symptoms develop. I can give you no dramatic statistics to confound the attitude of *laissez-faire*, but I can state and show by examples that the disease is curable by surgery.

The results of the application of surgery in the 100 cases of carcinoma of the pharynx is shown in Table IV.

TABLE IV.—*Operative Treatment in One Hundred Cases of Cancer of Pharynx*

Operable:

49 cases: 35 males, 14 females.

Radical Operations Completed:

25 males: mortality 9, alive 4.

14 females: mortality 7, alive 3.

You will see that the operability rate is fairly high, but it must be understood that "operable" in this hospital is a somewhat elastic term; many of those that were submitted to radical operation were really advanced cases. The fact that operation can occasionally succeed in apparently hopeless cases may be taken as an indication that the type of growth is not essentially very malignant. The mortality of the treatment is high, again partly on account of the advanced state of the disease in many

cases, but also on account of the severity of the operation. Seven of the hundred patients are alive as the result of surgical treatment alone, the longest interval since operation being ten years, the shortest eighteen months. Other cases in this 100 have been relieved by radiotherapy, but there are as yet no long-standing survivals as a result of this treatment.

These few successes show that these forms of malignant disease are curable by surgery. It has yet to be shown that any other method gives better results. But, whatever method of treatment is favoured, it will obviously have more chance of success if diagnosis is made early.

Summary

Cancer of the pharynx begins with trivial but characteristic symptoms.

A plea is made for closer investigation of minor disturbances of the voice and of swallowing.

Indirect laryngoscopy is the most useful method of examination in suspicious cases.

The disease is curable by surgical excision.

ULTRA-VIOLET IRRADIATION IN THE TREATMENT OF VARICOSE ULCERS, VARICOSE ECZEMA, AND VARICOSE VEINS

BY

ALBERT EIDINOW, M.B., B.S.Lond.

Honorary Physician to the St. John Clinic and Institute of Physical Medicine, Pimlico, and to the Light Department of the Radium Institute

When taking charge of the light department of the St. John Clinic four years ago some ninety-two patients suffering from varicose ulcer and varicose eczema had been attending once or twice a week for over three years. Although they had regularly received local treatment with ultra-violet rays emitted from the tungsten arc their lesions did not heal. The technique of treatment was changed to methods which will be fully described, and after three months sixty-six of these patients were completely healed and discharged cured (72.5 per cent.).

Briefly the technique adopted included: (1) exposure of the ulcer and the skin area 1 to 1½ inches surrounding the edge of the ulcer to massive doses, equivalent to six erythema doses of rays, emitted from the quartz air-cooled mercury vapour lamp; (2) application of adhesive elastic bandages. The result of such treatment has been consistently successful. In past years many clinics and hospital out-patient departments have contained numerous patients attending regularly for long periods, months and years, for treatment of chronic varicose ulcer. Much tiring labour applying dressings was the task of nurses, doctors, and their patients. The difficulties of the economic "home conditions" and finance of these patients made the task of healing varicose ulcers and the hygiene of clean limbs almost impossible. Many such patients have to work for a living. The introduction of elastic adhesive bandages has been a great boon. The exposure to ultra-violet rays of wave-length shorter than 3,000 Angström units sterilizes the surface of the ulcerated area and augments the circulation; this promotes the healing and makes the surface wound inoffensive and free from unpleasant odour.

Technique of Treatment

The size and nature of the ulcerated area of skin is recorded by direct tracing over a piece of transparent

tissue paper with a dermatograph pencil. This tracing is transferred to a sheet of foolscap paper, and the area of unhealed skin is recorded week by week, so that observation as to the nature and rapidity of healing can be observed. The leg and ulcerated area is then cleansed with acetone and oil of eucalyptus. A piece of tissue crêpe paper is next applied to cover the whole leg. The paper covering the ulcer and the skin area surrounding this for 1 to 1½ inches is cut away, and pieces of adhesive strapping are applied to support the paper covering the healthy skin of the leg and foot. The ulcer area and surrounding skin is then exposed to the rays of the quartz air-cooled mercury vapour lamp at a distance of 12 inches for ten minutes. A vacuum type of quartz air-cooled mercury vapour lamp, consuming 2.5 amperes and 105 volts between the electrodes, is employed. This is equivalent to five times the erythema dose of the normal white skin.

Immediately after exposure the tissue paper is removed and an elastic adhesive bandage is tightly applied from the base of the toes, over the foot including the heel, and up the leg to the knee. The patient is instructed to keep the bandage clean but not to interfere with it in any way. It is kept on for one week, when the patient again reports. The bandage is then removed, the skin is cleansed with acetone, and the treatment repeated. Week by week the ulcer area becomes smaller and smaller until healing ultimately occurs.

It is indeed amazing to see the clean ulcer area exposed when the bandage is removed. Although this bandage has been left undisturbed for one week and covers a septic discharging ulcer, the surrounding skin remains clean, with no foul odour and no evidence of reinfection or undue inflammation. The use of elastic adhesive bandage has been of great help in augmenting the circulation, supporting varicose veins, and healing varicose ulceration. The application of erythema doses of ultra-violet rays is of much value in accelerating the formation of granulation tissue and stimulating the skin cells.

It is impossible to obtain a consecutive series of similar clinical types to make a critical comparison of the effect of elastic adhesive bandage alone and the added effect of exposure to ultra-violet rays. The exposure of varicose ulcers to ultra-violet rays in mild suberythema doses is of no avail; more intensive dosage equivalent to five skin erythema doses causes local inflammatory reaction, and

the covering with elastic adhesive bandage is then necessary to relieve discomfort. The combination of a massive dose of ultra-violet rays and elastic adhesive bandage causes a cleaner granulating surface and rapid healing. Varicose eczema surrounding the ulcer area responds favourably to ultra-violet irradiation. General observation indicates that ultra-violet rays accentuate the successful result produced by the adhesive bandage.

At the final stages of healing the elastic bandage may be discarded and a milder dose of ultra-violet rays applied to the skin of the whole leg and foot—for example, exposure at a distance of 20 inches to the air-cooled quartz mercury vapour lamp for five minutes. The patient is told to bathe the limb daily in warm alkaline water, warm water and oatmeal being suitable. The limb having been dried, olive or almond oil is applied.

Varicose veins associated with varicose ulcers must be treated by means of injection of a sclerosing solution whenever possible. Varicose ulcer is likely to recur if varicose veins are not so treated. Those cases in which old age, ill-health, or the size of the veins renders injection treatment unsuitable require an elastic stocking after the ulcer has been healed. In cases of varicose ulcer associated with recurrent attacks of thrombophlebitis, oedema, swelling, and vasomotor changes, symptoms of an obstructed circulation may be seen. Such cases require ultra-violet irradiation of the skin of the legs combined with infra-red and luminous irradiation. This treatment is applied once or twice a week for about two or three months, until signs of oedema and other signs and symptoms of obstruction of circulation have disappeared.

Varicose Eczema

Varicose eczema is difficult to heal. Localized patches situated over the skin area of the internal or external malleolus often foreshadow varicose ulceration. Varicose eczema is often associated with phlebitis and other circulatory complications due to varicose veins. Secondary infection by the common pyogenic bacteria causes a spreading and acute infiltrative or exudative dermatitis. Intermittent attacks of cellulitis or septic thrombophlebitis cause severe complication. Chronic fibrosis, pigmentation, oedema, and hypertrophic sclerosis of the skin covering a tortuous mass of varicose veins offer a typical clinical picture; there is often a history of fifteen to twenty years' disability.

In these cases of varicose eczema the reaction of the skin to ultra-violet light rays is of particular interest. During the phase in which the skin is bright red, showing areas of exfoliation and inflammatory oedema, the skin is tolerant to radiation, and four to six normal erythema doses may be applied without undue reaction. However, when the skin is pale, or pigmented by thickened hypertrophic sclerosis, the area of scar tissue is tolerant to radiation, but the surrounding skin is often extremely sensitive, and a normal erythema dose will then cause an intensive reaction which will prove of great discomfort to the patient. Ultra-violet rays must then be applied with caution. The capillary circulation of the skin is often disturbed, and thrombosis of varicose veins may cause an area of obliteration, and ischaemia or necrosis of the skin approaching ulceration may result. Other irregularities of circulation and secondary infection cause acute and chronic inflammation. Since the local application of ultra-violet rays to the skin augments the capillary circulation and stimulates growth of epithelial cells, it is of great value in healing varicose eczema.

The technique is similar to that applied in the treatment of varicose ulceration. There is an intensive exposure to

ultra-violet rays, equivalent to six normal skin erythema doses, to localized patches of eczema, and the normal skin for half an inch surrounding each zone is also irradiated. Elastic adhesive bandage is then applied to the whole foot and leg and left undisturbed for one week. The ultra-violet irradiation causes an active inflammatory reaction, followed by oedema, blistering, and finally exfoliation of the skin. Bandaging the limb with adhesive strapping and thus keeping the treated lesion covered gives relief to the patient, as the painful symptoms following intensive ultra-violet irradiation are thereby diminished. Healing of the skin gradually takes place, and week by week steady improvement may be recorded. The treatment is repeated once a week for about six to eight weeks; by this time healing is well advanced.

At this stage the varicose veins should be treated by weekly injections of sclerosing solutions. The local intensive irradiation is stopped and the skin of the anterior or posterior surface of the whole leg is exposed to the rays once a week at a distance of thirty inches for five minutes, using the quartz air-cooled mercury vapour lamp; this is equivalent to two normal skin erythema doses. The limb is bandaged as before. The object of this treatment is to stimulate the capillary circulation and the epidermal cells of the skin of the leg. It greatly relieves the circulatory disturbance caused by varicose veins, and gives much relief to the patient. At the final stages of healing bandages are discarded and the limb is daily bathed in tepid, mildly alkaline water, and olive or almond oil is applied.

The Treatment of Varicose Veins

Although the modern treatment by sclerosing solution has greatly benefited many cases of varicose veins, there are unfortunately some in which the enormous size of the veins or the general condition or health of the patient does not allow of this technique. Many of the cases unsuitable for injection treatment get relief from agents which improve the skin and capillary circulation. This explains the good results obtained at many of the clinics and spas which specialize in treatment of varicose veins, phlebitis, and its sequelae. Exposure of the skin of the legs to erythema doses of ultra-violet rays greatly relieves the symptoms in cases of old-standing varicose veins. The cases selected for such therapy were those in which (a) the health of the patient or (b) the enormous size of varicose veins did not permit treatment by injection of sclerosing solutions or by ligature. Treatment was applied twice a week for eight weeks.

Cases considered suitable for injection therapy were treated as follows. The skin of the anterior or posterior surface of the leg was exposed to rays of the air-cooled mercury vapour lamp at a distance of thirty inches for five minutes. The alternative skin surfaces were irradiated each week. The patient was next made to stand on a small stool about twenty-four inches in height, the operator sitting at a lower level, on a stool about six inches high. The veins were injected in order, starting from below in the foot and working up the leg. One single injection of 3 to 4 c.cm. of a 10 per cent. solution of sodium morrhuate (Parke, Davis and Co. Ltd.) was made each week. Directly after a successful intravenous injection had been made the patient sat down on a chair in such a way that the limb rested on the stool while the patient faced the operator. During this procedure the operator kept a sterile swab, moistened with 1 in 3,000 spirit and mercury biniodide, on the site of the puncture. An elastic adhesive bandage was then applied to the foot and leg. This remained undisturbed for a week, when the patient again reported for

treatment, the bandage was removed, and the treatment continued.

On an average six to eight injections at weekly intervals are needed for successful treatment of varicose veins. Roughly a length of four to six inches of vein is thrombosed by each weekly injection. The result of this technique is invariably successful in suitably selected cases. Failure to obliterate the varicose veins occurs when the width of the vein is too big for successful clotting. Some of these cases are suitable for ligature high up in the leg or thigh, followed by injection with sclerosing solution.

Complications may occur such as a sudden spreading thrombophlebitis passing along the course of the superficial saphenous vein of the whole leg, particularly in cases where there has been a history of previous attacks of phlebitis, and where there have been mild attacks of septic thrombophlebitis. It is a wise precaution to warn such patients of the possibility of this trouble; suspicious cases are recognized with clinical experience. The patients must rest in bed until the signs and symptoms of active inflammation have subsided. Such cases spontaneously cure themselves of varicose veins, but treatment for restoration of a new collateral circulation is needed. The only disadvantage of this technique is an economic one: the drugs and dressings required are expensive, but as they cure chronic sufferers of varicose veins their cost is small compared with that involved by prolonged attendance at out-patient clinics for palliative treatment.

There are old-standing varicose ulcers, some of over twenty years' duration, which are at times difficult to heal. In some cases there is more ulcerated area than normal skin in the leg, and it is amazing how such patients have managed to work and carry on their lives and have retained their limb and survived.

Treatment of Deep-seated Ulceration

In cases of deep-seated ulceration, perhaps of a small area but surrounded by extensive fibrosis adherent to the deeper tissues and fixed to underlying bone, it is difficult to restore adequate blood supply to stimulate granulation tissue and healing. Errors in metabolism associated with advancing age, such as glycosuria, gout, and nephritis, may often add to these difficulties. Some of these cases ultimately change in character and become malignant. After efforts to heal the ulcers by ultra-violet irradiation and bandaging have made little progress other methods may be attempted. The edge of the ulcer and fibrous tissue may be excised by means of surgical diathermy, or the whole base of the ulcer may be destroyed by diathermy fulguration. Intensive doses of ultra-violet rays may now stimulate healing by augmenting the separation of a slough and exposing new vascular granulation tissue and epithelial cells. Skin grafting is not successful unless a good and healthy bed of granulation tissue is available. By these means these difficult and resistant cases may be encouraged to heal.

During the past four to five years over 240 cases of varicose ulcers have been treated and over 90 per cent. have been healed within six months. Patients are asked to report afterwards for examination every two months, but some patients fail to do so and make conclusions difficult. However, recurrences of varicose ulcer fortunately have been few. There was recurrence in eight cases, in each of which the patients failed to report for intervals as long as one to two years. The results of early cases of varicose ulcer and varicose eczema are excellent; in some instances there is healing after three to four treatments. The usual routine adopted includes the injection

of varicose veins as soon as ulcer or eczema is healed. The final results in cases of varicose veins are good. Providing the cases are suitable over 95 per cent. are cured. The patients report afterwards at intervals of three to six months. Observation of a series of cases, the number healed, and those unhealed, after a fixed period of time, conveys little information, for an early and healthy varicose ulcer may be healed in three weeks, while an old-standing septic ulcer may need constant supervision and treatment for many months. It is difficult, if not impossible, to obtain a regular series of similar clinical types of cases suitable for critical statistical analysis. The conclusion is reached that by the technique which has been described cases of varicose ulcer, varicose eczema, and varicose veins may be rapidly and permanently healed in an average period of four to six months. The technique needs a regular routine and organized team work by nursing and medical staff.

Clinical Memoranda

Fulminating Agranulocytosis

The following account of a case of fulminating agranulocytosis seems worthy of record.

CASE REPORT

The patient was a married woman aged 66. Apart from recurrent attacks of mild bronchitis her health had been good, though she was a frail little woman weighing only 6 st. odd. On the day of onset she was well and able to carry out a day's shopping; towards evening she felt suddenly ill and shivery, and continued to shake all night. I was sent for at 7 a.m., and was greeted by the remark, "Doctor, I have never felt so poorly in my life"; but apart from a temperature of 102.5° F. there was little to be made out; the fauces were free from any exudate or hyperaemia. In the evening the temperature was still sustained and the general condition was unchanged; there was a complaint of rawness behind the nose, making breathing painful. The patient had a bad night, the pain behind the nose increased, and swallowing became painful. By morning her condition was distressing, though the temperature had fallen to 100° F. and the pulse rate was slower. I was dumbfounded to find a grey-black area of necrosis on both tonsils and immediately gave 24,000 units of anti-diphtheritic serum and called in Dr. F. B. Smith. A leucocyte count was taken and also a swab of the throat; culture of the swab proved negative, and the leucocyte count showed only 360 white cells, among which were no granular cells, though ten times the normal routine volume was used.

A diagnosis of agranulocytic angina was made, and Dr. Wilkinson of Manchester was called in consultation. When he arrived at about 2 a.m. the patient's condition was pitiable, every breath or swallow causing distress, though the temperature and pulse were now normal. Dr. Wilkinson agreed as to the diagnosis, and 40 c.cm. of pentose nucleotide was given intravenously, followed by 10 c.cm. every three hours and a further 20 c.cm. intramuscularly. The pulse and temperature remained normal, but the patient gradually became comatose and died the same afternoon, the pulse becoming irregular two hours before death.

The total duration of the illness from the first clinical symptom was sixty-eight hours. I should add that a further blood count was carried out at 10 a.m. on the last day; the count had then fallen to 130 cells, and again no granular cells were seen, though thirty times the normal volume of fluid was used. It is of interest that the patient had been in the habit of taking cephus tablets, but an analysis of these showed no evidence of amidopyrine.

Preston.

O. K. G. GUYER.