

6. THE RELATIONSHIP OF TRAUMA TO DUPUYTREN'S CONTRACTURE

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The relationship of injury to the onset, progress or pattern of Dupuytren's contracture has been under discussion since Dupuytren, in 1832, attributed the cause of contracture in the hand of his own coachman to the pressure of the butt of his whip. Since then opinions have varied from those of Bunnell and others that injury did not cause or hasten the progress of the contracture, to those who suggested that repeated trauma, particularly to the ulnar aspect of the palm, had a significant effect. Many writers have been impressed by the progress of the disease after one episode, and Clarkson (1961) has concluded 'that a single trauma, severe or otherwise, can cause the onset of the disease in a predisposed person'. Early (1962) examining the hands of some five thousand employees at a locomotive works showed that occupation had no influence upon the onset of the disease. There appears to be strong evidence that Dupuytren's contracture is genetically determined, and we are left therefore with the question as to whether extrinsic factors play any part in the age of onset, in the pattern, distribution and progress of the deformity. It has certainly been conceded that sufferers from epilepsy, chronic alcoholism and pulmonary tuberculosis show an increased incidence and an earlier onset of the disease. It is possible that there is an associated genetic factor predisposing subjects to these conditions as well as Dupuytren's contracture, but it seems more likely that these are extrinsic factors. It must be emphasized that no variety of disease or injury, activity or occupation could induce Dupuytren's contracture in somebody who was not genetically so determined.

It seems essential to rationalize our attitude towards the influence of trauma in Dupuytren's contracture. Quite apart from its academic and therapeutic interest, the medico-legal aspect becomes important in those societies where industrial compensation can be awarded either by the State or in the Law Courts in cases of industrial injury. (Indeed under English Common Law recompense can be sought from any third party for any injury whatsoever in a civil action. As I understand it the employment of a person with a predisposition to any condition does not absolve the employer of the responsibility for the effects of the condition if these are brought on during the course of that individual's employment.) If it is conceded that trauma is an aggravating or precipitating factor, the way is open to

perhaps as many as 25 per cent of the working population to make such claims, particularly if the retirement age is increased to 70 years with the slower ageing of the general population. Such a situation has already been described among New York brewery workers (Moorhead, 1953). As exponents in the field of hand surgery we are constantly asked to give our views upon this point by both workmen and employers, and it is essential to give an unbiased view based upon the available evidence.

What are the arguments against Dupuytren's contracture being caused by direct trauma to the hand? They are:

1. The condition is not seen any more commonly in manual workers than clerical workers; indeed, it is said to be slightly commoner in non-manual workers.
2. It appears bilaterally in some 40 per cent of patients and the dominant hand is not more frequently affected than the other.
3. It has a familial incidence and has been reported in identical twins.
4. It is associated with fibrous overgrowth elsewhere, knuckle pads, Peyronie's disease, plantar fascial thickening.
5. Injuries to the palmar fascia are not all followed by Dupuytren's contracture, and scarring of the palm, as for instance after burns, never follows the pattern of change and deformity seen in Dupuytren's contracture.
6. Hueston (1963) draws attention to the fact that invalids with enforced inactivity of the hands will give a history of the contracture occurring or increasing during their period of immobility.

What are the arguments in favour of trauma being an important factor?

1. It is commoner in men than women.
2. Its incidence increases steadily with age, which may indicate that chronic minor trauma to the hand has a cumulative effect.
3. It appears to be associated with injury to the hand and arm and its complications, namely after Sudeck's dystrophy (Plewes, 1956), tennis elbow (Rang, 1962), and frozen shoulder (Early, 1962).

Hueston in a personal series of 220 patients, had eleven patients who gave a convincing history of the contracture appearing soon after local injury to the hand and after injury to the arm in six further patients. He

does, however, suggest that the enforced immobilization of the limb and swelling of the hand at the time may have been significant. Like many other conditions patients claim that a specific circumstance or injury brought about some disease process whereas, in fact, it merely drew the attention of the patient to the disease, and this is undoubtedly often true in Dupuytren's contracture. Many other patients in the hope of financial gain endeavour to obtain recompense on these grounds. It is significant that in a review of 122 patients with Dupuytren's disease in the Royal Air Force (Morley, 1959) twenty-five claimed a definite history of injury to the palm with almost immediate onset of contraction. It cannot escape our notice that if such claims were acceded to these airmen would be pensionable.

A recent review of the histories of sixty-six males affected by the disease, engaged predominantly in the maritime trades, showed that a total of 104 hands were involved—fifty-five right and forty-nine left. Despite the predominance of heavy manual work in this industry twenty-eight (42 per cent) of the patients could be classified as non-manual workers including a surprising number of merchant navy officers. Four subjects attributed their condition to their occupation. In twenty-two cases there was a history of previous single injury to one hand, but in thirteen of these cases the condition was bilateral. The condition was more advanced in ten cases in the injured hand, but in three the contralateral hand was worse. There were four cases claiming that a single injury had produced new or increasing contracture of the hand within a few days or weeks of the injury, but in one case the contralateral hand had more advanced deformity, and in another there was a known 3 years history. In the other eighteen cases, where there was a history of remote injury to the

hand, only one case appeared to have contracture arising at the site of the scar of the laceration sustained 2 years previously.

It would seem, therefore, in this small series of 104 hands affected in sixty-six male subjects in an industry notorious for its tendency to litigate there is little or no evidence that Dupuytren's contracture has been caused or its pattern determined by previous injury. Although not statistically significant, the age of onset of the disease in these twenty-two cases did not differ from that for the whole group.

Nevertheless, it is common experience that cases are occasionally seen where the relationship between a specific injury and the onset of the contracture is quite striking. Must we therefore concede that in certain circumstances this relationship can be accepted, or is it not possible that injury to the hand and the incidence of Dupuytren's contracture, especially in the older age groups, is sufficiently common for the relationship to be coincidental?

SUMMARY

Dupuytren's contracture is an hereditary disease manifesting itself late in life, but whose course and pattern may be modified by extrinsic factors of epilepsy, pulmonary tuberculosis, chronic alcoholism and immobilization of the hand for various reasons; occupation and recurrent trauma (except as a result of the normal ageing process) has no effect upon the disease; a single injury to the hand may cause a reaction difficult to distinguish from Dupuytren's contracture or perhaps draw the patient's attention to a previously unobserved lesion, but does not itself induce Dupuytren's contracture.

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