SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

TREATMENT OF TENOSYNOVITIS AND GANGLION*

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Simple Tenosynovitis

This is a frequent affection, and involves most commonly the sheath of the extensor tendons on the back of the wrist. It is also met with in the foot, and may here involve either the sheaths of the dorsiflexors beneath the two portions of the anterior annular ligament or those of the peroneal tendons behind and below the external malleolus. In any of these situations the diagnosis depends upon the recognition of the exact extent of the local swelling, which is soft in consistence and yields a characteristic soft fremitus to the examining hand when the appropriate tendons are actively moved. In some cases there is a history suggesting overuse of these tendons, either at work, as for instance in typewriting, or at play, as after vigorous lawn tennis or squash rackets.

In all cases treatment should take the form of the application of elastic strapping to the swollen area for ten days and the avoidance for double this period of that use of the limb which appears to have been the cause of the condition. When a toxic element in its aetiology is discoverable—for example, gout or fibrositis—appropriate medical treatment in the form of colchicum or a mixture of sodium salicylate and iodide of potassium is worth a trial in addition to the local treatment. Should the condition persist after the above-mentioned period a plaster-of-Paris case similar to that used in the treatment of a fractured scaphoid bone is applied to the wrist, hand, and forearm, and left in position for two weeks. On its removal elastic strapping is reapplied for a further week whilst full use of the hand is regained.

Stenosing Tendovaginitis

This condition occurs in two forms: (1) as a chronic thickening of the sheaths of the extensor pollicis brevis and abductor pollicis longus, and (2) as a strictly localized thickening of the tendon sheath of a finger flexor opposite the metacarpo-phalangeal joint, causing the clinical condition of snap-finger. In the first case there is found an elongated swelling situated over the radial styloid process. Palliative treatment is disappointing. Operative treatment is simple and satisfactory. After infiltrating the skin over the swelling with 1 per cent. novocain an incision one and a half inches long is made in the line of the swelling and the dissection carried down to and through the superficial layer of the tendon sheath. The thickened layer encountered is dissected away until the tendons are found to move freely. The skin is then carefully resutured. The operation is preceded by a cleansing of the skin with soap and water, ether, and spirit. Its swift and accurate performance is facilitated by operating in a bloodless field. This is obtained satisfactorily and simply by

* The treatment of acute infections of the tendon sheaths of the hand is omitted from this article. This condition will be dealt with later.

elevating the arm for two minutes with a sphygmomanometer cuff applied above the elbow. With the arm still elevated the cuff is quickly pumped up to a pressure of 130 to 140 mm. Hg and the operation then begun. Under no circumstances must this pressure be maintained for more than twenty minutes lest serious and possibly permanent nerve paralysis result. The pressure should be relaxed before closing the wound so that accurate haemostasis with 00 catgut ligatures is secured. A firm dressing is maintained until the skin sutures—of medium silkworm-gut—are removed on the seventh day, after which full use of the hand is allowed.

The cure of snap-finger requires the operative exposure and removal of the offending local fibrosis. This operation involves a careful dissection in the palm of the hand and is best regarded as a major surgical procedure.

Gonorrhoeal Tenosynovitis

This condition is often associated with gonorrhoeal arthritis and may complicate, but rarely, gonorrhoeal ophthalmia and the vulvovaginitis of young girls. Either of these conditions, or the more usual urethritis in the male or cervicitis in the female, will continue to receive appropriate treatment. The treatment of the local condition is governed by regard for the possible development of an abscess within the affected sheath and the extreme probability of the late formation of troublesome adhesions. The tendon sheaths most often involved are those of the extensor tendons of the hand or foot. The acute phase of onset calls for the local application of 10 per cent. ichthyol in glycerin, painted on twice daily and covered by white lint and a bandage, and rest to the part. As the redness of the skin subsides and the pain lessens, this treatment is replaced by firm elastic pressure maintained until all pain has gone. Active movement with use of the part is now encouraged. Return of pain without redness of the skin demands a further period of rest and pressure.

Return of pain with localized redness indicates local suppuration. As soon as fluctuation is evident, after cleansing of the skin an incision should be made, the pus evacuated, and zinc and castor-oil ointment and sterile gauze applied. This is changed daily until healing is complete. When return of function is delayed owing to adhesions, inductothermy is extremely useful followed by passive movements.

In obstinate cases in which an interval of three months has elapsed since the last sign of activity, manipulation under gas-and-oxygen anaesthesia should be employed.

Tuberculous Tenosynovitis

This disease is most commonly met with as an affection of the radial and ulnar bursae, still commonly called in this country "compound palmar ganglion": a chronic elastic or fluctuating bilobed swelling is found on the front of the wrist and palm, the two prominent parts of the swelling communicating beneath the tense anterior annular (anterior carpal) ligament. Involvement of the whole of the flexor sheath of the thumb or little finger may produce a prolongation of the palmar prominence along one or both of these digits. Rarely, the disease is

confined to the flexor sheath of the index, middle, or ring finger, and still more rarely to the common extensor sheath on the back of the hand.

Treatment varies with the stage reached by the disease when first seen, and also by the pathological variety encountered. If the case be an early one in which the history of swelling is recent and in which no fluctuation or melon-seed-body fremitus is detected, complete immobilization of the wrist and hand by a plaster-of-Paris case should be tried. This splint is left undisturbed for three weeks. If at the end of that time there is obvious improvement a further splint is applied. In a favourable case, at each successive inspection the swelling is found to be lessening, and when this is reduced to little more than a localized induration splintage is omitted, and cautious use of the hand supplemented by inductothermy or other form of heat application gradually overcomes the resultant stiffness.

If, however, the disease is more advanced when first seen, and fluctuation is easily obtainable throughout the swelling, plaster-of-Paris fixation should be preceded by an incision into the affected sheath to allow of evacuation of all the fluid or semi-fluid contents, including melon-seed bodies if present. In the common type, the compound ganglion, the incision should be above the wrist into the upper compartment, and must avoid the line of the median nerve. It will be remembered that the nerve lies to the ulnar side of the tendon of the flexor carpi radialis, between it and the palmaris longus tendon if present. The ulnar border of the former tendon can always be felt in the forearm above the upper limit of the distended flexor sheath, and gives the necessary guide to the course of the nerve. Secondary infection of the sheath is to be avoided at all costs, and careful cleansing of the skin must therefore precede the incision. For the same reason accurate suture of the incision must follow emptying of the sheath contents, and the wound should be sealed with a mastisol, collodion, or Whitehead's varnish dressing before the plaster case is applied. A similar procedure should be adopted if, when the plaster applied as initial treatment is removed, it is clear that fluid has accumulated. Here again a bloodless field is of great assistance, but the warning given above as to its danger if used carelessly must be repeated.

Some cases come for treatment late, or, in spite of early treatment, the pathological changes progress. A doughy swelling with loss of clear definition of its edges and perhaps adhesion of the skin over it indicates a progressive fibro-caseous degeneration. Confirmation of this more serious condition may be found in loss of function of one or other tendon, due to its necrosis within the sheath or loss of sensation in part of the skin area supplied by the median nerve, caused by involvement of the nerve, which readily becomes adherent to the diseased sheath. In cases of this kind a wide opening-up of the sheath with free excision of the diseased and destroyed tissues alone offers any hope of cure. Such operations, together with subsequent attempts to replace lost tendons, come under the heading of major surgical procedures.

Simple Ganglion

In the great majority of cases the swelling to which this diagnostic label is attached is the result of the mucinous degeneration of a fibrotic change in a limited area of the wall of a tendon sheath. In a few cases a distended protrusion of the synovial membrane of a carpal joint produces a local swelling with much the same

clinical features. In either case the actual disability caused by a simple ganglion is as a rule less than the annoyance occasioned by the conspicuous lump on hand or foot. These considerations have a bearing upon treatment, the latter by emphasizing the unwisdom of embarking hastily upon operative measures difficult of performance and not entirely free from complications; and the former as suggesting in advance that attempts to aspirate a substance of the consistence of glycerin jelly through a small hollow needle are bound to fail.

If the time-honoured method of "dispersing" the swelling by a smart blow with the broad end of the family Bible savours of lay rather than medical practice, there is much to be said in favour of its surgical equivalent—namely, the disruption of the gelatinous material into the surrounding tissues by the pressure of the surgeon's superimposed thumbs. If this manœuvre is adopted at a time when the local proliferation has undergone complete degeneration into the mucinoid material, and is followed by a firm pad of elastoplast worn for a day or two, a lasting cure is effected. Sometimes the swelling will not yield to such pressure as the patient is willing to stand; in such a case a further attempt after a few weeks' interval will probably succeed. Apparent re-collection of the contents some weeks later is due either to degeneration in a part of the lesion which was still fibrous at the time of the treatment or to the original swelling having been in fact an instance of the true joint synovial pouch. In this latter case fixity of the swelling on its deep surface and its exact anatomical site will confirm the diagnosis. In this variety operation is the proper course.

After due preparation of the skin the sac should be exposed in a bloodless field (see above) and dissected carefully to the joint margin. At this level it should be cut away and no attempt made to close the small aperture in the capsule. The skin should be carefully sutured and local pressure applied until the wound is healed. But in the common variety of simple ganglion open operation is to be avoided for the following reasons: (1) In the course of the operation the thin fibrous membrane which contains the mucoid material is almost certain to give way: it then becomes difficult to define. (2) An attempt to make sure of a complete cure by removing all this membrane leads to a wider dissection than at first envisaged, with possibly considerable exposure of tendons. (3) Especially in the front of the wrist, important structures lie in close proximity to the swelling: the files of medical defence societies contain more than one instance of threatened action by the patient against his doctor for such complications of an operation for ganglion as injury to the median nerve.

If treatment by compression is unacceptable or fails, a prudent and satisfactory alternative is as follows. After cleansing the skin and raising a wheal at one edge of the swelling with 1 per cent. novocain insert a narrow scalpel of adequate length, or, better, a pointed tenotome, through the skin at this point across the swelling and just through its opposite edge. A slight rocking movement of the knife will then tear the limiting membrane without penetrating the skin on the distal side. When the knife is withdrawn the minimum of pressure with the fingers will now disperse the swelling, a little of the characteristic jelly-like contents perhaps escaping from the puncture wound. A drop of collodion on a wisp of wool seals this puncture, and a patch of elastoplast left on for a day or two completes the treatment.