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TREATMENT OF DUPUYTREN'S CONTRACTURE WITH VITAMIN E

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Since the preliminary report (Thomson, 1949) on the effect of vitamin E in a case of Dupuytren's contracture further cases have come under review and have yielded promising results. In fact, the general response has been so good that to assert that vitamin E has a specific effect on Dupuytren's contracture does not appear to be unduly reckless. The mode of action is unknown, but the work of Steinberg (1946) on the action of the tocopherols on fibrous tissue renders a relationship a little less mystical.

Reports on the success of this treatment have not been unanimous but are inclined to be in its favour. Steinberg (1946) produced the first paper on this subject and described the effects of massive doses of vitamin E on seven cases of Dupuytren's contracture. In six of these cases the contracture disappeared and the sclerodermatous condition of the skin changed to a normal state. One case failed to respond, and this was attributed to the fact that the patient suffered from early portal cirrhosis. In such cases the blood vitamin E level has been shown to be low and large doses of vitamin E are not absorbed. All these cases were treated with a daily dose of 300 mg. of vitamin E orally over a period of 7 to 53 days. Scott and Scardino (1948) discussed six cases treated with 300 mg. of mixed tocopherols or 200 mg. of "ephynal" daily. One case showed marked improvement, three moderate improvement, and two no change. Wrigley (personal communication, 1949) treated three cases with 400 mg. of "ephynal" a day; there was a definite response in two cases and none in the third.

On the other hand, Langston and Badre (1948) treated five cases with the large doses of vitamin E recommended by Steinberg without any demonstrable result. Parsons (1948) treated one case with 300 mg. a day for over 100 days and reported no objective change, although the patient thought he could open one of his fingers a little more freely. Recently, King (1949) described 13 cases treated with 300 mg. of ephynal a day without result. Four of the cases developed hitherto unreported toxic

manifestations, which made further treatment impossible. Four other patients were sure they had gained improvement, but none was seen. The longest period of treatment lasted eight weeks.

Present Series

In this series of 13 cases of Dupuytren's contracture involving 22 hands all cases except one were treated with ephynal, four 50-mg. tablets being the daily dose. The minimum length of time that any case has been under treatment is 12 weeks; the majority have been under treatment for 20 weeks. It was notable that the excepted case above and the one previously reported (Thomson, 1949) were treated with wheat germ oil in a weekly dose of 30 mg. and responded dramatically in two weeks, whereas in the cases treated with ephynal a response was unusual within six weeks and common at about eight weeks.

The initial response was usually subjective in character and the patients variably stated that "the bands feel softer," that "there seems to be a little more movement in the fingers," or that "the pain in the palm has gone." Thereafter improvement clinically started to take place, and progress was steady, with end-results as described below.

The hands were divided into three groups, according to the type and severity of the contracture.

Group A: Early Cases.—In these the disease was of short duration, the palmar bands and nodules were present to a moderate degree, and the fingers were not contracted closer than 90 degrees towards the palm. Ten such hands

FIG. 1.—Case 1 (a) before vitamin E; (b) after vitamin E.

FIG. 2.—Case 3 (a) before vitamin E; (b) after vitamin E.

FIG. 3.—Case 6 (a) before vitamin E; (b) after vitamin E.

were involved. Five responded very well, and full extension of the fingers was restored after the hypertrophied palmar fascia had softened and almost disappeared. Three are still under treatment, and there is every indication that full extension will eventually be obtained in these as well. The remaining two hands had no loss of extension when first seen, and the administration of ephynal has caused some absorption of the palmar masses. The contractures in this group of cases have been so alleviated that additional or alternative surgery has not been considered.

Group B : Late or Chronic Cases.—Here the disease was of long duration, the thickening of the palmar fascia was gross, and the affected fingers were fixed in the palm. All eight cases in this group derived benefit from the administration of ephynal. The palmar masses softened and formed palmar bands running to the appropriate fingers. In addition there was increased movement of the fingers themselves which permitted closer inspection of the palms. The progress was slow, however, and it appeared that a considerable time would have elapsed before an acceptable result could be obtained by the use of ephynal alone. As the palmar bands now invited division, this was carried out in four hands with excellent results. The first hand was treated by simple division of the bands at the bases of the fingers, the medial three being involved. The final result (Fig. 4, c) was only fair so far as full extension was concerned.

Nevertheless, the patient was pleased, as he had not used his hand for over two years and has now returned to his former occupation of shifting heavy packing-cases in a store. He has been kept on ephynal

until the time of writing, and the sectioned bands have continued to absorb slowly. The other three hands were treated by sectioning the bands in two places—in the palm and at the base of the finger—with better results. Full extension was obtained with all fingers except where joint changes precluded this. The skin deficiency in the palm was made good by skin-grafting, and that at the base of the fingers by Z-plasty or skin-grafting.

Group C : Old Operated Cases with Recurrence.—Four of these cases were treated with the routine dosage of ephynal. In all, the process of recurrence was halted: in two cases some extension was regained, but in the other two degenerative joint changes and scarred skin have prevented much improvement.

Comment

The results obtained in this series correspond with those reported by Steinberg (1946), with the exception that the rate of response has not been so rapid. This is somewhat offset by the lower dosage of ephynal employed. It is noteworthy that the observers who obtained negative results on the dosage recommended by Steinberg (1946) did not get any objective response after two months' treatment in most cases. However, at the time the treatment was abandoned a number of cases reported symptoms of improvement identical with those recorded in this present series, and it is a matter for speculation that continued treatment might have produced more favourable results.

There was no doubt that the four cases in group B eventually operated on were of a gross type, and surgery alone presented a difficult problem; indeed, two of them had been offered amputation as the only practical method. Steinberg (1947) suggested that in the more chronic cases surgery might be required, with the oral administration of vitamin E in addition. This forecast has been well substantiated with these four cases so treated and already described. This method of treatment has much to commend it when compared with treatment by surgery alone, involving prolonged anaesthesia and wide skin undermining in order to remove adherent masses of palmar fascia.

None of the toxic effects noted by King (1949) were in evidence in this series. Most of the cases have had a routine daily dose of 200 mg. of ephynal for five months or more, and many of these patients have stated in opposition to the above that the drug has had a tonic effect upon them.

The relative merits of the natural wheat-germ oil and the synthetic ephynal have not been investigated, but the lone case treated with the former certainly reacted more quickly.

Although the mode of action of vitamin E in Dupuytren's contracture is not recognized, a specific action is at least suggested by two factors. First, in several cases treated acute pain was experienced in the palmar fascia, and in

one case marked swelling and tenderness developed before the contracture began to respond. Secondly, Vogelsang *et al.* (1947), in discussing the effect of vitamin E in heart disease, came to the conclusion that, among other vascular

FIG. 4.—Case 7 (a) before vitamin E; (b) after vitamin E; (c) after division of digital bands.

effects, scar tissue was invaded by fresh blood vessels, whereby it became softened and relaxed. That a similar phenomenon may occur in Dupuytren's contracture does not seem outside the bounds of possibility.

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The National Council of Social Service provides a useful guide to the Welfare State in the new edition of its book, *Public Social Services*. Information is summarized on the National Health Service, National Insurance employment of disabled persons, education, and many other topics. The handbook includes an interesting chapter on the administration of justice and how free legal aid and advice are obtained. Addresses of the Ministries and organizations concerned with the various services are given throughout. The book may be obtained from the council at 26, Bedford Square, London, W.C.1, for 5s. (paper covers) or 7s. 6d. (cloth).