A COURSE OF
LECTURES ON SURGERY,

DELIVERED IN THE

MEDICAL SCHOOL OF CAMBRIDGE

By GEORGE MURRAY HUMPHRY, Esq.,

Downing College, Surgeon to Addenbrooke's Hospital.

LECTURE XXXI.—EPITHELIAL CANCER.

The points of difference and resemblance between it and the other varieties of cancer; cancer of the lip; its progress and treatment: cancer of the penis and scrotum; the relation of cutaneous cancer to simple cutaneous wart, and the probability that the latter sometimes degenerates into the former, considered and illustrated by cases. The degree in which the structure of cutaneous cancer differs from the natural structure of the skin, is usually proportionate to the malignancy of the disease. Epithelial cancer of the mucous membrane of the mouth and tongue; its malignancy greater in this situation than when it affects the skin. Epithelial cancer of the bladder, urethra, and stomach.

THE several varieties of cancer may be conveniently grouped into four species, viz.:—1, epithelial cancer; 2, scirrhous and encephaloid cancer; 3, melanic cancer; 4, alveolar or gelatiniform cancer. All these present some differences in their general appearance, their microscopical characters and their progress, sufficient to require a separate description; at the same time it must be observed that their distinctive peculiarities are not always well marked; two or more of them are occasionally found in the same person; and they all agree in presenting that power of assimilating and destroying the neighbouring tissues, and that tendency to spontaneous decay which I have described to be characteristic of cancer.

The epithelial cancer affects usually the skin or a mucous surface in the first instance. It differs from the other forms of cancer in being composed almost entirely of cells more or less flattened out and closely resembling those of ordinary epithelium; it does not present the malignant qualities in so marked a degree; it is more tardy in its progress, sometimes remaining for months or years in a quiescent state, or growing very slowly; it generally appears at some part of the skin or mucous membrane which has been exposed to a long-continued irritation, and its ravages are confined to the vicinity of that spot and to the adjacent absorbent glands; that is to say, it does not often make its appearance in any other organ, being, in a greater measure than the other forms of cancer, a local affection, less associated with any particular diathesis and much less likely to return after extirpation.

For these reasons some pathologists are inclined to exclude the epithelial species from the family of cancer; mistaking, as it appears to me, differences in degree for differences in kind, inasmuch as the epithelial disease

does really present all the leading features of cancer, though it may do so in a less decided and less active manner than the other members of the class. It is attended with the destruction of the original tissues wherever it occurs; it possesses the quality of spreading from point to point, assimilating the adjacent tissues of every kind and in every direction, and reducing them all to one homogeneous structure; it affects the neighbouring absorbent glands, converting them also into a substance like the parent mass; and it is prone to decay and ulceration: moreover, it is unceasingly destructive; it yields to no treatment and pursues its relentless course till death puts a stop to its ravages.

Watch the progress of the disease when it affects the lip, by far its most frequent seat. It usually begins on the edge of the lower lip a little to one side of the middle line, probably at the spot where the pipe is habitually rested. I have seen it in the middle of the lip, originating in one of those cracks which are often so troublesome in that situation, and in two or three cases have met with it in the upper lip; in one of the latter it originated in the cicatrix of a wound inflicted several years previously. A slight thickening or wart-like elevation of the skin is generally the first symptom; the cuticle is also thickened at the part, and in course of time becomes rubbed or scratched off, leaving the surface a little abraded or cracked, or superficially ulcerated. Upon this a succession of scabs are formed and detached, while an increasing lump is produced underneath them and the ulceration proceeds deeper; so that in the course of time a considerable ulcer is engendered with an indurated basis, an excavated, or deeply fissured, or warty surface, covered with white dirty secretion, or perhaps with pale firm granulations, and having a sinuous, raised, everted margin. The discharge from these ulcers is thin and pale, like serum; occasionally it is mixed with blood. They are not painful or tender, and the patients often think little of them. However, they gradually increase extending along the margin of the lip and towards the chin, the thickening and induration preceding, the ulceration following, till the whole lip and part of the cheek may be involved in the disease. Before such extensive ravages have been effected the absorbent glands under the jaw are generally found to be enlarged and hard, the skin over them becomes adherent and inflamed, and ultimately giving way, an ulcer is formed which extends deeply, presents the usual cancerous aspect, and leads to the like fatal termination. If a section be made through the ulcer in the lip, even in an early stage, its indurated basis is found to consist of a compact, opaque white, pearly substance, of uniform appearance, or speckled, it may be, with small yellowish spots, which are softer than the rest of the mass and which are generally situated in greatest numbers near the ulcerated surface. In this substance all the natural tissues of the lip are blended and lost. Not only are the skin, the mucous membrane, and the labial glands transformed, or assimilated by the new structure, but the muscular fibres of the orbicularis as well as the areolar and fibrous tissues are traceable into the mass and are lost

in it. When examined under the microscope the new substance is found to be composed almost entirely of flattened cells, like those of epithelium, compressed together and arranged in laminae superimposed upon one another. Some of those which are newly formed or which are swollen by the imbibition of moisture are round, oval, or fusiform, and present nearly the characters of the ordinary cancer cell. It is an interesting fact, first announced, I believe, by Mr. Paget, that the microscopical characters of the diseased absorbent glands correspond with those of the primary disease in the skin; the glands, like the tissues of the lip, being converted into masses of flattened and closely compressed scales, intermixed with cells in various stages of transformation. This fact, taken in conjunction with the acknowledged success that attends the removal of epithelial cancer of the skin, makes us somewhat bold to extend our incisions for the purpose of extirpating also the morbidly affected glands.

The disease is most commonly seen in elderly men, though middle-aged and even younger men are sometimes affected by it. The patient's health generally appears to be good till it becomes impaired by the distress, discharge, and inability to masticate, occasioned by the extensive destruction of parts about the mouth. A complete and permanent cure in most instances follows the entire removal of the mass by the knife, which should be done at an early period; before the absorbent glands are involved, if possible, because they are sure to enlarge and lead to the results just described when they have begun to participate in the disease. Occasionally we find this to be the case after the operation, although there was at the time no evidence of their being in a morbid condition. In three or four cases, after the removal of the mass from the lip, and when the cicatrix remained perfectly sound, I have known the disease spring up in the periosteum, make its way through the jaw, and destroy the patient. Even the complete excision of the portion of the jaw thus involved does not always save the patient.

In the cancer of the penis and of the scrotum the progress of the disease is very much the same as in the lip; the ulcer originating in a pimple, a wart, or a little thickening of the skin, has the same foul or coarsely granulating surface, everted edge, and indurated base, goes on increasing with equal or even greater virulence, involves the inguinal glands, and destroys the patient in a shorter space of time than the corresponding affection of the lip. I have seen the disease at the anus, on the extremities, the trunk, the face, and head, and believe it may attack the integuments at any part of the body. It presents very much the same characters and runs the same course in whatever situation it occurs; exhibiting the qualities of malignancy in a sufficiently marked manner; quite as strongly, indeed, as we could expect, considering that it is very generally the result of some local irritation.

Nevertheless it must be admitted, and this is one of the most interesting features in their pathology, that these cutaneous growths vary a good deal in their

malignancy; so much as to constitute, it would seem, a very instructive link between simple hypertrophy and genuine cancer—between an ordinary wart and well-marked scirrhus, proving that these diseases must be studied in their relation to one another no less than in their points of difference, if we would attain a correct idea of their real nature. There is good reason to think that the neglect of this mode of considering the subject, together with the too great stress which is usually laid upon the distinctive features of cancer, has been the source of many narrow views, if not of much misconception, upon this very important class of diseases. Any information upon the subject which the cutaneous growths may afford is peculiarly valuable, because they are directly under our observation; and if there be any relation between simple and malignant disease we may expect to find some evidence of it in them.

Now, there are numerous instances of warts occurring upon the skin in elderly persons, respecting which we have a difficulty in deciding whether they be cancerous or not, and which we are in the habit of extirpating, because we know that if they be allowed to remain they will go on increasing, will in the long run ulcerate, affect the adjacent glands, and terminate fatally. For example, a healthy man, aged 63, was in John's ward a year ago with a broad, flat, warty growth on the right temple; it overhung the surrounding integuments, which were purplish and a little pimply. The surface of the growth was covered by a soft white secretion, and when this was washed away it was seen to be granular and warty, with superficial ulceration at places. There was no induration about its base, and no enlargement of the adjacent absorbent glands. It had commenced a year and a half previously. About the nose were several small pimply or warty elevations of the cutis, which he said had existed for a longer time than that on the temple, though the latter at its commencement resembled one of them. I removed the growth, completely dissecting it away from the temporal fascia, to which it was loosely connected by cellular tissue. After the wound had healed there was a return of the disease at one spot in the edge of the cicatrix, requiring a second operation, which left him quite well. A short time ago the part was sound, and the warts on the nose remained unaltered. A section of the mass showed it to be composed of pale, blunt, thick fibres, parallel to one another, and at right angles to the surface of the body, doubtless enlarged and elongated papillae, together with epithelial sheaths of papillae. This appearance is often seen in cases of the like kind, and is probably the result of a change analogous to that which causes the thickened striated condition of the intestinal muscular coat accompanying cancer of the bowel. The association of an actively increasing warty growth with a number of others of similar appearance which remain in a quiescent state is very common. I remember a chimney-sweep, the subject of cancerous ulcer of the scrotum, whose skin was covered in many parts of the body with little warty elevations, attributed by him to the same cause as the more malignant disease

in the scrotum, viz., the irritation of the soot. They were in a quiescent state, and hardly attracted attention.

In the following case a disease precisely similar in appearance to that just described, but more slow in its progress, was neglected, and proceeded to a fatal termination. A healthy-looking man, aged 65, presented himself at the hospital, several years ago, with an extensive warty growth, affecting the whole of the lower lip, the angles of the mouth, and a portion of the upper lip. It extended to the chin, and was adherent to the mental portion of the jaw, the mucous membrane of the gum being involved in it. It had a cauliflower-like appearance, was of considerable thickness, and overhung the surrounding skin, terminating on all sides in a well-defined edge. On one side its level had been reduced a good deal by ulceration, and there was some enlargement and induration of the absorbent glands under the chin. The affection commenced with a small pimple on the margin of the lip ten years previously; this increased slowly at first, but latterly with greater rapidity. He had made up his mind not to submit to any operation, returned home, and died.

A hale man, a shepherd, aged 72, was in the hospital, in November, 1849, with a prominent warty or cauliflower-like growth at the upper and inner part of the left thigh. It was deeply fissured and ulcerated, but quite moveable upon the fascia beneath, and could, therefore, easily have been extirpated; but the femoral and inguinal glands were enlarged and indurated, some of them in close contact with the femoral artery. It was judged useless to remove the growth and leave the diseased glands; and the man not being willing to submit to such an operation, went home. I heard subsequently that the cutaneous growth had been removed, but that the disease was proceeding to a fatal issue in the groin. The patient said that this growth had commenced at least twenty years previously, in the form of a small wart, which had increased gradually; latterly its progress had been more rapid. At the time we saw it there was little doubt of the malignant nature of the disease in the affected glands, as well as in the cutaneous growth, and of its incurability by any proceeding short of complete extirpation. Yet it had existed for many years as an indolent harmless growth, causing no discomfort to the patient, and exciting no apprehension of its ultimate termination. In such a case it would seem most probable, not that, according to common parlance, cancer had been engrafted upon a simple wart, as if they were altogether distinct diseases, but that the tissue of the wart had gradually degenerated in such a manner as, in course of time, to become liable to spontaneous decay and ulceration; and that the degeneration, and the destructive processes connected therewith, had a tendency to spread among the surrounding structures, and was associated with a general increase of activity in the disease, in consequence of which the absorbent glands participating in the morbid process exhibited a similar malignant disposition. If this view of the matter be correct it would follow that in the preceding, and in other cases of the like kind, there was a gradual transition from simple to

malignant disease, instead of the sudden accession of a new and different kind of morbid action.

These warty growths, which exhibit the stubbornness and are apt to assume the destructiveness of malignant disease, are almost always met with in elderly persons. It is the best plan to extirpate them at once, where that can be done, and not to waste time in the application of caustic and other remedies, which are more likely to excite than to repress the growth, and which often hasten the enlargement of the absorbent glands. I remember regretting that I had treated with nitrate of silver a warty growth of this kind on the labium, in a woman, aged 60; for though the growth was without induration, presented the appearance of a simple affection, and was diminished in size for a time, yet it subsequently advanced more rapidly, the inguinal glands participated in the disease, ulceration took place, and proceeded as in ordinary cancer, and the patient died.

Perhaps it may be stated, as a general rule in these and in other affections of a similar kind, that the degree in which the natural structure of the part is altered, will be found to be proportionate to the malignancy of the disease. Thus, where the change consists simply in an outgrowth of the papillæ, with a thickening of their epithelial coats, after the manner of a wart, there the mass is slow in its increase, slow to extend to the stratum of tissue under the skin, slow to ulcerate, slow to make any impression upon the absorbent glands, and may be removed with great prospect of a complete cure. Secondly, where the warty disposition is less manifest, the alteration of structure being attended, rather with a destruction of the papillæ than their hypertrophy, and with the substitution of flattened cells, like those of epithelium, for the natural tissue of the cutis; there the malignant qualities are more evidently displayed, the mass increases more quickly, extending beneath the skin, involving the subcutaneous areolar tissue, muscular fibres, and even the bones; it ulcerates at an earlier period, the absorbent glands are more quickly affected, and we are not quite so free from apprehension of a return after removal. Still the disease is generally local, unattended with any constitutional indisposition, and is not likely to appear in distant parts. In the third class of cases, which comprises the scirrhus or encephaloid cancer of the skin, the morbid elements have still less relation to those naturally existing, the tissues are replaced, not by epithelial, but by cancer cells, or nuclei—that is to say, the new products do not exhibit a tendency to liken themselves to any one of the components of the skin, but assume the form, and are endowed with the endogenous productive qualities of cancer-cells; they breed others in their interior, instead of being themselves transformed into any kind of tissue. In these cases the disease commences, not with a wart, but with a tubercle, spreads quickly in all directions, ulcerates, attacks the absorbent glands, and is commonly associated, either as a primary or secondary affection, with cancer of some other organ; its removal, therefore, is attended with comparatively little hope of a permanent cure.

In May, 1846, I saw a cancerous affection of the

skin, of greater malignancy than we commonly witness when the disease originates in that situation. The patient was a light-complexioned, not unhealthy-looking woman, aged 30, suckling twins of two months old. On the right side of the scalp, over the tuber parietale, was a slightly excavated circular ulcer, an inch in diameter, with pale, granular surface, everted edge, and thin discharge. Its base was indurated, and somewhat adherent to the bone. Below the mastoid process was an indurated mass, as large as an orange, fixed to the surrounding parts, with an ulcerated excavation, extending nearly two inches into it. Both places were the seat of much darting pain. She said that the disease of the scalp had commenced three years previously, with a lump in the skin, which increased slowly; its advance, the ulceration, and the growth of the mass behind the ear, having been very rapid since her confinement. In May, 1850, the disease had progressed to a fearful extent; there was one great ulcerated cancerous mass, extending from the scapula to the vertex. The surface, flattened by pressure, for she generally lay with it upon a pillow, was pale red, coarsely granular, with fissures extending deeply into it. The discharge was copious, foul, and thin; the edge raised and everted. Near the vertex were two tubercles in the skin, cone-shaped and smooth, separate from the large ulcer, and from one another. She said that the disease had commenced in this way. I learnt that she died not long after.

The warty growths described by Mr. Cæsar Hawkins and others as cicatrices, more particularly in the cicatrices of burns, partake, I suppose, in a greater or less degree, of the nature of epithelial cancer, being for the most part intractable by ordinary means, and requiring extirpation for their cure. I have not happened to meet with any cases of this kind.*

Epithelial cancer attacks mucous surfaces, no less than the skin; sometimes commencing under the tongue, about the orifices of the salivary ducts, in the form of an indurated elevation of the membrane; it extends upon the jaw, and the under surface of the tongue, as in the case of the woman from whom I lately removed the mental portion of the jaw, the anterior and under surface of the tongue, and the parts

intervening between the two. The patient recovered, and has not at present (six months after the operation) suffered any relapse.* In another woman the disease, commencing at the same spot, had involved the submental and submaxillary absorbent glands to too great an extent to admit of extirpation, and proved fatal within two years from its commencement. More commonly it attacks the tongue, beginning on one side, opposite the molar teeth, with a little thickening and induration of the part; the papillæ being sometimes prominent, so as to give it a warty appearance, ulceration soon follows, and extends into the substance of the organ. The pain or inconvenience attendant on the early stage of the disease not being great, we frequently do not see the patient till an excavated ulcer of considerable size has been formed, with a raised indurated base which extends probably to the side of the fauces, and involves the mucous membrane between the tongue and the jaw. The ulcer has a foul, greyish surface; and the induration is caused, as in other cases of the like kind, by the infiltration of a new product in the structure of the organ, and its substitution for the natural tissue. Examined microscopically, this new product is found to consist of epithelial cells, compressed and matted together, perhaps concentrically arranged, or elongated, and showing some tendency to split into fibres. In the further progress of the disease the palate and lower jaw, and submaxillary glands become involved, the movements of the tongue and jaw are impeded, deglutition is difficult, the flow of saliva increased, the breath foetid, and the patient's condition is altogether very miserable during the short period of life which remains.

On the whole, there can be no doubt that, although it often is excited by a local source of irritation, such as a decayed tooth or stump, the epithelial cancer of the mucous membrane of the tongue and mouth, is far more actively malignant in its progress than when it affects the skin. Indeed, I think it exhibits in this situation as rapid and as determined destructiveness, with, perhaps, as great disposition to return after extirpation, as do the scirrhus and encephaloid cancers in other parts of the body; though it is not so likely to affect distant organs. Our hopes, therefore, of ultimate success from operative interference, are far less than in the treatment of the corresponding affection of the skin. Nevertheless, we may give the patient the benefit of the chance, when there is a fair probability of our being able to remove the entire mass. One woman from whom I excised a cancerous ulcer of the tongue returned to the hospital some months afterwards perfectly well, but I have not since heard of her. In another patient the disease reappeared soon after he left the hospital, and proceeded to a fatal termination. Before commencing the incision in such cases, it is necessary to pass a strong thread through the tip of the tongue, by means of which the organ can be drawn out of the mouth, and its movements controlled; then, if the part to be excised be seized with a vulsellum, the operation is

* I am indebted to my friend Mr. Reid, of Canterbury, for the following notes of a "Case of Warty Condition of the Cicatrix of a Burn," recently under his care:—E. A., aged 33, tall, and of spare habit, was admitted into the Kent and Canterbury Hospital, in August, 1849. During her childhood she had been burnt on the right arm, and side of the face and neck. The angle of the mouth was drawn down by the cicatrix of the neck and face, which was quite free from disease. The fore-arm was fixed at a very acute angle with the upper-arm, and a strong web of cicatrix-tissue extended between them as high as the middle of the arm; the hand was prone and flexed. The whole surface of the fore-arm, from the wrist to the elbow, indeed nearly the entire limit of the cicatrix, was covered with warty growths, closely set together, and having deep fissures and cracks between them, from which issued a very offensive, thin, ichorous discharge. Some of these warts were vascular, and were covered with the secretion, whilst others had a grey colour, and presented a more loosely fibrous texture; some few of these were partly detached. The patient said that occasionally masses of warty growth had loosened and fallen off. She suffered severely, and dreaded to have the arm uncovered. The arm bled at times when disturbed. Ten years before her admission she had noticed a wart on the scar of the fore-arm, which gradually increased and became ulcerated, yielding a thin discharge. The arm was amputated, and the stump healed by first intention, excepting at one point, and that to a doubtful degree; the disease did not extend beyond the integument of the arm.

* I have seen this patient since writing the above, and am fearful that there is some return of disease under the jaw; though the whole of the morbid mass was removed by the operation, and the wound healed kindly.

easily completed with a bistoury passed fairly behind the edge of the mass, and carried forwards through the substance of the tongue. Brisk hæmorrhage ensues from numerous vessels, some of which should be tied with the assistance of Assilini's forceps. The smaller vessels generally cease bleeding after a time if the patient be kept quiet in bed in a cool room, with the head raised and the mouth open. It is a good precaution to leave the thread in the tip of the tongue for two or three days.

Here are two specimens which present the ordinary characters of epithelial cancer of the bladder so closely that we may safely assume them to be of that nature, though they have not been submitted to the test of microscopical examination. In this one a large loose flocculent growth is seen sprouting into the bladder from the mucous membrane about the entrance of the left ureter; and there are several smaller growths of similar character upon the mucous membrane at the fundus. In the other specimen a soft vascular growth, as large as a hen's egg, is connected with the mucous membrane near the entrance of the left ureter. At the base it is associated with, and seems to be in great measure composed of, a prolongation of the membrane. At the free end it branches out into long loose flocculi, of a yellowish-white colour and soft structure, which were, in the recent state, besmeared with a substance like cream or soft cheese. The muscular coat of the bladder is much thickened. Both the muscular and mucous coats are extensively destroyed by ulceration at the fundus; and the peritoneum, and other coverings of the bladder, have yielded in this situation, so as to form a swelling, which was perceptible above the pubes during life. The patient, a gentleman, aged 55, had long suffered from frequent and painful micturition, with bloody urine, and had been sounded by several surgeons, his symptoms resembling those of calculus in many respects. He became pale and emaciated, suffering very greatly, and died exhausted. The most constant and characteristic symptom of this malignant disease of the bladder is the passage of blood by the urethra; the blood being not only intermixed with the urine, but being observed to pass in a small quantity, undiluted, or nearly so, after the urine has been evacuated. The patient will tell you that he has occasion to make water frequently; that the act is attended with pain at the end of the penis, about the perineum, and over the pubes; that the pain is most severe when the bladder is nearly empty; that the urine, generally turbid from admixture of mucus, pus, or blood, is sometimes nearly clear; and that, during the straining efforts which he is compelled to make after the bladder is empty, some pure blood often flows down the urethra, sometimes in very considerable quantities. There is scarcely any other disease in which this symptom occurs in a decided manner for any length of time; and when it is associated with a general cachectic condition the nature of the affection is tolerably certain. In cases of long-continued inflammation of the bladder in women you will now and then meet with soft vascular processes of the lining membrane projecting through the meatus, which bleed easily. These must not be

mistaken for the disease in question. They are soft and smooth like common polypi, may be drawn out with a pair of forceps, and removed with safety by scissors or ligature; indeed, much benefit is sometimes experienced from their removal.

I cannot say whether the following case should be regarded as one of epithelial cancer. The growth presented many practical resemblances to that disease, though the subject was young:—A healthy-looking girl, aged 8, was brought to the hospital in August, 1844, with a red vascular excrescence, firm in structure, and granular or finely warty on the surface, projecting between the labia. It measured about an inch in diameter, and was attached by a pedicle as large as a goose-quill to the left side and lower part of the urethra, quite within the meatus. It had been observed for about a year, and had been removed by ligature, but had returned. Having drawn out the growth I passed a ligature round its neck as far back as possible. It sloughed away, and a little red warty growth sprung up at the situation of the ligature. To this I applied nitrate of silver, with some apparent benefit at first; but the growth soon increased in spite of that treatment, and the child ceased to attend at the hospital. I learnt afterwards from the mother that the growth attained a great size, bled frequently, and caused the death of the child about six months after she left the hospital.

This specimen affords an example of what appears to be epithelial cancer of the stomach. It is a large polypous tumour sprouting into the stomach near the cardiac orifice, which was almost blocked up by it. The surface is lobulated and granulated, like a cauliflower, and there is an ulcerated spot on the summit, leading to a cavity in the interior. The central part of the mass is firm, of grey colour, and striated. It is said to have been taken from a woman who had frequent discharges of blood by stool and by vomiting, with difficulty of swallowing.

LECTURE ON THE DISEASES OF CHILDREN.

DELIVERED IN THE

Chatham Street School of Medicine, Manchester,

BY DR. MEREI,

Fellow of the Hungarian Academy, late Professor of the History of Medicine at the University of Pech, Clinical Professor of the Diseases of Children, and Director of the Children's Hospital at Pech; Fellow of the Imperial Society of Medicine at Vienna, etc.

LECTURE V.

Urine; Spinal Cord; Extremities; Anus; Skin.

URINE.—As it is difficult to collect the urine of little children, this liquid is less attended to in them than in adults. I will direct your attention only to a few of its *physical* qualities which I have observed it to