

## Medical Memoranda

### Subcutaneous Atrophy after Local Corticosteroid Injection

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Atrophy of the skin and subcutaneous tissue at the site of locally applied or injected insoluble corticosteroid preparations was first reported in rats by Baker and Whitaker (1948) and in man by Goldman *et al.* (1953). Since then several further reports of this local complication of corticosteroid therapy have appeared (Goldman, 1955, 1962; Fisherman *et al.*, 1962; Epstein *et al.*, 1963; Meara, 1964; Grice, 1966). All these reports, however, are of patients in whom corticosteroid injections were given for skin diseases or asthma; no reports of this complication occurring in patients treated for arthritis or soft-tissue lesions of the locomotor systems have been found in the literature.

A case in which this complication developed after a local injection of hydrocortisone tertiary butylacetate is described.

#### CASE REPORT

A woman aged 39 was first seen in June 1965, when she complained of having had pain in the right arm for nine months. Examination showed that she had a right de Quervain's tenosynovitis, and a depressed area of skin about 2 by 1 in. (5 by 2.5 cm.) was noted on the flexor surface of the forearm  $4\frac{1}{2}$  in. (11.4 cm.) above the wrist. The overlying skin was of normal colour and consistency and not bound down to the deep tissues. Three small, round, yellow subcutaneous deposits were seen. Clinically the condition appeared to be a small localized area of fat necrosis (see Photograph).



Flexor aspect of forearm, showing depressed area of skin.

The patient had received local corticosteroid injections at another hospital, and subsequent inquiry revealed that when she had been seen eight months previously a diagnosis of de Quervain's tenosynovitis had also been made and treated with two injections of 40 mg. of Depo-Medrone (methylprednisolone acetate) into the tendon sheath of the extensor pollicis longus. There was partial relief of her symptoms, but early in 1965 she complained of pain and numbness along the radial border of the middle third of the forearm,

and on 16 March an injection of hydrocortisone acetate was given into this painful area.

Between June 1965 and May 1966 no change in the atrophic area was observed.

On 21 May 1966, because of persistent symptoms, exploration of the right radial nerve and the abductor and extensor pollicis longus tendons was carried out and an extensor tendon release performed by Mr. J. C. R. Madgwick. The patient disliked the appearance of the atrophic area, which was excised at the same time.

Histological examination of this area showed fat necrosis in the subcutaneous tissues and the epidermis was considerably thinned.

#### DISCUSSION

Animal experiments (Baker and Whitaker, 1948; Castor and Baker, 1950) first showed that local corticosteroids produce thinning of the skin with decrease in the size of sebaceous glands and cessation of hair growth. Later workers showed that very similar changes occur in man.

Goldman *et al.* (1953) reported that deposits of insoluble corticosteroid crystals persist at the site of injection for months and that adjacent skin becomes depressed and atrophic; long-term studies (Goldman, 1955, 1962) confirmed the persistence of the crystals for as long as three years after injection. After their eventual disappearance the skin slowly returned to normal. McKenzie (1962) suggested that these atrophic changes were largely due to ischaemia, as the application of corticosteroids to healthy human skin produced intense vasoconstriction. Schetman *et al.* (1963) studied the effect of local injections of triamcinolone acetate into normal volunteers; they found that long-standing local atrophy was common after intradermal injections and sometimes occurred after subcutaneous injections.

It is suggested that in the case described above the atrophy followed the injection of hydrocortisone into the forearm.

Though local atrophy cannot be regarded as a serious complication of corticosteroid therapy, it is unsightly and may persist for several years. It is suggested that when local injections of insoluble corticosteroids are necessary, deep injections of more dilute suspensions of the corticosteroid, as suggested by Goldman (1962), will lessen the chance of this complication developing.

ANN BEARDWELL, M.B., M.R.C.P.,  
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