Correlation of Histological Subtypes of Basal Cell Carcinoma with Age, Sex and Distribution of Skin Lesions : A Five-Year Study at Ramathibodi Hospital

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Abstract

Records and histopathology of skin lesions of patients with basal cell carcinoma (BCC) who attended the skin clinic at Ramathibodi Hospital from 1993 to 1997 were reviewed to find the correlation of histological subtypes with age, sex and distribution on the body of BCC. It was found that superficial BCC was significantly more common on the trunk, while other types were significantly more common on the head and neck. The mean age and sex of the patients with superficial BCC were not different from those other subtypes. It was concluded that superficial BCC tended to be more common on the trunk while other types were more common on the head and neck. The pathogenesis of superficial BCC may be different from other types of BCC.

Key word : Basal Cell Carcinoma, Histological Subtypes

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Basal cell carcinoma (BCC) is the most common skin cancer that affects light-skined people (1). It is not common in Oriental populations(1,2). In Thailand, basal cell carcinoma is not common: the incidence is about 0.01 per cent of new patients seen at the Institute of Dermatology each year(3) and about 0.2 per cent of new patients seen at the Division of Dermatology, Ramathibodi Hospital each year. Among the three skin cancers, BCC is still more common than squamous cell carcinoma and malignant melanoma: annual incidences of 0.2 per cent, 0.1 per cent and 0.08 per cent respectively on analysis of patients seen at the Division of Dermatology, Ramathibodi Hospital. To date, there has been

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no study that compared the histological subtypes of basal BCC with age, sex and distribution of tumor among Oriental people.

The purpose of this study was to find the correlation of histological subtypes with age, sex and distribution on the body of BCC in Thai patients at Ramathibodi Hospital.

MATERIAL AND METHOD

Records of patients with basal cell carcinoma who attended the dermatology clinic at Ramathibodi Hospital from 1993 to 1997 were reviewed with regard to age, sex, distribution of skin lesions, occupation and history of arsenic intake (including signs and symptoms of chronic arsenic poisoning). The histopathological results of skin lesions were reviewed by the authors. The histopathological subtypes of BCC were classified according to Lever[4].

For statistical analysis, chi-square test and Z test were used to determine the correlation and statistically significant difference ($p<0.05$ was considered to be statistically significant).

RESULTS

Among 74 patients studied, 54 were female and 20 were male, (female to male ratio = 2.7: 1). Four patients had two skin lesions. Their age range was 29-91 years and mean age was 62.97 ± 14.29. The most common site of skin lesions in both sexes was on the head and neck (Table 1). The most common histological subtype of BCC was solid, circumscribed type (29.5%) (Table 2). Superficial type accounted for only 14.1 per cent of the patients.

Table 1. Sex of patients categorized according to site of lesions.

Site of lesions	Male	Female	Total
Head and neck	18	49	67
Trunk	2	4	6
Upper limb	-	-	-
Lower limb	-	2	2
Not stated	2	1	3
Total	22	56	78

* Four patients had lesions at two sites.

In comparison between superficial and other types (Table 3), superficial type was significantly more common on the trunk (Z test, p=0.0036), while other types were significantly more common on the head and neck (Z test, p=0.0094).

The mean age of patients with the superficial type was not statistically significantly different from that of other types (*t*-test, p=0.44) (Table 4). There was no difference between males and females in the group with superficial BCC and other types of BCC (Fisher exact test, p=0.494) (Table 5).

There was no correlation between sex and site of skin lesion (Chi-square test, p=0.77) (Table 1). There was no significant difference for each body site between men and women (head and neck region, Z test, p=0.4168; trunk, Z test, p=0.3192).

The mean age between patients who worked in agriculture and those with other occupations was not significantly different (*t*-test, p=0.209). There

Table 2. Patients with each histological subtype of basal cell carcinoma by location of tumor.

Histological subtype	No. of Patients											
	Head and neck		Trunk		Upper limb		Lower limb		Not stated		Total	
		%		%		%		%		%		%
Solid, circumscribed	20	25.6	1	1.3	-	-	1	1.3	1	1.3	23	29.5
Solid, infiltrative	1	1.3	-	-	-	-	-	-	-	-	1	1.3
Keratotic	6	7.7	-	-	-	-	-	-	-	-	6	7.7
BCC with sebaceous												
Differentiation	1	1.3	-	-	-	-	-	-	-	-	1	1.3
Adenoid	11	14.1	1	1.3	-	-	-	-	1	1.3	13	16.7
Noduloulcerative	9	11.5	-	-	-	-	-	-	1	1.3	10	12.8
Pigmented	7	9.0	1	1.3	-	-	-	-	-	-	8	10.3
Morpheic like	5	6.4	-	-	-	-	-	-	-	-	5	6.4
Superficial	7	9.0	3	3.8	-	-	1	1.3	-	-	11	14.1
Total	67	85.9	6	7.7	-	-	2	2.6	3	3.8	78	100

Table 3. Site of lesion in superficial and other types of BCC.

Site of lesion	Superficial	Other types
Head and neck	7	60
Trunk	3	3
Upper limb	-	-
Lower limb	1	1
Not stated	-	3
Total	11	67

Table 4. Age of patients with superficial BCC and other types.

Age (years)	Superficial BCC	Other types
10-20	-	-
21-30	-	1
31-40	1	6
41-50	-	5
51-60	2	12
61-70	6	21
71-80	1	15
81-90	-	7
91-100	-	1
Mean ± SD	60.0 ± 10.12	63.55 ± 14.56

Table 5. Sex of patients with superficial BCC and other types.

Sex	Superficial BCC	Other types
Male	4	18
Female	7	49
Total	11	67

Table 6. Body site of lesion in agricultural workers and other occupations.

Body site	Agricultural workers	Other occupations
Head and neck	7	60
Trunk	-	6
Upper limb	-	-
Lower limb	-	2
Not stated	-	3
Total	7	71

was no correlation between the sites of lesions and occupations of the patients. (Table 6) (chi-square test, p=0.65). There was no difference between both groups with regard to head and neck region (Z test, p=0.1635).

Among 5 patients who had chronic arsenic poisoning, two patients had superficial BCC, three patients had other types of BCC (Table 7).

DISCUSSION

In this study it was found that the histological subtypes of BCC varied with regard to location on the body. Superficial BCC was significantly distributed more commonly on the trunk while other subtypes were more common on the head and neck region. This is in agreement with the study done by Mc Cormack et al[5] who also mentioned that the distribution of superficial BCC was similar to the pattern of distribution of nodular melanoma and superficial spreading melanoma[6,7]. The more common occurrence of superficial BCC on the trunk may be related to intermittent sunlight exposure, while the more common occurrence of other subtypes of BCC on the head and neck region may be related to cumulative sunlight exposure. The mean age of patients with superficial BCC was not different from other subtypes of BCC but different from the study by Mc Cormack et al[5].

In the present study, most of the skin lesions were found on the head and neck in both sexes. However, two women had lesions on the lower limb but none of the men did. An explanation for this is the difference in clothing and sun exposure that has previously been reported[8]. The higher occurrence of BCC in females than that in males may be explained by females being more concerned about skin problems than males.

Of interest in the present study is chronic arsenic poisoning; many histological subtypes of BCC can occur in such patients. As no predominant BCC subtype occurred in this group of patients, this is in contrast with the reported finding that BCC caused by arsenic usually is superficial BCC[9].

There was no difference between the patients who worked in agriculture and those who had other occupations. This may be due to the small sample

Table 7. Types and body site of BCC in 5 patients with chronic arsenic poisoning.

Patient (Age/Sex)	Type of BCC	Body site	Other findings
64/F	Superficial	Trunk, multiple lesions	Arsenical keratosis, hypo and hyperpigmentation on trunk
57/M	Superficial	Head and neck	Arsenical keratosis
91/F	Keratotic	Head and neck	Squamous cell carcinoma
43/M	Solid, circumscribed	Trunk	Arsenical keratosis
64/M	Adenoid	Not stated	Arsenical keratosis, Bowen's disease

F = female, M = male

size or to the wearing of large hats by agricultural workers to protect their head and neck region.

In conclusion, superficial BCC tended to be more common on the trunk while other types of BCC were more common on the head and neck region. This finding suggested that superficial BCC may have a different pathogenesis from other subtypes of BCC ie. superficial BCC may be related to intermittent sunlight exposure while other subtypes of BCC may be related to cumulative sunlight exposure. There was no difference between superficial BCC and other types of BCC with regard to age and sex of the patients. The location of BCC was not different between the sexes. There was no difference between agricultural workers and those with other jobs with regard to body site of skin lesions.

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ความสัมพันธ์ระหว่างจุลพยาธิวิทยาแบบต่าง ๆ ของมะเร็งผิวหนังชนิดเบซัล เซลล์กับอายุ เพศ และตำแหน่งของการเกิดรอยโรคที่ผิวหนัง: การศึกษา 5 ปี ในโรงพยาบาลรามาธิบดี

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ได้ศึกษาทะเบียนประวัติและจุลพยาธิวิทยาของรอยโรคที่ผิวหนังในผู้ป่วยที่เป็นมะเร็งผิวหนังชนิด basal cell ซึ่งมารับการตรวจที่คลินิกโรคผิวหนังโรงพยาบาลรามาธิบดี ระหว่างปี พ.ศ. 2536–2540 เพื่อเปรียบเทียบความสัมพันธ์ระหว่างชนิดของมะเร็งผิวหนัง basal cell ซึ่งแบ่งตามลักษณะทางจุลพยาธิวิทยากับอายุ, เพศ และตำแหน่งของรอยโรค พบว่า superficial basal cell carcinoma (BCC) พบได้บ่อยที่ลำตัว ในขณะที่ BCC ชนิดอื่นพบบ่อยที่ศีรษะและคอ อายุและเพศของผู้ป่วยในกลุ่มที่เป็น superficial BCC ไม่ต่างกับ BCC ชนิดอื่น สรุปได้ว่าการที่ superficial BCC มักพบบ่อยที่ลำตัว ในขณะที่ BCC ชนิดอื่นมักพบบ่อยที่ศีรษะและคออาจเนื่องจาก พยาธิกำเนิดของ superficial BCC ต่างกับ BCC ชนิดอื่น

คำสำคัญ : มะเร็งผิวหนังชนิดเบซัล เซลล์, จุลพยาธิวิทยาแบบต่าง ๆ

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