since the growth arises but rarely when the irritated part is first made anaesthetic.

The observations of Sir Lenthal Cheate¹ are more important, since they show the arrest of a malignant process already begun. In some eight of his cases the growth was checked in one direction when the nerve of that part was destroyed by deep malignant ulceration. Thus in one case a rodent ulcer, which had invaded the area of the supraorbital nerve, grew no more that way after destruction of the nerve trunk, though growing freely elsewhere. These cases seem decisive. The ulcers were in vigorous growth, their cells proliferating, and their supposed destructive juices in full activity. Yet these juices, which could destroy and digest normal cells, could not, apparently, destroy those adjacent cells which differed only in the loss of their nervous connexions. We must, therefore, suppose that malignancy is an attribute, not of the tumour, but of the body excited by the tumour.

Sarcoma.

It is probably safe to say that any surgeon at a large hospital sees fifty cases of carcinoma and epithelioma for one of sarcoma. Yet hyperplasia of connective tissue is exceedingly common, being present in every scar and regenerating wound and all chronic inflammation. It is always present, for example, in chronic mastitis. Yet this condition, so prolific of carcinoma, hardly ever gives rise to sarcoma. On these grounds alone it might have been predicted that for the production of sarcoma something more than simple irritation would be required; and recent research seems to show, or suggest, what this further condition may be.

Dr. A. Carrel² in his researches on the Rous sarcoma of fowls has shown that the virus of this tumour is carried in the large monocytes; further, that some of these cells, when treated with the virus, transform themselves into cells resembling agglutinated fibroblasts. When these diseased monocytes are introduced into a healthy fowl they form tumour cells and attract monocytes, which propagate the virus, and are likewise transformed into tumour cells.

Now in the first place these observations show that sarcoma grows in a very different manner from carcinoma, assuming that the Rous sarcoma is true to the type of its kind. For it seems to grow rather by the accretion of extrinsic cells than by the multiplication of the original cells of the tumour. For the rest, no interpretation but mine seems possible. That the virus is propagated by the body's defenders, the leucocytes, Dr. Carrel notes with wonder, but attempts no explanation. But in my view no explanation is needed, for all malignant disease is so produced. So again the specific poison, prepared by the white corpuscles to destroy their fellows, is equally injurious to themselves; they become part of the tumour, and in their turn are attacked by other leucocytes. All goes on exactly according to hypothesis: in a tumour so composed the phenomena might have been predicted. Only one difficulty remains: what condition initiates the tumour, since it seems that simple hyperplasia is insufficient? To find an answer to this, we are perhaps helped by the well known and still more recent work of Dr. Gye and Mr. Barnard.³ Their work is noteworthy chiefly because they claim to have discovered a living ultramicroscopic virus, which is present in the majority at least of the malignant tumours they have examined. Since, however, the characters of the tumour depend not on this but on another, probably chemical, "specific factor," it seems doubtful whether their "virus" can do more than predispose to cancer. Their experiments, as so far published, are obviously too incomplete to allow us to draw definite deductions from them; but if a surmise may be allowed, we may perhaps suppose that the "virus" is simply a cause of hyperplasia, and the "specific factor" the toxin of the leucocytes, which acts, as Carrel has demonstrated, to generate the vicious circle. How a sarcoma commonly begins is doubtful; it may be that a blow, by injuring the fibroblasts in a simple hyperplasia, will lead to an attack on this group of cells, as a foreign body, by the leucocytes.

Summary.

My conclusions may be summarized as follows:

1. Malignancy is not a property of cancerous tumours, but a suicidal reaction of the body to an innocent hyperplasia.
2. The reaction is suicidal because the hyperplastic cells are really part of the body, and the specific poisons generated to destroy the tumour are almost equally poisonous to the body at large.
3. Sarcoma probably differs in its nature from carcinoma; here the diseased process seems more complex, but the essential nature of malignancy is probably the same.
4. It follows that if the body can be led to disregard the tumour the malignant process will stop, and the patient will be cured, save that the original hyperplasia will remain.
5. It seems possible that this result may be achieved by blocking the afferent nerves of the part.

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RECTUS TRANSPLANTATION IN THE TREATMENT OF VENTRAL HERNIAE.

BY

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THE difficulties of obtaining a "radical cure" in large ventral herniae are well known, and from time to time various new principles have been suggested. Silver filigree, overlapping of tissues, lacing with fascial grafts, etc., have all given good results in suitable cases. There are objections, however, to all, and not one of them is suitable to all cases. Any alternative may be of value when other methods are not entirely satisfactory, and I venture to submit the method of shortening, overlapping, or transplanting the recti as a useful adjunct in the treatment of these cases.

The operation may be briefly described as follows: A transversely curved incision, convex downwards, about six inches long, is made just above the pubis, and the skin and fascia dissected upwards and downwards to expose the aponeurosis. The dissection is carried downwards to expose the anterior surface of the pubic bones and the symphysis. The recti muscles are detached from the pubes and can be shortened if required by making a tuck; they are then sutured to the symphysis, or can be overlapped and sutured with kangaroo tendon to the pubes after drilling holes in the bone. During this procedure the patient's shoulders should be raised so as to relax the muscles. In dealing with an umbilical hernia the sac would be exposed in the usual manner and the peritoneum sutured. The recti could then be overlapped and sutured through a pubic incision before closing the umbilical incision.

This method appears to be specially useful in mid-line herniae through scars below the umbilicus, though it would also be applicable to cases of divarication of the recti and some cases of umbilical herniae. The following case illustrates the method.

A widow, aged 57 was sent to me on April 9th, 1925, by Dr. C. H. Ross Carmichael. In 1903 she had been operated on for some gynaecological trouble by a mid-line infraumbilical incision. The wound healed normally, but about seventeen years later she noticed a swelling appearing in the scar.

In 1921 an operation was performed to cure the hernia; before she was discharged from hospital, however, a recurrence was noticed, and a second operation was performed. She "felt the lump coming back again not long afterwards," and a third attempt was made in 1922, but recurrence took place a few months later.

When I saw her the hernia was about the size of the foetal head and was hanging down over the symphysis pubis. The

skin covering it was thin and atrophic and showed the vertical scar of the previous operations. Partial reduction of the hernia was possible, and the opening in the aponeurosis could then be felt; it admitted three fingers, the lower margin of the opening being formed by the symphysis pubis.

Operation.

On April 11th, 1925, I operated, making transverse elliptical incisions round the hernia, the convexity of the lower incision being just above the pubis. The neck of the sac having been opened, the contents, consisting of omentum and transverse colon, were freed and returned to the abdomen. The superfluous sac was cut away and the peritoneum sutured. The edges of the recti were now exposed and the anterior layer of the sheath dissected up on either side. The dissection was carried downwards so as to expose the symphysis and the pubic bones. The recti were shortened by making a 1½-inch tuck in each, and they were then separately sutured to the pubis with kangaroo tendon so that they overlapped each other; the overlapping of the sheath was carried to the upper limits of the wound when retracted; for this seven or eight interrupted mattress sutures of catgut were used. A small drainage tube was left in the superficial tissues for twenty-four hours. The wound healed by primary union. On April 23rd she commenced abdominal exercises in bed. These consisted in lying on the back and raising the extended lower limbs on the trunk and then raising the trunk without using the hands. These exercises were carried out several times a day until tired. The patient began to get up on April 30th, and was discharged on May 8th.

I saw her on November 25th, and found no signs of recurrence. The abdominal wall was strong and there was no bulge when she raised the extended legs on the trunk.

The interesting feature in this case was the proximity of the neck of the sac to the symphysis, which actually formed one of its boundaries.

Seven months is too short a time to decide the value of the operation from the point of view of recurrence, but on general grounds it is certainly encouraging and appears worthy of trial in suitable cases.

TREATMENT OF CHRONIC VARICOSE ULCER.*

BY

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REMEDIES for chronic varicose ulcer are many and various. For some of these specific virtues have been claimed, but their indiscriminate employment soon leads to disappointment. Full consideration should be given to conditions in each case, and the treatment modified as circumstances vary.

The following cases, which recently came under my care, illustrate this; in two the results were especially satisfactory. The point to be emphasized is the rapid relief of pain which occurred in all.

CASE I.

A spare woman, aged 82, had an ulcer on the lower third of the leg, which had been present for two years. There were varicose veins in both legs. She had been in a large hospital in London for eleven weeks, during which time the ulcer had been fomented continuously. She left hospital on being told amputation was the only treatment possible. She had become very weak as the result of intense pain, especially at night. The ulcerated area measured 12 square inches, and consisted of a main and two outlying portions; it was raised at least half an inch above the surroundings, and was adherent to the bone. For its description Erichsen's definition of a "weak" ulcer cannot be bettered: "The granulations are high and flabby, with a semi-transparent appearance about them, and rising in large exuberant, gelatinous, reddish-looking masses above the surface of the sore. The granulations have a feeble vitality, and readily slough. Such not uncommonly occur from emollient applications having been continued too long." A silver nitrate stick was applied to the edge of the ulcer to destroy these granulations, and gauze, soaked in a saturated solution of picric acid, was placed on the surface. The whole was carefully strapped to prevent drying, as far as possible.

After the first few hours she had no pain, and slept well that night for the first time for months. The ulcer was dressed twice similarly on alternate days, after which the picric acid was replaced by iodoform powder, the silver nitrate being continued. In ten days the surface of the ulcer was level with that of the surrounding parts, and was covered with thin skin. This skin broke down, exposing granulations, which, however, were now not heaped up. Iodoform was discontinued, and boric ointment, spread on lint, applied. In four days the whole was covered with thin skin, which steadily increased in thickness. At one time some eczema appeared, but it soon responded to bismuth

powder. She now wears a crêpe bandage. Medical treatment consisted in the exhibition three times a day of a mixture containing 10 grains each of sodium bicarbonate and potassium iodide, with infusion of gentian. Her general condition began to improve immediately with the relief of pain. The cure was all the more remarkable as, although she spent most of her time on a couch, she persisted, when so disposed, in walking about, whereas in hospital she had been confined to bed.

CASE II.

A hard-working woman, aged 49, treated as an out-patient of the London Dispensary, Fournier Street, E., had an ulcer over the tibia two inches from the malleolus, two inches in diameter, which had been treated for many years. The ulcer was depressed, its edges hard and punched out, and its surface glazed and exuding watery fluid. It was fixed to the deep structures. The edge of the skin margin was touched with silver nitrate stick and the surface of the ulcer dusted with iodoform. Gauze and wool were applied and the whole carefully strapped; in a week the edge of the ulcer had become shelving, had lost its induration, and was no longer fixed to the bone. After some three hours' smarting after the dressing, pain had almost entirely disappeared. Her health steadily improved with the alleviation of pain, the same treatment being continued for six weeks. She had the same mixture as Case I. Recently she was able to spend ten days in bed, which completed her cure. She now wears a crêpe bandage.

CASE III.

A business man, aged 65, had had extensive phlebitis in both legs many years ago, and ulcers for about ten years. On the left side were three—two inches, three-quarters of an inch, and half an inch in diameter—on the outer side of the lower third of the leg, resembling that of Case II. On the right internal malleolus was a painful ulcer, neither raised nor depressed. Both legs were greatly swollen, hard, and somewhat oedematous. The same treatment was instituted as for Case II, but unfortunately bismuth had to be substituted for iodoform, as the latter nauseated his wife. Pain was relieved to a large extent, and the patient's legs became more supple. It was aggravated by long standing or cold weather. He is unable to "lie up," but the ulcers have become steadily smaller.

CASE IV.

A Russian Jewess, aged about 60, had an ulcer six inches in diameter over the lower part of the tibia. It was difficult to ascertain how long it had been there—many years, however. The whole leg was enormously thickened. The treatment as for Case II was carried out for six weeks, when she died of cerebral haemorrhage. The ulcer was then only one and a half inches in diameter.

Treatment in these cases resolved itself into that of:
(a) the veins, (b) the ulcer.

The Veins.—The patient should stay in bed, or, if this is impracticable, the leg should be kept up as much as possible and a crêpe bandage worn. The latter is preferable to an elastic stocking, which is expensive and difficult to put on over a dressing; moreover, it must interfere with the blood circulation on the surface of the ulcer.

The Ulcer.—Applications were chosen for the following reasons: (1) Reduction of sepsis is the main objective of all. For proliferating types picric acid has been found to be of the greatest service on several occasions. It possesses considerable powers of penetration, is not irritating, and does not cause much exudation. Iodoform is invaluable in depressed ulcers, having great penetrating powers and being a deodorant, though, as in Case III, it may nauseate certain individuals; peroxide fomentations may be employed if sloughs are present. (2) Stimulation of the skin edge may be done with silver nitrate; when the sepsis is reduced emollient preparations, such as ung. ac. borici, are indispensable. It is astonishing to observe how rapidly an area becomes covered with skin when all papillae must have disappeared years ago (see Case I); such a dressing gives admirable protection against damage to this thin skin. (3) Destruction of granulations goes hand in hand with elimination of sepsis; it is assisted by silver nitrate cauterization. (4) If a cure is to be effected the thin skin must be kept moist and supple; evaporation is best prevented by careful strapping. (5) In protection from trauma strapping forms the best preventive. (6) Of drugs given for alleviation of pain, iodides internally and the iodoform externally may have some action on the bone. Whether this is so or not, the most striking feature of all the cases was the relief of pain.

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* Delivered at a clinical meeting of the City Division of the British Medical Association, January 8th, 1926.

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