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Minimally Invasive Techniques for Periorbital Area Correction

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Abstract

The face is the most informative stimulus we ever perceive: Even one glimpse of a person's face tells us their identity, sex, mood, age, race, health conditions, the direction of their attention and attitude. Face leaves a strong impression about owner's personality. In a quarter of mint, can be decided if the person is attractive or not (Doris Y. Tsao 2009, Daniel H. Lee 2017). Human eyes transfer a remarkable variety of complex social, emotional and health associated information. Evolutionary Information gathered from the periorbital area is perceived more reliable subconsciously and is playing a crucial role in personal impression. Upper third of the face transmit mental states even when are competing with cues perceived from the lower face. Mostly periorbital area is the first region affected by age related changes. Up mentioned causes are reasons of periorbital region rejuvenation demands. There are nonsurgical and surgical rejuvenation procedures which are treating different subunits of eyes and its surrounding structures. The mini-invasive procedures elaborated by Aptos company are aiming to reduce aesthetic problems of facial asymmetry and deformity associated with aging or congenital aesthetically not desirable features without aggressive interventions. The methods described in an article were used in 180 patients. In the article several cases will be discussed.

Keywords: Periorbital area; Aptos Ureads; Braw ptosis; Facial asymmetry; Mini-invasive; FaceIil; Facial beatification.

Introduction

It is hard to determine what people perceive attractive as it does not depend only on physical characteristic features and is a9ected by social status, personality traits. Even Darwin described cultural di9erences in beauty perception. However, people from di9erent cultures agree in facial beauty evaluations which have to have presumably biological and evolutionary explanations [1].

Averageness, symmetry, and sexual dimorphism are scientifically proved designators of beauty and attractiveness. Ueorists have proposed that face preferences are evolutionary adaptations for partner choice and competitor evaluation. As attractive traits signal essential aspects of mate quality, such as health and fertility. Attractive facial features motivate sexual behavior, develop an inclination to opposite-sex alliances and activate rewording brain structures. People are tended to elicit positive personality attributions to owners of beautiful faces. Mostly they receive more help and are readily accepted in any social groups and in general are treated positively in a verity of settings [2].

Human medial orbitofrontal cortex is region associated with rewarding brain system, which is involved in processing all types of reward stimulus such as excellent food odor and taste, pleasant music and even monetary gain. As lately investigations found out attractiveness and beauties of the face automatically activates brain structures associated with rewording stimulus. Further investigation demonstrated that orbitofrontal cortex activation strengthens with attractive faces modulation with a smile. Ue faces that were more consistently rated by subjects as displaying a happy expression produced stronger activity in the region compared to faces that were showing a neutral expression. Ue scientists found the strong correlation between attractiveness and smiling expressions [1-4]. It has to be mentioned that it is not true in case of a fake smile.

Ue multidimensional studies showed that eye-narrowing features are associated with disgust and eye-widening with fear and is associated with complex mental states, such as awe and hate. Furthermore, opposing clusters of positive and negative mental states were expressed by crucial eye features such as temporal wrinkles such as radiance eyes and eyebrow curvature which can be perceived as sad eyes if depressed and aggressiveness if too much elevated. Besides, eye gaze direction can influence emotional expression and perception thus is a contributor to mental state decoding [3].

Evidence also suggests that eye features have been co-opted in the service of more complex social pressures. For example, narrow palpebral fissure makes a face appear more mature when its widening makes a face seem more juvenile [3]. Ue functions and thus the appearance of these features may remain relatively invariant across cultures and may be slightly shaped by specific cultures [5].

Ue upper third of the face is an essential anatomical area. Up mentioned causes are reasons of periorbital region rejuvenation demands. Uere are nonsurgical and surgical rejuvenation procedures which are treating di9erent subunits of eyes and its surrounding structures. Ue changes of eyelids and eyebrows can be divided into static and dynamic alterations. Ue static defined as loss of volume due to changes in bone and fat pad that support periorbital area while the dynamic component refers to changes in muscle tone which changes anatomical structure interpositions [6].

Patients applying to plastic surgeons, dermatologists and aesthetic practitioners are seeking for less invasive procedures with natural results, which will preserve their natural expressions and look and will eliminate there aesthetic or functional problems. Most patients are trying to cope with age-related facial changes such as lateral, medial

brow, lateral cantal ptosis, periorbital fat atrophy eye form changes dark circles around eyes, eyelid hernias and brow hair thinning. One or few problem combinations are changing facial expression face looks angry, sad, tired facial symmetry is demolished and does not look attractive even not healthy. Also, there are a lot of patients with postoperative complications how are seeking mini-invasive problem-solving.

Ue Brow ptosis is one of the first age-related changes humane face undergoes. It is due to frontalis muscle weakening and fat loss and disposition in the temporal and frontal area. Pathologically it can be caused by trauma and nerve damage. Ue milled brow ptosis can cause an aesthetic deficiency. If only lateral part of the brow is depressed face looks sad and depressed if the medial portion is photic, the face seems angry and unfriendly. Sometimes if frontalis muscle is too active, brow gets arche shape and face seems surprised. If brow ptosis is severe, it can cause functional defects and problems associated with vision. Neurotoxins can slightly elevate lateral part of the brow. But as frontalis muscle does not extend until the lateral end of the brow even orbicularis muscle is stopped and does not pull the brow down there is now opposite direction muscle which will elevate it. Another problem doctors face using only neurotoxin for brow elevation is that they are not able to control brow shape. Man and women have di9erent brow positions in relation to the orbital rim even brow parts are di9erently positioned to each other. Even same-sex patient need di9erent moderation elevations as every patient have di9erent symmetrical rations. Additionally, neurotoxins are stopping muscles around eyes and smile is becoming fake thus face becomes less attractive. Besides many patients are against botulin toxin treatment or develop resistance to it. Ue surgical brow lil is o9ered which is quite aggressive and needs long rehabilitation period. Until now there were no mini-invasive treatments for brow ptosis. Aptos Company has provided several products and techniques for braw position modifications.

To achieve good aesthetic results, review of eyebrow anatomy is crucial. Ue eyebrows can be divided into three parts head, body, and tail. Ue length of the brows in adults varies from 5 to 6 cm wile width cab be 1-1.5 cm and has a contour at up border. Ue medial part of the brow head begins at the supraorbital rim and laterally, end at an oblique line extending from the alar base through the lateral canthus. Ue highest point of the brow is at the junction of the head and body parts. Eyebrow which is positioned above the orbital rim is a sign of beauty and youth in women when brow position is low it is not aesthetically favorable and is perceived as manish and not desirable. Mostly in females' eyebrows are located 0.5 mm above the upper orbital rim. In women, the brow is arched highest point in between lateral cantus and lateral limbus. Ue tail of the brow in females is 1-2 mm lower to brow head lowest point. In men, brows are flat, seek and lie on orbital rim [7].

As was already mentioned, cephalometric point, angles, and contours vary with age, sex, and race and it is crucial for person perception of beauty so during consultation and planning rejuvenation approaches it is important to consider aesthetic "ideals". Ue face, sol-tissues its orientation, and commonly described facial planes and angles can be manipulated with special designed threads which gives long lasting natural results it has the ability of sol tissues reposition and additionally when threads are going throw degradation are changing skin structure, texture end the strength what is most important it does not have rehabilitation period, and patient can continue activities of daily leaving on the same day of procedure.

For braw position modification several products and techniques are provided by Aptos company. We will discuss Needle Method which can be used for lateral, medial and full brow reposition [8].

Case Report

In the case report treatment approaches, techniques and results are described. Aptos Needle Method which represents bi-directionally barbed thread USP 2/0, connected to double sharp pointed Needles at the ends (Figure 1). Its design gives the ability to combine two needles forming one sharp end which provides the ability to insert threads from one entry point. Double-edged needles allow passing the threads along any necessary contour rotate needle under the dermis and avoiding skin retractions. All manipulations are performed without skin cuts. Ue design of the device allows stitching sol tissues, grouping them and shiling to aesthetically favorable position. Needles are 1.1 mm diameter 120 mm long with dabble sharp tips. Ureads material is polylactic/caprolactone (75/25).

Figure 1: Aptos N2G.

Uis chemical structure gives thread unique properties. Caprolactone degrades very slowly, up to two years its content in threads prolongs thread decomposition. As soon as polylactic realizes lactate fibroblasts start to activate and cause rejuvenation of surrounding tissues [9].

Methods

Ue Aptos Method Procedures are performed under local anaesthesia. AIer forming entry points with 18 G needle, the thread introducers are tunneled sub-dermally in the pre-marked location that will provide the desired tissue fixation and long-lasting result.

It is important to identify what type of treatment is needed in particular cases. To achieve aesthetic "ideal" elevation of lateral part of the brow is provided in one case in other cases brow arch apex must be formed. For di9erent indications di9erent approaches are provided by Aptos company. AIer appropriate cleaning the marking for treatment is performed in specific manner. For ptosis treatment the lateral end of the braw is identified. Superior to lateral brow end at the hair line entry point is marked. From the entry point two lines are marked in the direction of brow. Uird line is drowned in. At the end the triangular shape figure is formed. Uen threads are tunneled sub-dermally in the pre-marked location (Figure 2). In case of brow arch formation entry point is identified in same manner. Ue first line runs down to the most lateral part of the brow. Ue second line which is medial to the first is drown from the entry point to the border of body and tail of the brow third line runs from both sides between of these two lines connecting them 2 mm lower to the inferior border of eyebrow they turn upward in between the lateral cantus and lateral limbus (Figure 3).

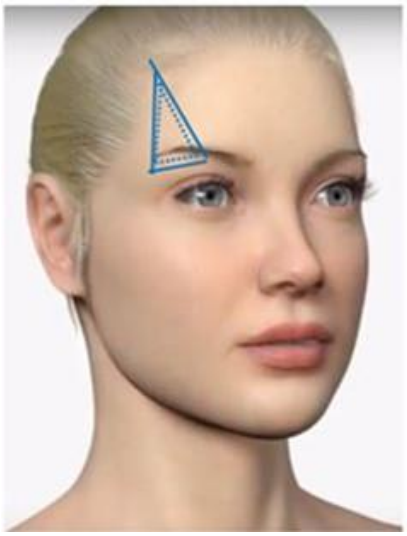

Figure 2: Uread is tunneled sub dermally in the pre-marked location.

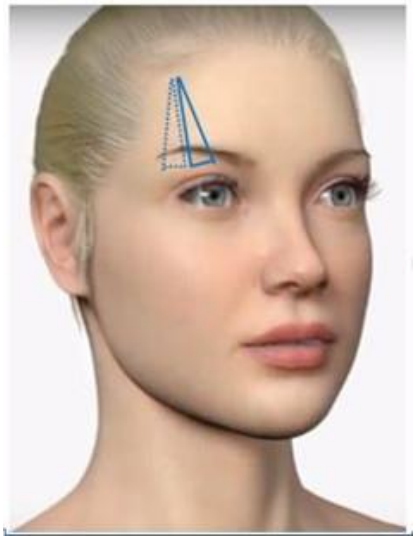

Figure 3: Ue inferior edge of eyebrow in the middle.

Results

Compared with traditional braw liI-which leaves hidden but clear scars and can cause problems like hair loss and needs long rehabilitation period, APTOS thread liI does not leave scars or alter the face's original features. AIer thread liling procedure patient can return to normal daily activates on the same day. E9ect lasts up to 5 years depending on thread material. According to statistical analyses (P<0.05) aIer Aptos thread procedure palpebral fissure is widened up 11%, distance between lateral cantus and lateral end of the brow elongated by 14 % in case of arch apex formation distance between pupil and highest point of the arch is increased by 16.2 % during the first year from the procedure. Ue result lasted more than two years in 80% of patients.

Discussion

Ue Eyes are windows to the soul. Lately, scientists discovered that it is not just a traditional proverb or ancient falls wisdom. In the experiments, which were conducted by Institute of Cognitive Science, the University of Colorado Boulder in partnership with Cornell University Department of Human Development, and Human Neuroscience Institute, were analysed physical features which are conveying most certain mental states and emotional attitude. Uey examined mental states and how emotional feedback is received. Uese results demonstrate that humans read complex mental states precisely with the observation of eyes and its surrounding structures which are grounded in basic logic.

Eyes carry out our inner thoughts, feelings, and intentions. Ue specific eye features like margin reflex distance, the distance between lower eyelid margin and iris, medial and lateral Cantal angels, Palpebral fissure height and width, brow fat span, the distance between brows, eyebrow arch position to orbital rim, its relationship with lateral limbus and lateral cantus, even wrinkles around eyes. Furthermore, eyes and its surrounding structures convey information about person's age and health conditions.

When judging female faces, women attached higher importance to the lips than the men did, while the latter attached higher importance to the configuration and eyes (p<0.05 corrected). When judging male faces, women attached higher importance to the eyes as men did. Such di9erence across general preferences can be explained by mating strategies [10]. Up mentioned research data suggests even when a full face is visible, the eyes receive di9erential weighting in conveying complex mental states thus is most active signaling apparatus and is crucial for social interactions. Ue face and especially eyes are an essential anatomical area. Up mentioned causes are reasons of periorbital region rejuvenation demands. Uere are nonsurgical and surgical rejuvenation procedures which are treating di9erent subunits of eyes and its surrounding structures.

Patients applying to aesthetic practitioners are seeking for less invasive procedures with very natural results. Demand is resizing for expression preserving less invasive procedures with natural result which will preserve their natural expressions and look and will eliminate there aesthetic or functional problems. Until now surgical facelil was o9ered which is very invasive and needs long rehabilitation period. Mostly patients are not willing to undergo surgeries with long rehabilitation periods and with not fully satisfactory outcome with many side e9ects. Uerefore, there is a rising demand on mini-invasive treatments long-lasting results. Neurotoxins can slightly elevate lateral part of the brow. But as frontalis muscle does not extend until the lateral end of the brow even orbicularis muscle is stopped and does not pull the brow down there is now opposite direction muscle which will elevate it. Aptos Uread Methods are mini-invasive procedures with great advantage of mini-invasiveness and ability providing good aesthetic results. It is performed under local anaesthesia. Ureads are inserted subcutaneously from entry point formed with 18 G needle. Ue threads with fixator guaranties tissue fixation in a favorable position which provides deformity correction ability. Aptos threads di9er from other smooth and coned threads which have demonstrated poor corrective abilities do to its structure. It also di9ers from other treads with barbs which results last for only 6 months. Uanks to

caprolactone content in the thread result is kept up to two years. Aptos Uread method is a safe and e9ective procedure which lasts only 30 min. Its downtime lasts less than ten days and provides the favorable outcome. In 80% of cases described in the case report, Aptos thread liling procedures were done the first time. Ue side e9ects have not been reported. Ue mild brushing and oedema which lasts up to 10 days were evaluated as normal. Only In 8% of patients received painkillers on the same day aler the procedure. According to patient satisfaction survey analysis, up to 50% of patients were very, up to 45% fully, and up 5% moderately satisfied with results during the first year from the procedure. Ue result lasted more than two years in 80% of patients. Ue 90% of patients evaluated their appearance as a youthful version of per-procedural appearance. Ue Patient per-procedural and post-procedural pictures were evaluated according to the Global Aesthetic Improvement Scale (GAIS) by dermatologists (Figures 4 and 5). Ue min index received is 3.1. Post- procedural pictures were elevated as more attractive in 85%. Uese results demonstrate that Aptos Methods are mini-invasive procedures which treat cosmetic problems e9ectively in patients with congenital anatomical deformities, asymmetries and aging patients. Ue satisfactory facial symmetry, tissue elevation and volume creation are obtained without surgical interventions. Ue Mini-invasive Aptos Uread Method procedure result duration lasts more than two years. Ue Aptos mini-invasive Method procedures have minimal risk, short procedural and recovery time and provide long-lasting functionally and aesthetically favourable results.

Figure 4: Patient per-procedural evaluated pictures.

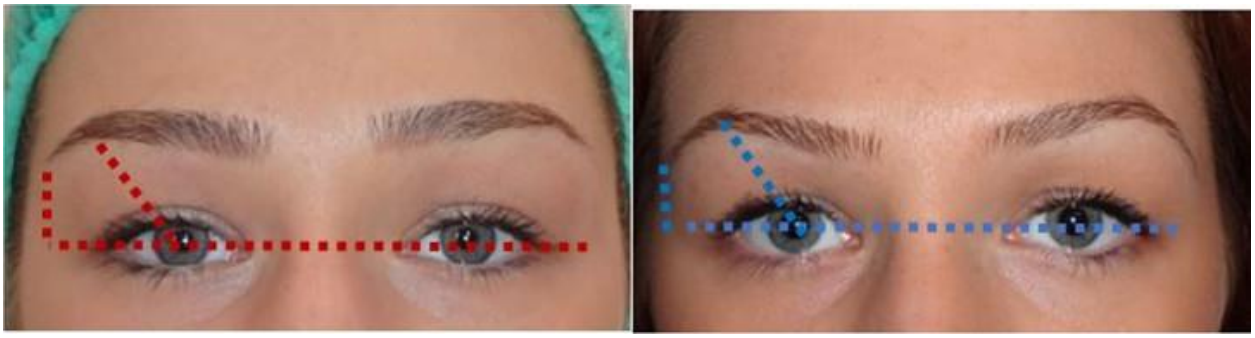

Figure 5: Patient post-procedural evaluated pictures.

Aptos threads are indicated in patients with congenital, age related or traumatic brow ptosis and deformities. Who do not want to undergo complex, long-lasting surgeries with long rehabilitation period or to patients who have gone through surgeries and need additional corrections. Aptos thread Method represents mini-invasive treatment approach intended for facial deformity correction and beautification (Figure 6). It improves not only tissue position but skin colour and texture. It enhances self-esteem in all age patients. Aptos mini-invasive Method procedures have minimal risk, short procedural and recovery time and provide long-lasting functionally and astatically favourable results.

Figure 6: Aptos mini-invasive Method procedures.

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