abstract

Introduction: Dark circles and wrinkles under the eyes are common cosmetic problems, caused by various conditions, especially aging and overproduction of melanin in the epidermis or dermis of the skin. Iin addition to the application of topical lightening agents, different types of lasers, especially the Q-Switched ND:YAG laser, have been used for the treatment of cutaneous hyperpigmentation. Because of a high prevalence of idiopathic eye dark circles (EDCs) or periorbital melanosis and a poor response to available therapies, we decided to evaluate the efficacy and safety of the Fractional QS 1064 nm ND:YAG Laser through a before-after trial.

Methods: 18-65-year-old patients with skin Fitzpatrick phototype of I-V and without any usage of a topical or systemic therapeutic regimen (2-4 weeks before the trial) were enrolled in the study. Each patient was treated with 6 sessions of the Fractional QS 1064 nm ND:YAG Laser at 2-week intervals and assessed for response and possible side effects or recurrences through 4 outcome measures, including Visoface-based color and erythema, melanin index and lightness (Before the fourth and sixth sessions of the therapy; also 1 week and 3 months after finishing the trial).

Results: The changes of Visoface-based color and erythema, the melanin pigment amount by the Mexameter (melanin index) and the degree of lightness by the Colorimeter of patients after 6 months of intervention were statistically significant ($P<0.001$).

Conclusion: The fractional QS 1,064 nm ND:YAG Laser is an effective and safe therapy in EDCs since objective outcomes like the reduction of the melanin index and improving lightness and subjective ones like the reduction of darkness and erythema were confirmed.

Keywords: Eyelids dark circle; Periorbital hypermelanosis; Q-switched 1064-nm laser; Hyperpigmentation; Hypermelanosis.

Journal of Lasers in Medical Sciences

J Lasers Med Sci 2022;13:e16

Original Article

http://journals.sbmu.ac.ir/jlms

10.34172/jlms.2022.16

Evaluation of Efficacy and Safety of Low-Fluence Q-Switched 1064-nm Laser in Infra-orbital Hyperpigmentation Based on Biometric Parameters

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Keywords: Eyelids dark circle; Periorbital hypermelanosis; Q-switched 1064-nm laser; Hyperpigmentation; Hypermelanosis.

Controlled Clinical Trial > Lasers Surg Med. 2018 Jan;50(1):45-50. doi: 10.1002/lsm.22754.
Epub 2017 Nov 14.

Prospective studies of the efficacy and safety of the picosecond 755, 1,064, and 532 nm lasers for the treatment of infraorbital dark circles

Monique J Vanaman Wilson [1], Isabela T Jones [2], Joanna Bolton [3], Lisa Larsen [4], Douglas C Wu [1], Mitchel P Goldman [1 5]

Abstract

Background: Infraorbital dark circles result from a combination of factors. The fractionated picosecond 755 nm alexandrite laser and dual wavelength picosecond Nd:YAG laser have not been examined as a method of addressing infraorbital hyperpigmentation.

Objective: To determine the efficacy and safety of treatment of infraorbital dark circles using fractionated picosecond 755 nm and dual wavelength picosecond Nd:YAG laser.

Methods and materials: These trials did not utilize a comparative design; rather, these were separate, prospective, open-label, evaluator-blinded trials utilizing two treatment regimens: (i) 19 adult subjects were treated in a single session with the dual wavelengths of 532 nm and 1,064 nm in consecutive passes using the fractionated lens; (ii) 10 adult subjects were treated using the picosecond 755 nm laser via the fractionated lens in three treatment sessions at 3 week intervals. Subjects in both studies were followed-up for blinded-investigator assessment of infraorbital hyperpigmentation, adverse events, and improvement compared to baseline.

Results: The dual wavelength picosecond Nd:YAG laser, blinded-investigator assessment did not demonstrate a significant improvement in infraorbital hyperpigmentation at day 60 (P = 0.16). The picosecond 755 nm alexandrite laser significantly improved infraorbital hyperpigmentation by day 42, with improvement maintained through day 132 (P = 0.07 and 0.00001, respectively). Adverse events were mild and temporary.

Conclusion: A single treatment with the fractionated picosecond 1,064/532 nm lasers did not produce a significant improvement in infraorbital hyperpigmentation. A series of three treatments with the fractionated picosecond 755 nm laser resulted in significant improvement in hyperpigmentation. Lasers Surg. Med. 50:45-50, 2018. © 2017 Wiley Periodicals, Inc.

4 seans pico + göz altı dolgu

Dr Gökhan Gökler’in olgusu

Decoding infraorbital dark circles with lasers and fillers

Georgios Kounidas[a], Stavroula Kastora[a] and Sanjay Rajpara[a,b]

[a]Department of Medical Sciences and Nutrition, University of Aberdeen School of Medicine, Aberdeen, United Kingdom; [b]Dermatology, Aberdeen Royal Infirmary, Aberdeen, United Kingdom

ABSTRACT

Background: The degree and severity of dark circles varies according to the skin type, age, and lifestyle.

Objectives: T

Methods: In with different Fitzpatrick ski d lasers combined (Group outcomes in appearance w

Results: All treatment options were effective in all three groups with minimal side effects reported. No statistically significant difference was found between the three treatment groups. Patients who had tear troughs and/or hollow eyes responded well to fillers, patients with loose and wrinkled skin to CO_2 laser, patients with tear troughs and hyperpigmentation to fillers, Q switched Nd:YAG and topical agents and patients with tear troughs and veins to fillers and long pulsed Nd:YAG lasers. Most patients (82%) rated the improvement in their appearance as excellent.

Conclusions: All 3 treatment modalities were effective in the reduction of periorbital dark circles depending on underlying cause. Non-surgical treatments are capable of correcting and improving dark circles with minimum complications and downtime.

ORIGINAL CONTRIBUTION

WILEY JCD Journal of Cosmetic Dermatology

Treatment of periorbital dark circles: Comparative study of carboxy therapy vs chemical peeling vs mesotherapy

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Summary

Objective: Evaluation and comparison of the efficacy and safety of 3 different modalities of treatment for dark circles that function via different modes of action.

Methods: In total, 45 female patients with periorbital hyperpigmentation were randomly selected to participate from those attending the outpatient dermatology clinic of Al-Zahraa University Hospital within a 6-month period. Patients were divided into 3 groups, and the groups were subjected to different types of therapy: group A, carboxy therapy; group B, chemical peel; and group C, vitamin C mesotherapy.

Results: No statistically significant differences were detected in improvements in pigmentation or the degree of patient satisfaction between any of the groups. However, the mesotherapy group reported more of a burning sensation following treatment than the other 2 groups but also showed a significant improvement in pigmentation and patient satisfaction compared with the carboxy group.

Conclusion: All 3 treatment modalities were effective in the reduction in periorbital pigmentation. However, mesotherapy showed a significant improvement in pigmentation and a higher level of patient satisfaction compared with the other types of treatment.

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Treatment of periorbital dark circles: Comparative study of carboxy therapy vs chemical peeling vs mesotherapy

Naglaa A Ahmed MD[1] | Salma S Mohammed MD[1] | Mohammad I Fatani MD, KFUF[2]

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Summary

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Randomized Controlled Trial > J Cosmet Dermatol. 2023 Feb;22(2):512-516.
doi: 10.1111/jocd.15337. Epub 2022 Oct 10.

Comparison of the efficacy of carboxytherapy versus fractional CO_2 laser therapy for the treatment of periorbital dark circles: A randomized clinical trial

Hooman Zaheri [1], Amir Mohammad Beyzaee [2], Ghasem Rahmatpour Rokni [3], Anant Patil [4], Masoud Golpour [3], Mohamad Goldust [5] [6]

Background: Periorbital dark circles (PDC) is one of the most common cosmetic issues in today's society. Only moderate degree of improvement has been achieved by various available treatment options. The present study aimed to compare the clinical efficacy of carboxytherapy and fractional CO_2 laser therapy in the management of PDC.

Methods: In this split face study, 30 patients with bilateral PDC aged between 23 and 52 years were recruited who underwent carboxytherapy (n = 30) on PDC of one side of the face and fractional CC laser therapy (n = 30) on the PDC of other side. The entire treatment comprised of four sessions of each therapy with an interval of 2 weeks each time. The assessment was based on both subjective methods (patients' satisfaction and physician's judgment) and objective method (based on digital standard photographs). The degree of improvement from the patient's point of view (patient satisfaction) and physician's point of view (physician satisfaction) was assessed in different therapy sessions in comparison with the improvement after first session.

Results: The study included 30 patients with mean age of 38.22 ± 8.3 years. The mean disease duration was 45 ± 12.3 months. After the second therapy session, patients' satisfaction was remarkably better in the fractional CO_2 laser therapy group than the carboxytherapy group, over th time. According to the physician satisfaction, the improvement rate was higher after the second an sixth weeks in the fractional CO_2 laser therapy group than the carboxytherapy group; whereas in ot sessions, there were no statistically significant differences. There were no significant side effects observed in either group post-treatment each time.

Conclusion: Fractional CO_2 laser therapy is a better option to treat PDC than carboxytherapy. Also, mild side effects (including erythema, pain, and discomfort) were reported in both groups; with no significant difference between the groups.

Randomized Controlled Trial > J Cosmet Laser Ther. 2019;21(2):61-64.
doi: 10.1080/14764172.2017.1341047. Epub 2019 Jan 22.

Comparing the effectiveness of fractional CO_2 laser and the combination therapy with micro-needling and topical 10% trichloroacetic acid to remove infra-orbital dark circles in Tehran women

Abbas Zamanian [1], Mahba Azizi [1], Mohammadreza

Background: Infra orbital dark circles are now recognized as being a cosmetic problem that should be considered in treatment issue. The present study aimed to assess and compare the clinical efficiency of the combination of micro-needling and 10% trichloroacetic acid (TCA) cream as well as carbon dioxide laser in the management of infra-orbital dark circles.

Methods: This randomized clinical trial was performed on women aged 28-62 years who complained of infra-orbital dark circles. The patients were randomly assigned to be treated with micro-needling combined with 10% TCA cream topically or CO_2 laser. The treatment period in each group included three sessions with an interval of one month between sessions. The assessment was based on both subjective and objective methods.

Results: the mean of ΔE (the difference in the intensity of darkening at infra-orbital points and other points of the face) was significantly higher in the laser group than in the other group in all sessions. The patients who were treated with laser were found to have a higher level of satisfaction in the fifth visit when compared to those who received the other treatment method.

Conclusion: Regarding clinical effectiveness and the patients' compliance, fractional CO_2 laser was more preferred in the combination therapy with micro-needling and topical TCA for removing infra-orbital dark circles.

J Cosmet Dermatol. 2021 Apr;20(4):1214-1220. doi: 10.1111/jocd.13705. Epub 2020 Nov 28.

Novel technique of non-surgical rejuvenation of infraorbital dark circles

Sabrina Shah-Desai [1], Varajini Joganathan [2]

n be challenging to
types, with a strong
de soft tissue and bony
ital volumetric
grove, skin and
subcutaneous tissues with tethering of the eyelid skin to the tear trough ligament, giving a sunken and hollow appearance to the lower lid. Associated prolapse of the orbital fat and thin skin can worsen the appearance of a dark circle. Hyaluronic acid fillers placed in the pre-periosteal plane in the tear trough, palpebro-malar and naso-jugal grooves, give good results in patients with thick eyelid skin and negligible fat prolapse. However, in patients with thin skin and moderate fat prolapse, authors have reported worsening outcomes with risk of Tyndall (blue-gray discoloration) and contour irregularities from visible lumps.

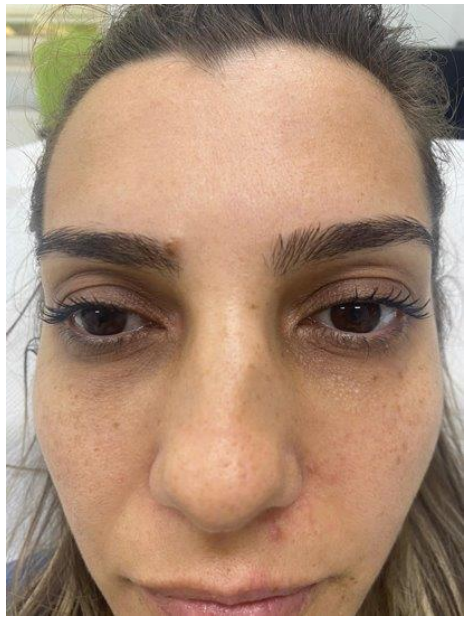
Aims: To describe a novel technique to improve dark circles caused by a diffuse valley-type pre-septal tear trough deformity in patients with thin eyelid skin.

Methods: Retrospective case note review of 330 eyelids treated with microdroplet subdermal placement of filler in the preseptal tear trough area by a single surgeon.

Conclusion: This novel technique shows good esthetic outcomes in patients with dark circles, with good longevity and a low risk of complications.

Karboksiterapi

Dr Zekayi Kutlubay'ın olgusu



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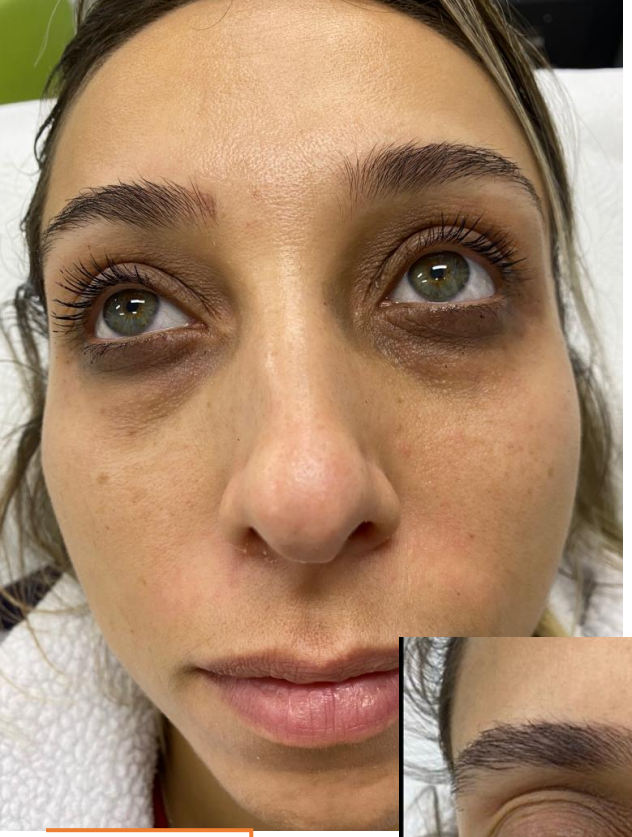

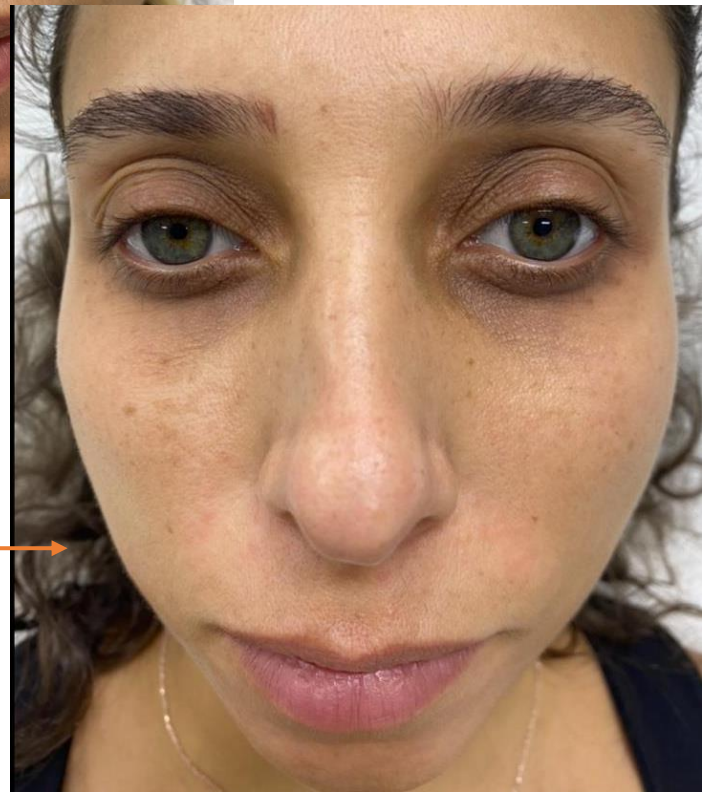

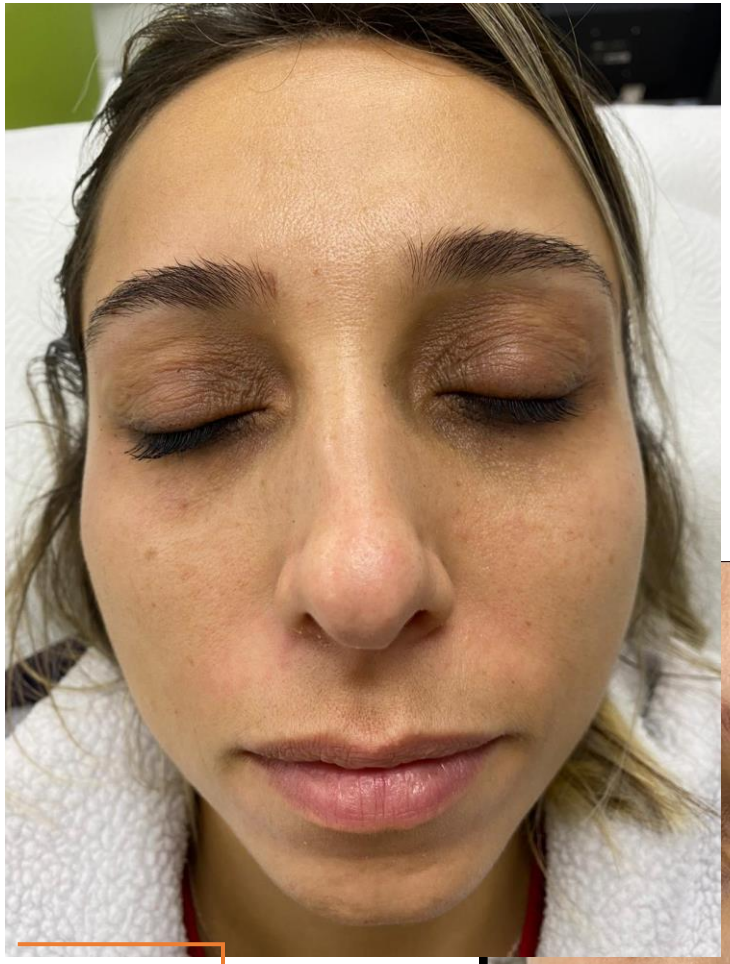

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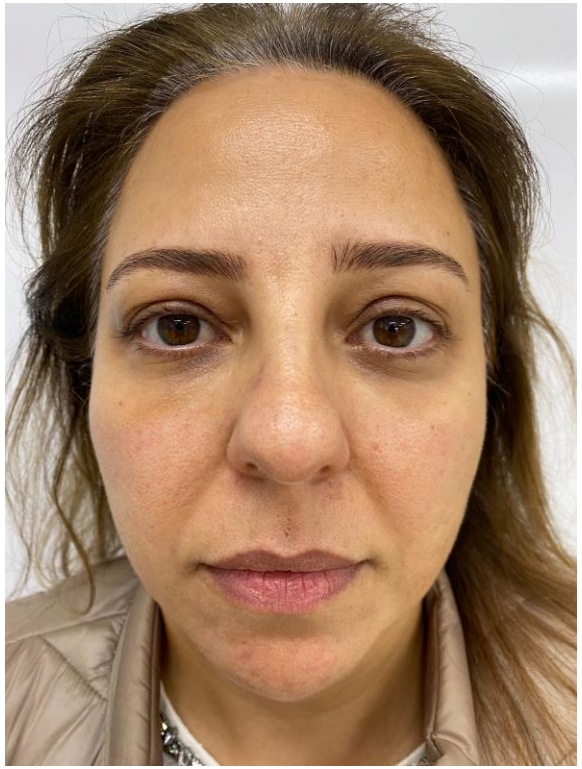

7 UYGULAMA SONRASI
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Indian J Dermatol. 2022 Sep-Oct;67(5):504-511. doi: 10.4103/ijd.ijd_394_21.

Efficacy and Safety of Carboxytherapy versus Combined Microneedling with Topical Glutathione in the Treatment of Patients with Periorbital Hyperpigmentation: An Evaluator-Blind, Split-Face, Controlled Pilot Clinical Trial

Background: Periorbital hyperpigmentation (POH) is a common skin condition that presents as infraorbital darkening. POH has a multifactorial etiology. Studies evaluating POH treatment are several with varying satisfaction results.

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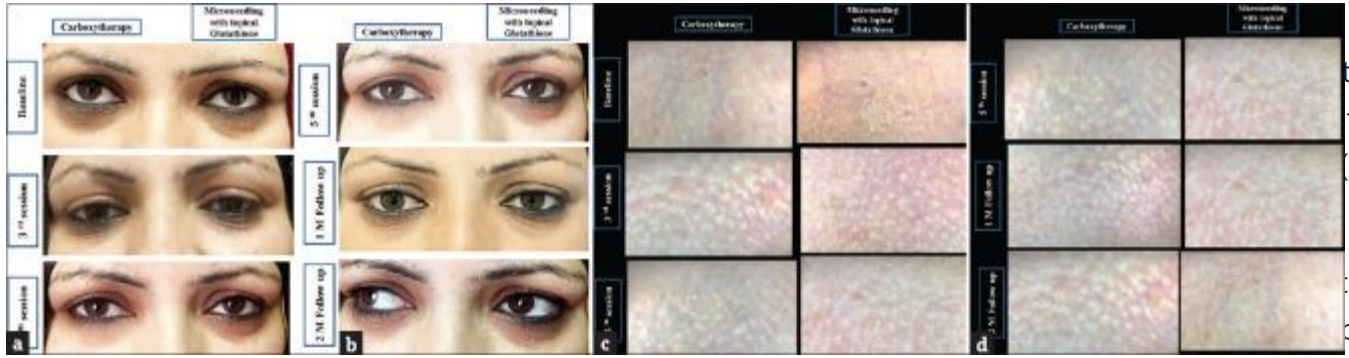
Results: Carboxytherapy showed a higher significant improvement as regards VAS evaluation compared to MN with glutathione during the active treatment phase (P = 0.001) and during the



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Efficacy of Platelet-Rich Plasma Versus Autologous Fat Transfer With Nanofat in the Treatment of Infraorbital Dark Circles: A Single-Blinded Randomized Comparative Clinical Trial

Ahmed Kadry, MD,*† Ahmed Gamal, MD,* Azzam Alkhalifah, MD,‡ and Shady Mahmoud Attia Ibrahim, MD†

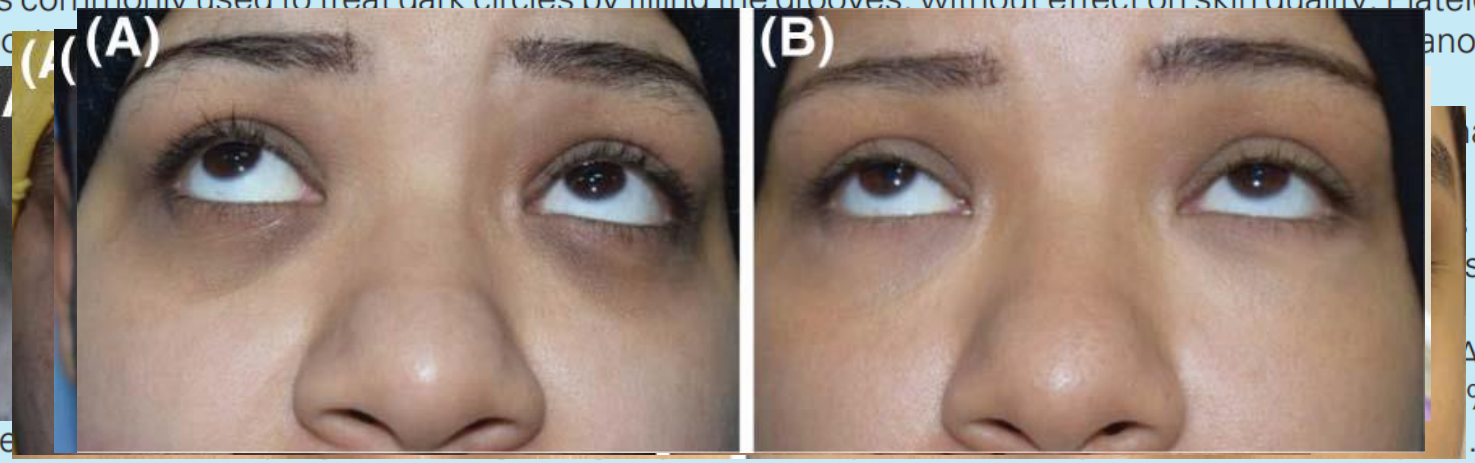
BACKGROUND Treating infraorbital dark circles is one of the commonest aesthetic demands worldwide. Autologous fat transfer is commonly used to treat dark circles by filling the grooves, without effect on skin quality. Platelet-rich plasma has been repo anofat, which is then injected

OBJEC anofat in treating infraorb

MATER were randomized into 2 e s fat transfer with emulsif

RESUL A versus 7 (46.7%) and 4 (2 %) in group B. The difference .032).

CONCLUSION Autologous fat transfer with nanofat is significantly superior to platelet-rich plasma in improvement and satisfaction.

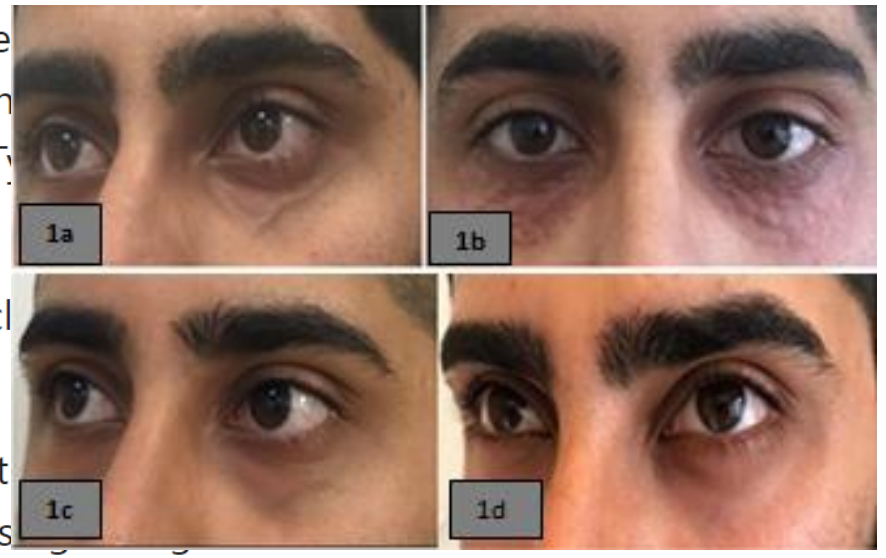


J Cosmet Dermatol. 2021 Apr;20(4):1214-1220. doi: 10.1111/jocd.13705. Epub 2020 Nov 28.

Novel technique of non-surgical rejuvenation of infraorbital dark circles

Sabrina Shah-Desai [1], Varajini Joganathan [2]

n be challenging to
types, with a strong
de soft tissue and bony
ital volumetric
grove, skin and
subcutaneous tissues with tethering of the eyelid skin to the tear trough ligament, giving a sunken and hollow appearance to the lower lid. Associated prolapse of the orbital fat and thin skin can worsen the appearance of a dark circle. Hyaluronic acid fillers placed in the pre-periosteal plane in the tear trough, palpebro-malar and naso-jugal grooves, give
skin and negligible fat prolapse. However, in patients with
authors have reported worsening outcomes with risk of T
irregularities from visible lumps.



Aims: To describe a novel technique to improve dark circl
tear trough deformity in patients with thin eyelid skin.

Methods: Retrospective case note review of 330 eyelids t
placement of filler in the preseptal tear trough area by a s

Conclusion: This novel technique shows good esthetic outcomes in patients with dark circles, with good longevity and a low risk of complications.

PRP +FPRP

- Kanülle derin FPP
- Subdermal subsizyon + PRP

Kombine Tedavi

- İğneli RF
- PRP (kanülle)
- Temporal, orta yüz ve göz altı dolgu dolgu
- Üst yüz botulinum toksin

Sadece HA dolgu

- Kanülle derin HA
- Subdermal sadece subsizyon

Sadece HA dolgu

- Kanülle derin HA
- Subdermal sadece subsizyon

Sadece HA dolgu

- Kanülle derin HA
- Subdermal sadece subsizyon

Kombine Tedavi

- Midfasial + tear throug dolgu
- Kanülle sadece dermal subsizyon
- Üst yüz botulinum toksin

Sadece Mezoterapi

- **İntradermal lineer + pinpoint enj**
- HA, çapraz bağsız 5,0 mg/ml
- Organik Silisyum
- Antioksidanlar
- Flavonoidler
- Saponinler
- Polifenoller
- Peptitler

Son Söz
Periorbital Hiperpigmentasyon

- Tedavi etiolojilere göre yapılmalı
- Kombine tedaviler daha başarılı
- Mutlaka topikallerle desteklenmeli