SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

THE REMOVAL OF INNOCENT TUMOURS

BY

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The word "tumour" simply means "swelling," and includes those swellings due to inflammation, cystic formation, and neoplastic disease. The innocent tumour which the general practitioner is tempted to try to remove is usually one that is obvious and superficial, such as those occurring in the skin, and diagnosed as warts, moles, papillomata, sebaceous cysts, naevi, etc. The tumour may be beneath the skin—for example, a lipoma—or more occasionally it may be connected with some definite organ, such as the breast, thyroid gland, lymphatic glands, or a bone.

General Principles

For any method of treatment to be correct the first necessity is to make an accurate diagnosis, and it is in just such tumours as these that this may be so difficult. In many cases it is impossible to be certain of the diagnosis unless this has been confirmed by a skilled pathologist. Hence it is imperative that any apparently innocent tumour should on removal be submitted for microscopical examination and preferably the whole of the tissue excised, and not merely that portion of the tumour which does not look "quite normal."

"A man aged 46 presented himself at the dermatological clinic with what was diagnosed as an angioma just above the right eyebrow. He was sent to the radium department for treatment, which was carried out by a surface applicator, a portion of the growing edge being first removed for biopsy. The treatment was eminently successful, but the pathologist's report on the tissue removed was that it was a hypernephroma. The position of affairs was explained to the patient, who had never had any symptoms referable to the urinary system. He submitted to a direct pyelography, which showed a filling defect in the pelvis of the right kidney. The kidney was removed and contained a hypernephroma having the same structure as the skin tumour."

This case exemplifies another difficulty confronting the surgeon. The question is not merely whether the tumour is innocent or malignant, but whether, if malignant, the obvious tumour is the primary or a secondary growth. Every practitioner is familiar with cases of melanoma in which the secondary growths have been obvious long before the primary. The presence of pigment in a tumour, however innocent the latter may appear to be, should usually be a warning to the practitioner to leave that tumour alone and pass the responsibility for its removal on to others. It has been said that bones are full of base black ingratitude, and that when they are broken it oozes out of them; the same may be said of pigmented tumours. They must be removed entire and with as wide a margin as possible of apparently healthy normal tissue round them.

"A man aged 52 went for a walk and chafed the skin over the right heel. He tried various remedies with no avail, and then consulted his doctor during an epidemic. The doctor told him he was far too busy to attend to it, and advised different shoes and socks. The next doctor he consulted

injected some local anaesthetic and scraped the surface to promote healing. This treatment was unsuccessful. The man next consulted a chiropodist, who tried strapping and ointment equally unsuccessfully. Nine months later the local growth was obviously a melanotic sarcoma, and the growth had already metastasized in the inguinal and femoral glands."

This case illustrates the fact that positive harm may result by not completely removing a tumour. A portion of a tumour left behind will, if it is innocent, continue to grow, perhaps with a malignant character superadded; and if malignant the rate of growth will be accelerated and the formation of metastases encouraged. This must always be remembered when a portion of the growing edge of a tumour is removed for a pathological report. How often does the patient complain that "it has got much larger since a small piece was cut out for examination"! He usually wishes the tumour to be removed for cosmetic reasons and only occasionally for pain, unless the position of the tumour is such that it is exposed to pressure or itself presses on sensory nerves. The subtlety of neoplastic disease is its painlessness until fixity occurs, and this often implies inoperability.

The doctor usually urges removal of an innocent tumour because if left it may become malignant. The only rational tumour is the lipoma; it will never disgrace its innocence, however old and big it may be. No other neoplasm can be trusted to remain benign. The very fact that the patient asks for treatment for cosmetic reasons should make the operator consider the possibilities of an unsightly scar from the operation. The resulting scar after removal of a tumour may cause much more psychical disturbance than the original tumour, and the patient, as in so many other cases, considers that the cure is worse than the disease. This is so in the removal of all tumours on the face, especially when the scar from the operation wound will be in the neighbourhood of the eyelids. The deformity resulting from a bad scar in this position can often only be rectified by an extensive plastic operation. The success of all surgical procedures, whether of the so-called "minor" or "major" type, depends upon the rigid adherence to the three fundamental principles of surgery—namely, the abolition of infection (sepsis), the control of haemorrhage, and the relief of pain.

It is precisely in the surgical removal of sebaceous cysts, ganglia, warts, papillomata, etc., that it is apt to be thought unnecessary to be too particular: these are such slight operations that a makeshift procedure may be thought sufficient. The operations must, of necessity perhaps, often be carried out under conditions and in places far from ideal; but this is no excuse for not rigidly adhering to fundamental surgical principles. It is the sepsis following the prick of a pin or needle that so often leads to a fatal septicaemia or pyaemia. No margin for error can be allowed in the preparation of the site of operation, the surgeon's hands, and the instruments, bowls, towels, swabs, and solutions used.

If the tumour is on the scalp the hair must be removed from a surrounding area wide enough for the surgeon to see exactly what he is doing, and the towels must be placed so that the ligature material and instruments are not resting on the "unprepared" surface of the face or scalp during the operation. The eyes must be protected from the

effects of the solutions used in the preparation of the skin, which is best done with methylated spirit. The operation will usually be performed with local anaesthesia, and in all cases the co-operation and the psychical control of the patient are necessary.

There are various methods by which innocent tumours may be removed: These are:

1. Excision, with a margin of surrounding healthy tissue.
2. Enucleation, either from within the capsule or including the capsule.—In the removal of cysts it is most important that the whole of the membrane lining the capsule should be removed, and in order to do this the capsule should, as a rule, be removed as well.
3. Destruction of the tumour mass.—This may be achieved by various cauterizing agents, such as acids, carbon dioxide snow, diathermy, electrolysis, radium, or deep x rays. The practitioner usually has only acids and carbon dioxide snow at his disposal, so of necessity the other methods must be left to experts.

It must be remembered that, with the exception of radiotherapy in the hands of an expert, all these methods leave a scar. Treatment with radium is certainly the least painful means to employ, but the pain of the subsequent reaction may be considerable, and if an overdose is given the resulting scar may be not only unsightly but a distinct menace. The treatment of tumours by any method of irradiation should be left strictly to experts. The treatment of angiomas by the injection of boiling water has been warmly recommended by some; but the technique is difficult, the procedure apt to be very painful and the result disappointing; it is therefore not to be recommended for general use. The methods adopted will naturally differ according to the nature of the tumour, its situation, and the appliances available.

Papillomata

These may be the result of local infection and discharges, which if present must first be cured. The papillomata will perhaps then disappear; if they do not they can be treated with trichloroacetic acid (100 per cent.) or be excised. Warts which occur on the fingers, especially in children, may be flat or pedunculated. They are usually multiple, often appear in successive crops, and several may coalesce to form quite a large mass. They are treated by cauterizing each individual wart daily with 10 per cent. salicylic acid collodion, or by dropping pure glacial acetic acid or fuming nitric acid on to the wart from a glass rod once a week. Carbon dioxide snow can be used by making the solid stick from the gas, cutting the stick the size of the wart, and applying it by steady pressure for half a minute. Considerable pain may follow later when the reaction occurs.

If these methods are not successful then irradiation by x rays or radium should cure; otherwise the papilloma must be removed with an adequate margin of healthy tissue. Warts, often pigmented, occurring in the elderly, may be the starting-point of malignant disease, and, if growing, must be excised, a sufficient margin of healthy surrounding tissue being taken at the same time.

Angiomata (Vascular Naevi)

These tumours are usually congenital, the capillary and cavernous types being the most common. A naevus, however small, should be treated as soon as possible. Radium is now the method of choice. If the growth is thin and small treatment with carbon dioxide snow is effective. The snow is applied for half a minute, and

the treatment repeated if necessary. The reaction may be severe, and subsequent applications should only be given when it has subsided. If the naevus is excised the incisions should be made outside the margin of naevoid tissue, thus minimizing haemorrhage and ensuring complete removal.

Sebaceous Cysts

These are the commonest tumours met with in the skin; they are tumours definitely *in* the skin. The usual indications for removal are disfigurement and attacks of inflammation. They are removed by enucleation or dissection, but whichever method is used the whole of the cyst wall must be taken away. Incomplete removal of the cyst wall results in recurrence, sinus formation, or the appearance of a granuloma known as Cock's peculiar tumour, which may be mistaken for an epithelioma.

Enucleation is carried out by transfixing the base of the tumour with a narrow-bladed scalpel and cutting right through the cyst wall on to the surface. The contents of the cyst are then expressed and the divided cyst wall on each side seized with forceps and twisted out entire, any adhesions between it and the surrounding tissues being divided with scissors.

If the cyst has been inflamed it is better removed by dissection. An elliptical incision is made over the most prominent part of it, the ends of the incision projecting well beyond the actual cyst wall; the skin is then undermined on each side until well clear of the tumour, and the whole cyst in its capsule dissected out, with the elliptical piece of skin attached to the prominent part. Haemorrhage is stopped by the ligature of vessels, and the skin edges are approximated. If the cyst is on the scalp, haemorrhage is controlled not only by ligature and the sutures approximating the skin but by pressure exerted on to the raw surface by bandaging firmly against the skull. If the position of the cyst is such that firm pressure cannot be exerted and there is a general ooze from the raw surfaces, a narrow piece of sheet rubber should be inserted as a drain for twenty-four hours.

Other cysts occurring immediately beneath the skin, such as implantation cysts and dermoids, should be dissected out; if the raw surface oozes, drainage should be established for twenty-four hours. It is advisable that the drainage rubber should always either be stitched to the skin or have a safety-pin attached so that it cannot slip into the cavity and subsequently cause a sinus.

Lipomata

These constitute the most benign of neoplasms. They are usually encapsuled. The capsule is tense and fibrous, being firmly connected to the surrounding structures but not to the neoplasm. The diffuse lipoma is not very amenable to treatment, as it will recur in course of time owing to the impossibility of removing it completely. Any specially painful lipoma—for example, in the condition known as adiposis dolorosa—can be removed easily, but as a rule some other tumour, which has previously been painless, becomes the seat of pain, and in its turn will have to be excised. A lipoma should be removed through a generous incision, so that all the outlying nodules of the neoplasm are excised. The incision should be made deliberately through the skin and into the tumour, the enucleation thus taking place from within the capsule. If the incision is not large enough outlying nodules may be left, and these will continue to grow and another tumour form.

These tumours are sometimes very large, and after removal a big cavity is left; all obvious bleeding points should be secured and ligatured, and drainage of the cavity carried out for twenty-four hours.

Fibromata

Fibromata are clinically divided into soft and hard varieties. They may occur in many different organs, have a wide distribution, and may be single or multiple. They must be removed completely, including the capsule, by dissection, and cannot be enucleated satisfactorily. Diagnosis is often so difficult in these cases that the whole tumour should be submitted for expert pathological opinion. Those occurring in connexion with fascia are known as "recurrent fibroma," and are probably fibrosarcomata from their inception. Fibromas, usually of the hard variety, occurring in connexion with nerves are single or multiple as elsewhere; if single, the pain experienced when the tumour is subjected to pressure may be intense: an example of this is "the painful subcutaneous nodule" often met with on the sole of the foot. The single neurofibroma must be removed by dissection, but multiple fibromas are best left alone and the deformity accepted.

The fibromatosis that sometimes occurs in a scar, known as keloid, is best left alone unless it causes great pain. It can, however, be removed, but the condition will generally recur in the new scar, though it is then usually not so painful. A fibroma (epulis) often grows from the alveolar or dental periosteum around the neck of a tooth. It must be removed whole, and this means that in most cases one or two teeth will have to be extracted to expose the origin of the tumour, or even a small portion of the alveolar margin excised to make complete removal certain. It is advisable that the whole tumour should be sent to the pathologist for microscopical examination.

Chondromata

These tumours, usually multiple, occur most commonly in the metacarpal and phalangeal bones, and if left will ultimately protrude through the compact bone. If small they are treated by enucleation, and as they have no connexion with the articular cartilage removal will not interfere with the growth of the bone or the function of the joint. A bone-graft may have to be inserted into the parent bone to prevent post-operative fracture. If the tumours are large amputation will have to be considered. The cartilage may calcify, but ossification rarely takes place; malignant change may also occur. Before any operation is undertaken it is desirable to have both hands radiographed.

Osteomata

The cancellous variety of osteoma in the neighbourhood of the epiphyseal cartilage usually develops in a growing bone, but in most cases ceases to increase before the end of the normal period of growth. As a rule the tumour has a bulbous end covered with hyaline cartilage and a pedunculated base. An adventitious bursa is often present over the bulbous extremity, giving rise to a sense of fluctuation. If the tumour is causing any disability it must be removed through a generous incision, and important structures surrounding it, such as tendons, blood vessels, and nerves, should be adequately retracted and respected. The whole tumour, including the bursa, the hyaline cartilage, and the portion of compact bone from which it is growing, should be removed. The cancellous tissue of the parent bone is thus opened up when removing the flake of origin from the compact tissue; consequently,

if sepsis supervenes it may spread to the diaphysis. These tumours are often multiple, and others should be looked for and the patient's attention drawn to them.

The *subungual exostosis* usually appears on the dorsal surface of the terminal phalanx of the big toe. It gives rise to intense pain and projects under the nail bed. The nail often breaks off and there is ulceration of the bed. The resulting granulation tissue may mask the small tumour, which is either an exostosis or a fibroma. Treatment consists in removing the nail and also the whole of the underlying tumour by curetting it out of the parent bone; occasionally partial amputation of the terminal phalanx is necessary.

Ganglia

A ganglion is a cystic swelling in the neighbourhood of a joint or tendon sheath occurring commonly in the region of the wrist or foot. It may disappear spontaneously or after subcutaneous rupture caused by injury, or even occasionally after the fluid, if thin enough, has been removed by aspiration. The injection of sclerosing fluids—for example, sodium morrhuate 5 per cent.—has been recommended after aspiration, but these methods are so uncertain that radical excision by sharp dissection is looked upon as the method of choice. The associated tendons must be carefully retracted and not injured, and the whole of the cyst wall should be removed if possible. Any extension of the cyst wall between adjacent tendons should be carefully dissected out, and also any other smaller cystic formations in the neighbourhood. The joint capsule may be opened during the dissection, hence the importance of careful haemostasis after excision; and in addition, if the joint capsule has been opened, rest to the joint on a splint is advisable for a few days.

Bursae

These are often enlarged, and need excision owing to attacks of inflammation and pain. The same care should be taken in their excision as in the case of ganglia, the whole of the capsule being removed.

Conclusion

After excision of a tumour the closure of the wound needs the greatest care. An unsightly scar is to be avoided. The incision should, if possible, be planned in one of the lines or natural creases of the skin; fine needles should be used and accurate apposition of the skin edges obtained without tension or overlapping. A subcuticular suture is specially indicated in face wounds. All haemorrhage should be meticulously controlled, and the aseptic technique employed must be beyond criticism.

The operative field should be kept at rest as much as possible for a few days after the operation.

The whole of the tissue removed in excising any wart, mole, papilloma, naevus, fibroma, etc., should be sent for expert pathological opinion, and the report carefully filed for future reference.

After the operation the patient should be seen at the latest within twenty-four hours and inquiries made as to post-operative pain, throbbing of the wound, etc. If sepsis supervenes stitches will have to be removed as necessary and appropriate treatment instituted. The stitches may be removed in a few days. If a catgut subcuticular suture has been used it should be left, but if the suture is of non-absorbent material it should be removed when it has properly loosened, which is usually in about ten days.

The result of these small operations ought to be most gratifying to the patient and to the surgeon.