

## GENERAL PRACTICE

## Benzoyl Peroxide and Sulfur: Foundation for Acne Management

R. D. WILKINSON, M.D., F.R.C.P.[C],\* J. E. ADAM, M.D.,†  
J. J. MURRAY, M.D.‡ and GIBSON E. CRAIG, M.D.,§

Montreal

One hundred and thirteen consecutive patients with acne were studied by qualified dermatologists during a trial of topical 10% benzoyl peroxide and 2%-5% sulfur cream. The results were considered "good" to "excellent" in both office and clinic situations. The method was remarkably free of undesirable side effects. The program has been adopted as a standard acne regimen at the dermatology clinic of the Royal Victoria Hospital, Montreal.

Des dermatologues compétents ont étudié 113 cas consécutifs d'acné traités au moyen d'une crème renfermant 10% de peroxyde de benzoyle et 2 à 5% de soufre. Les résultats de ce traitement ont été considérés comme "bons" ou "excellents" aussi bien dans les cas traités au bureau que ceux traités en clinique. Cette médication a été remarquablement exempte de réactions secondaires fâcheuses. Ce traitement a été adopté comme traitement classique à la clinique dermatologique de l'Hôpital Royal Victoria de Montréal.

**P**ATIENTS and physicians confronted with the problem of acne owe a debt of gratitude to Dr. William Pace,<sup>1</sup> who first described the use of 10% benzoyl peroxide and 2%-5% sulfur in a water-washable base for the topical treatment of this condition. Since his presentation, this modality has been used extensively and successfully in the dermatology clinics of the Royal Victoria Hospital.

Recently a similar commercial benzoyl peroxide-sulfur cream (Persol, Frank W. Horner Limited, Montreal, Que.) was evaluated for its clinical effectiveness. This communication describes the result of this investigation. The study was conducted through the mid-winter months to avoid the ameliorating effect of sunshine.

## MATERIAL AND METHODS

One hundred and thirteen consecutive acne patients from office and clinic practice were examined and assigned to categories by a qualified dermatologist, who then instructed the patient in the use of the test cream. Each patient was instructed to rub the cream into the forehead, cheeks and chin and to remove it with soap and water after a time interval that was increased as required to maintain a mild erythema and astringency in the areas of treatment. During the first week the cream was washed off 30 minutes after application. If necessary this was lengthened to 60 minutes during the second week and later to overnight.

Patients were warned to expect a mild transient burning sensation upon application of the cream, and to avoid the eyelids and cervical skin.

The only adjuncts employed were an anti-seborrheic shampoo, and occasionally an abrasive cleanser for the comedonic type of acne.

At the first interview, each patient was given a 1-oz. jar of cream containing 10% benzoyl peroxide and 2½% sulfur (Persol Acne Creme) in a water-washable base. This quantity proved sufficient for one month or more, and was used as long as the astringent and peeling effects could be maintained. Thereafter a cream containing 10% benzoyl peroxide and 5% sulfur (Persol Forte Acne Creme) was used.

Patients were evaluated at two-week intervals during the first month and subsequently at four-to six-week intervals. The therapeutic response was graded objectively, viz. "excellent" when no comedones, acneform papules, pustules or cysts were visible; "good" when there was marked but incomplete resolution of lesions; and "poor" when little or no reduction in size or numbers of lesions was noted.

## RESULTS

The results of this study are recorded in Table I. Twenty-three of 24 patients with comedonic acne obtained "good" to "excellent" results after six weeks of therapy. Twenty-seven of 31 with papular acne had also had "good" to "excellent" results in six weeks; 36 of 39 with pustular acne were controlled after seven weeks. Slower but satisfactory improvement was achieved in 14 of 19 patients with cystic acne in 8.5 weeks. The majority of patients showed further improvement on chronic maintenance therapy with this cream. Relapses within

TABLE I.—OBJECTIVE RESPONSE OF ACNE TO BENZOYL PEROXIDE-SULFUR CREAM

Category of acne	Number of cases	Results			Average length of treatment
		Excellent	Good	Poor	
Comedonic.....	24	5	18	1	6.0
Papular.....	31	6	21	4	6.0
Pustular.....	39	7	29	3	7.0
Cystic.....	19	3	11	5	8.5
Total.....	113	21	79	13	

From the Sub-Department of Dermatology, Royal Victoria Hospital, Montreal, Quebec.

\*Clinical Assistant, Royal Victoria Hospital, Montreal.

†Assistant Resident in Dermatology, Royal Victoria Hospital, Montreal.

‡Junior Assistant Resident in Dermatology, Royal Victoria Hospital, Montreal.

§Dermatologist-in-Charge, Royal Victoria Hospital, Montreal.

two months followed discontinuation of therapy in six instances.

Edema of the treated site was encountered in some fair-skinned patients. Periocular and cervical regions were most frequently affected. Prompt interruption of treatment was followed by a resolution of the edema within 48 hours, at which time the medication was begun again with shorter application times, without recurrence of edema.

A local astringent effect was obtained in all patients. Although this effect was generally welcomed, occasionally a patient complained of perioral tightness and fissuring. This was regarded as an indication for temporary interruption of treatment and its reinstatement within four days for a shorter application time.

Pustular exacerbations occurred in three patients with papulopustular acne within the first week of treatment. This was quickly controlled by temporary interruption of therapy and by thrice daily applications of an antibiotic cream.

Although this therapy produces peeling through a controlled primary irritant dermatitis, no instance of allergic contact dermatitis was seen in subjects under observation for two to eight months. According to Pace,<sup>2</sup> allergic sensitization can occur in response to benzoyl peroxide.

#### DISCUSSION

Acne vulgaris is primarily due to hormonal disturbances which cause faulty activity or overactivity of sebaceous glands, hyperkeratosis within the sebaceous duct, and eventual follicular obstruction by sebum and corneous material.<sup>3</sup> The inflammation in acne vulgaris probably begins in the sebaceous duct, by enzymatic release of fatty acids from sebum.<sup>4</sup> The classic approaches in the management of acne are based on these facts. Estrogens have been used to modify sebaceous hyperplasia and intra-duct hyperkeratinization caused by androgens.<sup>5</sup> Antibiotics have been employed to con-

trol the bacteria in the sebaceous duct.<sup>6</sup> Ionizing irradiation has been used to reduce the activity of the sebaceous gland.<sup>7</sup>

Topical measures, nevertheless, remain the mainstay of acne therapy. Their main goals are to open and keep open the sebaceous ducts (peeling effect), to suppress surface bacteria, and to inhibit enzymatic systems that produce irritants. Benzoyl peroxide is a potent oxidizing, bacteriostatic and keratinolytic agent.<sup>2</sup> In combination with sulfur, it may produce the germicidal agent, pentathionic acid.<sup>8</sup>

Aside from occasional undue tightness and dryness of the skin of the face, no significant side effects were noted. The concentrations of drugs in the commercial creams appeared to be almost ideal. The technique of varying the application time rather than the concentration of drug was economical and simple for the patient.

#### SUMMARY AND CONCLUSIONS

One hundred and thirteen consecutive acne patients were followed by qualified dermatologists during a trial of topical 10% benzoyl peroxide and 2%-5% sulfur cream. The results were "good" to "excellent" in both office and clinic situations. The method was remarkably free of undesirable side effects. The program has been adopted as a standard acne regimen at the clinic in which the study was done.

#### REFERENCES

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### PAGES OUT OF THE PAST: FROM THE JOURNAL OF FIFTY YEARS AGO

#### ACUTE MAMMARY CARCINOMA: A DISTRESSFUL COMMENTARY

Some forty years ago Volkmann applied the term "*mastitis carcinomatosa*" to a type of cancer of the breast, possibly more a clinical than a pathological entity, occurring particularly in young women during pregnancy or lactation; simulating to a marked degree an acute or subacute mastitis and characterized by an excessively rapid growth; terminating fatally in a few weeks, in some cases, in the great majority within a year. Volkmann's original communication was embodied in a statistical report on operations for breast carcinoma and was as brief as it was concise, occupying only a few lines. Though he made scant reference to the pathology of the disease, this phase has been to a large extent elucidated by later observers. Interchangeable with the name "*mastitis carcinomatosa*", later writers have used the terms "acute cancer of the breast"

or "acute mammary carcinoma". The latter of these is the more correct usage.

The same criticism which MacCarty has directed against "the extravagance of synonyms" as applied to "pathological mammary conditions" is well merited here where no less than twelve or more terms have been used to designate this particular form of cancer of the breast and which I have found scattered through the literature. Among these are lactation cancer, acute encephaloid cancer, mastitis carcinomatosa (Volkmann), acute medullary carcinoma, acute mammary carcinomatosis, carcinoma mastitoides (Schumann), acute scirrhous carcinoma, lymphocytoma of the breast (Lardennois and Moure), inflamed cancer, acute brawny cancer, acute mammary carcinoma, acute cancer of the breast. Verily a distressful commentary on the "chaotic condition" of the present-day terminology of diseases of the breast.—G. E. Learmonth, *Canad. Med. Ass. J.*, **6**: 499, 1916.