Dupuytren's Contracture

Its Association With Alcoholism and Cirrhosis

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The incidence of Dupuytren's contracture in 405 male patients was studied with particular reference to its association with alcoholism and hepatic cirrhosis. As in reports by others, Dupuytren's contracture rarely occurred in patients of less than 40 years of age. In ages 41 to 50 years there was no apparent increase among alcoholics when compared to nonalcoholic controls of the same age. However, in ages 51 to 60 years Dupuytren's contracture was significantly increased in alcoholics when compared to controls. These differences were unrelated to the presence or absence of hepatic cirrhosis.

Diverse diseases have been associated with Dupuytren's contracture. Early in this century the incidence of Dupuytren's contracture was reported to be high among long-term alcoholics and cirrhotics.[1] Wolfe et al[2] reported a strikingly high incidence of Dupuytren's contracture in alcoholic cirrhotics, when compared to alcoholics without liver disease and to nondrinkers. Later, Summerskill et al[3] pointed out that high occurrence of Dupuytren's contracture was observed only in cirrhotics associated with alcoholism, and not in the nonalcoholic cirrhotics. A similar observation was made by Wegmann, Wegmann and Geiser, and Wegmann et al who found many of their patients with Dupuytren's contracture to be either alcoholics or to have chronic liver diseases.[4-6]

The present study was designed to reexamine the interesting association between alcoholism, cirrhosis, and Dupuytren's contracture. No attempt was made to survey the incidence of Dupuytren's contracture in the general population, since detailed studies of this nature have been made.[7,8]

Material and Method

The hands of 405 male patients in the Boston Veterans Administration Hospital were examined. Specific inquiry of their alcoholic intake was made, and charts were reviewed. Most patients were on the

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Table 1.—Incidence of Dupuytren's Contracture in 397 Male Patients

Patients	Age (yr)	> 40	41-50	51-60	> 61	All Ages
Group 1	Total No.	19	40.0	39.0	44.0	142
Controls	No. with contracture	0	3.0	3.0	11.0	17
	% with contracture	0	7.5	7.7	25.0	...
Group 2	Total No.	8	58.0	40.0	24.0	130
Alcoholic without cirrhosis	No. with contracture	0	5.0	8.0	12.0	25
	% with contracture	0	8.6	20.0	50.0	...
Group 3	Total No.	17	58.0	40.0	18.0	133
Alcoholic with cirrhosis	No. with contracture	0	7.0	12.0	5.0	24
	% with contracture	0	12.1	30.0	27.8	...
All 3 groups	Total No.	44	156.0	119.0	86.0	405
	No. with contracture	0	15.0	23.0	28.0	66
	% with contracture	0	9.6	19.3	32.6	...

Table 2.—Severity of Dupuytren's Contracture in 62 Patients

	Group 1			Group 2			Group 3		
Age (yr)	Grade 1	2	3	Grade 1	2	3	Grade 1	2	3
41-50	2	0	1	3	1	1	4	1	2
51-60	2	1	0	5	2	1	8	0	4
> 61	8	1	2	5	3	4	3	0	2
All ages	12	2	3	13	6	6	15	1	8

general medical wards and on a special ward for hepatic diseases. Some were on other services (surgical, neurological, psychiatric), and some were patients examined in the follow-up clinic.

Patients were divided into three groups according to alcoholic intakes and clinical diagnosis:

Group 1.—The control group consisted of 142 patients who were total abstainers and patients who drank only moderate amounts of alcohol. Twenty of these had nonalcoholic hepatic diseases (granulomatous hepatitis, viral hepatitis, metastatic carcinoma, drug hepatitis, etc). In 14 patients histological examination of the liver was made.

Group 2.—This group consisted of 130 patients who were heavy alcohol drinkers with no evidence of cirrhosis. Heavy drinking is defined as an average daily intake of at least 6 oz of whiskey, or 1 qt of wine, or 2 qt of beer.[9]

Twenty-four patients in this group were subjected to needle biopsy of the liver. There were varying degrees of fatty infiltration, steatonecrosis ("alcoholic hepatitis"), or of increased connective tissue in the portal areas; but no evidence of bridging of connective tissue between portal tracts or pseudolobulation.

Group 3.—This group consisted of 133 patients who were heavy alcohol drinkers with cirrhosis. Histologic examination of the liver was made in 79 patients. All showed increased fibrosis and bridging of connective tissues between portal tracts or pseudolobulation.

All patients without tissue examination had classical signs of cirrhosis and portal hypertension. The results of their tests of liver function were abnormal (prolonged prothrombin time, decreased serum albumin value, increased bromsul phthalein retention, and increased serum bilirubin value, and generally a modest increase in serum enzyme activities of alkaline phosphatase, serum glutamic oxaloacetic transaminase, and serum glutamic pyruvic transaminase values.

Assessment of Dupuytren's Contracture

Grade 1.—Thickened nodule and band in the palmar aponeurosis, often associated with skin puckering or dimpling.

Grade 2.—In addition to thickened nodule and band, a limitation of finger or fingers to extend.

Grade 3.—Presence of flexion contracture of finger or fingers in addition to thickened band and nodule.

Hands with dense callosity and deformity of fingers due to arthritis and ulnar nerve palsy were excluded. In hands with thin adipose tissue or muscle atrophy, one can usually palpate prominent bands with smooth contour, extending from aponeurosis to the fingers. These are quite distinct from the coarse, irregular, nodular bands of Dupuytren's contracture.

Results

The incidence of Dupuytren's contracture in three groups is shown in Table 1.

Since it is well known that the prevalence of Dupuytren's contracture increases with age, it was necessary to examine the incidence in different age groups.

No case of Dupuytren's contracture was found in an individual less than 40 years of age. In age group 41 to 50 years, the incidence was similar in the three groups of patients. Three cases were observed in 40 controls (7.5%). Five cases were found in 58 heavy drinkers without cirrhosis (8.6%). Seven cases were found in 58 heavy drinkers with cirrhosis (12.1%).

In age group 51 to 60 years a much higher incidence was found among heavy drinkers with or without cirrhosis. Only 3 cases of Dupuytren's contracture were observed in 39 con-

trols (7.7%), 8 cases were observed in 40 heavy drinkers without cirrhosis (20.0%), and 12 cases were found in 40 heavy drinkers with cirrhosis (30.0%). The difference between control group 1 and group 3 is significant (chi-square = 6.3816, $P < 0.02$). The difference between control group 1 and group 2 plus group 3 also is significant (chi-square = 5.004, $P < 0.05$). However, there is no significant difference between group 2 (alcoholics without cirrhosis) and group 3 (alcoholics with cirrhosis) under the conditions of this study.

Half of the 24 cases of group 2 who were more than 61 years of age had Dupuytren's contracture, approximately double the incidences in group 1 and group 3. The difference between group 2 and group 1 was significant (chi-square = 4.336, $P < 0.05$). The difference between group 2 and group 3 was not significant, nor was the difference between nondrinkers (group 1) and drinkers (group 2 plus group 3).

The majority of patients in the present study were white. Eighty-six of them were of Irish descent. Sixty-two were partly Irish, and 223 were from other European white backgrounds. There were 33 Negroes and one Chinese. Of the 66 patients with Dupuytren's contracture, 22 were Irish, 9 were partly Irish, and 34 were other whites. One was a Negro.

Manual workers comprised 80% of our patient population. Of 80 nonmanual workers, 11 had Dupuytren's contracture. Of the 66 patients with Dupuytren's contracture, 38 had bilateral involvement, in which 19 had symmetrical lesions. Nine patients gave the history of palmar injury. Only four had a positive family history of Dupuytren's contracture. Severity of the lesions of Dupuytren's contracture is recorded in Table 2.

The duration and severity of alcoholism in patients with Dupuytren's contracture were no greater than in alcoholics without Dupuytren's contracture.

Comment

The pathological condition of Dupuytren's contracture consists of focal hyperplasia of fibroblasts in the palmar aponeurosis. It appears as nodules initially which gradually attach to the skin and subcutaneous tissue. Finally the nodules evolve as dense fibrous bands which cause flexion contractures of the fingers.[10]

The etiology is unknown. Heredity has been suggested by Stackenbrandt,[11] Schroeder,[12] and Skoog.[13] Local trauma may play a role in some instances. Decreased hand activity was suggested as a possible factor in cases developed during prolonged bed rest.[8] Klunker[14] reported a significant correlation between Dupuytren's contracture and senile degenerative changes in the spine. By arteriography Davis[15] demonstrated tortuous, dilated branches of the ulnar artery, which appeared to precede contracture. It was suggested that these changes were a response to vasoconstriction secondary to trophic changes in the ulnar nerve. Shimomura et al[16] further suggested that these neurovascular changes were secondary to cervical myelopathy or radiculopathy, as they were able to reverse early cases of Dupuytren's contracture by cervical traction or surgery.

A progressive rise in incidence of Dupuytren's contracture with age has been found consistently.[2,6,7] It is seen more often in men than in women, especially in the younger age groups,[2,7,8,17] and it is predominantly a disease of whites.[18,19] The occurrence of Dupuytren's contracture in American Indians, Negroes, and Orientals is rare.[18,20]

Since Dupuytren's contracture is a relatively common disease, it is bound to be associated with other diseases. An increased incidence of Dupuytren's contracture has been mentioned with rheumatism and gout,[21] pulmonary tuberculosis, diabetes mellitus,[6,13] myocardial infarction,[22,23] and neurological diseases.[24] Several studies indicated a close association of epilepsy and Dupuytren's contracture.[7,13,25,26]

The association of Dupuytren's contracture with chronic alcoholism as well as cirrhosis was reported early in this century by Ikle.[1] Wolfe et al[2] in 1956 found a very high incidence of Dupuytren's contracture in male alcoholic patients with cirrhosis (66%), as compared to 27% in male alcoholic patients without liver disease, and 12% in male controls. The differences were quite striking although the number of patients in each age group was small.

Later, Summerskill et al[3] pointed out that this high incidence of Dupuytren's contracture was not a feature of nonalcoholic cirrhotic patients. Nazari[27] confirmed the finding of Wolfe et al, but the important factor of age was not considered in his series.

In a series of 121 male patients with Dupuytren's contracture, Wegmann and Geiser[5] found 92 patients (76%) with the history of chronic alcoholism, whereas in 161 patients without Dupuytren's contracture there were 41 patients (24%) with the history of alcoholism. Forty-seven patients out of 121 patients with Dupuytren's contracture had chronic liver diseases (38.7%), as compared to an incidence of 12.5% in 159 controls.

Since age and sex are contributory factors, it is essential to compare the

incidence of Dupuytren's contracture in the same sex and age groups, and not to treat the overall incidence.

In our study, the higher incidence of Dupuytren's contracture in the heavy alcohol drinkers is evident in age 51 to 60 years, whether or not they have cirrhosis of the liver, and the incidence was definitely higher in the heavy alcoholic drinkers without evidence of hepatic cirrhosis in ages of more than 61 years. This finding differs from reports by others[2,27] who found a much higher incidence of Dupuytren's contracture in alcoholics with cirrhosis than in those without cirrhosis.

Although a sharp differentiation is made in this study between alcoholic patients with cirrhosis and those without cirrhosis, there doubtless is some degree of overlapping. It is well known that an appreciable incidence of latent cirrhosis is found in alcoholic patients. Leevy and Tenhove[28] have stated that approximately 20% of long-term alcoholics (problem drinkers) have cirrhotic changes in liver biopsies. It is likely that in the present study a number of patients in group 2 might qualify for group 3.

The frequent association of alcoholism and Dupuytren's contracture is difficult to explain. One possibility is that chronic alcohol intoxication may induce local neurovascular changes in sensitive individuals, or in individuals with a constitutional predisposition to such changes. A similar sequence may occur in cervical spondylosis and ulnar nerve palsy. This explanation is speculative.

Alvan Feinstein, MD, criticized and evaluated the data and Udom Harinasuta, MD, reviewed the histologic slides of liver.

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