

## Relation of Acne and Post Orthognathic Surgery: A Review

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### Abstract

Patients with dentofacial deformity often undergo orthognathic surgical procedures for correction of their deformity. This surgical procedure has its own share of complications which may manifest intra-operatively or in the immediate post-operative phase. Cutaneous complications following esthetic surgeries like orthognathic surgery are very rare. However, when they occur, they are usually early, minor, and transient. This review is intended to throw light on the occurrence of acne in the immediate postoperative phase in patients undergoing orthognathic surgery and the etiology & management of such acne.

**Keywords:** Acne, Pimple, Orthognathic, Facial, Cosmetic, Oral surgery.

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### INTRODUCTION

Acne is a common disorder affecting the pilosebaceous unit, clinically characterized by the presence of comedones, inflammatory papules, pustules and sometimes, nodules and cysts arising commonly during adolescence and causing great psychosocial stress [1, 2]. Acne scarring is common and occurs early in the course of the disease. It is one of the most common causes of facial scarring and treating acne scars is one of the most challenging cosmetic procedures.

#### Types of acne [3]

- Grade 1: Predominantly comedonal acne  
Can be managed by Comedone extraction & Superficial chemical peels
- Grade 2: Predominantly inflammatory papules  
Can be managed by Cryotherapy Laser and light therapy
- Grade 3: Predominantly inflammatory pustules  
Can be managed by Cryotherapy, Nonablative lasers and light therapy
- Grade 4: Nodulo-cystic acne  
Can be managed by Incision/drainage of cysts with phenolisation, Intralesional corticosteroids and Cryotherapy

#### Postacne Scars

Scarring due to acne is common, depending on the severity of acne and delay in appropriate treatment. Acne scars are polymorphic and different type of scars can occur in the same patient. The patient must be adequately counseled that the goal of treatment is improvement rather than perfection, as deep acne scars cannot be entirely eliminated.<sup>3</sup>

#### Acne as a Sequel to Orthognathic Surgery

Steroid acne after organ transplantation and oncologic treatment is well known [4]. Cutaneous problems following esthetic surgeries like orthognathic surgery and rhinoplasty are very rare. However, when they occur, they are usually early, minor, and transient [5]. Most common being contact dermatitis & acne. They manifest as rashes or pustules with or without allergic reactions [6]. It is advocated that such reactions are generally due to the tape which might have been used with tincture of benzoin or a preparation containing gum mastic [7, 8]. These substances are frequently used as a dressing materials and to increase adhesive strength of the tape.

Patients with acne in the postoperative phase might find their condition temporarily worse following orthognathic surgery or rhinoplasty as a result of the

local effect of the dressing or the systemic response to the operation [9]. Late cutaneous complications are limited to permanent redness and telangiectasias of the facial skin in some patients with a diathesis toward capillary telangiectasias [9].

Typically steroid acne occurs within 2 weeks of the start of systemic corticosteroid therapy and usually involutes and disappears without scarring once the medication is discontinued. Although adults are more commonly affected, there are reports of this condition among children and infants [10]. A study reveals that steroid acne developed in 42% of heart transplant patients [11].

Generally, the eruption is characterized by fresh-colored to pink-to-red, dome-shaped papules and papulopustules scattered on the face upper part of the trunk, and upper extremities. There is usually an absence of comedones, and the papules are monomorphic in appearance in contrast to acne vulgaris, in which one usually sees lesions in various stages of development from comedones to papules, pustules, and Possibly nodules and cysts [4].

Although the precise pathogenesis of this condition is still uncertain, the histologic development of fundibular spongiosis, hyperkeratosis, and microcomedo formation and rupture appear crucial to development of the papules and papulopustules [12].

After a definitive diagnosis has been established, the patient must be reassured of the fact that steroid acne is quite different from acne vulgaris in that the former usually resolves spontaneously and leaves no scars. Patients should be advised to wash with water only and to avoid the use of all cosmetics on the affected area until the skin is free of eruptions. Topical benzyl peroxide is generally helpful if needed.

Irritant contact dermatitis is the most common contact-related dermatosis. The injury to the skin may be mild, with only erythema, or severe with tissue necrosis and bulla formation. The patient may note a stinging or burning sensation with the onset of blisters or erythematous plaques which may spread from the area of contact to adjacent skin [13]. Allergic contact dermatitis is a delayed cell-mediated immunologic reaction to an exogenous allergen. It usually occurs between 24 and 48 hours after contact, but may be delayed up to 14 days. The eruption tends to be associated with moderate to severe erythema and pruritus with acute weeping and crusted vesicles. Diagnosis of allergic contact dermatitis may be confirmed by patch testing [7, 13].

In a recent study, 45 out of 477 patients had a positive reaction to compound tincture of benzoin, which was the third most common allergen in their

series. Of these 45 patients, 14 had strong positive reactions, but only two definitely recalled exposure to compound tincture of benzoin, and these were clinically revealed [8]. The treatment for acute contact dermatitis, whether allergic or irritant includes removal of the source, expression of pustules, irrigation with a drying desquamating soap and use of topical and systemic steroids as well as systemic antihistamines. Dermatitis gradually settles down with frequent and vigorous massaging with tap water and plain soap

## MANAGEMENT

### Comedone Extraction

It is a process of applying simple mechanical pressure with a comedone extractor, to express the contents of the blocked pilosebaceous follicle [14].

### Superficial Chemical Peels

Superficial chemical peeling is a process of applying a chemical agent to the skin so as to cause controlled destruction of the epidermis leading to exfoliation, followed by resurfacing, without causing scarring. Peeling of the skin leads to reduction in comedones and postinflammatory pigmentation as well as improvement of superficial scars [15].

### Cryotherapy

Cryoslush and cryopeel are used for the treatment of nodulocystic acne. In the cryoslush method, solid carbon dioxide is crushed and a few drops of acetone are added to make a paste. This paste is rapidly applied to the lesions with a gauze ball for 2-10 seconds. Superficial peeling is achieved due to epidermal necrosis, which causes desquamation of comedones, resolution of inflammatory papules, pustules, nodules and cysts. In the cryopeel method, a spray of liquid nitrogen is used for 2-3 seconds, instead of a CO<sub>2</sub> slush. However, pigmentary changes are commonly observed, particularly in darker skinned patients. Persistent erythema and scarring may also occur [16].

### Nonablative Lasers and Light Therapy

Blue light, nonablative radiofrequency, Nd:YAG laser, IPL (Intense Pulsed Light), PDT (Photodynamic Therapy) and Pulse dye laser are the newer treatments available for the treatment of active acne. These are new treatments, expensive and useful only in selected patients [17].

## CONCLUSION

The treatment of postacne scars involves a multimodal approach as different types of scars may exist in an individual. Each scar and each patient must be evaluated and treated accordingly. For superficial scars, noninvasive or minimally invasive techniques such as microdermabrasion, superficial chemical peels or the newer nonablative lasers, are better treatment options. For deeper scars, a combined approach with

subcision, punch excision techniques in conjunction with resurfacing procedures, are essential to achieve optimum results. Many complications can be prevented by thorough preoperative evaluation, sound surgical technique, and careful follow-up care.

## REFERENCES

- Gollnick, H., Cunliffe, W., Berson, D., Dreno, B., Finlay, A., Leyden, J. J., ... & Thiboutot, D. (2003). Management of acne: a report from a Global Alliance to Improve Outcomes in Acne. *Journal of the American Academy of Dermatology*, 49(1), S1-S37.
- Holland, D. B., Jeremy, A. H. T., Roberts, S. G., Seukeran, D. C., Layton, A. M., & Cunliffe, W. J. (2004). Inflammation in acne scarring: a comparison of the responses in lesions from patients prone and not prone to scar. *British Journal of Dermatology*, 150(1), 72-81.
- Khunger, N. (2008). Standard guidelines of care for acne surgery. *Indian Journal of Dermatology, Venereology, and Leprology*, 74(7), 28-36.
- Precious, D. S., Hoffman, C. D., & Miller, R. (1992). Steroid acne after orthognathic surgery. *Oral surgery, oral medicine, oral pathology*, 74(3), 279-281.
- Rees, T. D. (1994). Postoperative considerations and complications. In *Aesthetic plastic Surgery* 2nd edition. Edited by: Rees TD, LaTrenta GS. Philadelphia: W.B. Saunders: 335-400.
- Rajabian, M. H., Sodaify, M., & Aghaei, S. (2004). Severe facial dermatitis as a late complication of aesthetic rhinoplasty; a case report. *BMC dermatology*, 4(1), 1-7.
- Mabrie, D. C., & Papel, I. D. (1999). An unexpected occurrence of acute contact dermatitis during rhinoplasty. *Archives of facial plastic surgery*, 1(4), 320-321.
- Scardamaglia, L., Nixon, R., & Fewings, J. (2003). Compound tincture of benzoin: a common contact allergen?. *Australasian journal of dermatology*, 44(3), 180-184.
- Gruber, R. P., & Aiach, G. (2001). Open rhinoplasty. In *The Unfavorable Result in Plastic Surgery, Avoidance and Treatment* 3rd edition. Edited by: Goldwyn, R. M., Cohen, M. N. Philadelphia: Lippincott, Williams & Wilkins; 950-81.
- Latif, R., & Laude, T. A. (1982). Steroid acne in a 14-month-old boy. *Cutis*, 29(4), 373-374.
- Goldstein, G. D., Gollub, S., & Gill, B. (1986). Cutaneous complications of heart transplantation. *The Journal of heart transplantation*, 5(2), 143-147.
- Hurwitz, R. M. (1989). Steroid acne. *Journal of the American Academy of Dermatology*, 21(6), 1179-1181.
- Martini MC: Contact dermatitis and contact urticaria. In *Principles and Practice of Dermatology* Edited by: Sams WM. New York, NY: Churchill Livingstone Inc; 1990:389-401.
- Cunliffe, W. J., Holland, D. B., Clark, S. M., & Stables, G. I. (2000). Comedogenesis: some new aetiological, clinical and therapeutic strategies. *British Journal of Dermatology*, 142(6), 1084-1091.
- Savant, S. S. Acne and its scars. *Textbook of Dermatosurgery and Cosmetology. Savant SS, editor*, 2, 568-572.
- Savant, S. S. LN2 cryoroller for nodulocystic acne and superficial acne scars. *Textbook of dermatosurgery and cosmetology. Savant SS, editor*, 2, 421-425.
- Nouri, K., & Villafradez-Diaz, L. M. (2005). Light/laser therapy in the treatment of acne vulgaris. *Journal of cosmetic dermatology*, 4(4), 318-320.