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CATHODIC AND ANODIC PLASMA APPLICATIONS CLINICAL STUDIES CASE STUDIES



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PLASMA



Plasma is defined as the "fourth state of matter", the others being: solid, liquid and gas.

99% of the earth's atmosphere is made up of plasma and it has common use in our daily lives, such as in neon signs, plasma TV screens and much more. Plasma is created when a heat source is used to excite a gas, causing electrons to free themselves from their atoms.

Today in aesthetic medicine, we take advantage of the ionisation process to treat a whole host of aesthetic conditions in a completely safe and risk free way. Plasma can be found in three different types: normal plasma, cathodic plasma and anodic plasma.

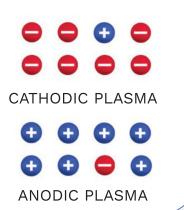
Nano Plasma is the evolution of plasma devices, created by the worldwide Plasma Guru Professor Giorgio Fippi. 5 years after Plexr was introduced in the UK, Professor Fippi has released his latest creation combining anodic and cathodic plasma.

This new plasma device combines existing and new technology to bring you the most innovative and advanced Plasma device in the aesthetics market to date.

The Nano Plasma has been created to generate 2 types of plasma – CATHODIC AND ANODIC PLASMA. The device emits alternating currents ionising the gases in the air and producing nano plasma with a prevalence of CATHODIC or ANODIC flows. The device works by utilising electrons, protons and plasma to promote the sublimation of the skin and combustion of vírus molecules.



WHY CATHODIC & ANODIC PLASMA?



Cathodic plasma is a type of plasma with a prevalence of electrons and anodic is the inverse, which is a type of plasma with the prevalence of protons.

The Cathodic emission works in synergy with alternate plasma and programmed modulation. Cathodic plasma has an antibiotic effect which fights anaerobic germs, it also acts as a temporary vasoconstrictor closing off the precapillary sphincters, which eliminates edema during the procedure and reduces erythema after the treatment.

NANO PLASMA

TREATMENTS

- Non-Surgical Blepharoplasty
- Acne treatment, active acne and acne scarring intervention
- Removal of formations, like verrucas, xanthelasma, fibromas, keloid, etc
- Tattoo removal of any colour
- Mini face lifting
- Stretch marks and periumbilical excess skin striation
- Wrinkles and expression marks

Nano Plasma also has excellent results for vaginal rejuvenation and for dentistry applications.

ADVANTAGES

- Non-Surgical technique
- Multi- functional device
- No running cost but needles
- Fast ROI
- All treatments with minimum or no downtime
- Simple aftercare
- Portable, wireless and ergonomic device

NON-SURGICAL BLEPHAROPLASTY

Many people are affected by excess or loose skin on their eyelids and around the eye area, which can give an "aged" and "tired" look and can even cause vision disturbance. However, many patients avoid undergoing a surgical blepharoplasty due to the fear and risk of possible complications, anaesthesia and cost.

Plasma has really revolutionised the treatment options for patients seeking this procedure. Described by The Daily Mail as "the most effective treatment for youthful eyes", the dynamic non-surgical blepharoplasty, utilising cathodic and anodic plasma energy is not only the safest treatment for this procedure, but has become the choice of patients and professionals alike.

This procedure is defined as "non-surgical" because it's performed without incision, cutting, stitching, bruising or surgical fat removal and without altering the orbicularis muscle in the eyelids, which minimises the complications significantly.

It's also defined as "dynamic" as the practitioner can communicate fully with the patient by asking them to open and close their eyes during the treatment to show which skin folds still need to be targeted.



Before 1 treatment performed

After (28 days)

NANO PLASMA: The Last Frontier in Non-Surgical Blepharoplasty

The eyes and the periocular area are very important in the facial aesthetics; the gaze is the main form of interaction and communication between people. This dynamic area has a fundamental role in the expression of the mood, of emotions and the personality of an individual. The periocular area, with aging, goes through various changes: presbyopia, the loss of the accommodation ability and the appearance of dermatochalasis.

Dermatochalasis is quite a common disorder that consists in the atrophy of the elastic tissue of the eyelid, that becomes "heavy" with an excess of skin on the upper eyelid and under-eye bags, giving the gaze a tired and sad look that makes the whole face look older. Such situations have always caused functional and aesthetic problems and required a surgical treatment. Blepharoplasty is today the fourth most demanded aesthetic treatment in medicine and aesthetic surgery. More than 165,000 treatments were performed in the United Stated in 2014 and the patients that undergo at least one blepharoplasty amounts to 88%. This data is reported by the American Society for Aesthetic Plastic Surgery. Lately, patients use medicine and aesthetic surgery to improve their physical appearance, looking for less invasive treatments that can lead to a quick recovery to the daily activities, and prefer treatments that do not require general anaesthesia and hospitalisation. A few years ago, an alternative non-surgical method to perform a blepharoplasty was introduced through the use of a device that employs the new plasma concept.

OBJECTIVE

The objective of this analytic and prospective study is to evaluate the aesthetic results and the safety of the non-surgical blepharoplasty through the use of Nano Plasma, the last frontier of plasma.

MATERIALS AND METHODS

Our study was carried out through the new plasma device, Nano Plasma ideated by Prof. Giorgio Fippi, who introduced the innovative concept of non-ablative surgery, which allowed all doctors to perform surgery without scalpel. Nano Plasma is a certified electromedical device, an electron emitter for the latest innovative technique of non-invasive skin and aesthetic surgery through electron flow without blood and anaesthesia.

Nano Plasma uses very low power and generates a thermal increase only in the less conductive tissues, not affecting the adjacent areas: the low power used is the reason for the absence both of discolouration (variation in the colours of the skin, often due to laser treatments) and of dents in the after treatment.

A histological examination was carried out after the treatment to assess what happens underneath the skin when using the new plasma device. The examination was carried out after the treatment with the Nano Plasma method on the skin of the upper and lower eyelid, 24 hours after the treatment and then 7 days and 21 days later (in 3 different patients with similar characteristics: age, sex, non smokers, no pathologies in their medical history).

The histological examination showed: no necrosis, minimal inflammatory reaction already healing after 7 days and complete regeneration after 21 days with collagen stimulation.

For this purpose, a study carried out by the Department of Dermatology of the University of Modena and Reggio Emilia was taken into account. This study showed that the treatment with plasma leads to an increase in the collagen fibres. As a matter of fact, all treated patients showed relevant results in terms of remodelling and increase of the collagen fibres without any reported undesired effects.

With these results, after ascertaining the absence of damages to the skin and, on the contrary, the stimulation of the collagen, our study began and 50 patients were treated with follow-ups after a year from the first treatment.

The age of the patients ranges from 28 to 84, 38 women and 12 men. All patients were evaluated with a physical examination and pictures taken before right after and in the follow up of the treatment; the Wrinkles severity rating scale was used in the dynamic phase and in the static phase with the identification of 5 grades of dermatochalasis: 0 absent, 1 minimal, 2 mild, 3 moderate 4 severe.

WRINKLES SEVERITY RATING SCALE

(Methods and assessment scales for measuring wrinkle severity January 2013 Jacob M. Waugh, Andrew Blitzer)

TABLE 1: STATIC ASSESSMENT

Rating Score	Wrinkle sensitive at rest	Description
0	Absent	No visible wrinkles
1	Minimal	Minimal wrinkles, within 1.5 cm radius of the lateral canthus and may be minimally etched
2	Mild	Shallow wrinkles, extending between 1.5 to 2.5 cm radius of the lateral canthus and may be minimally etched
3	Moderate	Moderately deep wrinkles, extending between 1.5 to 2.5 cm radius of the lateral canthus and moderately etched
4	Severe	Very deep wrinkles, exceeding 2.5 cm radius of the lateral canthus and may be deeply etched

TABLE 2: DYNAMIC ASSESSMENT

Rating Score	Orbicularis Activity at Smile	Description	
0	Absent	No visible muscle bulging of the orbicularis	
1	Minimal	Minimal muscle bulging of the orbicularis	
2	Mild	Mild muscle bulging of the orbicularis	
3	Moderate	Moderate muscle bulging of the orbicularis	
4	Severe	Prominent muscle bulging of the orbicularis	

Pregnant women, patients with immune system diseases with skin neoplasia and patients who underwent treatments with botox or filler in the previous 6 months were excluded from this study.

From 1 to 3 treatments were performed, depending on the initial dermatochalasis, at an interval of at least 40 days from one to another. It is necessary to wait for the complete tissue regeneration before proceeding with further treatments. With a single treatment, a 30% reduction in the excess of tissue can be seen.

The treatment was performed under local anaesthesia with a numbing lidocaine cream applied and left on the area for 30 minutes. After the removal of the cream, the area to be treated was disinfected and the treatment was performed with a duration of 15/20 minutes. At the end of the non-ablative blepharoplasty, after disinfecting the area, an opaque foundation cream with solar protection factor was applied to the patients.

Each patient was sent home with no therapy needed and the sole instruction to disinfect the area twice a day with a non-alcohol product.

A check-up is required after 15 days and in the same session, a picture comparison is carried out. We assessed the side effects and the complications seen in each of the 50 patients treated. The following parameters were taken into consideration: after-treatment pain and duration in days (from 1 to >3 days after the treatment), oedemas and duration in days (from 1 to >3 days after the treatment), any infection (yes or no), time of recovery off work (unfortunately, this parameter is subjective, assessed between 1 to 6 days), post-treatment scars (yes or no).

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The following table reports the data:

TABLE OF COMPLICATIONS

P/	AIN	OED	EMA	INFEC	TIONS	TIME OFF WORK	so	ARS
YES	NO	YES	NO	YES	NO		YES	NO
1	0	1	0	1	0	1	1	0
2	1	2				2		
3		3				3		
>3		>3				4		
			_			5	_	
						6		
						7		

SYNTHESIS OF COMPLICATIONS

PAIN	OEDEMA	INFECTIONS	TIME OFF WORK	SCARS
2 PATIENTS OUT OF 50 (4%)	100%, AVERAGE DURATION IN DAYS: 2.06	NONE	1.86 DAYS AVERAGE	NONE

At the end of the treatments (from 1 to 3) each patient was asked to fill in the self-assessment satisfaction form after the non-surgical blepharoplasty: GAIS. In order to elaborate the results of the new Nano Plasma method, all registered data were inserted in a table. The parameters taken into consideration were: age, smoking, number of treatments and scale of wrinkles evaluation (both static and dynamic) before and after the treatment, GAIS.

RESULTS

Non-surgical blepharoplasty with Nano Plasma has brought to all patients a (100%) aesthetic improvement and satisfaction from a remarkable to an outstanding result (GAIS) and the reduction of dermatochalasis, which from severe, became mild-minimal and absent. No relevant complication has arisen from the treatment; all patients presented oedemas in the periocular area, healed in a maximum of 1-3 days. Pain was considered nearly absent and there were no cases of infections or residual scars.



CONCLUSION

Non-surgical blepharoplasty with the new Nano Plasma method is a safe treatment, which only requires local anaesthesia, does not require hospitalisation and does not cause complications. The aesthetic result is very satisfying: the patient confirms a remarkable reduction of the dermatochalasis and the histological test results show collagen stimulation. Nano Plasma could be a remodelling treatment of great interest for non-ablative surgery.



COURTESY OF PROF GIORGIO FIPPI - PLASMA INVENTOR



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