

TWENTY-FIFTH EDITION

MODERN TREATMENT YEARBOOK 1959

A YEARBOOK OF DIAGNOSIS AND
TREATMENT FOR THE GENERAL
PRACTITIONER

Edited by

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PREFACE

THIS is the Silver Jubilee volume of the *Modern Treatment Yearbook*. The intervening 25 years seem to have passed very rapidly and in this quarter of a century many new drugs have been introduced for therapeutic purposes. It is difficult to believe that when the first volume was printed penicillin was unheard of. During the intervening years modern technique has altered considerably, great strides have been made in the surgery of the heart and lungs and new fields opened up in the surgery of the pituitary and supra-renal glands.

All branches of medicine have made a spectacular advance and these facts have been recorded in the various volumes of the *Modern Treatment Yearbook* which have appeared year by year. The present volume may be said to give the reader a cross section of the various modern treatments relating to the different branches of medicine, surgery and gynæcology.

The fact that the demand for this book has continued for the last 25 years surely proves the necessity for such a book, and the hard-pressed general practitioner will always find it of great value to have the *Modern Treatment Yearbook* on his desk.

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Chapter 1

TREATMENT OF HAND CONDITIONS BY PLASTIC SURGERY

By

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THE hand provides a most beautiful example of the adaptation of structure to subserve function. In addition to function the hand has a natural expression and appearance which is of some importance and gives a good deal of information about the individual whose hand it is. In view of the ubiquitous uses to which the hand is put the part is naturally liable to injury. Accidental damage is frequent in the case of manual workers working for long hours sometimes in poor lighting and under conditions of fatigue.

Injury to the Hand

The restoration of a damaged hand to the best possible result involves a high standard of teamwork between the patient, the surgeon and ancillary workers and may take some time to accomplish, but the ultimate use to which a skilled and trained hand is returned depends mostly upon the treatment instituted during the first forty-eight hours following upon the injury. The hand is made or marred by the first operation. The aim of the first operation is to return the selected undamaged elements of the hand, healed and clothed with supple, vascular, sensitive skin to their natural use at the earliest possible moment. Early healing protects the delicate working parts of the hand from infection with its consequent fibrosis. The dressings can be dis-

carded at an early date to allow natural use of the hand, and œdema, one of the most troublesome complications of any hand injury is much reduced if the hand is healed early and used quickly. A hand which has been allowed to heal by scarring or with infection has usually healed in the presence of œdema. Œdema resolves to leave a fibrinous exudate which glues all the working parts of the tendon sheaths, the joint capsules and ligaments and so delays or prevents subsequent progress to a useful hand.

(i) *Importance of Skin Grafting*

A wound which involves no loss of tissue can usually be closed quite simply. With improved technique of skin grafting it is little more difficult to provide early healing under circumstances in which tissue has been lost from the hand. If a particular digit is not vital to the function of the hand in a working man it may be sacrificed to allow skin closure and early healing with a swift return to use of the rest of the hand. If, however, the loss is substantial and particularly if it involves the thumb, and a simple pincer action is all that can be saved, extreme conservatism is required and complicated skin grafting procedures are then justified to cover denuded digits. (See Plate IA and B.) Most loss of skin can be repaired simply by split skin grafting as the method of choice. If this is not possible, as for example when cortical bone or bare tendon are exposed and the blood supply will not support a free graft, a more complicated method of repair may be required. Where possible skin from the hand itself or a neighbouring finger is preferable to skin from some other site but larger deficiencies are made good from the chest or abdomen. These pedicled skin flaps have the advantage of carrying a pad of subcutaneous tissue in addition to the skin, and because of the few dressings that are required activity of the remaining parts of the hand can be instituted at once by the physiotherapist, developed upon purposeful lines by an occupational therapist, so that when the repair is complete the hand is soft, supple and mobile and ready at once for training for the work which it has to carry out once more (Plate Ic). Extreme conservatism to keep all undamaged tissue may be to the detriment of the patient leaving him with a surgical curiosity but a functional flop.

(ii) *Late Plastic Repair*

Notwithstanding the importance of choosing simpler methods of grafting first, there are many interesting examples where it is worthwhile spending the additional time upon late reconstructive surgery to get the best possible functional result from a mutilated hand. The main requirements are that the patient should be young, intelligent, co-operative, and willing and able financially to spend the time necessary for complicated training. It is also desirable that the early treatment shall have been well carried out, to avoid fibrosis and stiff joints. For example, total loss of the thumb, which is a crippling deformity, can be treated by migrating one of the other fingers into position to imitate the thumb; a method known as pollicisation (see Plate IIA). This in itself is useless unless the patient is prepared to educate the new thumb to take over some, at all events, of the functions of the old one (Plate IIB).

The tubed pedicle graft has its place in the repair of hand injuries, although the disadvantage of the late return of sensation has to be balanced carefully against the advantage of conservation of tissue. In many instances, a working man will take kindly to an artificial hand with proper tools for heavy work, but he will suffer the handicap of total lack of sensation, and there are undoubtedly instances where a simple pincer action between two digits covered with tubed pedicle skin, can be superior to an artificial hand.

(iii) *Diagnosis*

The most careful diagnosis of the injury is the essential prerequisite to the formation of a plan of treatment. It is useful to know the exact anatomical injury expressed in terms of skin, tendon, bone, joint and nerve in the hand. It is also essential to know the motor function that remains and the sensory loss that has occurred. The surgeon must then synthesise the damage in terms of function of the whole hand and in relation to the individual whose hand it is. It is obviously important at the outset to know whether the patient is dominantly right-handed or left-handed. His age will influence the extent and method of repair. His occupation must be known and the use of the hand in this occupation must be described accurately by the patient

himself. The intellectual development must be carefully assessed since disappointment is inevitable if the apparatus of the hand is not guided after its repair by an intelligent cerebrum. The degree of skill is important as also is the scale of activity and strength required. A violinist requires a different hand from a blacksmith.

To summarise: the repair of a severe hand injury must follow upon an exact and full diagnosis with a careful plan. Prompt healing restores early movement, and makes later reconstructive work possible. Reconstructive surgery, although time-consuming and intricate, often gives lasting benefit provided that the patient is selected carefully as having the wit and the will to use the new mechanism.

Burns of the Hand

A burn of the hand is always a potentially serious lesion because of the highly developed function in this area and the range of mobility of the fingers. Contracting scars can easily limit the range of movement and interfere seriously with the function.

The treatment of the burn depends upon several factors; for example, upon the age of the patient; upon the presence or absence of burns in other situations of the body which may make it more difficult to give proper attention to the hand; and thirdly upon the depth of burning. If the burn involves the hand alone it may be possible to remove the burn completely and apply a skin graft soon after burning. In a known full thickness burn, such as results from contact with an electric fire element, particularly in children, this is often the best treatment. The hand can then be wrapped in a dressing and may well be healed or nearly so when the dressing is removed. If the depth of burning is not certain it is often necessary to wait for two or three weeks to see whether spontaneous healing will take place from the remaining undamaged epithelial elements. A skin graft can still be applied upon a granulating area if the burn happens to be a deep one.

For those burns which are known to be partial thickness and are therefore likely to be treated by general practitioners with the patient at home there is a choice of two methods. In one

method the burn is wrapped in a dressing in the position of rest, the dressing consisting of a non-sticky application such as Carbonet, followed by gauze and a crêpe bandage, and elevated to limit the œdema. Alternatively the hand can be treated by exposure to the air with no dressing at all. In this way the burnt surface is kept cool and dry and exposed to light, and infection is less likely to occur. The closed dressing method has the advantage of providing some splintage and protection to the burn and is perhaps preferable in most cases. It usually means that the hand must be out of use and if both hands are burnt this can be very inconvenient. The exposure method, however, has not the advantage that one would expect since the burn is exposed to accidental injury and it is difficult to limit movement and use. In the exposed burn the resulting scab must be kept dry, and tends to become infected if it cracks. If the part is put to use it is tender and tends to get moist. There is a further danger in the exposure treatment that the scab itself can act as a tourniquet round a finger and prevent proper circulation in the tips of the fingers.

A hand which heals in two to three weeks has been a partial thickness skin burn. Deeper burns will produce a granulating surface requiring skin grafting. A full thickness burn, speaking generally, should be treated by excision as soon as it can be decided that the depth is right through the full thickness of the skin and these are hospital cases of some urgency. Even with skilled attention deformity and scar contracture commonly follow burns of the hand. Much, however, can now be done by late plastic repair to improve these burn contractures by means of skin grafts and flaps of skin to replace scar tissue and rearrange scars in areas where their effect on function is less serious.

Congenital Deformities of the Hand

The congenital abnormalities of the hand take many different forms. There may be too many digits, too few digits and various deformities in shape and size. One of the commonest is that of syndactyly in which two or more fingers are joined together. In these circumstances the skin between the two digits is missing and the best results are obtained by skin grafting between the two fingers. This is perhaps best done about the

age of four years so that the child will go to school and learn to use the hand with its normal complement of separate fingers. Occasionally the operation is required before the age of four, particularly when two fingers of different lengths are joined because the greater growth of the longer finger tends to produce flexion deformity. Independent use of the fingers is quite often quickly gained at the age of four to five but if the operation is delayed until adolescence or adult life it is more difficult to promise completely independent movement of the two fingers because the cerebral pattern of movement has been conjoined so long.

One further congenital abnormality requires mention, namely that of the contraction ring. This is often quite a deep constricting ring around a digit. If this is broken up early by a Z plastic, growth of the digit is possible and likely. If the contraction ring is completely circular and is left untreated, loss of the distal portion of the digit is quite common due to lack of blood supply.

The degree of disability in congenital abnormalities is quite different from that of acquired damage to a hand in adult life. For example, the sudden loss of a digit from a highly trained hand may be crippling. By contrast, however, the complete absence of both thumbs in a girl may not be much disability and is compatible with sewing, typing and normal writing because the hands have grown up with the disability and have trained a new mechanism.

Inflammation of the Hand

The results of acute inflammation in a hand are commonly seen by a general or orthopaedic surgeon. The effects of such inflammation, however, can be so disastrous that the plastic surgeon often meets the cases in their later stages with crippling stiffness in the joints and limitation of movement by contracting scars. These can be the most difficult cases to treat, requiring excision of scars and skin grafts to release function in the joints. In some cases more complicated pedicle flaps are required to facilitate tendon repair, nerve suture, etc. Incisions must be so placed that the scar will be in an area of "silent" function, that is to say in the mid-lateral line of a finger or in a transverse

crease. Longitudinal incisions crossing a joint will be irritated to contract and form keloids as a result of movement. The scar will "bowstring" and cause deformity. It is easier to prevent flexion contractures by forethought in the position of the incision than it is to cure such deformity by plastic surgery.

Dupuytren Contracture

Because this condition occurs in the older patients and involves the skin, the operation to remove the fascia sometimes leads to loss of skin and grafting will be required. For this reason the plastic surgeon is called upon to treat Dupuytren contracture. In most cases the skin flaps of the palm can be replaced following removal of the fascia and skin grafting is carried out only if the circulation fails in the thinned flaps. This must be done early and successfully if the hand is to return to its normal mobility. Radical removal of the fascia is indicated in younger patients because anything short of this radical procedure frequently results in recurrence of the condition. The operation may be less radical over the age of sixty-five because the risk of recurrence is less and stiffness of the joints more likely. If there are general contra-indications to an extensive operative procedure, considerable functional gain may often be produced by simple fasciotomy of the contracting bands. This is often only temporary.

Medical measures such as vitamin E, and cortisone, have so far proved unreliable or unsuccessful, and operative removal of the whole palmar fascia remains the surgical treatment of choice.

Hand surgery has been referred to as the jewellery of surgery and demands a separate armamentarium and patient attention to detail, but the combination of a fine surgical technique and a willing intelligent patient can produce dramatic results.

Chapter 2

THE TREATMENT OF ARTERIAL HYPERTENSION

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THE last decade has seen the introduction of many measures, such as improvements in nutrition, prophylactic measures with virtual abolition of many of the infectious diseases, widespread use of antibiotics, and better understanding and, therefore, treatment of many of the disease syndromes. The progress has measurably augmented the life span, and in consequence there has been a progressive increase in the incidence of vascular degenerative disease, already the most common cause of death.

In the production of vascular degeneration, statistics, which probably err on the side of being conservative, show that arterial hypertension has been implicated to the extent of one-third of this mortality.

Vascular degenerative disease may be divided into three forms:

1. Arteriosclerosis.
2. Hypertensive vascular disease.
3. Atheroma.

In each, inheritance plays a part. In the first, it is the main factor, in the second, it is also predominant, but subject to modification by environment. The third condition is of disputed ætiology, including as it does factors such as diet and disturbance of lipid metabolism.

Concerning ourselves with the first two conditions, it is to be

noted that while they are of separate inheritance, because of their frequent occurrence they sometimes coexist. Further, sclerotic thickening does occur as a sequel to a raised arterial tension. These factors have led to confusion in appreciation of the two very different types of presentation of arterial hypertension which exist, and which may occur in the same patient.

Systolic Hypertension

This state is due to arteriosclerosis. The aorta and major arteries form an elastic reservoir which absorbs much of the pulsatile forcible ejaculation of blood by the left ventricle. Sclerotic change with consequent rigidity in these great arteries results in the transmission of peaks of pressure into the limb arteries. The systolic pressure is, therefore, elevated. Thus with a normal loss of elasticity with advancing age, we would expect to find a blood pressure of perhaps up to 150/90 even by the fifth decade. The presence of marked arteriosclerosis will produce a blood pressure in the region of 180/100. Some elevation of the diastolic pressure is to be expected with loss of this elastic reservoir, but the major effect is upon the systolic pressure. Most evident is the large pulse pressure, but this is only large in the presence of a good function of the left ventricle. In forcing blood through the sclerosed arteries to the periphery, the left ventricle hypertrophies concentrically.

The clinical presentation of arteriosclerosis of this type is not restricted to the onset of heart failure. If insufficient blood is delivered to the periphery through narrowed arteries then ischæmic changes follow and arterial occlusions occur. Where the major effect, as is often the case, is upon the limb arteries, we know that claudication ensues, the coronary arteries may be involved with the production of an angina of effort and patchy myocardial ischæmia or infarction, the kidneys lose their power of concentration and the nervous system may show signs of ischæmic atrophy with every form of dysfunction. Atheromatous plaques accelerate this picture.

The cardinal diagnostic features of systolic hypertension are as follows:

- (1) Elevation mostly of the systolic pressure.
- (2) Palpable thickening of the radial arteries, sometimes absence of pulsation in the arteries to the feet.

- (3) Left ventricular enlargement upon X-ray examination.
- (4) Characteristic E.C.G. changes.
- (5) Ischæmic symptoms and signs in the peripheral vascular distribution.
- (6) Polyuria with poor concentration resulting in low specific gravity.

Diastolic Hypertension

This is a less common and more severe condition than the previous one. The maintenance of the diastolic blood pressure is a function of the resistance of the arteriolar network, which controls the rate at which the arterial blood is allowed to enter the capillaries and return to the veins. If the arterioles are constricted, the rate at which the arterial tension is dissipated through them is decreased, so that while both values of blood pressure are elevated, the major elevation is in the diastolic level. Some elevation may be sustained over a period of many years without apparent ill effects. In the absence of an understanding of the mechanism involved this disease has been termed Essential or Idiopathic Hypertension, when Diastolic, or even Vasospastic Hypertension would have been preferable terms. Because it is compatible with many years of normal life before the disastrous effects become apparent, it has been called Benign Hypertension, a misleading description.

The ætiology lies in the improper function of the autonomic nervous system. The degree of arteriolar constriction is finally dependent upon sympathetic vasomotor tonus. However, three mechanisms are involved. (1) There are stretch receptors in arterial walls sensitive to the pressure within. These form a reflex arc through medullary and cord centres which produce selective vasoconstriction in accord with posture, to maintain a hydrostatic equality throughout the vascular tree. (2) A mechanism probably chemical in motivation, exists in the form of pressor amine release in response to emotional disturbance. This is an adrenal function based upon a pattern of an emergency conditioning of the body for action, one of the components of which is an increase in muscle vascularity provided partly by a rise in the blood pressure. (3) A further mechanism determines the resting level of blood pressure. The centres for