Hydradenitis suppurativa[1]

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Summary
The surgical treatment of a group of 24 patients with hydradenitis suppurativa is described and the clinical features, aetiological factors and other methods of treatment are reviewed. An abnormally high incidence of atopy is noted within the group.

Introduction

Hydradenitis suppurativa is a chronic inflammatory disease involving the apocrine sweat glands. Because it is uncommon it sometimes escapes recognition, and the aetiology and treatment have been disputed since Velpeau first described hydradenitis in 1839.

The apocrine gland develops as a downgrowth at the upper end of the hair follicle during the fourth and fifth months of intrauterine development. At this time most of the hair follicles on the skin surface have the potential to develop apocrine sweat glands, but only a small percentage do so in the region of the axillae, perineum, areolae and around the umbilicus. A scattering of glands may develop on the scalp, trunk and face. The ceruminous glands of the external auditory meatus, the glands of Moll in the eyelid, and the mammary glands are considered to be modified apocrine glands.

The apocrine glands begin to function after puberty (Greeley 1951) and contribute part of their protoplasmic substance to their secretions. Patients most frequently present in the third and fourth decades (Masson 1969) of adult life. Tachau (1939), Wynn-Williams (1953) and Pollock *et al.* (1972) found the disease to be commoner in women, where the axillary lesion predominates. In men, there is a frequent association of perineal disease with the driving of lorries and taxis (Adams & Haisten 1972). The patient presents with painful, tender subcutaneous nodules which rupture after about a week. The discharge may become foetid and persistent with residual induration around the sinus. Subcutaneous tunnelling of infection occurs, particularly in the perineum, and subcutaneous fibrosis can limit movement at the flexures.

Cases (Figures 1 & 2)

Twenty-four patients treated in the Surgical Unit at Westminster Hospital between 1969 and 1977 are detailed in Table 1. There were 22 women and 2 men with an age range of 22–56 years. Twenty patients (83.3%) had axillary disease, bilateral in 75%; 10 patients (41.7%) had perineal involvement; 3 had abscesses on the labia; one had a subareolar abscess; and one had an abscess in the external auditory canal. All were treated surgically after the failure of a variety of other treatments, and only one felt that surgery had not been worthwhile. Nine of the patients were included in an earlier report by Pigott & Ellis (1975).

Histological examination of the excised material showed initial inflammation confined to the

[1] Accepted 21 March 1978

0141–0768/78/0071–0511/$01.00/0

Figure 1. Typical hydradenitis suppurativa of the axilla. This localized area is suitable for treatment by local excision and immediate suture

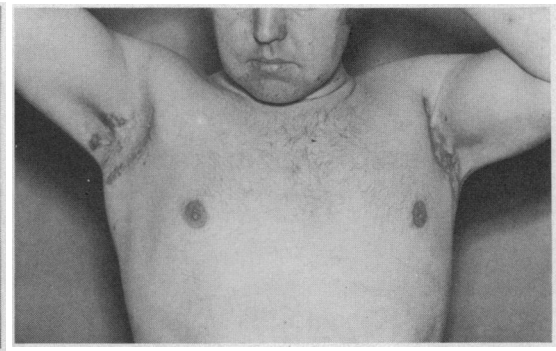

Figure 2. Very extensive hydradenitis. In this case, excision was followed by delayed split skin grafting

apocrine glands, which distend with leukocytes. A progressive destructive cellulitis with abscess formation follows. Interconnecting sinus tracts become lined with a pseudo-epitheliomatous epidermis and may be surrounded by giant cells.

Discussion

The aetiology of hydradenitis suppurativa remains obscure, although the importance of pore closure as a factor was demonstrated in 1955 by Shelley & Cahn. They applied occlusive adhesive tape to the epilated axillary skin, and produced hydradenitis suppurativa in 3 out of 12 normal volunteers. Clinically it is evident in the report by Spiller & Knox (1958) of the secondary development of hydradenitis suppurativa in Fox-Fordyce disease, where the apocrine gland pores become occluded by mucinous material. Stone (1976) also described hydradenitis suppurativa developing in acanthosis nigricans, where hyperkeratosis may lead to pore occlusion.

Woollard (1930) demonstrated that apocrine glands occur in higher concentrations in females, and Homma (1926) had noted that they were more numerous in negroes. This is reflected in the higher proportion of negro patients found in the mixed group of patients reported by Ching & Stahlgren (1965). Although many authors consider the disease to be confined to adults, a case was described affecting the perianal region of a 2-year-old child (Ajayi & Olurin 1970) and, indeed, it has been noted in a female Shetland sheepdog (Reedy *et al.* 1973).

A number of associated abnormalities are found in patients with hydradenitis suppurativa, the commonest being the high incidence of acne vulgaris (Brunsting 1952, Chapman 1972). Diabetes mellitus was detected in 10% of Chapman's series of patients and is noted in the relatives of 3 (12.5%) of the cases presented here. Hypercholesterolaemia (Adams & Haisten 1972) and a low basal metabolic rate (Marks 1945) have been reported, and interstitial keratitis (Bergeron & Stone 1967) and anaemia (Tennant *et al.* 1968) have been described in patients with chronic disease.

Dvorak *et al.* (1977) studied host immune defence mechanisms in patients with hydradenitis suppurativa, and no abnormalities were found. However, we find that the present series of patients exhibit an abnormally high incidence of atopic reactions. A quarter suffer from hay fever compared with the expected incidence of less than 10% in the general population (Brostoff 1973), and 12.5% have an allergy to penicillin. A further 29.2% gave a history of allergy to Elastoplast, which contains colophony as its major allergen. This is a resin derived from turpentine oil, well recognized as the rosin used on violin bows. It is a component of the sticking plaster adhesive, and the expected incidence of allergy in a white population is around 2% (Smith & Nephew Ltd, 1978, personal communication). These findings would seem to suggest an association between atopy and hydradenitis suppurativa.

Table 1. Twenty-four patients with hydradenitis suppurativa treated at Westminster Hospital (1969–1977). (SSG, split skin graft; DM, diabetes mellitus; HS, hydradenitis suppurativa; EAM, external auditory meatus)

Patient	Age (years)	Affected areas	Treatment	Drain	Previous treatment	Allergies	Family history	Occupation	Results
SA (female)	30	Axillae	Excisions	Yes	—	—	—	Housewife	Good at 3 months
SB (female)	44	Axillae	Excisions & SSGs	No	Short wave diathermy (no relief)	Elastoplast	—	Bank manager	Good at 7 months; further R_x in progress
		Groins	Excisions & SSGs	Yes					
		Labia	Excisions	No					
		EAM	Incision	No					
JB (female)	41	Axilla	Excision & SSG	No	—	—	—	Cleaner	Good at 39 months
PB (female)	45	Axillae	Left excision	No	—	Elastoplast Hay fever	Sister has HS	Secretary	Good at 8 months
RC (male)	33	Axillae	Excisions & spot SSGs	No	Amoxycillin (no relief)	—	—	Gas fitter	Good at 14 months
SC (female)	40	Axillae	Excisions	No	—	Pencillin	—	Cook	Good at 7 months
HD (female)	50	Axillae	Excisions	Yes	Antibiotics give relief temporarily	—	Father & sister have DM	Waitress	Recurred at 22 months
		Groins	—	—					
SF (female)	30	Axillae	Right excision	Yes	—	—	—	Hairdresser	Good at 97 months
BG (female)	29	Axilla	Excision	Yes	—	—	—	Housewife	Good at 10 months
		Nipple	Incision	No					
SG (female)	50	Axilla	Excision	No	Penicillin (no relief)	Elastoplast Hay fever	—	Clerk	Good at 21 months
EH (female)	35	Axillae	Excisions	Yes	—	—	—	Shop assistant	Good at 5 months
SH (female)	25	Groin	Excision	No	—	Hay fever	—	Typist	Good at 4 months
BJ (female)	25	Axillae	Excisions	Yes	Triam-cinolone	—	—	Clerk	Good at 1 month
		Groin	Excision	No					
PK (female)	22	Axillae	Excision	Yes	Fluclox-acillin (no relief)	Elastoplast	Uncle has DM	Student	Good at 3 months
SL (female)	23	Axillae	Excisions	Yes	—	Elastoplast	—	Midwife	Good at 45 months
		Groins	—	—					
SM (female)	29	Groin	Excision	No	—	Hay fever	—	Housewife	Good at 30 months
KO'C (female)	43	Axillae	Excisions	Yes	—	Elastoplast	—	Housewife	Good at 49 months
PR (female)	31	Groins	Excisions	No	—	—	—	Publisher	Good at 66 months
		Labium	—	—					
BS (female)	42	Axillae	Excisions	Yes	—	Elastoplast	—	Teacher	Good at 24 months
		Groins	Excision	No					
		Labium	—	—					
CT (female)	44	Axillae	Excisions	Yes	Abscess incision (no relief)	—	Great aunt had DM	Nurse	Good at 12 months
JT (female)	28	Axillae	Excisions	Yes	—	—	—	Nurse	Good at 2 months
IV (female)	26	Axillae	Excisions	No	—	Hay fever	—	Nurse	Good at 2 months
BW (female)	34	Axillae	Excisions	Yes	—	Hay fever	—	Housewife	Good at 4 months
		Groins	Excision	No		Pencillin			
DW (male)	56	Groins	Excision	No	Salt baths	—	—	Lorry driver	Good at 57 months
		Scrotum	—	—					

Treatments for hydradenitis suppurativa have included diets, sulphur baths, infra-red therapy and ultra-violet light. Zeligman (1965) treated his patients with an epilating dose of X-rays. Cornbleet (1952) gave testosterone, Danto (1958) tried hydrocortisone, and autogenous vaccines and toxoids have been injected. Arnold (1955) stimulated the hypothalamo-adrenal axis with polysaccharides derived from bacteria, and numerous antibiotics have been given systemically and topically. Even insulin and thyroxin have been tried (Wynn-Williams 1953), but with no success. Surgical excision offers the only hope of eradication and of preventing the possibility of malignant change (Donsky & Mendelson 1964). However, controversy surrounds the best procedure. The moderately severe axillary lesions that are encountered most commonly (72% of Jackman & McQuarrie's series of 388 patients reported from the Mayo clinic in 1949) can be treated adequately by excision and primary closure, which Tasche *et al.* (1975) found to give results superior to more complex procedures, and allowed both axillae to be treated simultaneously in the many patients with bilateral involvement. In the present series,

axillary skin excision and primary closure proved adequate in all except one patient (RC). Anderson & Perry (1975) advocated retention sutures, and Chapman (1972) stressed the importance of draining the wound, as has been practised in the majority of our cases. For extensive disease, split skin grafts have been advocated, and Hartwell (1975) suggested the use of a stapling gun to affix the graft. We used postage stamp split skin grafts in one patient with extensive bilateral axillary involvement, with a very satisfactory result. Harrison (1964) achieved good results with axillary flaps, and O'Brien *et al.* (1976) advocated an anteriorly based Limberg flap for the female and a posteriorly based flap for the male.

For perineal lesions, treatments range from the unroofing of abscesses with diathermy (Barron 1970) to orchidectomy in patients with severe scrotal involvement (Vickers 1975). Ariyan & Krizek (1976) treated their patients by excision with subsequent healing by granulation; Ward *et al.* (1974) applied delayed split skin grafts; and Hartwell (1975) advocated staged resection and grafting at weekly intervals. Paletta (1963) used flap grafts, and Masson (1969) used pedicle grafts for reconstruction after extensive perineal excision. Most moderately severe cases can be managed by excision and primary closure, as used here in 8 cases; or with split skin grafts, used here in one case and advocated by Ching & Stahlgren (1965), Chalfant & Nance (1970) and Rosenfeld & Babar (1976). The use of a preliminary diverting colostomy to aid healing in perianal disease by preventing graft contamination was established by Ching & Stahlgren in 1965, and has subsequently been recommended by many surgeons. Hyland & Neale (1976) have recently used porcine xenografts to provide skin cover pending the use of nonexpanded mesh split skin grafts which allow drainage and mechanical débridement of exudates.

In all cases the clinician and patient must appreciate the indolent and potentially disabling nature of hydradenitis suppurativa. Early recognition and adequate surgical treatment are essential if the patient's discomfort is to be minimized.

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