RESULTS

RESULTS

Tables (5-10) show the collected data of the studied 37 patients with NMSC submitted to: full history taking, clinical examination and histopathological examination.

Table (5): Collected clinical data of BCC patients (Personal History)

Case no	Age year	Sex	smoking	Occupation	Outdoor activities	Complexion	Family history	Past medical history
1	52	M	-ve	Employee	+ ve	Dark	+ve	HCV
2	65	F	- ve	Farmer	- ve	Dark	+ ve	-
3	60	M	- ve	Employee	+ ve	Dark	- ve	Jaw cyst
4	65	F	- ve	Farmer	- ve	Dark	- ve	-
5	51	M	- ve	Employee	+ ve	Dark	- ve	-
6	60	F	- ve	Farmer	- ve	Dark	- ve	Goiter, IHD
7	75	F	- ve	Farmer	- ve	Dark	- ve	Fracture femur
8	64	M	+ ve	Employee	+ ve	Dark	- ve	Hypertension
9	48	F	- ve	Employee	+ ve	Dark	- ve	Goiter
10	47	F	- ve	Nurse	- ve	Dark	+ ve	Rheumatoid arthritis
11	35	F	- ve	Housewife	+ ve	Fair	+ ve	Osteoarthritis
12	45	F	- ve	Housewife	- ve	Dark	- ve	Osteoarthritis
13	56	M	+ ve	Employee	- ve	Dark	- ve	-
14	44	M	+ ve	Employee	+ ve	Dark	- ve	-
15	37	F	- ve	Housewife	- ve	Dark	- ve	Palpitation
16	48	F	- ve	Housewife	- ve	Dark	- ve	DM
17	70	F	- ve	Housewife	- ve	Dark	- ve	HCV
18	63	M	+ ve	Worker	+ ve	Dark	- ve	Hypertension, cataract
19	53	F	- ve	Housewife	- ve	Dark	- ve	CRF
20	90	M	- ve	Farmer	- ve	Dark	- ve	-
21	70	M	+ ve	Farmer	+ ve	Dark	- ve	-
22	17	M	- ve	-	- ve	Dark	+ ve	-

M: Male
F: Female
DM: Diabetes Mellitus
HCV: Hepatitis C viral infection
CRF: Chronic renal failure
IHD: Ischemic heart disease

Table (6): Collected clinical data of BCC patients (Clinical examination)

Case no	NO. OF lesions	Duration	Site	Clinical presentation	Size (cm)	Other skin lesions	Markers of UV damage
1	1	1year	Nape of the neck	Pigmented parts, ulceration, cystic	2x2.5	-	-
2	1	10y	Eyelid	Pigmented BCC	1.5x1	-	Wrinkles
3	2	(a) 8 years, (b)5 years	(a)Forehead, (b)post-auricular	(a)Pigmented BCC, (b)Pigmented BCC	(a)1x1 (b)0.5x0.5	-	Solar elastosis
4	1	7y	Inner canthus	Nodulo-ulcerative BCC	1.5x1	-	Wrinkles
5	1	1y	Inner canthus	Superficial BCC	1.5x1	-	-
6	1	5y	Nose	Early papule	0.5x0.5	-	-
7	1	15y	Cheek	Nodulo-ulcerative, cystic	3x3.5	-	-
8	1	1y	Cheek	Pigmented	2x1.5	-	-
9	1	1y	For head	Pigmented, ulceration, cystic	1.5x1	-	-
10	1	15y	Cheek	Nodulo-ulcerative	2.5x2	-	-
11	1	9y	Nose	Nodulo-ulcerative	0.5x1	-	-
12	1	2y	Upper eyelid	Non – ulcerated nodule	2.5x1	-	-
13	1	8y	Cheek	Pigmented	1.5x2	-	-
14	1	10y	Inner canthus	Rodent ulcer	1x1	-	-
15	1	7y	Cheek	Nodulo-ulcerative	1.5x1	Nevi	
16	1	1y	Cheek	Nodulo-ulcerative	1.5x0.5	-	-
17	1	6m	Nose	Early papule	0.5x0.5	-	Solar elastosis, wrinkles
18	1	7y	Nose	Pigmented	0.5x0.5	Seborrheic keratosis	Solar elastosis
19	1	5y	Cheek	Nodulo-ulcerative	0.5x1	-	-
20	1	10y	Nose	Nodulo-ulcerative	0.5x1	-	Solar elastosis
21	1	5y	Pre-auricular+ear	Nodulo-ulcerative	3x2	-	Solar elastosis (Faver)
22	2	(a)2y, (b) 2y	(a) Cheek, (b) pre-auricular	(a) Nodule-ulcerative, (b) malignant ulcer	(a)2x2 (b)2.5x1.5	Xp	-

Table (7): Histopathological types of BCC lesions:

Patient No.	Tumor subtype
1	Solid (circumscribed)
2	Pigmented
3	Pigmented
4	Solid (circumscribed)
5	Superficial
6	Solid (circumscribed)
7	Solid, pigmented, adenoid , cystic
8	Pigmented
9	Solid
10	Solid
11	Solid (circumscribed)
12	Solid
13	Pigmented
14	Pigmented
15	Solid
16	Solid
17	Solid
18	Pigmented
19	Solid
20	BCC with sebaceous differentiation
21	Solid / Basi-squamous
22	Adenoid/ cystic / mixed with SCC/ with pseudo-epitheliomatous hyperplasia

Table (8): Collected data of SCC patients (Personal History)

Case no	Age in years	Sex	Smoking	Occupation	Outdoor activities	Complexion	Family history	Past medical history
3	55	F	-ve	Farmer	- ve	Dark	-ve	- ve
24	79	M	+ ve	Solider	- ve	Dark	- ve	- ve
25	38	F	- ve	Housewife	+ ve	Fair	- ve	- ve
26	65	F	- ve	Housewife	+ ve	Dark	- ve	- ve
27	58	M	+ ve	Cooker	+ ve	Dark	- ve	- ve
28	69	M	+ ve	Farmer	- ve	Dark	- ve	- ve
29	17	M	- ve	-	- ve	Dark	+ ve	- ve
30	59	M	+ ve	Farmer	- ve	Dark	- ve	DM, HCV
31	70	F	- ve	Housewife	- ve	Dark	- ve	- ve
32	63	M	+ ve	Worker in welding	+ ve	Dark	- ve	Hypertension , cataract
33	72	M	+ ve	Baker	+ ve	Dark	- ve	- ve
34	80	F	- ve	House wife	- ve	Dark	- ve	- ve
35	48	F	- ve	Housewife	- ve	Fair	- ve	- ve
36	55	M	- ve	Employee	- ve	Dark	- ve	- ve
37	35	F	- ve	House wife	- ve	Dark	- ve	DM

Table (9): Collected clinical data of SCC patients (Clinical Examination)

Case no	NO. OF lesions	Duration	Site	Clinical presentation	Size (cm)	Other skin lesions	Precancerous lesions	Markers of UV damage
23	1	2y	Front of chest	Plaque	2.5x4	-	-	Solar elastosis, wrinkles
24	1	6m	Preauricular	Ulcer	2.5x3	-	-	-
25	3	1m	Vulva	Ulcerated nodule	0.5x1	-	Chronic inflammation	-
26	3	1m	Vulva	ulcer	0.5x0.5	-	Leukoplakia	-
27	1	1m	For head	Ulcerated nodule	2x1.5	-	-	-
28	1	2m	Ear	Ulcerated nodule	2x1	Sebaceous cyst, nevi , lentigens	-	Solar elastosis
29	1	3y	Nose	Ulcerated nodule	2x1.5	Xp	-	-
30	1	6m	Lower limb	Ulcerated nodule	4x2	Hypertrophic lichen planus	Non-healing ulcer (due to chemical burn)	-
31	2	6m	Lower lip	Ulcerated nodule	1x2	-	-	Solar elastosis
32	1	7y	Cheek	Ulcerated nodule	2x2	Seborrheic keratosis	Solar keratosis	Soalr elastosis
33	1	5y	Lower lip	Ulcer	1x1	-	Spekled leukoplakia	-
34	1	3m	Lower lip	Ulcerated nodule	1.5x2	-	-	Solar elastosis, wrinkle
35	1	7m	Vulva	Ulcer	1.5x1	-	-	-
36	1	1y	Left foot	Ulcerated mass	2x2.5	-	-	-
37	1	8m	Check	Ulcerated nodule	2.5x2	-	Burn scar with skin graft	-

Table (10): Histopathological data of SCC lesions:

Patient No.	Differentiation	Atypical cells	Depth of invasion in relation to sweat gland	Inflammatory reaction	Grade
25	Poor	+++	Below	+	III
26	Poor	+++	Below	+	III
27	Well	+	Above	++	I
28	Poor	+++	Below	+	III
29	Moderate	+	Above	++	II
30	Well	+	Above	+	I
31	Poor	+	Below	-	III
32	Moderate	+	Below	++	II
33	Well	+	At or Below	++	II
34	Well	+	Below	+++	I
35	Well	+	Above	-	I
36	Moderate	+	At or Below	-	I
37	Moderate	+	Below	+	II

Analysis of the collected data revealed the following results

A- clinical results

The incidence of NMSC:

In this study, 37 cases of NMSC were identified over a one year period (from January 2002 to January 2003) among 18927 patients attended the Dermatology outpatient clinic of Benha University Hospital with an incidence of 0.19%.

There were 22 cases (60.46%) with BCC and 15 cases (40.64%) with SCC. The ratio between BCC and SCC was 1.46 : 1.

Five patients had multiple lesions of the same malignancy (two with BCC at different sites and three with SCC at the same site). Three patients had both BCC and SCC lesions at different sites. One patient had a mixed carcinoma with both BCC and SCC in the same lesion.

Sex distribution:

There were 19 female patients accounting for 52.4% of the studied patients; 12 (63.16%) of them had BCC and 7 (36.84%) had SCC.

Males were 18 patients. They constitute 48.6% of the studied group. Of them 10 had BCC (55.56%) and 8 (44.44%) had SCC.

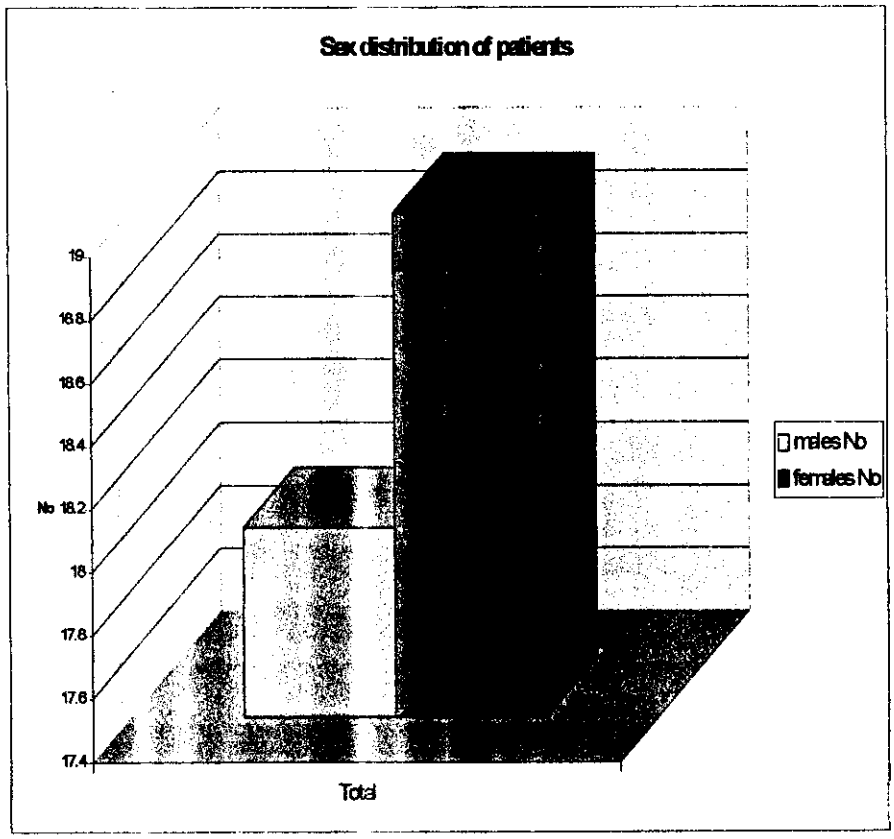
There was no statistically significant difference in sex distribution in relation to the type of tumor (table: 11 figure: 5).

Table (11): Sex distribution of NMSC patients

Sex of patients / Studied groups	Males		Females		Total		Z	p
	No.	%	No.	%	No.	%		
BCC (n : 22)	10	55.56	12	63.16	22	86.03	0.317	>0.05
SCC (n : 15)	8	44.44	7	36.84	15	13.97	0.47	>0.05
Total (n :37)	18	48.6	19	52.4	37	100		

There was no statistically significant difference.

Figure (5): Sex distribution of patients



Age distribution:

Age of NMSC patients ranged from 17 to 90 years. Thirty-two patients (84.49%) were above the age of forty (table: 12).

The mean age of BCC patients was 55.23 ± 15.51 years, and the mean age of SCC patients was 57.93 ±17.59 years (table: 13).

The relation between age and sex of patients:

Males were older than females. Males with SCC were at an older age than males with BCC (table: 13 figure: 6).

Table (12): Comparison between patients above and below40 years old as regards the type of lesions

Age in years / Studied group	<40 year		> 40 years		z	P
	No.	%	No.	%		
BCC (n:22)	3	13.64	19	86.36	6.4	<0.05
SCC (n : 15)	2	13.33	13	86.67	2.4	<0.05
Total (n : 37)	5	13.51	32	86.49	6.2	<0.05

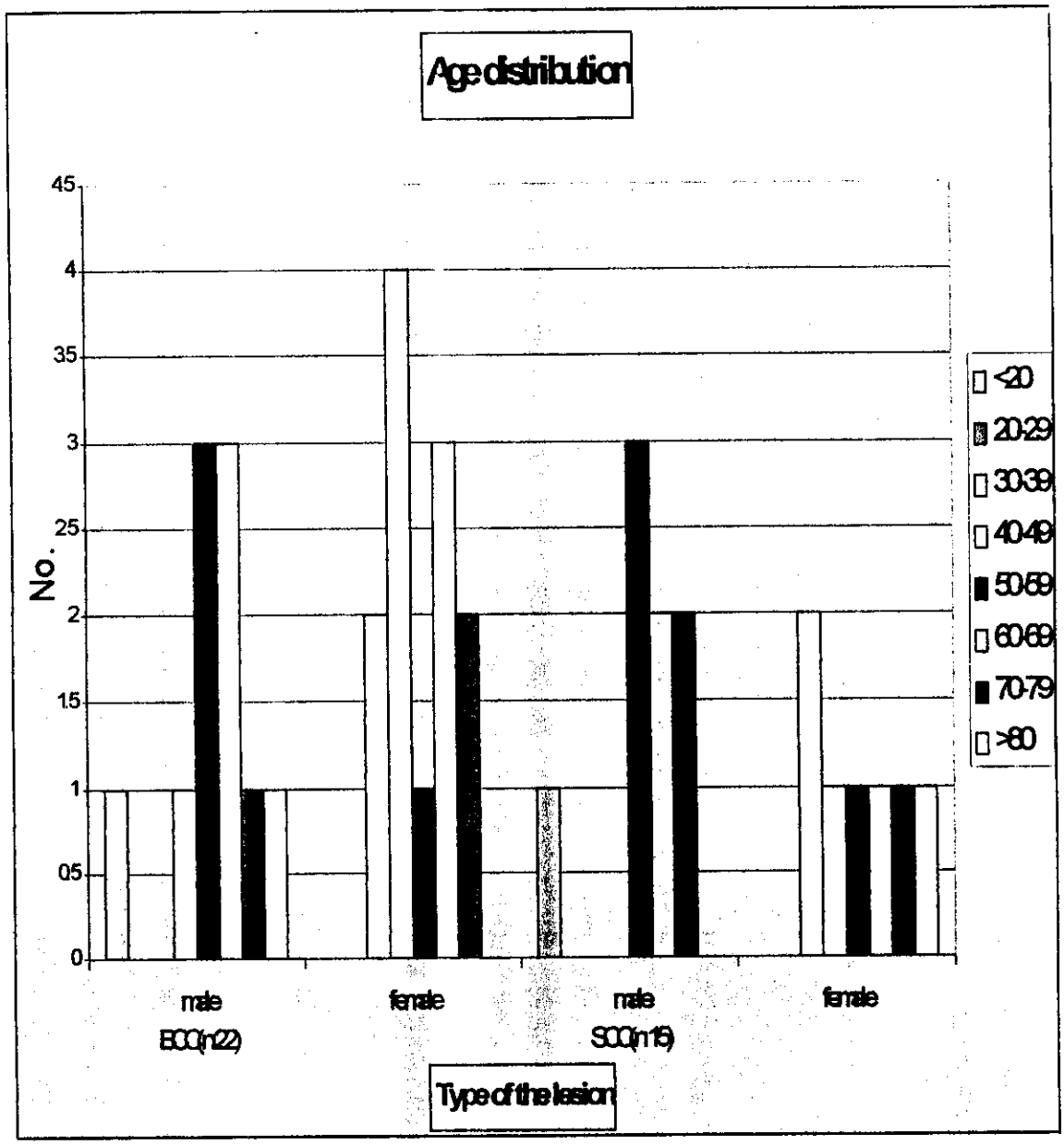
Both BCC & SCC occurred significantly more above the age of 40 years.

Table (13): Age distribution of patients in relation to their sex and the type of NMSC:

Studied group / Age in years	BCC (n:22)		SCC (n:15)	
	Males (n=10)	Females (n=12)	Males (n=8)	Females (n=7)
11-20	1	-	1	-
20-29	-	-	-	-
30-39	-	2	-	2
40-49	1	4	-	1
50-59	3	1	3	1
60-69	3	3	2	1
70-79	1	2	2	1
≥80	1	-	-	1
Range	17-90	35-75	17-79	33-80
Mean ±SD	56.7 ±18.8	54.0 ±12.89	60.25 ±18.80	55.57 ±17.17

Males with BCC were mostly at age range of (50-69 years) with mean age (56.7 ± 18.8 years), while most of those who had SCC were at an older age group ranging from (50-79 years) with a mean age (60.25 ± 18.8 years). Females were of similar ages in both BCC and SCC.

Figure (6): Age distribution of patients in relation to sex



Personal history

Occupations:

In this study, 12 patients (32.43%) were housewives, 9 (24.32%) farmers, 8 (21.65%) employee, 2 (5.4%) workers in welding factories and 2 (5.4%) had no job. There were a nurse, a backer, a cooker and a soldier (table: 14 figure: 7).

Outdoor activities:

Thirteen patients (35.13%) were accustomed to perform activities outdoors during periods of the day with repeated intense sunlight exposure repeatedly over many years exposing themselves to the risk of NMSC.

Exposure to UVR:

The overall patients chronically exposed to UVR were 23 (62.16%) patients. Ten of them (27.02%) were exposed through their occupations (9 farmers and a soldier) and 13 (35.13%) through non-occupational exposure.

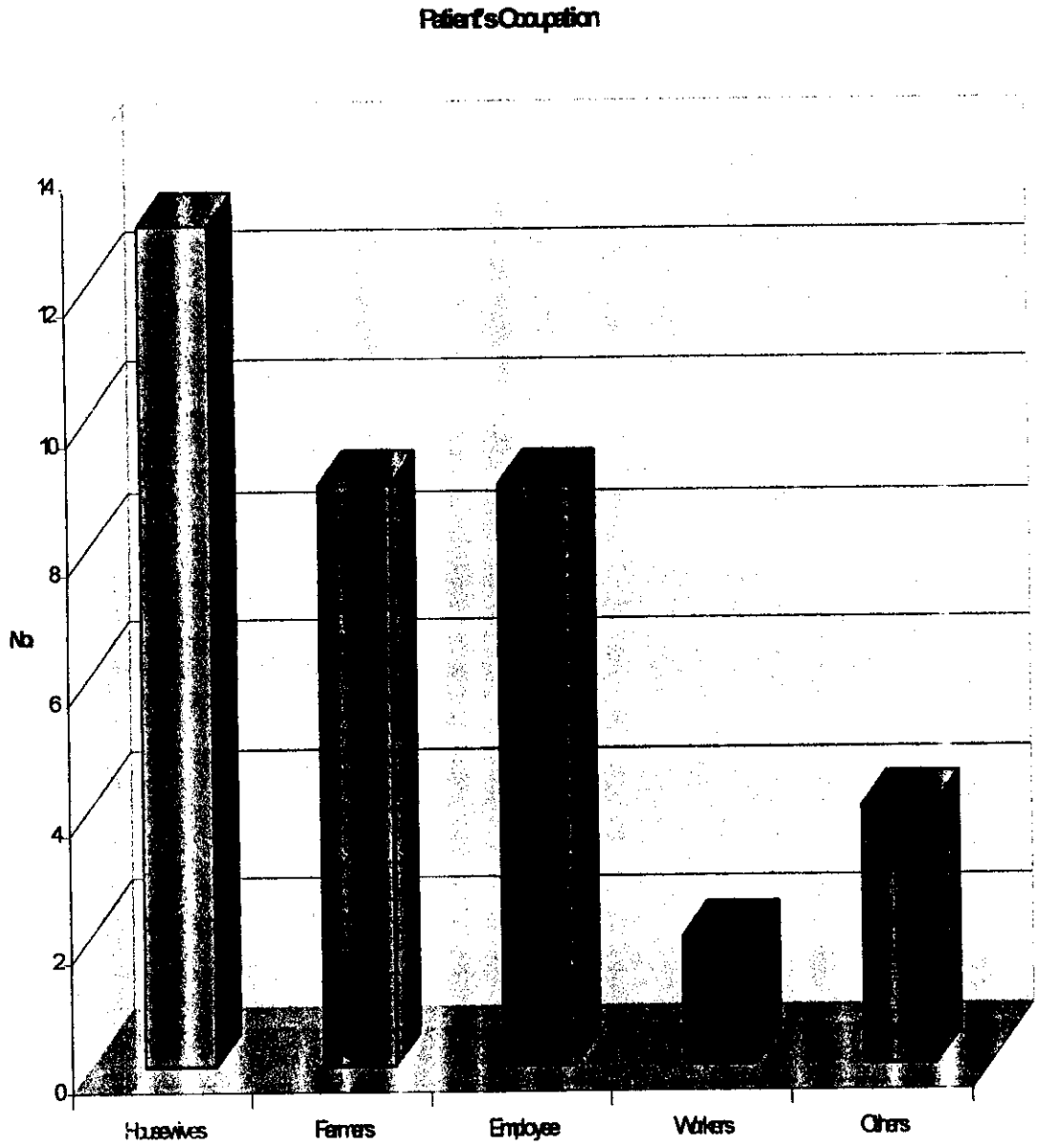
Smoking habit:

Smoking was a habit for 11patients (29.73%). Five of them (22.73%) had BCC and 6 (40%) had SCC. Two of them were "Shisha" as well as cigarettes smokers.

Table (14): The difference in patients' occupations in relation to their sex:

Sex / Occupation	Males (n:18)	Females (n: 19)	Total (n : 37)	
	No.	No.	No.	%
Farmers	4	5	9	24.32
Employee	7	1	8	21.65
House wives	0	12	12	32.43
Workers	2	0	2	5.40
Other jobs	3	1	4	10.8
No job	2	0	2	5.4
Total	18	19	37	100

Figure (7): Patients occupations



Family history:

The association of NMSC with positive family history of skin cancer was observed in 5(13.5%) patients. Patients with negative family history were 32 (86.48) (table: 15 figure: 8).

Of these 5 patients, a female patient had a history of skin cancer in her sister and cancer other than the skin in her mother (she had cancer breast), and another male patient had a history of XP and multiple BCC and SCC in 3 family members (2 brothers and a sister).

No relevant association was found as regards chronic skin disease in the family and NMSC occurrence.

History of a systemic disease:

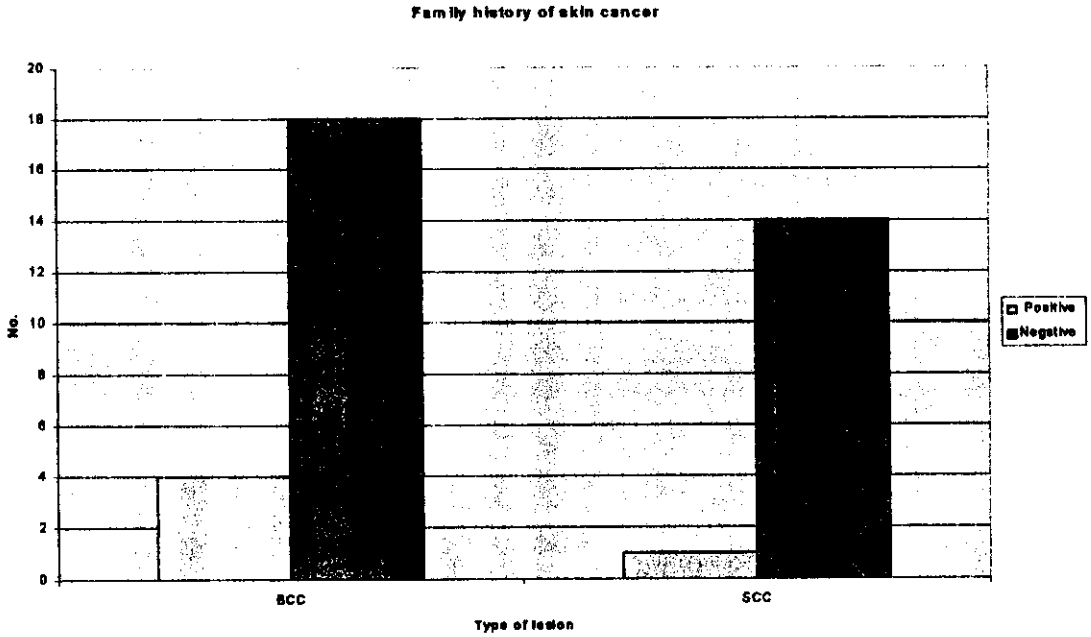
Of the 37 patients; 7 (46%) had systemic diseases with insignificant association with NMSC including: hypertension (4) DM (3), osteoarthritis (3), cataract (2), goiter (2), Hepatitis viral infection (2) and chronic renal failure (1).

Table (15): Comparison between patients with positive and negative family history of skin cancer as regards the type of lesions:

Family history / Type of lesion	Positive		Negative		Z	P
	No.	%	No.	%		
BCC (n : 22)	4	18.18	18	81.82	4.2	<0.05
SCC (n: 15)	1	6.67	14	93.33	4.7	<0.05
Total (n : 37)	5	13.51	32	86.49	6.2	<0.05

Negative family history of skin cancer was significantly more than positive family history in both BCC and SCC patients

Figure (8): Family history of skin cancer



Present history of the disease:

Duration of lesion:

Basal cell carcinoma lesions had a long duration; ranging from 1 to 15 years with a mean value of 5.66 years. While SCC lesions' duration ranged from 1 month to 7 years with a mean 1.47 years (table: 16).

Number of lesions:

In two of the BCC patients, each one had 2 lesions, so the total number of BCC lesions was 24. Squamous cell carcinoma lesions were 15. The total number of both BCC and SCC lesions was 39.

Primary and Recurrent tumors

Out of the 39 lesions, 37 (94.87%) were primary tumors and 2 (5.13%) were recurrent tumors at the same site of the original one (one lesion was BCC and the other was SCC).

Table (16): Duration of lesions:

Type of Lesion / Duration in years	BCC (n: 22)	SCC (n : 15)
Range	1 y – 15 y	1 m – 7y
Mean	5.66	1.47
± SD	± 4.59	2.02

General physical examination of patients:

Complexion and skin type

Four patients (10.81%); 3 with SCC and one with BCC had fair complexion (light skin color, green eyes, light brown hair) and were of skin type III.

Thirty-three patients (89.18%); 12 with SCC and 21 with BCC had dark complexion (brown skin, brown or black eyes, dark brown or black hair) and were of skin type (IV- V).

Both BCCs and SCCs were significantly more in patients with dark complexion and skin type (IV- V) (table: 17).

Table (17): Comparison between patients with fair complexion and those with dark complexion:

Complexion / Studied groups	Fair		Dark		Total		Z	P
	No	%	No	%	No	%		
BCC	1	4.55	21	95.45	22	100	6.03	<0.05
SCC	3	20.00	12	80.00	15	100	3.28	<0.05
Total	4	10.81	33	89.19	37	100	6.70	<0.05

Both BCC and SCC occurred significantly more in dark complexion patients.

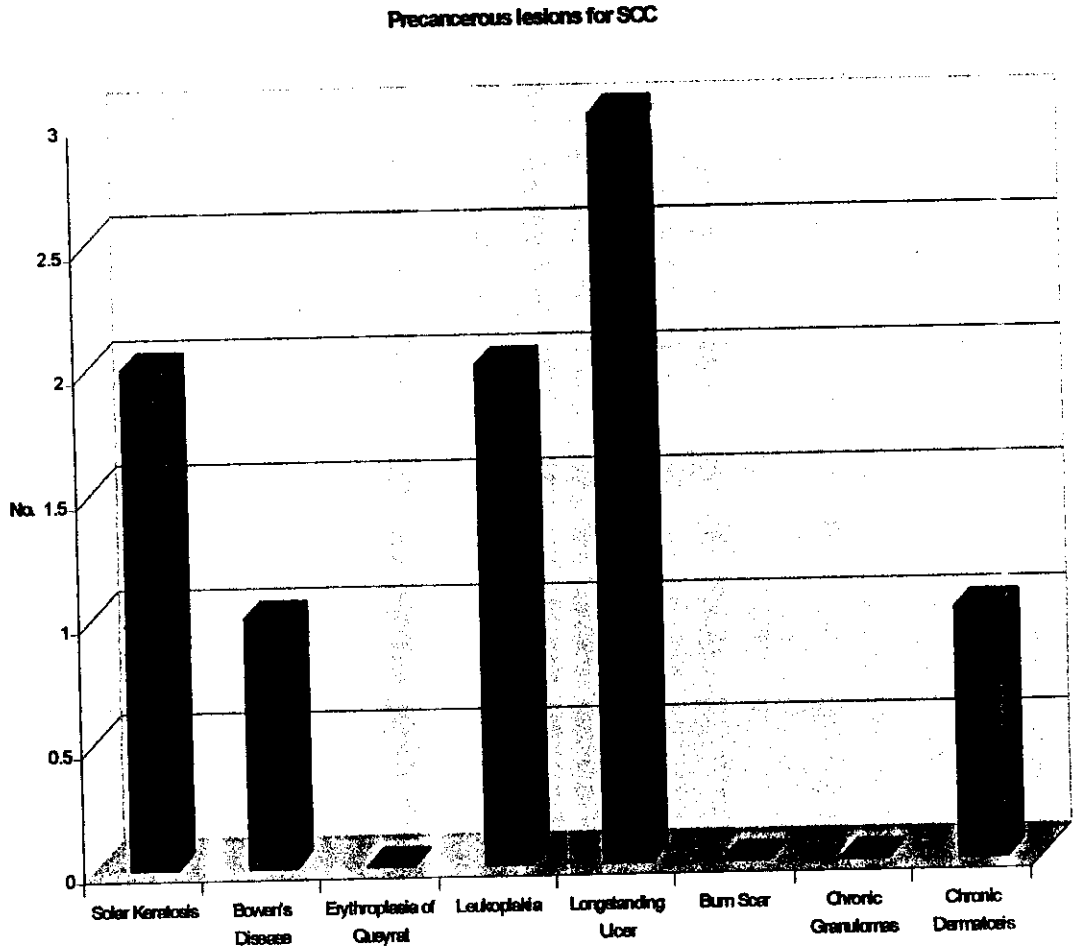
Precancerous lesions of SCC:

There were 2 cases with leukoplakia, three with a chronically non-healing ulcer due to chemical burn, one with a chronically inflamed skin lesion and one case with an old burn scar. Solar keratoses were found in 2 patients and Bowen's disease in another 2 cases. The overall SCC patients with a precancerous lesion were 11(73.33%) patients (table: 18 figure: 9).

Table (18): Precancerous lesions of SCC:

Lesion	No.	%
Solar keratosis	2	18.18
Bowen's disease	2	18.18
Erythroplasia of Queyrat	-	-
Leukoplakia	2	18.18
Long–standing ulcer	3	27.27
Burn scar	1	9.09
Chronic dermatoses	1	9.09
Total	11	100

Figure (9): Precancerous lesions of SCC



Examination of lesions:

Site of the lesions:

Thirty-three patients with NMSC had the tumor growth on the head and neck, 3 on the genitalia, 2 on the extremities and one on the trunk (table: 19 figure: 10).

The head and neck was statistically more affected (table: 20), of which the face was the most prevalent region (32 cases, 82.05%).

Basal cell carcinoma was most common on the cheeks (33.33%), less common on the nose (20.83%), inner canthus of the eye (12.50%), and the ears (12.50%), and least common on the forehead (8.33%), and the eyelid (8.33%) respectively.

Squamous cell carcinoma was most common on the lips (20%), and the vulva (20%), less common on the ears (13.33%), the cheeks (13.33%) and the lower limb (13.33%), and least common on trunk (6.66%), nose (6.66%), and forehead (6.66%) respectively.

Table (19): Sites of the lesions:

Type of lesion / Site of lesion	Total (n:39)		BCC (n:24)		SCC (n:15)	
	No.	%	No.	%	No.	%
Scalp	-	-	-	-	-	-
Forehead	3	7.69	2	8.33	1	6.66
Eyclid	2	5.12	2	8.33	-	-
Inner canthus	3	7.69	3	12.50	-	-
Nose	6	15.38	5	20.83	1	6.66
Cheeks	10	25.64	8	33.33	2	13.33
Ears, Pre- and Post-auricular	5	12.82	3	12.50	2	13.33
Lips	3	7.69	-	-	3	20.00
Neck	1	2.564	1	4.16	-	-
Trunk	1	2.564	-	-	1	6.66
Extremities(lower limb)	2	5.12	-	-	2	13.33
Genitalia (vulva)	3	7.69	-	-	3	20.00

Figure (10): Sites of lesions

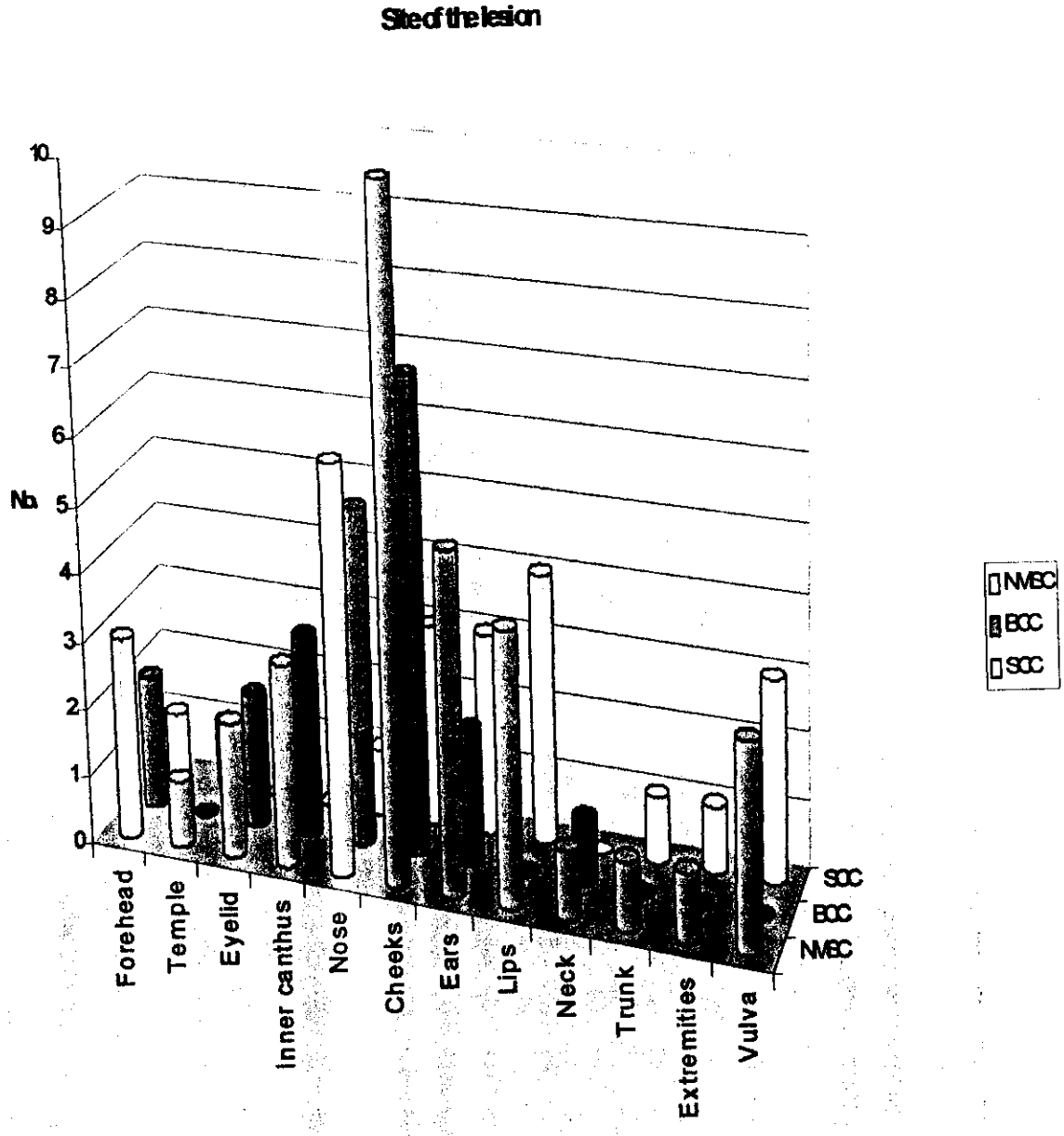


Table (20): Comparison between lesions in head and those in other sites as regards the type of NMSC:

Site of lesion / Type of Lesion	Head and neck		Others		Z	P
	No.	%	No.	%		
BCC (n : 24)	24	100	0	0	6.6	<0.05
SCC (n : 15)	9	60.00	6	40.00	2.6	<0.05
Total (n : 39)	33	84.61	6	15.38	6.7	<0.05

The occurrence of BCC and SCC was significantly more on the head and neck.

Size of lesions:

Of the BCC lesions, 20 lesions had a diameter ranging from 0.5 to 1 cm, 3 lesions with a diameter 2cm, and one lesion with a diameter 5cm.

Squamous cell carcinoma lesions diameter ranged from 0.5 to 3 cm.

Clinical types of BCC lesions:

Nodulo-ulcerative type of BCC occurred in 16 (66.66 %) of lesions (figure: 11, 12, and 13). Six lesions (25%) were of the pigmented type (figure: 14). One lesion (4.16%) was superficial type of BCC. One lesion (4.16%) was basisquamous cell carcinoma (figure: 15).

Histopathological findings of BCC:

Table (21) shows the histopathological variants of BCC: the solid type (45.83%) (Figure: 16), the pigmented type (25%) (Figure: 17, 18), keratotic BCC (8.33%) (figure: 19, 20), BCC with adenoid differentiation (8.33%) (Figure: 21), BCC with sebaceous differentiation (4.17%), superficial BCC (4.17%) and basisquamous BCC (4.17%) (Figure: 22).

Table (21): Different histopathological variants of BCC:

The histopathological variant	No.	%
Solid BCC	11	45.83
Pigmented BCC	6	25.00
Superficial BCC	1	4.17
Keratotic BCC	2	8.33
BCC with adenoid differentiation	2	8.33
BCC with sebaceous differentiation	1	4.17
Basisquamous BCC	1	4.17
Total	24	100

Solid BCC and pigmented BCC formed the majority among the histopathological variants.

Table (22): Correlation between age of BCC patients and the clinical and histopathological type of lesions:

Age / Other variables	r	p
Clinical type	0.24	> 0.05
Histopathological variant	0.05	> 0.05

There is no statistically significant correlation between the age of BCC patients and the clinical type nor the histopathological variant of BCC.

Table (23): Correlation between sex of the BCC patients and some variables:

Sex / Others	r	p
Site	0.07	>0.05
Clinical type	0.18	>0.05
Histopathological variant	0.33	<0.05

Female sex of BCC patients has statistically significant positive correlation with the solid histopathological variant of BCC.

Table (24): Correlation of the site of BCC lesion with its clinical type and histopathological variant:

Site / Other variables	r	p
Clinical type	0.315	< 0.05
Histopathological variant	0.27	<0.05

There is statistically significant positive correlation of the nodulo-ulcerative type and the solid histopathological variant of BCC with their location in the mid- upper face.

Table (25): Correlation of BCC clinical type with its histopathological variant:

Clinical type	r	p
Histopathological Variant	0.64	< 0.05

There is a statistically significant positive correlation of the nodulo-ulcerative type of BCC with its solid histopathological variant.

Table (26): Correlation of the duration of lesion in BCC with its clinical type and histopathological variant:

Duration / Other variables	r	p
Clinical type	0.44	<0.05
Histopathological variant	0.34	<0.05

Long duration of BCC shows statistically significant correlation with its nodulo-ulcerative clinical type and the solid histopathological variant.

Clinical presentation of SCC:

The lesions of SCC varied in their appearance. They were 10 ulcerated nodules (figure: 23, 24), 4 deep malignant ulcers (figure: 25) and a superficial plaque.

A patient with xeroderma pigmentosum (figure: 26) had multiple BCC and SCCs.

Histopathological findings in SCC:

Two cases of SCC was SCC in situ or Bowen's disease (figure: 27), while 13 cases were invasive SCC. Of the invasive SCC, 5 cases of SCC were well differentiated, grade: I (figure: 28, 29, 30), 4 cases were moderately differentiated, grade: II (figure: 31), and 4 cases were poorly differentiated, grade: III, IV (figure: 32)

Staging of SCC lesions:

Two patients had SCC in situ (stage Tis No Mo) and 13 had invasive SCC. Twelve of them had no metastasis and only one case had regional lymph node metastasis (figure: 33, 34) (stage T_1 N_1 M o).

Table (27): The depth of the tumor in relation to the level of sweat glands in invasive SCC lesions:

The depth of the tumor in relation to the level of sweat glands	No.	%
Above the level	4	30.77
At the level	2	15.385
Below the level	7	53.845
Total	13	100

Nearly half of SCC lesions were below the level of sweat glands.

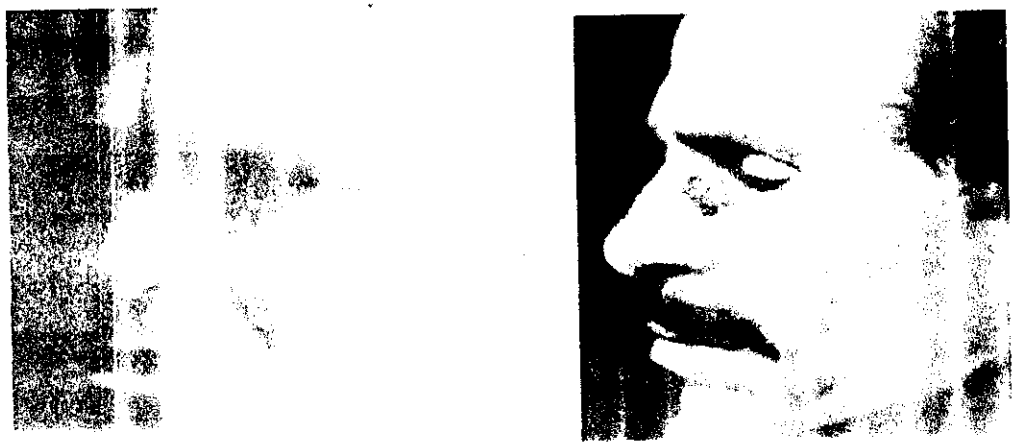
Table (28): Degrees of cellular differentiation and grades of invasive SCC lesions:

Cell differentiation	Grade	No.	%
Well differentiated tumors	I	5	38.46
Moderately differentiation tumors	II	4	30.77
Poorly differentiated tumors	III, IV	4	30.77
Total		13	100

Well differentiated tumors (grade: I) SCC is slightly more common than moderately (grade: II) or poorly differentiated (grade: III, VI) SCC.

Figure (11): A patient with nodulo-ulcerative BCC. The lesion is pearly white in color, have beaded border. ulcerated center covered with crust, and a translucent surface with telangiectasia

Figure (12): An advanced nodulo-ulcerative BCC on the forehead, showing a central ulcer covered with crust, flesh-colored parts, and deeply pigmented cystic parts



(a) (b)

Figure (13): Two patients (a, b) with an extensively ulcerated BCC (rodent ulcer) close to the inner canthus of left eye.

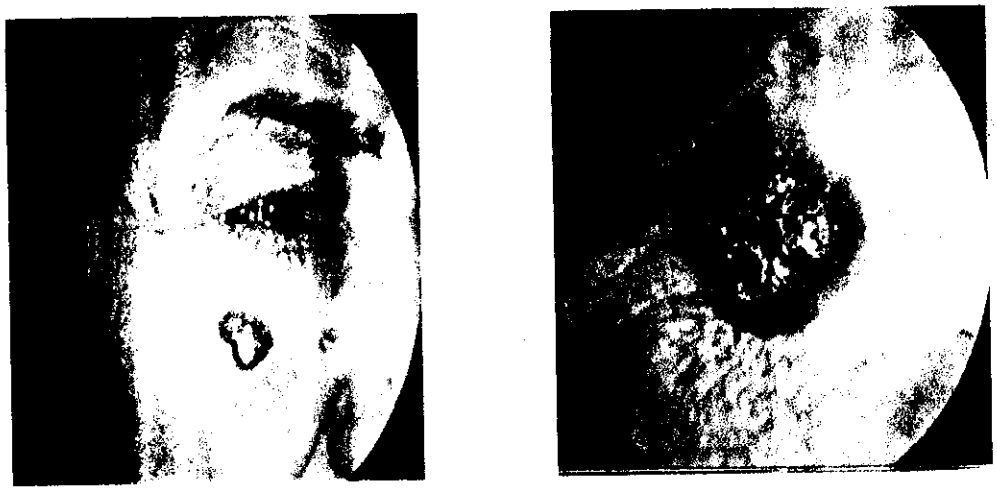


Figure (14): A patient with pigmented BCC.

(a) (b) (c)

Figure (15): A patient with basi-squamous BCC on the right preauricular region extending to right ear (a). The multinodular and pigmented border of BCC is apparent on the back of the ear (b). The patient had solar elastosis (c).

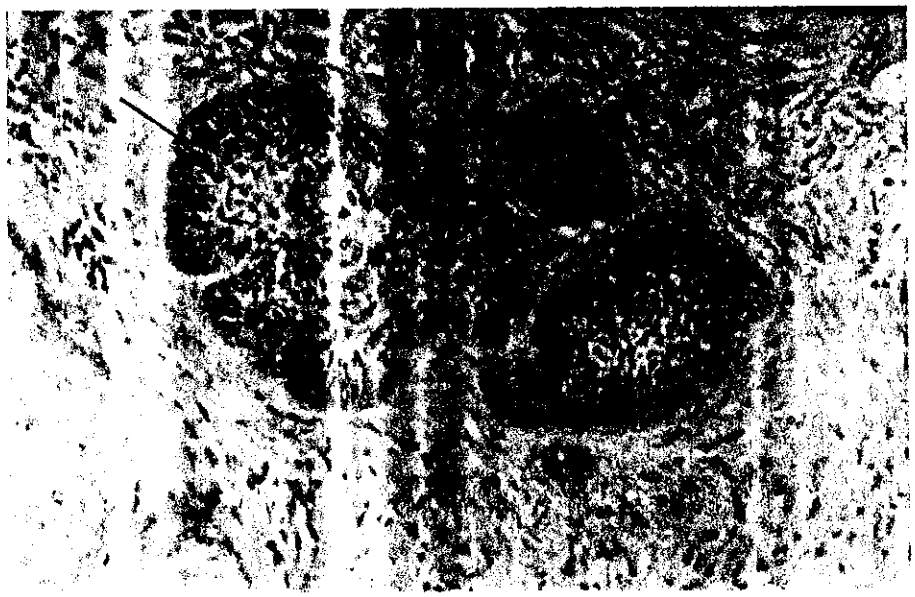


Figure: (16) Basal cell carcinoma, solid type, showing masses of basalioma cells with the characteristic palisade arrangement of the nuclei (H&E, X 40).

Figure (17): Pigmented basal cell carcinoma, showing masses of basalioma cells with occasional pigmentation (H&E, X 200).

Figure (18): Pigmented basal cell carcinoma, showing masses of basalioma cells with occasional pigmentation and mucinous stroma (H&E, X 400).

Figure (19): Keratotic basal cell carcinoma, showing masses of basalioma cells with a central focus of keratinization (H&E, X 200).

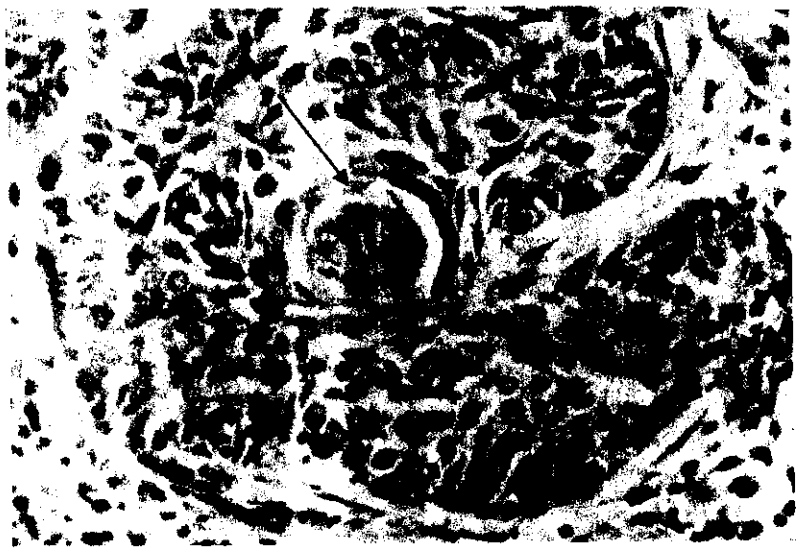


Figure (20): Keratotic basal cell carcinoma, showing a masse of basalioma cells with foci of squamous differentiation and keratinization (H&E, X 400)

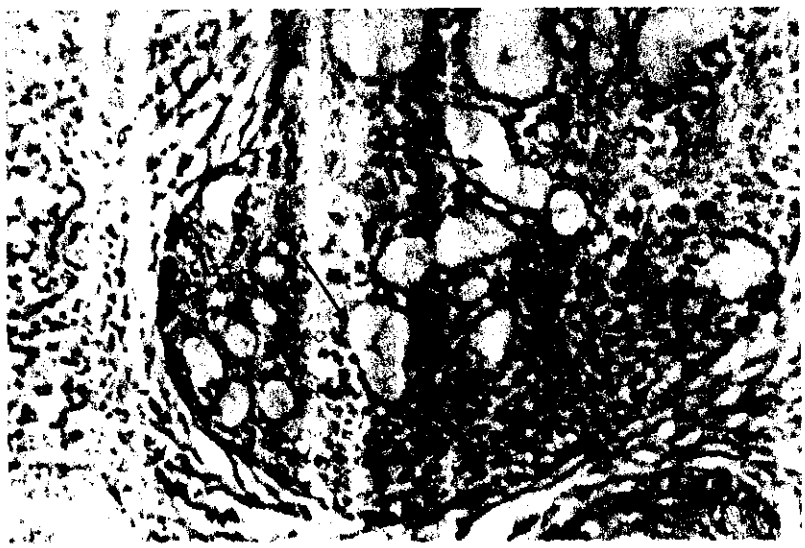


Figure (21): Adenoid basal cell carcinoma, showing tubular and glandlike structures with mucinous contents (H&E, X 400).

Figure (22): Basal cell carcinoma with squamous differentiation (basisquamous cell carcinoma) (H&E, X 200).

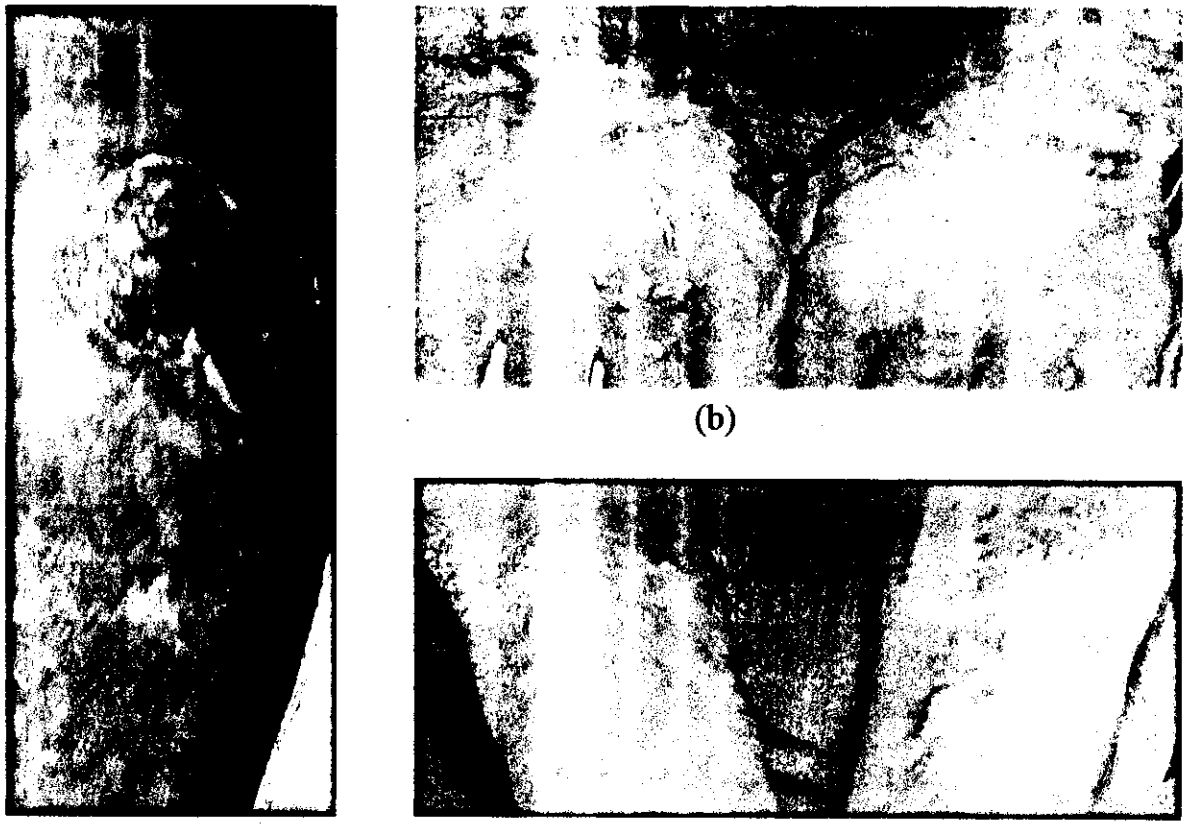


Figure (25): A male patient with primary invasive SCC, presented with an ulcerated mass on the left lower leg (a). The tumor developed on top of a chronically non-healing ulcer secondary to a chemical burn. Burn scars were present on his hands (b). The patient had also hypertrophic lichen planus on both forearms and legs (c).

Figure (26): A patient with XP and multiple recurrent BCC, SCC and a mixed tumor (both BCC and SCC in the same lesion).

(a) (b)

Figure (27): A female patient had both BCC and SCC at two different sites. A nodular BCC on the side of the nose which is pearly colored with telangectatic vessels on its surface (a) and a two ulcerated SCC nodules on the lower lip (b).

(a) (b)

Figure (28): A male patient had both BCC and SCC at two different sites, a pigmented BCC on the nose with a multinodular border (a) and an invasive SCC on the cheeks on top of solar keratosis. Solar keratoses are also evident on the helix of his right ear (b).

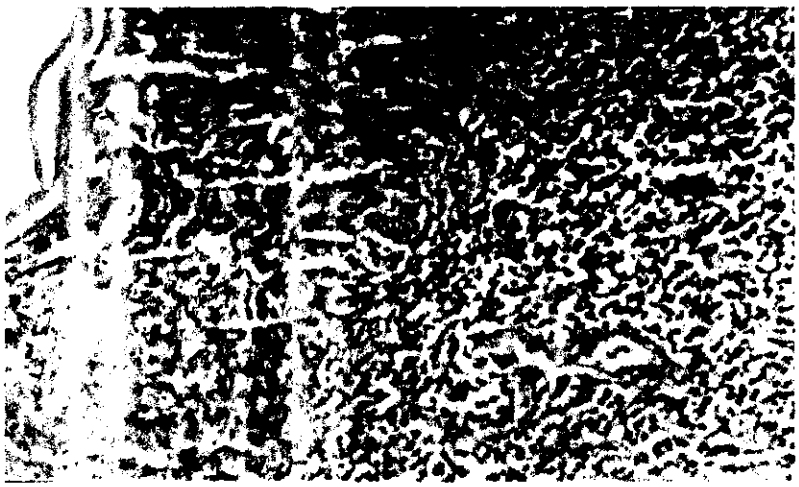


Figure (29): Bowen's disease, showing irregularly thickened epidermis by dyskeratotic and dysplastic cells and obliteration of the rete ridges but with intact basement membrane (H&E, X 200).

Figure (30): Squamous cell carcinoma, well differentiated, grade I, showing invasion of the dermis by epidermal masses of predominantly mature squamous cells with prominent formation of horn pearls (H&E, X 100).

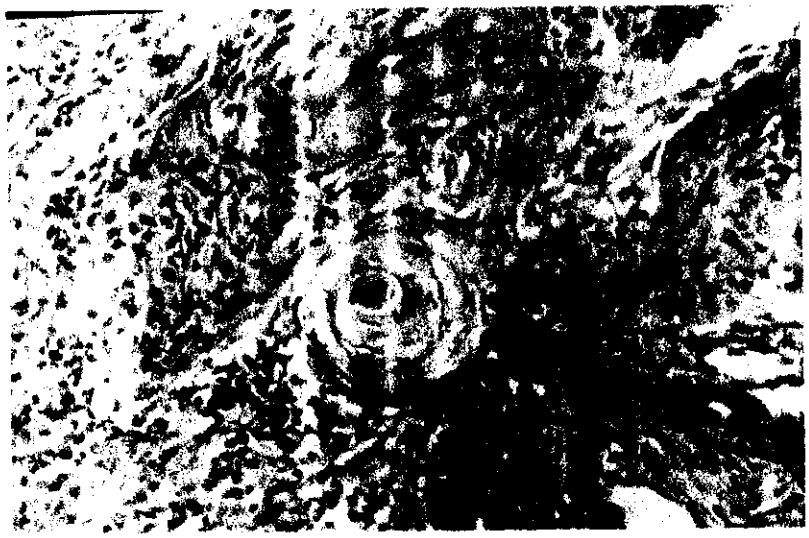


Figure (31): Squamous cell carcinoma, well differentiated, grade I, showing invasion of the dermis by epidermal masses of predominantly mature squamous cells with the formation of multiple horn pearls (H&E, X 200).

Figure (32): Squamous cell carcinoma, well differentiated, grade I, showing invasion of the dermis by epidermal masses of slightly atypical squamous cells with the formation of horn pearls (H&E, X 400).

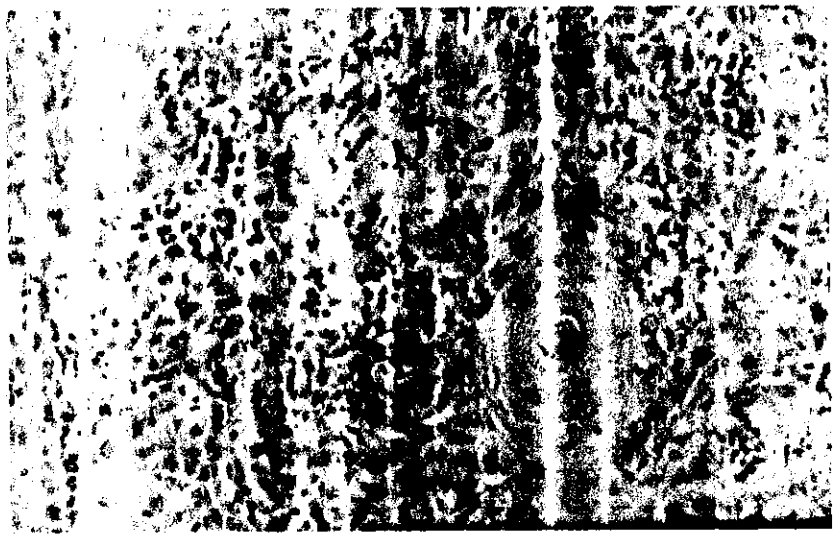


Figure (33): Squamous cell carcinoma, moderately differentiated, grade II, showing invasion of the dermis by epidermal masses of atypical squamous cells with the formation of few horn pearls (H&E, X 200).

Figure (34): Squamous cell carcinoma, poorly differentiated, grade III, showing invasion of the dermis by sheets of atypical squamous cells with dyskeratosis and no horn pearls formation. The sheets are separated by fibrous strands and lymphocytic inflammatory infiltrate. (H&E, X 400).

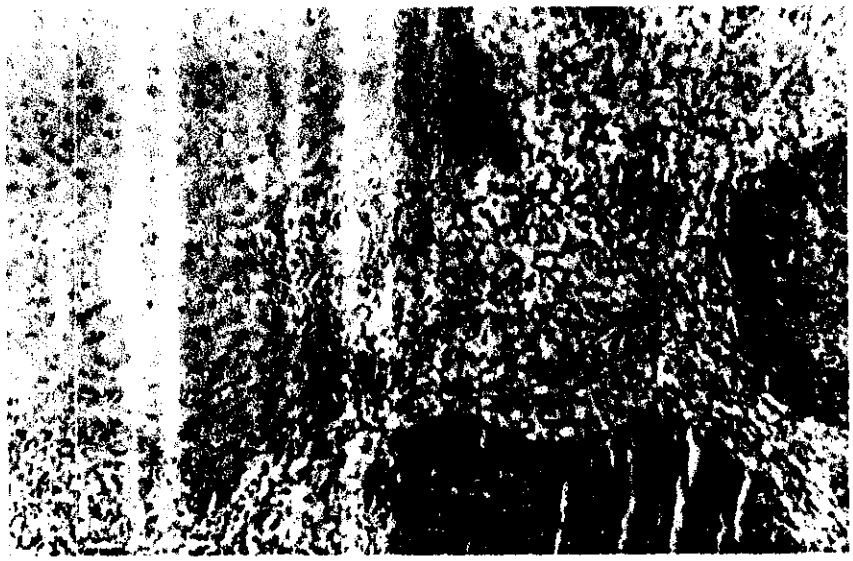


Figure (35): Mixed basal and squamous cell carcinoma, showing masses of basalioma cells and adjacent masses of atypical squamous cells (H&E, X 200).

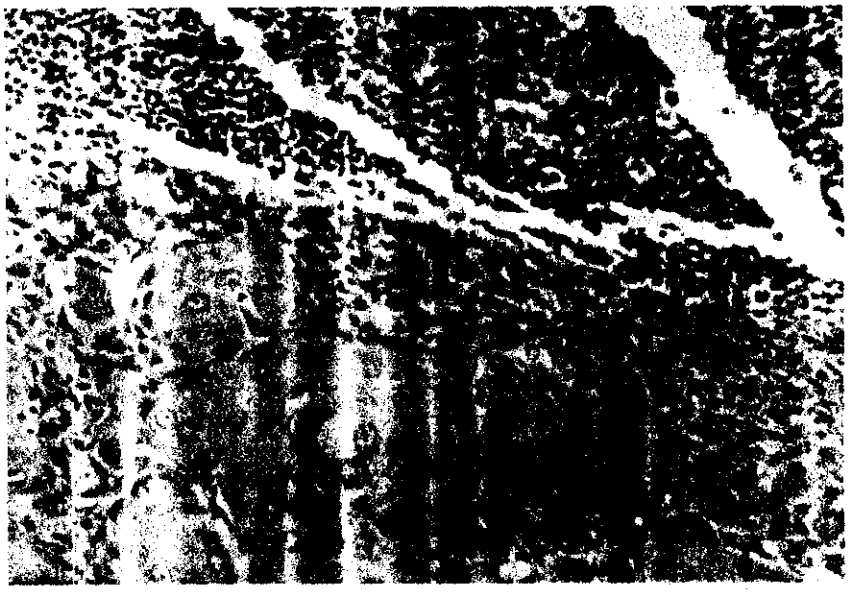


Figure (36): Lymph node metastasis, showing lymph node parenchyma invaded by masses of well-differentiated squamous cells (H&E, X 100).

Figure (37): Lymph node metastasis, showing lymph node parenchyma invaded by masses of well-differentiated squamous cells. (H&E, X 200).