

## PILOMATRIXOMA (CALCIFYING EPITHELIOMA) IN SARAWAK

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### SYNOPSIS

This is a report of 9 cases of Pilomatrixoma (Calcifying Epithelioma) recorded in 188 benign tumours of the skin and adnexa in Sarawak during 1976 and 1977, with an incidence of 4.7 per cent. Out of the seven Chinese patients four were females. One more female was a Kayan and the race of another female patient was not recorded. Except one, all were below the age of 20 years; the youngest being only 6 months old. In one lesion ossification was also detected.

### INTRODUCTION

Malherbe and Chenantais in 1880 described a tumour of the skin with characteristic histology consisting of "Basophilic Cells", squamous keratinized anuclear cells known as "Shadow Cells", and calcium deposition. The controversy whether this is a true neoplasm of the skin or a malformation of the hair follicle has been resolved by histochemical and electron microscopic study of the lesion by Hashimoto et al (3). They concluded that it is a malformation of the hair follicle. Thomas and Kothare (6) applying histochemical methods of staining have adduced strong evidence in favour of malformation of the pilosebaceous apparatus. Hence it should, more appropriately, be labelled "Pilomatrixoma" as suggested by Forbis and Helwig (2). It must also be realised that although the word "Epithelioma" connotes malignant epithelial neoplasm, "Calcifying Epithelioma" is a benign lesion.

Ch'in in 1933 reviewing the world literature found 116 cases of Calcifying Epithelioma and added 10 more of his own. Forbis and Helwig (loc cit) for their study have utilized material from 500 Pilomatrixoma recorded in the files of the Armed Forces Institute of Pathology. Since then several reports from various countries have been published. From the available literature this report appears to be the first from Sarawak (E. Malaysia)

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## MATERIAL AND METHODS

This is a report of 9 cases recorded in the biopsied material received in the Central Laboratory, Kuching and the Divisional Laboratory, Sibu during 1976 and 1977. Tissues were received in 10% formol-saline and representative portions were taken for paraffin block sections. Sections were routinely stained with Haematoxylin and Eosin. When necessary they were also stained with Periodic-acid-Schiff PAS method (5), with or without prior diastase digestion and counterstained with Alcian Blue AB (5). Von Kossa technique was employed to demonstrate calcium salts (5). Benign tumours of the skin and adnexa were classified as recommended in "Histological Typing of Skin Tumours" (7) and are listed in Table No. 1.

## RESULTS

There were 188 benign tumours of skin and adnexa including 9 Pilomatrixoma with an incidence of 4.7 per cent. Cases of Pilomatrixoma are listed in Table No. II. Six of these occurred in females. There were 7 Chinese, one Kayan and the race was not recorded in one patient. In six patients the lesion was on exposed parts of the body. The youngest was only 6 months and the oldest was 26 years. Four out of 8 patients, below the age of 20 years, were in the first decade of life. Grossly excised specimens were more or less spherical or oval in shape and varied in size. The largest was 1.8 x 1.5 x 1.0 cms. The cut surface was greyish in colour and firm to feel. Histology showed the characteristic "Shadow Cells" surrounded by "Basophilic Cells" separated by variable amount of connective tissue stroma. In the latter, at places,

## PILOMATRIXOMA

TABLE NO. II

RACE	SEX	AGE	EXACT SITE
CHINESE	FEMALE	17 years	NOT KNOWN (SKIN)
CHINESE	MALE	16 years	NECK
CHINESE	FEMALE	14 years	FOREHEAD
CHINESE	MALE	9 years	CHEST
CHINESE	FEMALE	8 years	LT. PAROTID REG.
CHINESE	MALE	16 years	NECK
CHINESE	FEMALE	6 months	SCALP
NOT KNOWN	FEMALE	26 years	NOT KNOWN (SKIN)
KAYAN	FEMALE	10 years	ARM

foreign body giant cell reaction was evident. Calcium salts, in variable amounts, were seen in all specimens. In one, an area of ossification was also detected. In all cases the diagnosis was established after histological examination (Fig. 1 & 2).

## DISCUSSION

It is interesting to note that over a period of two years 9 cases of Pilomatrixoma were encountered. The majority of the patients were Chinese. The Chinese like Malays and Dayaks belong to the Mongoloid race. Generally the Mongoloid race have scanty hair growth. It would be interesting to explore the possibility of scanty hair growth to defective pilosebaceous apparatus and to correlate with the frequent occur-

## BENIGN TUMOURS OF SKIN AND ADNEXA

RACE, SEX &amp; INCIDENCE

TABLE NO. I

TYPE	CHINESE		DAYAKS		MALAYS		"OTHERS"		TOTAL	INCIDENCE %
	M	F	M	F	M	F	M	F		
1. SEB. CYST	7	2	3	1	8	3		2	26	13.8
2. EPI. CYST	17	11	8	5	18	1	3	1	64	34.0
3. SKIN PAPILLOMA	15	10	4	2	9		2	1	43	22.8
4. CHONDROID SYR.	1								1	0.5
5. SPINDLE CELL NAEVUS						1			1	0.5
6. SW. GL. ADENOMA					1	2			3	1.5
7. SEB. GL. ADE.		1							1	0.5
8. NAEVUS C. TUMOUR	7	18	3	2	3	3	1	3	40	21.2
9. PILOMATRIXOMA	2	5						1	8 + 1	4.7

Key

1. SEBACEOUS CYST

4. CHONDROID SYRINGOMA

7. SEBACEOUS GLAND ADENOMA

2. EPIDERMAL CYST

6. SWEAT GLAND ADENOMA

8. NAEVUS CELL TUMOUR

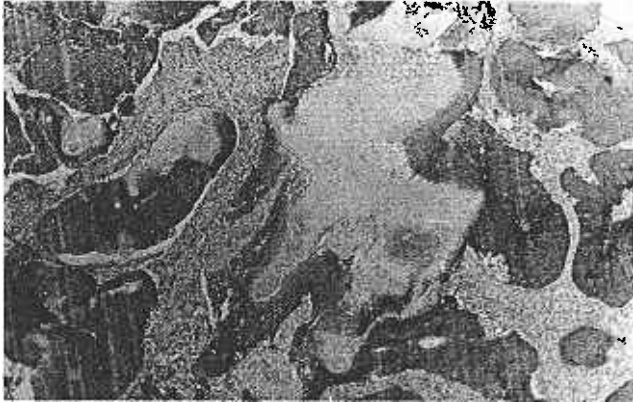


Figure 1. Photomicrograph showing "Shadow Cells" surrounded by "Basophilic cells", (H. & E. 60 x).

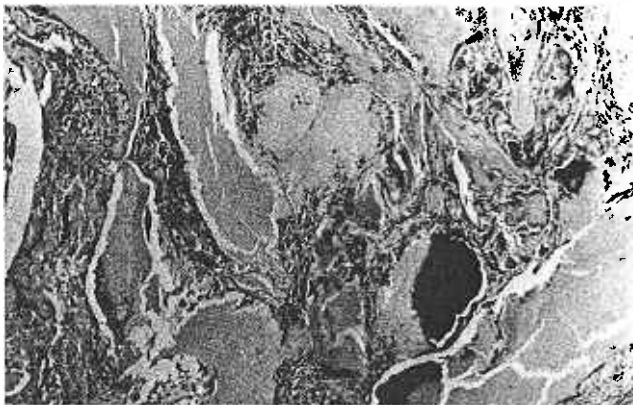


Figure 2. Photomicrograph showing "Shadow Cells", foci of calcification (black) and foreign body giant cell reaction in the stroma, (H. & E. 600 x).

rence of Pilomatrixoma in Sarawak's population. Thomas and Kothare (loc cit) have observed malformed hair follicles in the skin surrounding such lesions and have suggested that patients with malformed hair follicles at birth tend to develop this lesion in early adult life. The occurrence of such a lesion in a six months old Chinese female infant in the present

series is a point in favour of the above view.

Ossification in Pilomatrixoma is not unknown (4). Thomas and Kothare (loc cit) reported ossification in 3 out of 8 lesions studied. In this series ossification was detected in one case. With the use of PAS and AB stains it was possible to identify this as woven bone.

Forbis and Helwig (loc cit) have stated that 97.0 per cent of their patients were White, 1.0 per cent Negro and 2.0 per cent Orientals. This finding would suggest predilection of White races. All 10 cases reported by Ch'in (loc cit) were Chinese. In the series published by Thomas and Kothare (loc cit) all patients were Indians. In the present report the majority were Chinese. These findings suggest that Pilomatrixoma occurs in all races.

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