MICRO LABS LIMITED

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Dear Doctor,

Greetings from Micro Labs. We are happy to bring you "COSMODERMA TIMES" which contains latest and interesting news in the field of Dermatology.

This issue contains:

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Looking forward to your valuable feedback.

Best Regards,

Medical Team, Micro Labs Limited.

1. Efficacy and safety of combined fractional carbon dioxide (CO2) and Neodymium-doped Yttrium Aluminum Garnet (Nd:YAG) lasers for the treatment of immature hypertrophic scar

Introduction:

Immature hypertrophic scars are raised erythematous and inflexible cutaneous lesions caused by deep injuries, prolonged inflammation, and excessive fibrous tissue production.[1] During scar formation, damaged regions show an increase in capillaries and dilatation of residual capillaries. An immature scar with vigorous capillary development is hypertrophic in nature. Survivors with hypertrophic scars often experience functional and cosmetic issues, limiting their independence and leading to psychological and social problems. Therefore, Scar management was crucial for improving survivors' quality of life and facilitating their reintegration into society.[2] Photo-surgical scar modification with laser and energy devices effectively treats immature hypertrophic scars with few or no adverse effects. The fractional ablative carbon dioxide (CO_2) 10600 nm laser absorbs water and removes scar tissue in micro columns, leaving undamaged zones in between to reduce side effects and promote speedy healing. Fractional CO_2 laser controlled tissue destruction promotes collagen and elastin regeneration, improving thickness, surface irregularities, and elasticity of immature hypertrophic scars. The 1064 nm long pulsed Neodymium-doped Yttrium Aluminum Garnet (Nd:YAG) laser penetrates deep dermis, stops excessive blood vessels, and reduces inflammation, leading to improved erythema, pain, and itching in immature hypertrophic scars. The heat produced by a long pulsed Nd:YAG laser coagulates collagen, facilitating the development of new collagen. There were few investigations on the efficacy and safety of combining fractional CO_2 laser and long pulsed Nd:YAG laser therapy for immature hypertrophic scars.[1] This study assessed the clinical and histological effectiveness and safety

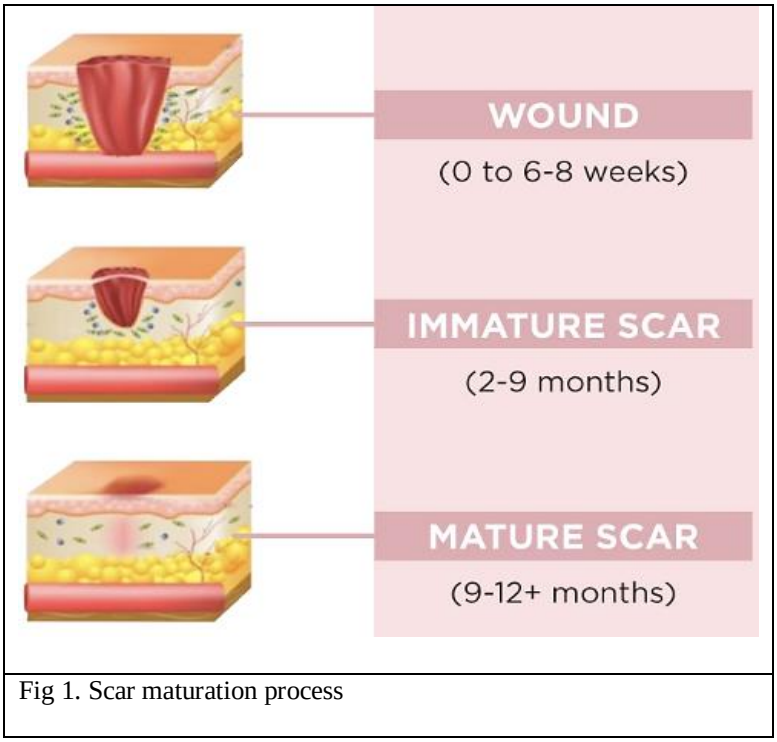


Fig 1. Scar maturation process

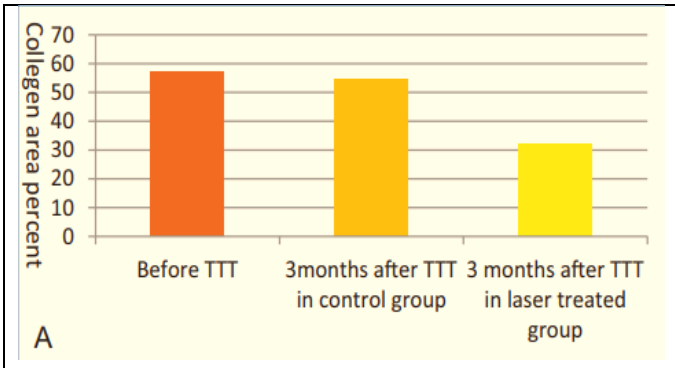
of combining fractional CO_2 laser with long pulsed Nd:YAG laser for treating immature hypertrophic scars.

Methods:

This randomized clinical trial included individuals with immature hypertrophic scars from different body regions. The single scar was at least 14 centimeters in length. Scars in the same patient were randomly assigned to treated and control areas. The treated areas received 5 sessions of fractional CO2 laser and long pulsed Nd:YAG laser, whereas the control portions remained untreated for a month. Clinical evaluations were conducted before, 3, and 6 months after treatment using the Vancouver Scar Scale (VSS) and the Patient and Observer Scar Assessment Scale (POSAS). Histopathological evaluations of collagen, elastin, and epidermal thickness were conducted before and 3 months after therapy.

Results:

The study included 30 individuals with immature hypertrophic scars in different body regions, including 13 men and 17 females. The average age was 16.3±5 years, with a mean trauma length of 9.43±1.88 months. All patients had Fitzpatrick skin type III or IV. Scar areas treated with fractional CO2 laser and long pulsed Nd:YAG laser showed significant clinical improvement with VSS and POSAS compared to untreated areas (except for pigmentation parameter), especially 6 months after last treatment without significant side effects from laser therapy. Patients reported significantly better outcomes in laser-treated regions compared to untreated parts. Laser therapy significantly improved epidermal thickness, collagen area percent, and elastin area percent compared to untreated regions three months after the previous session (Fig. 2 A and B).



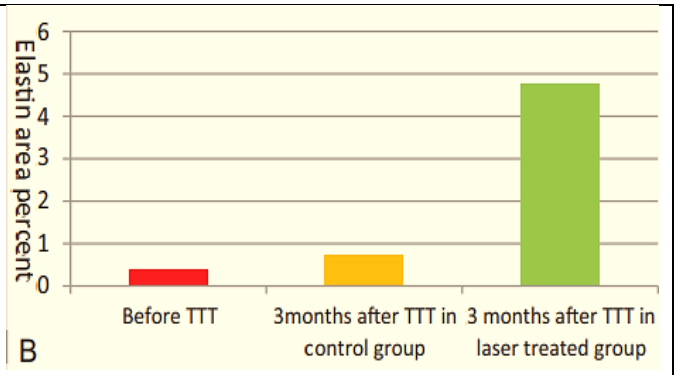


Fig 2(a). A column chart showed the percentage of collagen area before and after laser therapy in both the control and laser-treated groups. After 3 months of therapy, laser treated

(b). The column chart compares the percentage of elastin area before and after laser therapy in both the control and treated

areas had a greater drop in collagen area % compared to control areas.	groups. After 3 months of therapy, laser treated regions had a higher percentage rise in elastin compared to control areas.

Discussion:

This study showed that using fractional CO2 and Nd:YAG lasers together to treat immature hypertrophic scars was safe, effective, and tolerated.[1] Tawfic et al. found that combining fractional CO2 and Nd:YAG lasers improved hypertrophic scars in a short-term, uncontrolled comparison study of keloid and hypertrophic scars.[3] In contrast, Gok et al. found no significant improvement in hypertrophic scars with long pulsed Nd:YAG laser using the Stony Brook scale.[4]

Conclusion:

Combined fractional CO2 and Nd:YAG laser treatments for immature hypertrophic scars were safe, acceptable, and effective in children and adults of both sex in various body locations with Fitzpatrick skin types III and IV.

Combining fractional CO2 and Nd:YAG lasers to treat immature hypertrophic scars was safe, effective, and tolerated.

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2. Investigation of the value of trichoscopy in the follow-up of treatment response in patients with Androgenetic Alopecia

Introduction:

Androgenetic alopecia (AGA) is an androgen-related disease that affects genetically susceptible people. The main characteristic of AGA is the progressive reduction of the hair follicle, which is caused by a change in the dynamics of the hair cycle and results in the vellus transformation of the terminal hair follicle. As a result, the apparent hair density on the scalp gradually decreases.[1] It causes considerable psychosocial damage and requires comprehensive treatment. In addition to hair transplantation, non-surgical treatments for AGA include topical minoxidil, oral anti-androgens, 650-900 nm low-level laser therapy, and platelet-rich plasma. Their results, however, are not long-lasting since AGA is a chronic, progressive illness that need long-term, possibly even lifelong. As a result, frequent monitoring of the therapy response is necessary. To monitor treatment response in AGA patients, many approaches can be utilized, including scalp biopsy, global photography, trichogram, phototrichogram, and TrichoScan. But, most of them are time-consuming, expensive, or difficult/impractical to employ. Therefore, there was a need for more cost-effective, simple, and dependable instruments to monitor AGA treatment. Trichoscopy, a non-invasive and simple procedure, has been used successfully to diagnose AGA. While trichoscopy has proven to be an effective diagnostic tool for androgenetic alopecia (AGA), its applicability in evaluating the effectiveness of treatment remains unclear.[2] The purpose of this study was to determine if trichoscopy was useful for monitoring therapy response in individuals with AGA.

Methods:

This prospective study included patients aged 16-65 who presented with hair loss and were diagnosed with AGA. Each patient's left temporal region and vertex intersection were used to identify the examination area. The region to be investigated was covered with a cardboard template that had a hole in the middle of 1 cm^2 in size. The hairs in that area were then chopped to a length of 0.5–1 mm. Another template was cut into four equal portions both horizontally and longitudinally using two threads, and it was put on the examination region. It took 12 to 15 minutes to complete the process. At the three-month follow-up, the same process was

repeated on the same inspection region. Two doctors, one less experienced (doctor A) and one more experienced (doctor B), examined photographs related to hair illnesses and trichoscopy. The ratio of terminal to vellus hair (T/V) and the counts of terminal, vellus, and total hair (THC, VHC, ToHC) were determined. The same region was also analyzed using TrichoScan to produce numerical data. The agreement of trichoscopy and TrichoScan data was evaluated.

Results:

The study comprised 95 participants with AGA (76 men and 19 women). Out of 95 patients, 34 (35.8%) were lost to follow-up. The agreement between doctor A and TrichoScan was reasonable for THC and ToHC pre-treatment and good post-therapy, but low for VHC and T/V ratio both before and after treatment. Doctor B and TrichoScan have great agreement on THC, VHC, and ToHC levels, as well as the T/V ratio before and after therapy. After three months of therapy, doctor A, doctor B, and TrichoScan tests showed a considerable rise in THC and ToHC, but no significant change in VHC (Table 1).

Parameters	Pre-treatment	Post-treatment	P
Doctor A			
THC, mean±SD	96.38±22.506	103.34±24.993	0.001
VHC, mean±SD	36.81±14.162	37.11±12.232	0.856
ToHC, mean±SD	133.16±25.699	140.46±28.065	<0.001
T/V ratio, median (range)	2.81 (0.88-7.50)	2.97 (1.14-5.66)	
Doctor B			
THC, mean±SD	98.16±21.254	102.59±23.474	0.022
VHC, mean±SD	34.24±13.175	35.08±12.191	0.569
ToHC, mean±SD	132.40±24.880	137.67±28.065	0.025
T/V ratio, median (range)	3.1 (1.12-8.15)	3.03 (1.16-6.16)	
Trichoscan			
THC, mean±SD	98.61±21.304	103.11±23.593	0.027
VHC, mean±SD	33.99±13.342	34.69±11.984	0.635
ToHC, mean±SD	132.65±25.172	137.80±26.379	0.029
T/V ratio, median (range)	3.22 (1.11-8.67)	3.09 (1.20-6.39)	

SD = standard deviation; THC = terminal hair count; ToHC = total hair count; T/V ratio = terminal to vellus hair ratio; VHC = vellus hair count

Table 1. The hair counts, terminal to vellus hair ratio, and P values pertaining to the change in mean hair counts following treatment that were ascertained by physician A, physician B, and TrichoScan analysis

Discussion:

An effective AGA therapy should increase terminal hairs, decrease vellus hairs, and increase hair density. AGA is characterized by diverse hair diameters, a higher proportion of thin and

vellus hairs, many single-hair pilosebaceous units, yellow spots, and a peripilar sign.[2] A previous study concluded that the five most common trichoscopic findings in AA were yellow dots, black dots, damaged hairs, short vellus hairs, and tapering hairs. Yellow spots and short vellus hairs were thought to be the most sensitive indicators for AA, whereas black dots and tapering hairs were the most specific. Furthermore, trichoscopy was a good method for assessing response to AA therapy. [3]

Conclusion:

Trichoscopy, when conducted by a clinician who was familiar with hair illnesses and trichoscopy, can be utilized as a sensitive approach for evaluating therapy response in AGA patients by determining THC, VHC, ToHC, and T/V ratio. If it was done by a less experienced practitioner, it could be used as a sensitive follow-up procedure with THC and ToHC.

Trichoscopy, when conducted by a doctor with experience in hair disorders and trichoscopy, can be utilized as a sensitive approach for evaluating therapy response in patients with AGA based on THC, VHC, ToHC, and T/V ratio.

Reference:

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3. Serum inflammatory cytokine levels and their relationships to the severity of the condition in individuals with chronic spontaneous urticaria

Introduction:

Chronic spontaneous urticaria (CSU) is a common allergic skin illness characterized by periodic pruritic skin eruptions lasting 6 weeks or more, with no identifiable external stimuli or triggers. CSU is characterized by persistent skin itching and erythematous rashes that can appear anywhere on the body and vary in size and shape. Deep tissue swelling and oedema can also be observed in CSU cases. Pain and burning sensations were frequent signs of CSU.[1] Angioedema affects 40-50% of patients with CSU. There was no curative therapy for CSU. Approved treatments manage symptoms but do not alter the disease's natural progression. The first line of therapy was a second-generation H1-antihistamine.[2] Serum inflammatory cytokines (SICs) regulate immune cell proliferation, development, and function, as well as modulate inflammation. Assessing SIC levels in CSU patients can help clinicians identify more effective treatment regimens.[1] This study aimed to investigate the association between serum inflammatory cytokines (SICs) and CSU severity to better understand the condition and develop effective treatment strategies.

Methods:

The study included 114 patients with CSU admitted to the outpatient department as the research group (Res group), and 100 healthy persons who received examinations during the same period as the control group (Ctrl group). SICs, including as leukotriene B4 (LTB4), leukotriene C4 (LTC4), IL-4, IL-17, IL-31, and TNF-γ, were assessed and compared among patients in various groups. The study evaluated the relationships between each SIC and pruritus intensity, duration, urticaria activity, and quality of life (QOL) in different patient groups.

Results:

Subjects in the Res and Ctrl groups were similar in age, gender, and BMI, with no significant differences found ($p > 0.05$). Patients in the Res group had significantly increased levels of LTB4, LTC4, IL-4, IL-17, and IL-31, but lower levels of TNF-γ compared to the Ctrl group (p

< 0.05) (Fig 1). There were significant variations ($p < 0.05$) in IL-4, IL-17, and IL-31 levels across patients with varying pruritus intensity. The patients were divided into three groups based on their urticaria activity: mild (n = 32), moderate (n = 55), and severe (n = 27). The Mann-Whitney U test was used to compare the SICs of individuals with varying degrees of urticaria activity. Results showed significant variations in IL-17 and IL-31 levels between mild, moderate, and severe urticaria. IL-4 and IL-31 levels correlated positively with QOL ratings in patients, with significant differences ($p < 0.05$).

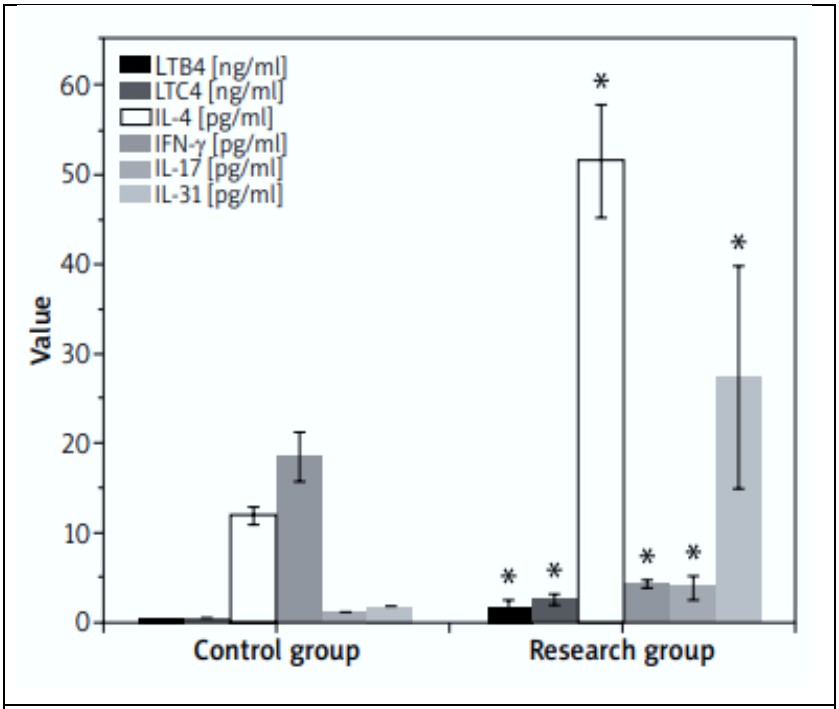

Figure 1. Relevant indicator levels for patients' SICs
(*Suggested a great difference with $p < 0.05$ for the comparison)

Discussion:

This study found a positive association between IL-17 and IL-31 levels and urticaria activity in patients. IL-4 and IL-31 levels were shown to be positively correlated with patients' CU-Q2oL scores. Serum IL-4 and IL-31 levels differed significantly between mild, moderate, and severe instances. SICs such as IL-17, IL-31, and IL-4 may contribute to urticaria by influencing inflammation, cell proliferation, and immunological reactivity.[1] Wang et al. concluded that increasing IL-4 levels enhance B cell proliferation and immunoglobulin E synthesis, resulting to greater sensitivity to allergens and worsening of the condition.[3] Furthermore, Toubi and Vadasz showed a positive correlation between the severity of illness and IL-17 levels.[4]

Conclusion:

IL-4, IL-17, and IL-31 exhibited a significant link with the severity of CSU, which might be related to their role in immunological, inflammatory, and pruritic processes that exacerbate the condition.

The significant link between the severity of Chronic spontaneous urticaria (CSU) and IL-4, IL-17, and IL-31 may be attributed to their roles in immunological, inflammatory, and pruritic responses, which worsen the illness.

Reference:

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4. Case Report Permanent Filler Complication in the Upper Lip

Introduction:

Since the 1990s, there has been a significant growth in the use of cosmetics and medical treatments to enhance the appearance of the face, especially the lips. The prevalence of beauty standards in the media and entertainment business may contribute to this trend. Various treatments and surgical approaches have been developed to improve lip and perioral rejuvenation.[1] Minor invasive treatments, such as hyaluronic acid fillers and botulinum toxin A, can enhance the appearance of the lips, restore function, and increase psychological well-being. Lip augmentation commonly involves anterograde or retrograde injections along the vermillion border.[2] Although permanent fillers like polydimethylsiloxane, often known as liquid silicone, are commonly utilized, their usage in face esthetics has become outdated. Silicone is a polymer whose viscosity depends on the degree of polymerization. Liquid injectable silicone is odorless, colorless, non-volatile, and oily to touch. The substance was stable at room temperature and was not carcinogenic or teratogenic. However, long-term

consequences may emerge decades after application.[1] This case report examined the complication that occurred after 16 years of liquid silicone therapy.

Case Presentation:

A 52-year-old Caucasian male patient appeared for the first time, unsatisfied with the aesthetic look and appearance of his upper lip (Figure 1). The patient was neither a smoker or diabetic, but had hypertension and hypercholesterolemia. He was taking Losartan, Hydrochlorothiazide, and Pitavastatin. The extraoral examination revealed no significant results. The intraoral examination revealed bruxism and healthy periodontal status. The patient underwent oral examination and palpation, as well as clinical history analysis and cone-beam computed tomography (CBCT) evaluation. In 2006, the patient underwent permanent lip filling to improve volume, resulting in an asymptomatic bilateral mass on the upper lip. The mass was accompanied with non-related widespread Fordyce granules. The patient indicated happiness in the early years of filling, but was concerned about the look over time. Treatment options included monitoring, removal of the filling material in two surgical procedures (better prognosis), aspiration (worse prognosis owing to silicone substance), and corticoid injections (poor prognosis). The recommended surgical therapy was the patient's preferred alternative due to its ease of access and invasiveness. The first surgical procedure was performed under local anesthesia on the right side of the lip using one carpule of Lidocaine 2% with adrenaline 1:100,000, a chalazion clamp, a diode laser for hemorrhagic control, and a simple suture with 6-0 Vycril resorbable thread, suturing by layers (Figure 2).

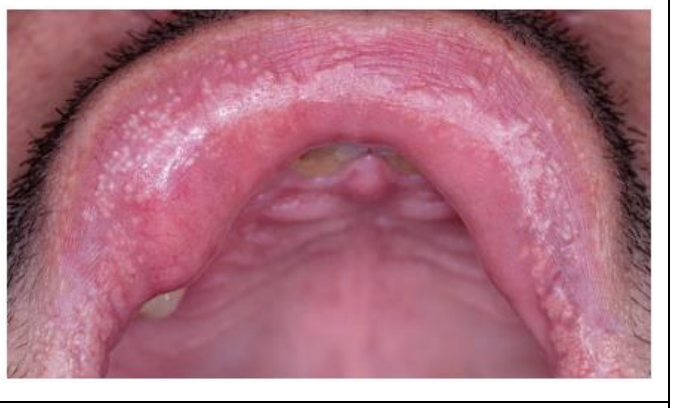

Figure 1. A liquid silicone filler was used for shaping the upper lip's aesthetic after 16 years of therapy

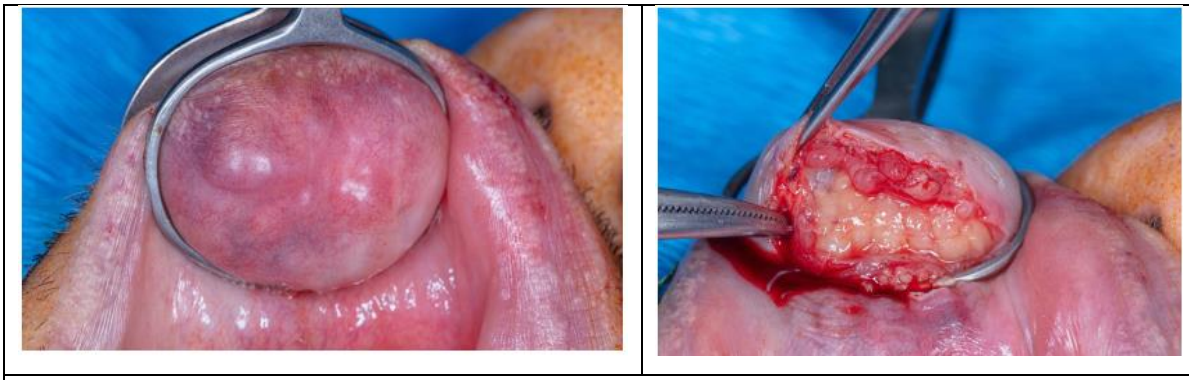

Figure 2. The initial surgical operation involved placing a chalazion clamp (left) to aid in the linear incision. Access (right) was used to visualize the interior content.

Biopsies were performed on three fragments: a cuboid measuring 1 × 1 × 0.8 cm and an irregular one made up of two fragments measuring 1.6 × 0.5 × 0.4 cm and 2.5 × 0.6 × 0.5 cm. The substance has a consistent macroscopic appearance, with a white color, uneven surface, elastic texture, white section, or minor fasciculation. The patient was given Tylenol 500 mg three times a day for two days. After 20 days, the sutures from the initial operation were removed, along with the foreign body from the upper lip on the left side, using the same surgical method and medications. Histologically, all slides showed a chronic inflammatory, lymphoplasmacytic, and granulomatous reaction, with foreign body giant cells reacting to non-polarizable exogenous material in a "Swiss cheese" pattern, with circular empty spaces of varying sizes. These characteristics indicate a silicone response. The patient had no intention of having further lip fillings; rather, he expressed satisfaction with the results of the surgical treatments. The surgical wound had healed satisfactorily and was nearly invisible on visual and palpatory inspection (Figure 3).

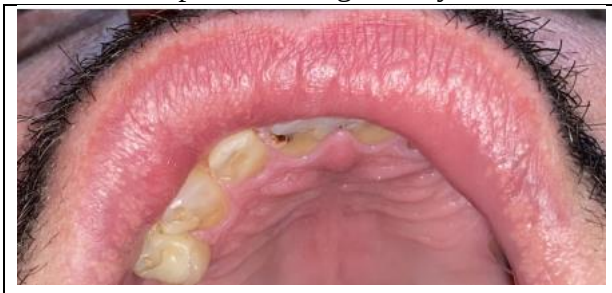

Figure 3. Four months after surgery

Discussion:

Facial fillers, especially in the subcutaneous region, are a popular nonsurgical cosmetic surgery. In this case report, the patient was initially happy with the appearance of his lips after filling (2006), but after a few years, distortion occurred due to the appearance of granulomas. Inflammatory nodules and granulomas were the most commonly reported and disfiguring complications.[1] A previous meta-analysis found that injectable HA lip augmentation was an effective way to increase lip fullness for at least 6 months following the procedure. The most

common treatment-related adverse events were pain, injection site swelling, and bruising. Rare adverse events included foreign body granulomas, herpes labialis, and angioedema.[3]

Conclusion:

The increased demand for face esthetics, particularly in the lip and perioral regions, necessitates that health professionals become more aware of the short- and long-term adverse effects of each substance employed in order to make their application method more predictable and conscientious.

This case study highlighted the need for health practitioners to increase knowledge about the long-term adverse effects of silicone lip fillers, allowing for more cautious and predictable application practices.

Reference:

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