SKIN TUMOURS IN AND AROUND ALIGARH*

(A Clinicopathological Study)

M. H. Khan M. S., M. S. (Plastic Surgery) ***S. P. Tyagi M. D., M.R.C. Path (London) ****I. S. Ahuja M.B.B.S. *****A. Ansari M. S. ******Nirmala Tyagi M.D.***

Skin being the most superficial structure, constituting about 16 percent of body weight in adult covering an area of about 19000 sq. cm. has attracted the attention of medical men since ancient time for change in its texture, colour and any tumour formation. Hippocrates (460 B. C. to 360 B. C.) is credited with the first recorded clinical observation of cutaneous melanoma which he labelled, Black 'Black tumour of skin'.

Tumours of the skin offer a unique opportunity for erradication and cure. Indeed if all the skin tumours are adequately treated at an early stage of development, the current morbidity and mortality rates could be greatly reduced. A remarkable difference in the incidence and type distribution of skin tumours has been noticed in different parts of the world (W. H. O. Report 1965, American Cancer Society (1967). The difference may be due to genetic change or to the so called racial and environmental factors, customs and habits of the people in different parts.

The present study was undertaken to assess the distribution of different tumours, their clinical presentations and to evaluate the effectiveness of various methods of treatment.

Material and Methods :

The study is basen on an analysis of 124 patients treated at the Jawaharlal Nehru Medical College Hospital, Aligarh Muslim University, Aligarh during the period of 1973 to August 1978. Only those cases were included in whom the diagnosis was confirmed hist opathologically.

Out of 124 cases (64 (51.6 per cent) were harbouring benign tumours and the rest 60 (48.4 per cent) had malignant growths (Table 1).

Age and Sex :

The age distribution of these cases is shown in table II. There was a slight preponderance of males as compared to females, male/female ratio being 1.7 : 1. Malignant tumours were more common in males as compared to females (M/F ratio=2.53 : 1) whereas females outnumbered males in cases of haemangioma and pigmented naevi though male/femaleratio for benign tunours was 1.2 : 1.

---

*Paper presented in the IV Asian Cancer Conference held at Bombay on 4th to 8th December 1979.

**Professor of Plastic Surgery ***Reader in Pathology ****Ex-Registrar in Surgery *****Lecturer in Surgery ******Lecturer in Pathology

From the Departments of Surgery and Pathology, Jawaharlal Nehru Medical College, Aligarh Muslim Universitr, Aligarh (202001), *U. P.*

Table I

Histopathological Diagnosis of 124 Skin Tumours

Lesions	Number of cases	Percentage
A. Malignant Tumours :		
Squamous cell carcinoma	42	33.9
Basal cell carcinoma	11	8.8
Melanoma	5	4.0
Metastatic carcinoma	2	1.6
B. Benign Tumours		
Haemangioma	30	24.2
Lymphangioma	4	3.2
Pigmented nevi	6	4.9
Papilloma	15	12.1
Fibroma	6	4.9
Neurofibroma	3	2.4
Total	124	100.0

Table II

Age Distribution of Cases of Skin Tumours

Age Groups	Benign Tumours		Malignant Tumours	
	Number	Percentage	Number	Percentage
Upto 10 years	20	31.2	1	1.6
11—20	20	31.2	5	8.3
21—30	13	20.3	6	10.0
31—40	6	9.3	7	11.7
41—50	1	1.6	10	16.7
51—60	3	4.8	18	30.0
61—70	1	1.6	7	11.7
Above 70 years	—	—	6	10 0
Total	64	100.0	60	100.0

Benign tumours were more common upto second decade (62.4 per cent) whereas malignant tumours were common in fifth and sixth decades (46.7 per cent). Only six cases (9.9 per cent) of malignant tumours were observed below 20 years.

Religon :

Out of 124 cases Hindus were 69 (55.7 per cent), Muslims 52 (41.9 per cent) and others 3 (2.4 per cent). There was a preponderance of Muslims as compared to the Hindu/Muslim population ratio of the Aligarh District. But this could be attributed to the fact that the Medical College Hospital of Aligarh Muslim University mostly cater to the Muslim population of the Aligarh District and the near by districts.

Occupation :

The cases harbouring benign tumours were mostly students 18 (28.1 per cent), children 18 (28.1 per cent) and housewives 10 (15.7 per cent). On the other hand malignant tumours were more common in farmers, 31 cases (51. 7 per cent) followed by household workers 15 (25.0 per cent). Only 3.3 per cents were factory workers. Amongst 31 farmers 20 has squamous cell carcinoma, 7 basal cellcarcinoma, 7 basal cellcarcinoma, 3 melanoma and 1 metastatic carcinoma.

Topographical Distribution of Skin Tumours :

Table III shows the distribution of the tumours according to the site. The commonest site was face where 29 tumours (Benign) and 19 tumours (Malignant) were observed.

Malignant Tumours :

The incidence of malignant skin tumours was 8.19 per cent of all the malignancies diagnosed histopathologically during the same

period. The commonest lesion was squamous cell carcinoma seen in 42 cases (70.0 per cent) followed by basal cell carcinoma 11 cases (18 4 per cent), melanoma 5 (8.3 per cent) and metastatic carcinoma 2 (3.3 per cent).

(a) **Squamous Cell Carcinoma :**

The age of these cases ranged from 10 to 80 years, average age being 48.2 years. Peak incidence was seen in sixth decade (30.9 per cent), Out of 42 cases of squamous cell carcinoma induced type was seen in 12 cases (28.6 per cent) and the rest 30 cases (71.4 per cent) were of 'de novo' type. The anticedent factors in induced type were chronic ulcers in 5 cases (41.7 percent), burn scar in 3 (25.0 per cent), traumatic scar in 2 (16.7 per cent), operative scar in 1 (8.7 per cent), burn scar in 3 (25.0 per cent), traumatic scar in 2 (16.7 per cent), operative scar in 1 (8.7 per cent) and chronic sinus in 1 (8.7 per cent). The average period of the appearance of squamous cell carcinoma after burn was 18.4 years though in one case it appeared after 6 years in a boy of 10 years.

Clinically the tumour presented as ulcer in 40 cases (95.2 per cent) where as in two cases (4.8 per cent) there was a swelling. Other symptoms were pain in 45.2 percent and itching in 26.2 per cent. Histologically the morphology of well differentiated squamous cell carcinoma was seen in 30 cases, of moderately differentiated in 9 cases and poorly differentiated in 3 cases. The adjacent dermis was infiltrated by mononuclear cells. Granulomatous lesion was seen in 2 cases.

Spread of the tumour was very restricted. Lymphnode metastasis was noticed in 7 cases (16 7 percent), involvement of deeper structure (muscles and bones) in 4 cases (9.5 per cent) and distant metastasis to lung was observed in one case (2.4 per cent) at the time of admission.

Basal Cell Carcinoma :

This tumour constituted 18.3 per cent of all the malignant tumours of the skin. Out of 11 cases 10 (90.9 per cent) occurred in the region of head, neck and face whereas in one case (9.1 per cent) tumour was located at the trunk. The ratio between basal cell carcinoma and squamous cell carcinoma was 1 : 3.8. The age of these cases ranged from 18 to 90 years, average age being 53.2 years. In one case the tumour developed over a chronic skin lesion. In two cases there was a history of hypersensitivity to sunlight.

Table III

Topographical Distribution of skin tumours

Site	Benign Tumours		Malignant Tumours	
	Number	Percentage	Number	Percentage
Head and Neck	9	14.1	10	16.7
Face	29	45.3	19	31.7
Trunk	8	12.5	6	10.0
Upper extremity	9	14.1	8	13.3
Lower extremity	6	9.3	17	28.3
Multiple	3	4.7	—	—
Total	64	100.0	60	100.0

The lesion was ulcerative in all the case The other symptoms observed by the patients were itching in 4 cases pigmentation and tenderness in 3 cases and pain in 2 cases. In five cases the ulcer bled on touch. In nine cases the morphology was characteristic of a typical basal cell carcinoma, sheets of darkly tained cells invading deep into the dermis and the peripheral cells arranged in a palisading manner. In two cases the morphology was of basisquamous cell carcinoma.

(c) **Melanoma** : (5 cases)

The age of these cases was 20,32,55,60 and 68 years respectively average age being 48.4 years. Three cases were male farmers and had lesion on the foot while in other two cases the tumour was on the face and on forearm.

Out of 5 cases ulcer was noticed in 4 whereas nodule was present in one case. Pre-existing naevus was seen in three cases. Regional lymphnode metastasis was noticed in 3 cases (60.0%).

(d) *Metastatic Carcinoma Skin* : (2 Cases)

Both the cases were male aged 30 years and 56 years respectively. The primary site was carcinoma of gall bladder and carcinoma of bronchus. Clinically the lesion appeared as solid elevated nodule on the skin.

Benign Tumours :

(a) *Haemangioma* : (30 cases)

This was the commonest benign tumour of the series seen in 46.9% of cases. Male/female ratio was 1 : 1.3 i. e. a slight preponderance was observed in females. Maximum number of cases (50.0%) were seen in the first decade while 90.0% cases were under 30 years of age. Topographically in 22 cases (73.3%) in haemangioma was noticed in the region of head, neck and face, 5 (16.7%) in upper extremity, 2 (6.7%) in the region of trunk and 1 (3.3%) in lower extremity. Morphologically capillary haemangioma was noticed in 5 cases (16.7%), cavernous haemangioma in 22 cases (73.3%) and sclerosing type in 3 (10.0%).

(b) *Papilloma* : (15 cases)

This tumour constituted 23.4% of all the benign tumours of skin. Eleven were males as compared to 4 females. Male/female ratio was 2.8 : 1. Commonest age group was second decade in which 6 cases (40.0%) were noticed though 12 cases (80.0%) were below 30 years of age. Six cases were noticed in the region of head, neck and face, 4 in trunk, 3 in upper extremity and 2 in lower extremity.

(c) *Pigmented naevi* : (6 cases)

These were mostly encountered in second decade (4 out of 6). The average age of these casese was 20.5 years. Male to female ratio was 1 : 2. All of these occurred on face because only those cases visited the hospital who have some cosmetic problems. Histologically 5 were of intradermal naevus and one of junctional naevus.

Treatment :

Fortytwo cases (70.0%) of malignant tumours were treated by surgery alone. In 7 patients (11 6%) surgery was combined with post operative radiotherapy. Radiotherapy alone was given in 18.4% cases. In radiotherapy Cs^{137} deep x-ray therapy in dosage varying from 3500 r to 6000 r was given. The various methods of surgery used in 49 cases of malignant tumours have been summarised in Table IV. Elective lymphnode resection was done in 2 cases of squamous cell carcinoma and 2 cases of melanoma.

For benign tumours surgery was carried out in 50 cases (78.2%). Seven patients (10.9%) of haemangioma were given local injections while in other 7 cases 5 haemangioma, 1 lymphangioma and 1 neurofibroma) only conservative treatment was done. The various methods used in surgical treatment of benign tumours are summarised in Table V.

Table IV

Methods used in Surgical Treatment of Malignant skin tumours (49 cases)

Type of Surgical Treatment	Squamous cell Carcinoma	Basal cell Carcinoma	Melanoma	Number of Cases
Excision and direct closure	2	1	1	4(8.2%)
Excision and coverage with local flaps	7	3	1	11(22.4%)
Excision and coverage with full thickness free skin graft	4	—	—	4(8.2%)
Excision and coverage with partial thickness free skin graft	20	5	2	27(55.1%)
Excision and coverage with distant flaps	2	1	—	3(6.1%)
Total	35	10	4	49(100.0%)

Table V

Methods used in surgical treatment of Benign Skin Tumours (50 cases)

Surgical Methods of Treatment	Haema-ngioma	Lymph-angioma	Pigment-ed Nevi	Papillo-ma	Fibroma	Neurofi-broma	Number of cases	Percen-tage
Electrocoagulation and ligation of vessels	8	—	—	—	—	—	8	16.0
Excision and direct closure	4	3	4	15	6	2	34	68.0
Excision and coverage with local flaps	2	—	—	—	=	—	2	4.0
Excision and coverage with full thickness free skin graft	—	—	1	—	—	—	1	2.0
Excision and coverage with partial thickness free skin graft	3	—	1	—	—	—	4	8.0
Excision and coverage with distant flaps	1	—	—	—	—	—	1	2.0
Total	18	3	6	15	6	1	50	100.0

Results of Treatment :

The results were evaluated on the basis of the following criteria.

(a) Good : If the lesion was fully cured and there was no cosmetic deformity.

(b) Fair : If the condition was cured but some acceptable cosmetic deformity resulted after treatment.

(c) Unsatisfactory : If the lesion was not fully cured or a gross cosmotic deformity resulted.

The results of the treatment were good in 87 cases (70.1 percent), fair in 18 cases (14.5 percent) and unsatisfactory in 19 (15.4 percent).

Discussion :

Cancer of the skin is fairly common in white race, the incidence being 20 percent in males and 11 percent in females in U. S. A. Similar incidence has also been observed in U. K., France, Switzerland and Australia (American Cancer Society Report 1967). The incidence is fairly low in our country ranging from 1.9 percent in Bombay to 9.0 percent in Calcutta (W. H O. Report 1955). Other workers have also reported similar ineidence of malignant growths of skin (Baruah 1962, 4.9; Chitkara et al 1965, 9 percent; Tyagi et al 1965, 8.3 percent; Chakravorty and Dutta Choudhuri 1968, 1.87 percent and Budhraja et al 1972, 2.08 percent. In the preeent series the incidence was 8.18. Thus the incidence was 8.19 pereent. Thus the incidence of skin cancer is comparatively on higher side in Northern India as similar incidence of skin cancer has been reported from Kanpur (Tyagi et al 1965).

Squamous cell carcinoma was the commonest tumour in the present series. Thus the present observation was in accord with those of others (Tyagi et al 1965, 71.58 percent; Chakravorty and Dutta Choudhuri 1968, 64.3 percent; Godbole et al 1968, 83.2 percent; Talvalkar 1970, 63.8 percent, Tripathi et al 1977, 61.0 percent though some studies have revealed a comparatively low incidence (Jussawalla et al 1970, 42.1 percent and Budhraja et al 1972, 49.2 percent).

The incidence of induced squamous cell carcinoma (28.6 percent) was similar to the observations of Talvalkar (1970, 21.1 percent) but lower than those of Chakravorty and Dutta Choudhuri (1968, 54 percent) and Paymaster (1971, 40 percent). The main factors responsible for induced carcinoma were chronic ulcers and postburn and traumatic scars as have also been reported by others (Chakravorty and Dutta Choudhuri 1968, Talvalkar 1970, Paymaster 1971, Budhraja et al 1972).

Majority of the cases were farmers (47. 6.0 percent, the people more exposed to trauma and sunlight. Lag period in cases of carcinoma developing after burn was 18.4 years, compatively a low period as reported by others (Lawrence 1952, 32 years; Paymaster 1971, 25 years; Budhraja et al 1972, 24.8 years). Clinically in 95.2 percent cases the growth was ulcerative which is a usual feature of squamous cell carcinoma (Haber 1966). Morphologically in 30 cases the tumour was well differentiated. Such types of tumours are relatively less malignant, the keratinised cells are not capable of reproduction (Haber 1969). The lymphnode metastases was seen in 16.7 percent cases. Bostwick et al (1976) have reported that squamous cell carcinoma occurring in scar tissue become rapidly lethal after the metastases. The same was observed in two cases where the lesion progressed fast and the general condition of the patients deteriorated in a very short time after lymphnode metastases.

The incidence of basal cell careinome was much less to what is reported from the western countries (Conway 1957, 61 persent; Belisario 1959, 71 percent; Mohar 1976, 67.6 percent). In our country the indidence has been reported to vary from 11 percent to 34.9 percent (Sirsat 1952, 34.9 percent; Tyagi et al 1965, 16.8 percent; Chitkara et al 1966, 27 per cent; Chakravorty and Dutta Choudhuri 1968, 12 percent; Godbole et al 1968, 11.2 percent and Paymaster 1971, 30 percent). The ratio between basal cell carcinoma and squamous cell carcinoma was 1:3.8 though other workers have repooted a comparatively low figure (Paymaster 1971, 1 : 2; Budhraja et al 1972, 1 : 2.8). The average age of these cases was 53.2 years, a finding similar to the observations of others (Godbole et al 1968, 56.7 years; Budhraja et al 1972, 50.1 years).

Incidence of melanoma was fairly low, a finding identical to the observations of one of the authors (SPT) at Kanpur (Tyagi et al 1965) though other workers have reported incidence of melanoma to vary from 1.6 percent (Godbole et at 1968) to 29.4 percent (Budhraja et al 1972). In the Caucasians melanomata are distributed over the head and neck while in Orients, Indians, Chinese and Malayans they occur mostly in the lower extremities as also in the present study 60 percent occurred in the lower extremity.

Metastatic carcinoma cases were only two. Reingold (1966) has emphasized that there is early fatal termination of the cases once skin metastases have occurred.

Haemangiomas comprise the largest group of neoplasms of childhood. One third of all babies have lesions of some type and almost all of these disappear spontaneously in early childhood (Waisman 1968). In the present study out of 21 tumours occurring in the first decade 15 (71.4 percent) were haemangiomas The commonest site was in the region of head and neck including face as 73.3 percent tumours were seen in this area. Commonest variety was cavernous haemangioma. This type is generally associated with other congenital anomalies and familial incidence is noted in 10 to 15 percent cases (Waisman 1968). Multiple lesion generally develop in 25 percent cases and Pack and Ariel (1958) have advised suspecting the visceral haemangiomatosis in such cases. Persistent haemangiomas according to Walter (1953) are less sensitive than others to radiation and respond poorly to treatment.

Surgery should be resorted to where complete removal of the tumour is possible. Excision and direct closure is the treatment of choice in small sized tumours. In such cases the histopathologist must report whether the tumour has been completely excised or not. If not removed in toto there are fair chances of recurrence of the tumour. Free split thickness skin grafts should be used in cases of large tumours of skin where other methods of coverage are not possible. Such grafts, however, provide poor colour match. Full thickness skin graft from the post auricular region provide best cover for the small tumours (less than 1 cm. size) on the face. Local rotation flaps should be used for the reconstruction of defects after excision of deep invasive tumours of the skin on face.

The results of local injection therapy in cases of haemangiomata are usually unsatisfactory. It was found that the electrocoagulation and ligation of feeding vessels produces regression of large haemangiomas over the cheek. Waisman (1968) has advised that small haemangiomata (less than 5 mm.) on face should be treated with solid carbon dioxide. Radiotherapy was used only in inoperable ca-

ses. It generally fails when the tumour is insensitive or hypopoxic cells survive towards the centre of the tumour (Wilson 1976). or there is extensive involvement of bone and presence of sepsis and edema (Lee and Wilson 1973).

Summary :

One hundred twentyfour casses of skin tumours treated at Jawaharlal Nehru Medical College Hospital, Aligarh Muslim University, Aligarh were reviewed. Sixty cases had malignant tumours and the remaining 64 benign tumours. Squamous cell carcinoma was the commonest malignant tumour (70.0 percent). The others were basal cell carcinoma (18.4 percent),melanoma (8.3 percent) and metastatic carcinoma (3.3 percent). Skin malignancy constituted 8.19 percent of all malignant growths diagnosed histopathologically.

Haemangioma was the commonest benign tumour (46.9 percent), commonly seen in children. Male female ratio of all tumours was 1. 7 : 1. Benign tumours were seen mostly in children and students while malignant ones were common in farmers.

Surgery was the treatment of choice. Radiotherapy was used in inoperable cases. The merits and demerits of different methods of surgical treatment have been discussed.

References

1. American Cancer Society : Statistics on cancer., Cancer **17**, 34, 1967.
2. Baruah, B. D. : Incidence of cancer in Assam, Indian J. Med. Sci., **16**, 1021, 1962.
3. Belisario, John C. : Cancer of the skin. Butterworth & Co. London, Ist Ed. 1959.
4. Bostwick, J., Pendergrast, W. J. and Vasconez, L. O. : Marjolins ulcer. An immunologically previlaged tumour. Pl. & Rec. Surg. **57**, 66, 1976.
5. Budhraja, S. N., Velayudhan Pillai, V. C., Pariyanayagam, W. J., Kaushik, S. P. and Bedi, B. : Malignant neoplasms of the skin in Pandicherry (A study of 102 cases). Indian J. Cancer **9**, 284, 1972.
6. Chakravorty, R. C. and Duttachoudhuri, R. : Malignant neoplasms of the skin in Eastern India. Indian J. Cancer **5**, 133, 1968.
7. Chitkara, N. L., Chugh, T. D. and Arya, R. K. : Cancer in Punjab. Indian J. Cancer **3**, 94, 1965.
8. Conway, H. : Tumours of skin, Charles C. Thomas, Springfield, Illionis, USA, Ist Ed. 1956.
9. Godbole, V. K., Toprani, H. T. and Shah, H. H. : Skin cancer in Saurashtra, Indian J. Path. & Bact. **11**, 183, 1968.
10. Haber, H. : Chapter XXXIX The Skin in Systemic Pathology Vol. II Edited by Wright and Symmers, Longmans, London, 1966.
11. Jussawalla, D. J., Despande, V. A. and Pai, A. M. : Histological typing of cancer in Greater Bombay—An analysis of its utility in developing countries. Indian J. Cancer **7**, 1, 1970.

12. Lawrence, E. A. ; Carcinoma arising in scars of thermal burns with special reference to the influence of the age of the burn on the length of the induction. Surg. Gynaec. Obstet., **95**, 579, 1952.

13. Lee, E. S. and Wilson, J. S. P. : Carcinoma involving the lower alveolus. Brit. J. Surg. **60**, 85, 1973.

14. Mohar, N. : The frequency and importance of skin carcinoma in the region of Rijeka (Yugoslavia). Exc. Med. (Derm. and Vener.) **31**, 116, 1976.

15. Pack, G. T. and Ariel, I. M. : Tumours of the soft tissues. Cassel & Co. Ltd. London 1958.

16. Paymaster, J. C. : The problems of cancer in India. J. Indian Med. Ass., **57**, 37, 1971.

17. Reingold, I. M. : Cutaneous metastases from internal organs Cancer **19**, 162, 1966.

18. Sirsat, M. V. ; Malignant melanoma of skin in Indians. Indian J. Med. Sci., **6**, 806, 1952.

19. Talvalkar, G. V. : Squamous cell carcinoma of skin—its incidence and etiopathogenesis in 625 cases. Indian J. Cancer **7**, 24, 1970.

20. Tripathi, F. M., Khanna, S., Khanna, N. N. and Sinha, J. K. : Skin Cancer in Varanasi. Indian J. Plastic Surg., **10**, 25, 1977.

21. Tyagi, S. P., Tiagi, G. K. and Logani, K. B. : Incidence of malignant Growths at Kanpur. Indian Med. Gaz. **5**, 8, 1965.

22. Waisman, M. : Common haemangiomas, to treat or not to treat. Postgraduate Med., **43**, 183, 1968.

23. Walter, J. : On the treatment of cavernous haemangiomas with special reference to spontaneous regression. J. Fac. Radiologists. **5**, 134, 1953.

24. Wilson, J. S. P. : Chapter XII Head and Neck Cancer Surgery in Recent Advances in Plastic Surgery Editted by James Calnan, Churchill Livingstone, London, 1976.