CANCER OF THE SKIN.

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Introduction.

The factors which are of paramount importance in the cure of cancer are:—that the diagnosis should be made in the early stages of the disease, that the tumour should be easy of access, and that the first treatment given should be adequate. The patient often suffers such slight disturbance in the early stages of cancer that no doctor is consulted until the disease is far advanced. Even when more definite symptoms do appear the patient may conceal them through fear, or the doctor may fail to recognise their serious import. With cancer of the skin, however, the patient can see the lesion at an early stage and the part of the body affected, usually the face, makes concealment difficult. Moreover, the doctor requires no elaborate aids in making the diagnosis, and there is no difficulty in obtaining access to the tumour for treatment. The circumstances are therefore favourable, with the result that skin cancer is frequently cured. It seems that, with a few exceptions, such as the rapidly disseminating malignant melanomata, failure to cure malignant disease of the skin is frequently due either to neglect on the part of the patient, failure to recognise the condition on the part of the doctor, or inadequate treatment on the part of the surgeon or radiotherapist. Over 1,100 patients die annually in England and Wales from skin cancer, a mortality for which the medical profession must bear part of the responsibility.

The duty of the general practitioner in dealing with cutaneous cancer is not to make difficult differential diagnoses, but rather to recognise malignant lesions and to see that these patients go to a cancer centre without delay. The recognition of early skin cancer is a matter of familiarity; one visit to a cancer centre to see a few cases is worth the perusal of a dozen articles, however profusely illustrated.

The duty of the surgeon or radiotherapist is to see that these patients receive adequate treatment without delay and that valuable time is not wasted while their names are placed on a waiting list. If full facilities for immediate treatment are not available they should be sent elsewhere at once. Special responsibility rests with those undertaking the first treatment of the patient, for a second attempt at treatment seldom holds out as good a prospect of cure as does the first. Although skin cancer is curable, if neglected or inadequately treated it will kill the patient just as surely as a malignant tumour in any other part of the body.

In an article such as this there is no space for descriptions of the histological appearances of skin tumours, or for a full discussion of the differential diagnoses; these matters are discussed in detail in such excellent books as those by Eller\(^1\) and Mackee and Cipollaro.\(^2\) We are chiefly concerned with the clinical appearances and behaviour of the commoner skin cancers in their early stages, and the broad outlines of the treatment that should be given.

Classification.

There is no generally accepted classification of malignant tumours of the skin. They are divided according to their histological structure and will be discussed here under the following headings:—

A. Primary Malignant Tumours of the Skin.

2. Squamous-cell carcinoma.
4. Intra-epidermal carcinoma.
5. Dermal appendage carcinoma.
6. Malignant melanoma.
7. Sarcoma.

B. Secondary Malignant Tumours of the Skin.
Primary Malignant Tumours of the Skin.

1. Basal-cell carcinoma. (Jacob's ulcer, rodent ulcer, reticulated epithelioma.)

This is the commonest type of cutaneous cancer. It is a locally malignant, non-metastasising tumour appearing on any part of the skin surface, but most commonly on the face and rarely on the limbs. It is found predominantly in those with a fair complexion. It originates in the skin and not in mucous membranes, though it may readily involve them by secondary invasion. These tumours are commonest in men over 40 years of age and first appear in a variety of forms (Fig. 1). There may be a small hard reddish papule that may bleed easily with slight trauma, a central scar from involution of the primary nodule with a pearly rolled edge from peripheral extension, a shallow ulceration, a raised rounded tumour from central cystic degeneration, or a flat plaque covered by telangiectatic vessels. These forms have been variously named and classified, but they are not static and one may change into another as growth progresses. The lesions are occasionally pigmented and sometimes multiple, when they may be scattered widely over the body surface. Basal-cell carcinoma usually grows slowly, many apparently remain stationary for a long period, but they may at any time take on more active growth and in the late stages may cause much destruction of the normal tissues.

2. Squamous-cell carcinoma. (Acanthoma, prickle-cell carcinoma, epidermoid carcinoma, epithelioma.)

These tumours may sometimes be indistinguishable clinically from basal-cell carcinoma, but they tend to grow more rapidly and to involve the regional lymph nodes. There are two main types, papillary and ulcerative (Fig. 2), but there is no essential difference between them and the late appearances may be very similar, with gross ulceration, raised, indurated, or undermined edges, hemorrhage and sometimes pain. The papillary type which starts as a small, hard, raised nodule which may progress to form a cauliflower-like tumour, tends to grow rather more slowly than the ulcerative type and to cause less destruction of normal tissue in the early stages. The ulcerative type starts as a shallow ulcer and as it spreads peripherally, deepens centrally to form a crater with an irregular necrotic base. Like basal-cell carcinoma they frequently arise on the face, but a larger proportion occur on the trunk and limbs and, unlike basal-cell carcinoma, they may originate in mucous membranes and involve the skin by secondary extension. They are commonest in males between 40 and 60 years of age, but may occur in early adult life or even in childhood following Xeroderma pigmentosum. They commonly arise in skin that has been damaged as a result of long continued local irritation.

3. Metatypical carcinoma. (Baso-squamous-cell carcinoma, baso-prickle-cell carcinoma, mixed-cell epithelioma.)

About 10 to 15 per cent. of basal-cell carcinomata contain squamous-cell elements in some part of the tumour. These metatypical forms cannot be distinguished clinically from basal-cell carcinomata in the early stages. Their behaviour, however, is more like that of the squamous-cell carcinomata for they may grow quite rapidly, may originate in a mucous membrane and may eventually metastasise. It is probable that interference, such as an unsuccessful attempt at eradication, may sometimes be a factor in increasing the proportion of the squamous element. These tumours are composed mostly of basal cells, but here and there a group of squamous cells and an occasional pearl formation can be found.

4. Intra-epidermal carcinoma.

This is a rare group of malignant or pre-malignant lesions that are at first, often for several years, confined to the epidermis, but which develop invasive and metastasising properties. The various members of this group are known as:—(a) Bowen’s disease, (b) Multiple flat superficial epithelioma, (c) Queyrat’s erythroplasia, (d) and extra-mammary Paget's disease.
It is doubtful if they all represent clinical entities, but the information available as to their relationship is not yet sufficient for us to unite them under one name.

(a) Bowen’s disease (precancerous dermatosis), gives rise to well-defined, dull red, crusted, slightly raised plaques in one or more patches usually on the trunk. Red papules may appear around the original lesions. Although the progress of the disease is often very slow, the condition is a true intra-epidermal carcinoma which may metastasise. It occurs about equally in males and females past middle age and according to Mackee\(^3\), the literature contains over twenty cases of the disease affecting mucous membranes. Microscopically the appearances are almost identical with those seen in tar cancer produced experimentally.

(b) Multiple flat superficial epitheliomata are sometimes found on the trunk, they have an appearance rather similar to the individual lesions of Bowen’s disease, but histologically are more akin to the basal-cell carcinomata. They may first appear at a rather earlier age than is common with basal or squamous-cell carcinomata and remain stationary for many years before infiltrating the surrounding tissues and metastasising.

(c) Queyrat’s erythroplasia consists of single or multiple firm, raised, erythematous patches situated at mucocutaneous junctions, usually on the glans penis, but sometimes on the vulva or lip. After years these patches may ulcerate and become papillomatous and develop into true squamous-cell carcinoma.

(d) Extra-mammary Paget’s disease (Eczema epitheliomatosum) begins with reddening, scaling and itching of the skin followed by oozing and crusting. Clinically and histologically it is very similar to Paget’s disease of the nipple, which is always, or nearly always, a secondary manifestation of carcinoma of the breast. Ewing\(^4\) believes that there are two forms of Paget’s disease of the nipple and that one of these is not associated with a definite breast tumour and has a favourable prognosis under treatment.

5. **Dermal appendage carcinoma.**

In certain cases malignant epithelial tumours have some cell characteristics of the dermal glands though basal or squamous cells predominate (Fig. 3 \((a)\)). Examples of these are the sebaceous carcinoma, the tricoepithelioma and Brooke’s adenoid cystic epithelioma, a nodular tumour occurring about puberty, growing very slowly, but enlarging and metastasising later. Adenocarcinomata of the sweat glands are sometimes seen.

6. **Malignant melanoma.** (Melano-carcinoma, Nævo-carcinoma.)

Malignant melanoma may appear on any part of the skin surface and adjacent mucous membranes, or in the choroid coat of the eye. They are commonest on the extremities, particularly the feet, and form nodules, ulcers, papillary growths or flat infiltrations (Fig. 3 \((b)\)). They develop from simple melanoma, and it is not uncommon for the malignant change to follow some local trauma. Their colour ranges from black to reddish brown, but an occasional tumour without demonstrable pigment, the so-called amelanotic melanoma, occurs. They can appear at any age, but are most often seen between the ages of 20 and 40. Their behaviour is very variable for, though some may remain localised for a time, in general their progress is rapid and they have a greater tendency to widespread dissemination than any other form of cancer. The skin may show numerous secondary nodules (Fig. 4 \((d)\)) and other metastatic deposits may be scattered throughout the lymph nodes and internal organs. It is not uncommon to find the association of pigmented skin tumours and other cutaneous abnormalities such as nerofibromatosis.

7. **Sarcoma.**

Primary sarcomata of the skin are extremely rare. They may occur at an earlier age than most other malignant tumours of the skin and tend to metastasise by the blood stream rather than the lymphatics. They usually form rounded, hard nodules in the skin without ulceration, which remain localised for a considerable time (Fig. 3 \((c)\)). It may be impossible to differentiate the various types clinically and their histological differentiation requires great skill and experience.
**ART PLATE.**

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**Figure 1.—BASAL-CELL CARCINOMAS.**

- **Fig. 1. A.—Papular.**
- **Fig. 1. B.—Central scar with pearly rolled edge.**
- **Fig. 1. C.—Shallow ulceration.**
- **Fig. 1. D.—Cystic.**

**Figure 2.—SQUAMOUS-CELL CARCINOMAS.**

- **Fig. 1. E.—Plaque with telangiectatic vessels.**
- **Fig. 1. F.—Multiple pigmented.**
- **Fig. 2. A.—Papillary type “Button carcinoma of Savatard.”**

- **Fig. 2. B.—Papillary type with ulceration.**
- **Fig. 2. C.—Papillary type with cauliflower-like tumour.**
- **Fig. 2. D.—Ulcerative type.**
- **Fig. 2. E.—Ulcerative type forming crater with irregular necrotic base.**
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Fig. 3. A.—Carcinoma of dermal appendage.

Fig. 3. B.—Malignant melanoma.

Fig. 3. C.—Neuro-fibrosarcoma.

Fig. 4. A.—Paget’s disease of the nipple.

Fig. 4. B.—Carcinoma of breast with secondary skin nodules.

Fig. 4. C.—Erysipeloid carcinoma

Fig. 4. D.—Multiple skin deposits from a malignant melanoma.
Secondary Malignant Tumours of the Skin.

Metastatic tumours of the skin are commonest in women as the great majority are secondary to a primary tumour of the breast. The lesions are at first superficial nodules found by palpation, later becoming raised, visible, reddened and ulcerated (Fig. 4 (b)). The condition may vary from a few isolated nodules to widespread skin infiltration, ulceration and fungation—the carcinoma en cuirasse. One characteristic form of skin spread appears as a reddening of a large area of thickened skin known as erysipeloid carcinoma (Fig. 4 (c)). This lesion does not spread as rapidly as erysipelas and does not give rise to such gross constitutional disturbances. Paget's disease of the nipple (Fig. 4 (a)) is an intra-epidermal carcinoma secondary to an underlying primary breast tumour in all, or almost all, cases. Skin deposits may occur from primary tumours in almost any part of the body, the commonest primary tumour after a carcinoma of the breast to give rise to cutaneous metastases is the malignant melanoma (Fig. 4 (d)).

Predisposing Causes.

Any long continued local irritation may be a predisposing factor in the development of cutaneous cancer. Most, if not all, primary malignant tumours of the skin arise in damaged tissue. Skin cancer is common in those, such as farmers and sailors, who have been exposed for years to the elements and may occur even in children whose skins are so abnormally sensitive to sunlight that they develop Xeroderma pigmentosum. Cutaneous cancer also occurs in old people with senile atrophy of the skin or senile keratoses. The absorption of arsenic over a long period may produce hyperkeratosis followed by carcinoma, and exposure to such substances as tar, pitch, soot and certain oils produces skin cancer with sufficient frequency to constitute a serious problem of industrial medicine. Cancer of the skin may originate in scars and particularly those resulting from burns. In the early days of radiology cutaneous cancer occurred in some cases following years of exposure to X-rays or Gamma rays. Malignant disease may be superimposed upon certain skin infections of which the commonest is lupus vulgaris.

Treatment.

The choice of treatment lies between surgery and radiotherapy and depends upon the age, sex and general health of the patient, as well as the site and size of the tumour. Degree of involvement of deeper structures, presence or absence of metastases, and the histological findings are other factors influencing the choice. It is imperative that the first treatment be adequate, for not only are second attempts at eradication less likely to succeed, but improper or inadequate treatment may increase the activity of the tumour or aid its dissemination via the blood or lymphatic vessels. The unskilled use of caustics in skin cancer or in skin lesions where the diagnosis is uncertain is a dangerous procedure which may gravely prejudice the patients' chances of recovery.

Successful surgical treatment depends upon the removal of the tumour and a sufficiently wide margin of normal tissue to ensure that no malignant cells are left behind. Radiotherapy relies for its effect upon the malignant cells being more susceptible to injury by irradiation than normal cells; it aims at the destruction of the tumour in situ. Excision produces scarring and deformity, and although with small lesions the scarring may be slight and with larger lesions subsequent plastic repair may be very successful, the surgeon cannot allow the cosmetic result to be more than a secondary consideration. Deformity following irradiation is almost entirely due to the previous destruction of the normal tissues by the tumour and should therefore be minimal, but alteration in the pigment of the skin or telangiectasia may occasionally spoil the cosmetic result. With very small lesions surgery and radiotherapy will be equally effective in the majority of cases and scarring with either method will be negligible. In these cases surgical removal under a local anaesthetic is hardly a more extensive operation than the removal of a piece for biopsy and is, therefore, usually carried out, unless the preservation of the normal tissues is of great importance, as, for instance, with tumours of the eyelid. With large lesions surgical excision entails an extensive and mutilating operation with considerable risk of cutting through invaded tissue. In such cases radiotherapy is generally the better method. With tumours of intermediate size radiotherapy is commonly employed as the majority occur on the face where a good cosmetic result is important. Where the resulting deformity is less
important, and the presence of moisture, friction and infection may lead to subsequent breakdown of irradiated tissue, as for instance in the fold of the buttocks around the anus, surgery is generally preferable to radiotherapy. Tumours such as malignant melanomata and most sarcomata of the skin, which by virtue of their histological structure are unlikely to respond to irradiation, should be removed surgically.

If radiotherapy be selected there follows the choice between radium and X-rays. Either method properly applied will produce good results, but the use of short-distance low-voltage X-ray therapy\(^6\) ("contact therapy") has several advantages over radium:—(1) the comparative simplicity of application; (2) the freedom from danger to the personnel of the department; (3) the limitation of the radiation effect to the part involved by disease, avoiding irradiation to the rest of the patient; (4) the short treatment time and frequent avoidance of admission to hospital; and (5) the low cost of treating a large number of patients.

In cases where the disease has spread to the regional lymph nodes the treatment of the metastases must be considered. Again each case must be judged on its merits. In general, small mobile lymph nodes are best removed by block dissection, but where nodes are fixed and the surgeon may cut through invaded tissue, irradiation should be employed. The regional lymph nodes may be treated with X-rays or Gamma rays, in the second case the choice lying between teleradium and interstitial needling.

**Summary.**

The treatment of early skin cancer is, with few exceptions, satisfactory, but much suffering and many fatalities could be prevented if doctors would send all early or doubtful cases to a cancer centre without delay, and would avoid the use of caustics on malignant skin lesions. Surgeons and radiotherapists must ensure that the first treatment given to these patients is selected with care and adequately administered.

**References.**

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