

First experiences in use of a monofilament fibre pad* in treatment of patients suffering from retentive and cystic manifestation of acne

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INTRODUCTION

Acne vulgaris is a common problem in youth and early adolescence and it is characterized by areas of skin with increased oil-sebum secretion (seborrhea) and formation of comedones, papules, pustules, as well as nodules [Zouboulis et al. 2005; Zouboulis 1999]. Often, scarring is the result of the inflammatory processes within the dermis. Acne vulgaris traces back to an enlargement of sebaceous glands and an enhancement in sebum production linked to an increased production of sexual hormones (e.g. androgens). Acne then develops when sebaceous glands becoming clogged with sebum (microcomedo). These microcomedos are able to enlarge to form an open comedo (so called "blackhead" due to the fact that oxidation of sebaceous material at the porus is changing colour) or closed comedo (also called "whitehead" and often associated to cystic sebum retention). Typically, under such conditions naturally occurring bacteria can cause inflammation, leading to inflammatory lesions (papules, infected pustules, or nodules) in the dermis around the microcomedo or comedone [Nast et al. 2012]. For management of acne, any different treatment recommendations exist, including different pharmacologic and non-pharmacologic opportunities to remove the sebaceous clogging [Nast et al. 2012]. They are aimed to normalize shedding and sebum production to prevent blockage of pores. Additionally, reduction of microbial bioburden, exertion of antiinflammatory effects, and manipulation of hormone production are in therapeutic focus. Additionally, a strict regime for skin lavation is recommendable to remove surplus sebum and prevent clogging. Thus, however, can be supported by effective mechanical removal of excessive sebum formation. This could be amended by using a monofilament fibre debridement pad (Debrisoft®, Lohmann & Rauscher), which has been designed to provide fast, effective mechanical removal of proteinaceous crusts that is pain- and trauma free. First in-vitro testing [Wiegand 2015] was able to demonstrate efficacy in cleaning by using the debridement model with artificial sebum.

METHOD

During a time period of four months, a semi-systematic case series was performed in young people suffering from retentive manifestation of acne vulgaris to collect practical aspects of the use of the monofilament fibre pad in combination with typical dosage forms of polyhexanide (PHMB) and Sodium-hypochlorite based solutions (medical devices) in order to achieve first practical experiences in combined use. This small case series was focused on comfort aspects, acceptance and clinical benefit in use. Application has taken place periodically thereafter as necessary daily up to twice weekly.

TABLE 1: Results

With regard to the main aspects, the following results were achieved (n=7):

Parameter	Excellent / very good	Acceptable	Poor
Handling of the pad	6	1	0
Treatment comfort	7	0	0
Treatment effect I: Reduction of sebum retention after single use	3	4	0
Treatment effect II: Reduction of sebum retention after repeated use	6	1	0
Compatibility with cleaning solution	7	0	0



FIGURE 1A-I: Case presentation

LITERATURE

- Nast, A. et al. (2012) 'European Evidence-based (S3) Guidelines for the Treatment of Acne', Journal of the European Academy of Dermatology and Venereology, 26(Suppl 2), pp. 1–29.
- Wiegand, C. et al. (2015) Untersuchung der Reinigungswirkung eines Monofilamentfaserpads im Vergleich zu konventionellen Kosmetikpads in einem Sebummodell [Poster presented at DDG 2015]. 29 April.
- Zouboulis, C.C. (1999) 'Acne: Current aspects on pathology and treatment.' Dermatol Experiences, 1, pp. 6-37
- Zouboulis, C.C. et al. (2005) 'What is the pathogenesis of acne?' Experimental Dermatology, 14(2), p. 143.

DISCUSSION

The overall acceptance and user satisfaction were encouragingly positive. In all seven cases, the use was assessed as "very comfortable". The combination was easy in use and fully comparable with typical use of cosmetic pads. The efficacy in cleaning was very satisfactory. Compared to cosmetic pads, the cleaning effect seems to be superior to all other applications. Mechanical removal of sebum retentions was very efficient. Micro-retentions were removed in an efficient manner. The combination with different cleaning solutions was without any problems and clinically fully compatible.

CONCLUSION

Non-pharmaceutical treatment of retentive manifestations in acne vulgaris is an established but still challenging problem in clinical routine. First clinical experiences in use of the monofilament fibre pads were exceedingly satisfactory. Removal of sebum retention was efficient and the combination with different cleaning solutions based on PHMB and Sodium-hypochlorite did not show any signs of incompatibility. In the light of pre-existing in-vitro data as demonstrated by Wiegand 2015 lead to the conclusion that the established use of a monofilament pad for debridement could be able to support mechanical cleaning by its outstanding mechanical properties. Our first clinical reflection is able to support this proposition by first favourable results in clinical use. Hence, based on these experiences, a systematic approach to collect clinical data would be very much appreciated.

TABLE 2: Rules for using

How to handle the monofilament fibre pad
Fully wet the pad
Use a suitable cleaning solution (e.g., based on PHMB or sodium-hypochlorite)
Use systematically in all relevant areas
Using time per region is about 1 to 3 minutes
Initially daily use