SHORT REPORTS

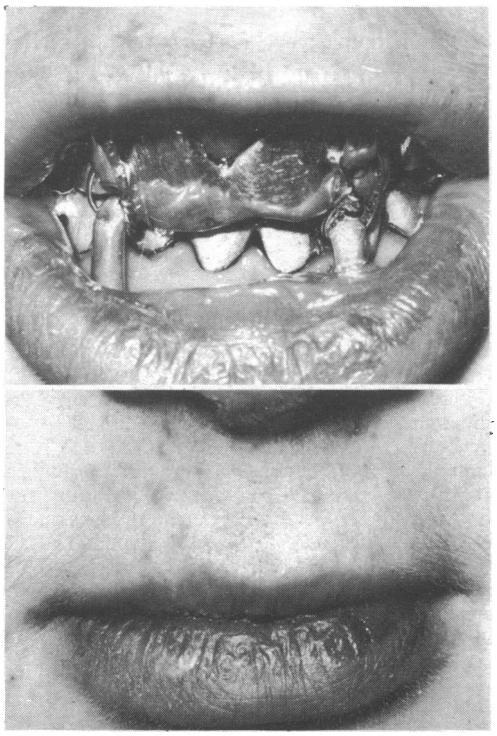
Acne mechanica

Most patients with acne have classical adolescent acne, but some have unusual types such as infantile[1] or cosmetic acne.[2] We record here another unusual, although not uncommon, type associated with mechanical stress on the skin or abnormal posture. These patients who probably fit into the recently described group acne mechanica[3] are more likely to present in the first instance to the family practitioner, or orthopaedic or dental surgeon.

Patients and methods

Twelve patients were seen, nine of whom had acne on the back and three had developed perioral acne. The former were men (aged 18-39); they had mild acne elsewhere but had suddenly developed moderate acne on the back over a period of three to six weeks. The exacerbation was associated with prolonged rest on their backs in a hospital bed. The patients were all in hospital for orthopaedic operations. In six of the patients who were awaiting surgery because of a prolapsed intervertebral disc, the development of acne delayed surgery for one to six months.

The other three patients, all women (aged 17, 19, and 24), showed mild perioral acne three to six weeks after splinting of the teeth for cosmetic correction of jaw deformity (figure); the acne lasted for six to twelve months.



The splints are in position and perioral acne has arisen after splinting of the jaw.

These patients had minimal or no acne elsewhere. In all twelve patients the acne lesions were both noninflammatory and inflammatory.

The differential diagnosis of the skin lesion was folliculitis, but the pleomorphic nature; the depth of some of the lesions; the failure to respond to cleansing solution such as chlorhexidine; and the need for acne therapy such as long-term oral oxytetracycline confirmed the clinical diagnosis of acne.

Discussion

Our patients had acne that developed as a complication during the management of either an orthopaedic or dental problem. In all patients the acne was associated with unusual mechanical stress on the skin or unusual posture. They therefore probably belong to the recently reported group of patients with so-called acne mechanica.[3] Such patients have acne around areas where there is unusual mechanical stress on the skin—for example, around the top end of a total body orthopaedic cast, and backs and shoulders with backpacks and straps.

The factors responsible for acne mechanica are unknown. There is evidence that sebum excretion (an important factor in the pathogenesis of acne) may be increased on the side of a lower motor neurone facial palsy.[4] On the other hand, the immobility due to dental splinting or prolonged bed rest could produce some degree of sebum stasis, possibly increasing the tendency for obstruction in the pilosebaceous duct. Undoubtedly all patients who developed acne on the back, complained of excessive sweating at that site. Sweating produces hydration of keratin, which is known to reduce the pilo-sebaceous duct exit size and so increase obstruction to sebum flow, another important factor in acne. The obstruction, however caused, may favour the colonisation of the duct by *Corynebacterium acnes*, the chief microbe associated with acne lesions. Release of *C acnes* enzymes may then help to produce the inflammation of acne.[5]

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[4] Burton, J L, *et al*, *British Journal of Dermatology*, 1971, **84**, 135.
[5] Williams, M, Cunliffe, W J, and Gould, D, *British Journal of Dermatology*, 1974, **90**, 631.

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Alpha-1-antitrypsin: molecular abnormality of S variant

The S form is the most common variant of the serum protein α-1-antitrypsin, more than 5% of Northern Europeans[1] being heterozygotes (MS) for the S and normal M alleles. The S variant results in a mild deficiency of antitrypsin that may be sufficient to predispose to emphysema in either the homozygote (SS) or mixed heterozygote (SZ) with the severe deficiency (Z) form. We report here the identification of the molecular abnormality that differentiates the S from the normal M form.

Methods and results

Plasma of phenotypes SS and MM were obtained from donors of British origin. The plasma was chromatographed[2] on DEAE-Sephadex A50 firstly at pH 8·6 and then at pH 6·5. Albumin was removed using a column of blue dextran-Sepharose. After chromatography on Sephadex G200 the pH 6·5 ion exchange column was repeated. Haptoglobin was removed from the S protein by passage through a column of Sephadex G100. Purity was confirmed using antisera to caeruloplasmin, albumin, α_1-acid-glycoprotein, α_2-macroglobulin, lysozyme, transferrin, and haptoglobin (S protein gave a faint reaction). Both products reacted with antisera to α-1-antitrypsin and gave a single arc on immunoelectrophoresis against polyvalent antisera. Electrophoresis in both agarose gel and sodium dodecylsulphate polyacrylamide gel gave single bands for both M and S proteins. The proteins were precipitated in acid/acetone, aminoethylated, and digested with trypsin.[3] Peptide maps were prepared on paper by electrophoresis at pH 6·4 followed by ascending chromatography. Neutral peptides were re-electrophoresed at pH 2·1 before chromatography. Repeated peptide maps of both the S and M proteins were prepared and were characterised by specific tests for