

is often effected and may be very marked, so that life is materially prolonged. Even so, however, the application of radium by the insertion of needles is falling into disuse and has been almost entirely abandoned in the large Continental centres, where it is claimed that equal or even better results can be obtained by surface applicators than by needles.

A very large number of cases of cancer of the cervix are now being treated with radium, and good results are being reported. A suitable dose is placed in the cervical canal and, by means of a special holder, other doses are placed in each fornix so as to irradiate the broad ligaments. Not in any case whatever should radium be applied by any but a skilled and experienced practitioner, and especially is this so in the case of the cervix, where severe burns have occurred resulting in fistulous communications between the vagina and the rectum or bladder or both. Whatever else radium may be, it is certainly a two-edged weapon, and it is far easier to do irreparable harm with it than any good.

It is possible to collect in glass or gold tubes the rays emitted by radium and they are then called radon. They, too, may be used for the treatment of cancer, being buried in the growth just as needles are; but they have the advantage that, whereas needles must be removed after a time or necrosis and sloughing ensue, radon seeds may be left in place indefinitely because the rays in them gradually die away and finally disappear.

The last method by which radium is applied is by exposure at a distance. A large amount—from 1 to 5 grams—is placed in a lead box with a hole in one side, and the rays, passing through the hole, are directed upon the patient. I think the less said about this method the better. It appears to be absolutely useless.

The value of radium treatment is still under discussion and there is no unanimity of opinion. For rodent ulcer and cutaneous epithelioma, if not too extensive, it appears to be an almost certain cure; but I doubt if it has ever cured another growth. In carcinoma of the tongue it may give great relief. The ulcer may often be completely healed, so that the patient's general condition improves enormously. At the same time life may be prolonged for a short while. In carcinoma of the cervix uteri, similar improvement may be obtained. The ulcer may heal, the offensive and exhausting discharge may cease, and the patient improve, but sooner or later either the tumour recurs or secondary growths appear at a distance, *e.g.*, in bones.

When all is said and done, radium treatment seems little more than a return to the surgical practice of fifty years ago—local excision of the mass. If the growth is strictly localised it is conceivable that a cure may be effected, but the difficulty of accurate application is so great that there seems no reason for choosing this method in preference to the far simpler and more accurate method of the knife. And here I may say in parenthesis that the "if" is the crux of the whole matter. I think it probable that it will prove that a malignant growth is never strictly localised, at any rate, not by the time that it can be recognised by the naked eye.

The reason for using radium is similar to that for using X-rays. It is thought that malignant cells are more readily destroyed by it than are the normal body cells, and an attempt has been made to introduce such doses of radium as will destroy the former without injuring the latter. But here again some evidence of a dual action is accumulating and it appears possible that in addition to a purely local action a generalised reaction occurs which may have some curative power and increase the local effect on the tumour. But this remains yet to be proved, and it is, I think, by no means certain that malignant cells are really more vulnerable than normal cells. Experiments have been made upon

isolated malignant or normal cells in artificial cultures outside the body, but I very much doubt if the conclusions reached can be properly applied to those same cells when situated in the body, surrounded by the other tissues, and nourished by the natural blood.

In fact, it seems to me and to many others that the medical profession in Great Britain has gone crazy over radium. In the words of the National Radium Commission: "If the growth is accessible and radio-sensitive; if the radium is implanted in the right place; if the whole of the tumour is irradiated; if the dose is correct; and if the exposure is rightly timed; then one may expect the shrinkage and disappearance of the tumour." But recent investigations seem to show that irradiation of the whole tumour with the correct dose for the correct length of time is absolutely impossible except in a few superficial growths, and I think that in another five years or so the use of radium will be entirely restricted to these.

(To be concluded.)

THE TUTORIAL GROUP.

BURNS AND THEIR TREATMENT.

By Miss Edith Foulkes Pritchard, F.B.C.N.

The following paper prepared by Miss Edith Foulkes Pritchard, F.B.C.N., Sister Tutor Suburban Hospitals, Cape Town, South Africa, was read at a meeting of the Tutorial Group of the British College of Nurses.

Burns result from: (1) The application of dry heat; (2) The application of a caustic to the body surface. The effect varies from a mere reddening of the skin to actual charring and destruction of an entire part.

These variations are classified as the Six Degrees of Burns. Different degrees may be present in the same burn, and it must always be borne in mind that a burn of the first or second degree, involving a large area of the body, is of a more dangerous nature than a burn of the fifth degree, which affects only a small area. The reasons for this are:—

- (1) In the former there is a large area for absorption of purulent discharge, so that inflammation and sepsis of internal organs are more likely to occur.
- (2) Shock is greater, on account of the very large number of nerve endings involved.
- (3) The action of the skin is interfered with, *i.e.*, elimination of waste products and heat.

Symptoms.

The condition of the patient will vary according to:—

- (a) The situation of the burn.
- (b) The extent of skin surface affected.
- (c) The age of the patient, burns being most fatal in children and old people.

After a severe burn there follows a stage of prostration, due to intense terror and consequent severe shock. In children it may cause death. The patient is cold, shivering, with sub-normal temperature, feeble thready pulse, and thirst and perhaps pain is acute.

The second stage, that of reaction, sets in from 24 to 48 hours later.

The temperature rises and pulse becomes stronger.

The period of inflammation now shows itself, the severity of which will depend upon the depth of the burn and ultimate size of the slough, which must subsequently separate before healing can commence.

If the suppurative stage is prolonged, further serious constitutional symptoms will set in, due to the absorption of poisonous products from the septic area.

Should vessels become eroded during the separation of

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