

the intake of pyridoxine. Patients previously unable to tolerate levodopa because of nausea and vomiting can achieve adequate dosage with the combination, though in other dopa-tolerant patients the optimum response to combined treatment is no greater than to dopa alone. The central side effects of dopa are not altered by combined therapy, and dose-limiting involuntary movements occur at the same plasma dopa levels, the incidence of neuropsychiatric disorders is similar, and possibly there may be problems with the on-off effect earlier in the course of combined treatment. This effect is the abrupt onset of akinesia followed by the equally sudden return of the therapeutic response to levodopa; it may occur in up to 50% of patients after several years of treatment on levodopa alone.

At present only a single fixed ratio of dopa to decarboxylase inhibitor is available, and patients who take a low dopa dosage may not gain any advantages from the combination. Tablets containing 10, 50, and 100 mg of levodopa with a fixed dosage of 25 mg carbidopa should soon be available.<sup>16</sup> Treatment of patients still requires considerable judgement by the physician in balancing the therapeutic and side effects of the different antiparkinsonian drugs, and unfortunately no treatment available at present halts the progression of Parkinson's disease.

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## Surgery for Hemiplegia

The increasing numbers of road traffic accident victims left incapacitated with hemiplegia has stimulated interest in the place of surgery in ameliorating the condition. Many orthopaedic surgeons, faced with a clinical condition in which a severe deformity is obviously due to muscular imbalance, find the temptation to try to restore the balance by tendon transfer difficult to resist. The results of such transfers are almost invariably disappointing. Though deformity may be improved, function seldom is, because of lack of voluntary control of muscle action. The patient has little control over normally situated muscles, so it is not surprising that he cannot control them after transfer. Simple tenotomy, injection of phenol into motor nerves, flexor origin release, and tendon lengthening have all been tried with doubtful benefit.

A recent account by Braun *et al.*<sup>1</sup> of transfer of the superficialis to profundus tendon in hemiplegic arms has claimed good preliminary results. This is not a new procedure, having been used very effectively in those cases of Volkmann's ischaemic contracture with severe necrosis and contracture of

the deep forearm flexors in which some contractile function remained in superficialis. By completely dividing both groups of tendons at different levels and attaching the proximal stumps of the superficialis tendons to the distal stumps of the profundus at the correct tension it is possible at one stroke to relieve the contracture and to restore some active flexion in all the digital joints. The operation is not so much a tendon transfer as a refined tendon lengthening procedure. Though the operation cannot be expected to give such good results in the spastic limb—with its lack of voluntary control—it does combine release of contracture with the possibility of retaining some active flexion of the digits by muscles which, before transfer, had a similar action. In short, one can expect some improvement in deformity with retention of whatever function may have existed before operation.

So far Braun *et al.* have obtained improvement in deformity in 21 of 24 patients submitted to the operation. It is depressing, however, that only three of the 24 obtained reasonable voluntary control, and these three had demonstrated some control before operation. Possibly in those patients without any pre-operative voluntary control tenotomy and limited excision of the tight tendons might have been just as effective. With such unpromising material it is doubtful whether any but the most simple surgical procedures are justifiable.

At present, then, it seems that only those patients with some degree of voluntary flexor control should be considered suitable for superficialis-to-profundus tendon transfer. Surgeons contemplating this procedure will wish to study the operative technique described in the paper, when any undue optimism should be checked by its first sentence: "Very few patients who have had strokes resulting in hemiplegia can have functional hands restored by surgical procedures."

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## Anastomotic Leakage

One of the complications which the abdominal surgeon most fears is leakage of a gastrointestinal anastomosis; it not only reflects on his technical skill and judgement but puts his patient's life at risk from spreading peritonitis, local abscess, or bowel fistula. So since the earliest days of modern surgery the technique of intestinal anastomosis has been a subject of intense interest both in clinical practice and in the experimental laboratory. Certain practical points have been learned from hard experience: anastomoses at either extremity of the alimentary canal, the oesophagus or the rectum, are the most hazardous; small bowel and the stomach usually heal well; while immediate suture in a distended obstructed colon is fraught with danger compared with its comparative safety in resections of obstructed small intestine.

The subject has been reviewed recently by Everett,<sup>1</sup> who stressed three considerations—the blood supply to the ends of the resected bowel, the adherence of surrounding structures, and the technique of anastomosis which is employed.

An adequate blood supply is the first essential for the healing of any wound, and the gut is no exception. Indeed gross leakage is probably due in most cases to inadequate vascularity at the cut ends of the bowel. Careful trimming of the mesentery or mesocolon may make the anastomosis look pretty, but it may result in the production of local ischaemia and consequent dehiscence. It is vital that the surgeon assures a brisk circulation before he attempts to join the bowel ends.