

## NEOPLASMS OF SWEAT GLAND

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Fifty cases of sweat gland tumours seen during a period of 27 years, accounted for 54.34% of skin appendages tumours. There were 47 benign sweat gland tumours and 3 malignant, seen in the 21-40 years age group. M:F ratio was 1:1. Histopathologically, there were 13 cases of eccrine acrospiroma, 11 cases each of syringocystadenoma papilliferum and chondroid syringoma, 5 cases of eccrine spiradenoma, 3 cases of dermal cylindroma and 2 cases each of hidradenoma papilliferum and eccrine poroma. Three cases of malignant sweat gland tumours included 2 cases of sweat gland carcinoma and 1 case of primary mucinous carcinoma of skin.

**Key words :** Sweat gland, Tumours.

Sweat gland tumours arise from eccrine and apocrine sweat glands or their ducts, and can be differentiated by histochemical methods and their histopathological features.<sup>1</sup> There are very few studies<sup>2,3</sup> dealing with benign sweat gland tumours from India. In the present communication, we present clinico-pathological data in 50 cases of sweat gland tumours.

### Materials and Methods

During a period of 27 years and 6 months between 1959 and June 1987, we had 94 cases of skin appendages tumours. There were 22 cases each of hair follicle tumours and sebaceous gland tumours and 50 cases of sweat gland tumours. These 50 cases of sweat gland tumours were analysed in relation to the age and sex incidence, and clinico-pathological features. Paraffin sections were cut from the stored paraffin blocks and sections were stained with haematoxyline and eosin, PAS, DPAS, alcian blue, toluidine blue and prussian blue stains.

### Results

Fifty cases of sweat gland tumours included 47 cases of benign tumours and 3 cases of malignant tumours. Histopathologically, 11 cases were recognised as syringocystadenoma papilliferum, 2 cases of hidradenoma papilliferum,

13 cases of eccrine acrospiroma, 2 cases of eccrine poroma, 5 cases of eccrine spiradenoma, 11 cases of chondroid syringoma, 3 cases of dermal cylindroma, 2 cases of syringocystadenocarcinoma and 1 case of primary mucinous carcinoma of skin. Table I shows the age range and sex ratio in each type of sweat gland tumours. The mean age of patients with benign sweat gland tumours was 42 years with M : F ratio of 1 : 1. Maximum number (50%) of cases were seen in the 21 to 40 years age group.

### Syringocystadenoma papilliferum

Six cases were located on the scalp, 2 cases on the thigh and 1 case each involved the lower lip, right iliac crest region and back. Size of the tumours ranged from 1.5×1 cm to 3.0×1.5 cm. Histopathologically, it showed papillary projections lined by tall columnar cells facing the basement membrane. Stroma showed a dense mononuclear cellular infiltrate predominantly comprising of plasma cells (Fig. 1). Amyloid deposits in the stroma were not seen.

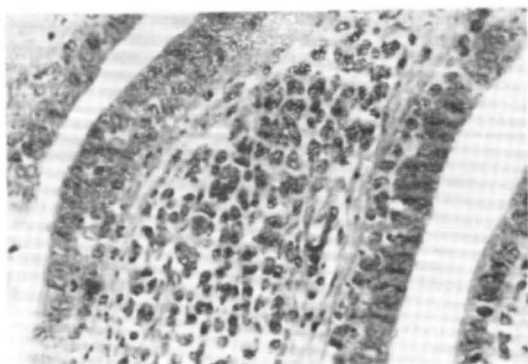
### Hidradenoma papilliferum

Two cases of hidradenoma papilliferum were seen in female subjects on their vulva. Size of the tumours were 2×1×0.5 cm and 1×0.5 cm. Microscopically, it showed multiple cystic spaces lined by tall columnar epithelial cells with a deep eosinophilic cytoplasm (Fig. 2).

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**Table I.** Sex distribution and age range in different types of sweat gland tumours.

The type of tumour	Number of cases	Males	Females	Age range in Years
Syringocystadenoma papilliferum	11	4	7	12-60
Hidradenoma papilliferum	2	—	2	20-70
Eccrine acrospiroma	13	7	6	10-70
Eccrine poroma	2	—	2	25-38
Eccrine spiradenoma	5	3	2	30-60
Chondroid syringoma	11	7	4	20-60
Dermal cylindroma	3	3	0	30-55
Sweat gland carcinoma	3	2	1	44-70
Total	50	26	24	10-70

**Fig. 1.** Papillary projections lined by tall columnar epithelial cells with numerous plasma cells in the stroma (H & E X100).**Fig. 2.** Papillary projections lined by apocrine epithelial cells (H & E X100).

### Eccrine acrospiroma

There were 13 cases of eccrine acrospiroma accounting for 26% of benign sweat gland tumours. Two lesions were located on the neck and 1 case each on the scalp, axilla, chest, abdomen, foot, back, leg, thigh and thumb. Clinically, 6 cases were diagnosed as sebaceous/dermoid cyst, 3 cases as neurofibroma, 2 cases as fibroma and 1 case each as haemangioma and cancer breast. Grossly, the tumours measured  $2 \times 1.5 \times 1$  cm to  $6 \times 4 \times 2$  cm. Six cases were cystic, 3 cases were partly cystic and 4 cases were solid. Histopathologically, it showed two types of epithelial cells, eosinophilic and clear cells in diffuse sheets with anastomosing cords, at places separated by hyalinized stroma (Figs. 3 and 4). Small to large cystic spaces were lined by eosinophilic epithelial cells containing eosinophilic fluid in the lumen. The epithelial cells showed a connection with the surface epithelium. The cytoplasm was PAS positive and diastase sensitive, indicating glycogen in the clear epithelial cells.

### Eccrine poroma

The tumours measured  $2 \times 1 \times 0.75$  cm to  $3 \times 2 \times 1.5$  cm. Microscopic features were identical to that of eccrine acrospiroma, the only difference being in respect of the site of

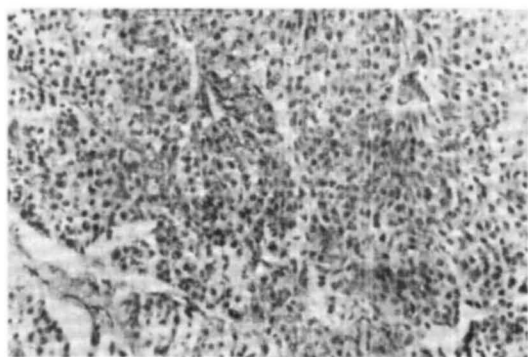


Fig. 3. Eccrine acrospiroma showing a clear cell pattern (H & E  $\times 100$ ).

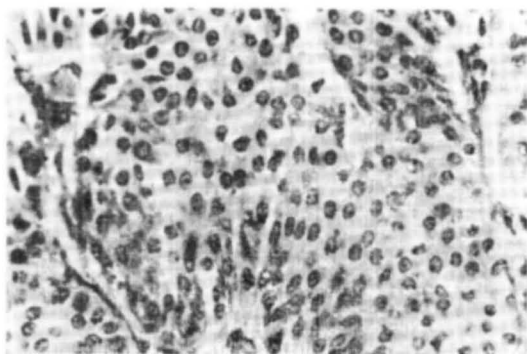


Fig. 4. Eccrine acrospiroma showing acidophilic cells (H & E  $\times 100$ ).

the lesion i.e. the foot. Hence called eccrine poroma.

#### Eccrine spiradenoma

One case each of eccrine spiradenoma was seen on the scalp, back, arm, upper eyelid and chest wall. Size of the tumour ranged from  $2 \times 1.5$  to  $7 \times 6 \times 3$  cm. Microscopically, the lesion was well encapsulated with small ducts lined by low cuboidal cells with prominent, darkly stained basophilic myoepithelial cells giving a bluish colour to the section (Fig. 5).

#### Chondroid syringoma

Two lesions were located over the cheek, and 1 each on the forehead, face, nose, axilla, gluteal region, thigh, arm, knee, back and

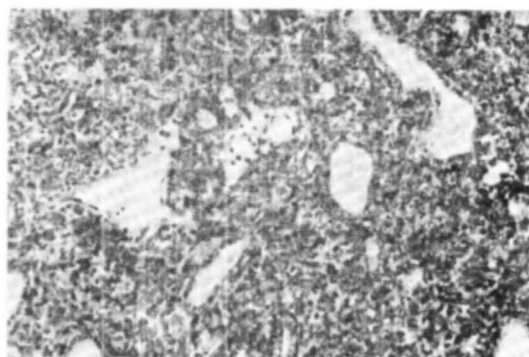


Fig. 5. Small tubular spaces lined by flattened epithelium and darkly stained myoepithelial cells from eccrine spiradenoma (H & E  $\times 100$ ).

scrotum. Size of the tumours ranged from  $1 \times 0.5$  cm to  $12 \times 10 \times 4.5$  cm. Clinically, 4 cases were diagnosed as neurofibroma, 3 as sebaceous cyst, 2 as epithelioma and 1 case each as fibroma and infected papilloma. Histopathologically, it showed both epithelial and mesenchymal components with myxomatous stroma and myoepithelial cell masses (Figs. 6 and 7). Apocrine duct component and chondroid matrix were seen in all the cases, adipocytes and epidermal component in 3 cases each, fibroblastic component in 4 cases, and keratin cyst in 2 cases. Eccrine duct, sebaceous differentiation and hair differentiation were not seen.

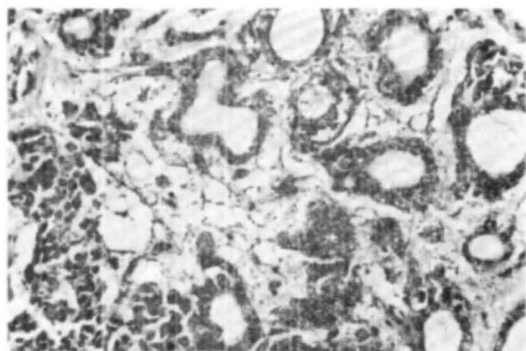


Fig. 6. Tubular spaces, myxoid ground substance and masses of myoepithelial cells in chondroid syringoma (H & E  $\times 100$ ).

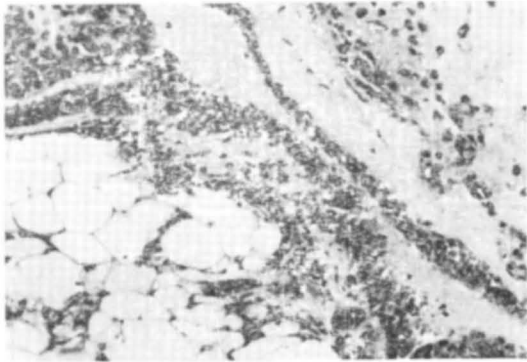


Fig. 7. Admixture of cartilage, bone, adipocytes and epithelial component (H & E×100).

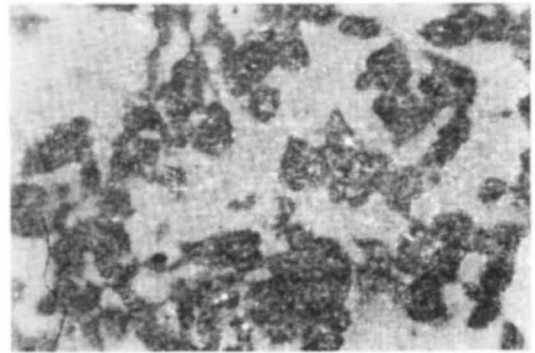


Fig. 8. Alveolar spaces with nests of epithelial cells in a mucinous pool (H & E×100 ).

### Dermal cylindroma

All the 3 cases were males. Microscopically, it showed closely packed, darkly stained, uniform sized epithelial cells surrounded by hyaline sheath with a lobulated appearance.

### Syringocystadenoma carcinoma

There were 3 (6%) cases of malignant sweat gland tumours. Two cases were males and 1 case a female. The average age was 53 years (Range 44-70 years). Two lesions were located on the arm and one on the back. Histopathologically, it was characterized by 2 cases of sweat gland carcinoma and one case of primary mucinous carcinoma.

### Primary mucinous carcinoma

A 65-year-old male had a primary mucinous carcinoma situated on the posterior upper one third of the left forearm for the last 10 years. First surgical intervention was done 6 years back and the growth measured  $6.5 \times 4.5 \times 2.5$  cm. Microscopically, it showed nests of solid and glandular epithelium surrounded by a pool of mucin (Fig. 8).

### Comments

Vaishnav and Dharkar<sup>3</sup> reported 48 adnexal tumours of skin, which included 39 sweat gland tumours accounting for 81% of the adnexal

tumours. Eccrine acrospiroma represented 51.8% of benign sweat gland tumours whereas syringocystadenoma papilliferum accounted for 20.5%. In the present study, sweat gland tumours accounted for 53.2%, while 30% of the sweat gland tumours included eccrine acrospiroma, and chondroid syringoma and syringocystadenoma papilliferum each accounted for 22% of sweat gland tumours. Helwig and Hackney<sup>4</sup> reported a large series of syringocystadenoma papilliferum and concluded that it is a verrucous lesion, observed equally in either sex before the age of 31 years and quite distinct from hidradenoma papilliferum. Hidradenoma papilliferum originally described by Werth<sup>5</sup> occurs exclusively in women involving labia majora or perineal and perianal regions. The tumour represents an adenoma with apocrine differentiation.<sup>6</sup> Liu<sup>7</sup> is credited with the report of clear cell papillary carcinoma of skin which was named as eccrine acrospiroma by Johnson and Helwig.<sup>8</sup> Eccrine poroma first described by Pinkus et al,<sup>9</sup> is histopathologically identical to eccrine acrospiroma, however, it occurs on the foot. The sweat gland tumours showing proliferation of myoepithelial cells, show interwinning cords of myoepithelial cells, hence named as eccrine spiradenoma by Lever<sup>10</sup> and Kersting and Helwig.<sup>11</sup> Chondroid syringoma shows both epithelial and mesenchymal com-

ponents and more than 300 cases have been reported in the literature.<sup>12-15</sup> Malignant transformation in chondroid syringoma is quite infrequent and only three cases have been considered malignant so far.<sup>16</sup> Sweat gland carcinomas are infrequent and there were only 5 cases in a series reported by Vaishnav and Dharkar.<sup>3</sup> The incidence of sweat gland carcinoma in the present study was only 6%, which included a case of primary mucinous carcinoma of skin. Lennox et al<sup>12</sup> first published a case of mucoid carcinoma of the scalp. Mendoza and Helwig<sup>17</sup> reported 14 cases of primary mucinous carcinoma of skin with stress on clinical and histochemical characteristics of the tumour.

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