
An Effective Extraction Technique for the Treatment of Closed Macrocomedones

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BACKGROUND. Closed macrocomedones are unsightly lesions that may be resistant to medical treatments and comedone extractors. Light cautery has been used to treat macrocomedones, which are 1 to 3 mm in size; however, its success in larger and chronic lesions is limited.

OBJECTIVE. To introduce an alternative treatment technique for this neglected problem.

METHODS. We treated these lesions by using cautery and standard dissecting forceps. After puncturing the macrocomedones in the center using the sharp-tipped cautery point, we

grasped the base of the comedone using standard dissecting forceps and squeezed and pulled out the contents.

RESULTS. Twelve patients were treated with this technique, all of whom tolerated the procedure well and judged the cosmetics results as very good.

CONCLUSION. We recommend this procedure for patients who have closed macrocomedones larger than 3 mm in size, although it is an effective treatment for macrocomedones of any size.

T. IRFAN KAYA, MD, U. TURSEN, MD, A. KOKTURK, MD, AND G. IKIZOGLU, MD HAVE INDICATED NO SIGNIFICANT INTEREST WITH COMMERCIAL SUPPORTERS.

ACNE VULGARIS is a polymorphic disease that is characterized by inflammatory and noninflammatory lesions. Inflammatory lesions are papules, pustules, and nodules. Large, inflammatory, fluctuant nodules have previously been called "cysts," and the term nodulocystic has been used to describe these lesions. However, as they are not lined by an epithelium, they are not true cysts. Therefore, this term should be abandoned, and severe nodular acne used instead.¹ Noninflammatory lesions are characterized by open and closed comedones.^{1,2} Several types of comedones have been described, such as microcomedones, missed comedones, sandpaper comedones, submarine comedones, macrocomedones, drug-induced comedones, naevoid comedones, and conglomerate comedones.² The term macrocomedone refers to open (blackheads) and closed comedones (whiteheads), which are more than 1 mm in size.^{3,4}

Similar-looking pilosebaceous follicles and comedones showed different expression of cycling cells and proliferation markers, suggesting that the pilosebaceous duct may undergo cycling just like the hair follicle. Such comedone cycling could be important in the development and resolution of comedones, suggesting that the comedones may disappear spontaneously because of this cycling.^{3,5} However, macrocomedones are large depositions that are composed of lipids and

horny cells, which may not heal spontaneously with comedone cycling. These noninflammatory lesions can persist for years unless they are extracted.^{3,4} Besides, they can rupture and turn into large, inflammatory lesions.¹ In addition, use of isotretinoin in acne patients with inflammatory lesions may result in severe flares in coincidental macrocomedones. It is therefore important to treat macrocomedones in such patients before oral isotretinoin therapy.⁶

Follicular hyperkeratinization is a key factor in the development of acne, which results in a microcomedone and subsequent lesions of acne.⁷ Therefore, opening the pore and removal of the contents are the most important approaches to treat comedones. It is usually achieved by topical retinoids in closed comedones smaller than 1 mm. However, macrocomedones do not respond to this treatment, as there is a great amount of deposition in these lesions. This deposition has to be physically extracted. Because these lesions are not true cysts, extraction is an effective treatment technique.^{4,8,9} Although it is a very common and disfiguring condition, no effective treatment options have been described for these lesions. We developed a successful extraction technique using standard dissecting forceps and a cautery device.

Methods

Twelve patients (nine females and three males, aged 16 to 50 years) with 3 to approximately 40 macrocome-

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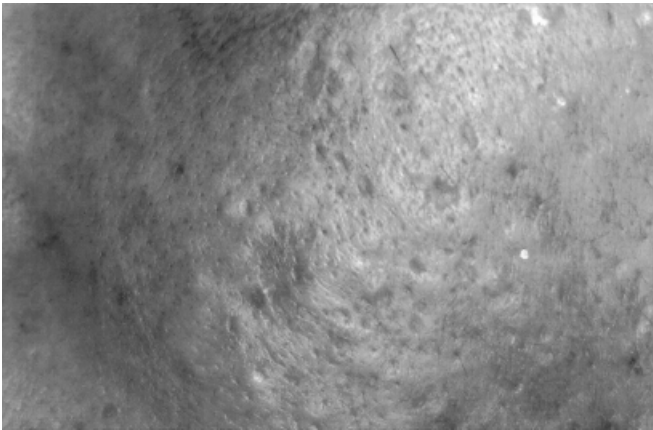


Figure 1. Numerous macrocomedones on the left cheek, causing a very unsightly appearance.

ones, who were unresponsive to previous topical or oral acne medications, were treated using this extraction technique. All patients had large macrocomedones (more than 3 mm in diameter), especially on the cheeks (Figure 1). Some were chronic cases with lesions present for years. We applied this extraction technique one to three times, depending on the number and distribution of comedones. The severe cases were treated with weekly intervals, as some comedones were adjacent to others, and thus, squeezing the first one made it impossible to squeeze the neighboring lesions. Edema secondary to squeezing made it difficult to visualize and palpate adjacent lesions in the same session. Six, one, and five patients were treated with one, two, and three sessions, respectively. The patients tolerated the procedure well. Each patient completed the treatment and was satisfied with the results, and some requested the procedure for the treatment of their microcomedones.

Skin was prepped with a 2- to 3-mm thick layer of EMLA cream (eutectic mixture of lignocaine [lidocaine] 25 mg/g and prilocaine 25 mg/g) for 60 minutes beneath a polyurethane, waterproof, transparent film dressing provided with the EMLA cream to the areas to be treated. The use of EMLA cream numbed the skin; however, it did not result in complete analgesia. Then the skin was pinched and pulled gently between thumb and index finger of both hands to make deeper and smaller comedones more visible. After palpating the comedone, we punctured it in the center using the sharp tipped cautery point (Figure 2). Although closed macrocomedones predominated in our patients, there were also open macrocomedones, and we applied cautery point to the pores of these lesions to widen their pores, as extraction from a small pore is very hard, and squeezing these lesions without widening the pore causes more tissue trauma and pain. The cautery is used at middle power setting (Limsa S-1200 A,



Figure 2. Pinching the skin and fixing the comedone between fingers makes the borders of the lesion more visible.

power setting is adjusted to four) so as to produce sufficient puncture quickly with little pain. After opening the macrocomedones, we pinched and pulled the skin again between the thumb and index finger to make the extraction easy. A standard dissecting forceps (Aesculap BD 049R, 160 mm, 6.25 inches) was used to grasp and squeeze the base of the comedone and pull out the contents (Figure 3). After each session, mupirocin ointment was applied to the area. The patients were asked to keep the treated area dry for 24 hours and to use mupirocin ointment twice daily until the next session. After the treatment, some hemorrhagic crusts and scratch marks developed due to squeezing with forceps (Figure 4). However, they healed without leaving any scar within a week (Figure 5). Cautery punctures also healed without any complication; long-term results were good (Figure 6). We did not use this technique to treat inflamed and infected comedones. Previously, three patients had completed systemic isotretinoin treatment, and the others had been prescribed systemic antibiotic treat-



Figure 3. Squeezing the comedone from the base using the forceps while still holding the skin between fingers.

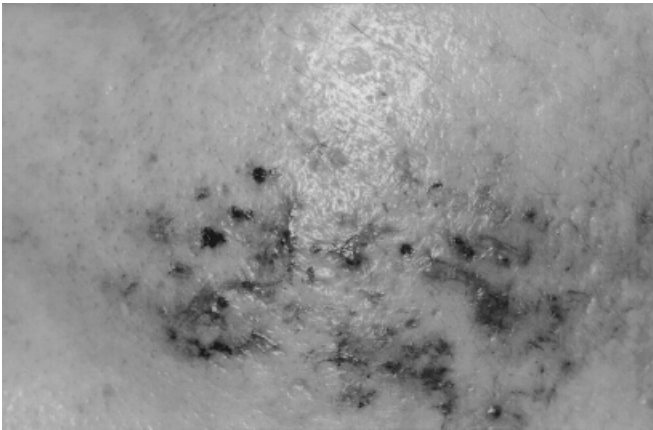


Figure 4. Close-up appearance of the same area 1 day after extraction.



Figure 5. Close-up appearance of the same area 1 week after extraction.

ments several times; however, none of these treatments were effective in treating macrocomedones. Subsequent to extraction, oral isotretinoin was prescribed for the remaining nine patients in order to reduce new comedone formation after extraction.

Discussion

Large closed comedones are the most persistent lesions of acne vulgaris that do not respond to topical and systemic treatments.¹⁰ Therefore, an adolescent developing macrocomedones could, by the late teens, have no healthy skin at all on the acne-affected site; the site could be a mass of macrocomedones and scars.

Acne most often affects the skin of face; facial appearance is an important aspect of one's perception of body image. A susceptible individual with acne on face may develop significant psychological and social disabilities.¹¹ An increase in anxiety, depression, and social isolation and significantly impaired self-image



Figure 6. The same patient 1 year after the extraction.

and self-esteem have been demonstrated in patients suffering from acne.^{12,13} Accordingly, as macrocomedones are one of the most unsightly lesions of acne, they can be capable of producing some significant clinical and psychological scarring; it is important to treat these lesions to improve quality of life and self-esteem and to decrease psychological morbidity.

Closed macrocomedones are the most common form of macrocomedones that may not respond to medical treatments.^{3,4} Light cauterization under local EMLA anesthesia and general anesthesia has been shown to help patients with multiple macrocomedones in two clinical studies. In these studies, most of the patients had macrocomedones of 1 to 3 mm in size.^{4,10} The exact mechanism by which resolution occurs with light cauterization is not known. Two theories have been suggested: Thermal damage produced by the cauterization may stimulate the patients' own inflammatory mechanisms to induce resolution of the macrocomedones, and cauterization may result in exteriorization of the lesion, providing a route for the contents to discharge to the surface.^{4,10} However, in our practice, we observed that light cauterization is not quite effective in severe cases with old, deep, and large macrocomedones, which are more than 3 mm in diameter. In some of our patients, these macrocomedones were present for years, necessitating a more radical treatment. Although our treatment technique was aggressive, the cosmetic outcome was very good. All of the patients tolerated it well and were pleased with the results.

Blackhead removers are worthy of consideration in those patients with obvious open comedones, but such therapy is not easy and can be surprisingly uncomfortable.^{3,8} We have been using them for only superficial open comedones on the bony prominences of the face; however, it is very hard to apply them to soft and mobile regions such as cheeks and submandibular region, and they may not be effective for closed comedones.

Over the last decade, research has improved the understanding of the pathophysiology of acne leading to advances in treatment. However, the treatment of closed macrocomedones has remained a challenge. We have presented a successful surgical technique for the treatment of these lesions. We recommend this treatment technique especially for patients with chronic macrocomedones, predominantly more than 3 mm in size in which light cautery can be used only with limited success.

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