Dupuytren's Contracture in the Black Population: A Review

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There is general agreement that Dupuytren's contracture is a genetic disorder that occurs predominantly in white men of Northern European ancestry. It appears rarely in the purely black population. We present our experience from Temple University of 8 black patients with Dupuytren's contracture. We also present a review of the world literature dealing with the black population and Dupuytren's disease. A total of 23 patients are reviewed, including our group. They all fall into the category of no Caucasian admixture and negative family history of Dupuytren's contracture. Every patient reviewed has at least 1 hand involved. History and presentation of disease, as well as epidemiological associations (e.g., age distribution, diabetes, and epilepsy), in our review are similar to that seen in the Caucasian population. The diathesis or predisposition for Dupuytren's contracture appears to be less extensive in our series of 8 black patients. History taking, with regard to occupation and possible traumatic etiology, remains a very useful tool.

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Dupuytren's contracture is a fibroproliferative disorder of unknown etiology [1]. It appears to arise from normal fascial structures in the palm and the fingers. The diseased tissues consist of nodules (chaotic dense cellular tissue containing myofibroblasts) and cords (made of dense collagenous acellular matrices). This palmar fibrosis was originally reported by Felix Plater in 1614 and by Sir Astly Cooper in 1822 [2]. In 1836, Baron Guillaume Dupuytren described and presented his findings. The metacarpophalangeal and proximal interphalangeal joints of the fourth and fifth rays are most commonly involved. Flexion deformities are commonly seen in patients with Dupuytren's contracture.

The original genetic pool has been traced to Scandinavian origin [3]. Regional differences throughout the world continue to confound demographic and surgical statistics. Currently, the highest prevalence of Dupuytren's contracture is in Scandinavia, the British Isles (including Ireland), and, to a lesser extent, Eastern Europe. Prevalence becomes much rarer further south in Europe and is almost unknown in Greece and in the Middle Eastern and nonwhite races.

Dupuytren's disease is inherited as an autosomal-dominant trait. The degree of activity, however, depends on the penetrance of the inherited trait. Each individual with this contracture has inherited a diathesis or a predisposition for this disease [4]. A patient with a high or strong diathesis for Dupuytren's contracture is a young man of 20 to 30 years of age in whom nodules appear early and in several locations. They develop rapidly and form deformities requiring extensive surgical treatment. This group can present with knuckle pads on the dorsum over the proximal interphalangeal joint, with plantar fibrosis (i.e., Lederhose's disease), or penile fibrosis (i.e., Peyronie's disease) [2]. A higher incidence of recurrence is seen in this group. An older man of 50 to 70 years of age in whom nodules develop late and advance slowly with much less need for surgery has a low diathesis. These patients have a lower rate of recurrence.

Materials and Methods

Over a 6-year period (1984–1990), 8 patients with Dupuytren's contracture were seen at the Section of Plastic and Reconstructive Surgery at Temple University Hospital (Table). This is the largest group of black patients with Dupuytren's contracture reported to date.

The age range was 47 to 74 years (mean, 57 yr). Among this group, 7 patients were men and 1 was a woman. The majority of our patients were found to be manual laborers; 3 were right-handed only, and 5 had bilateral involvement, for a total of 13 hands with Dupuytren's contracture. Duration of disease from the time of onset until

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Clinical Characteristics of the Series of 8 Black Patients with Dupuytren's Contracture

Patient	Age (yr)	Sex	Occupation	Hand Involved (Right/Left)	Duration of Disease	History of Trauma
J.K.	45	M	Radiation Technician	+/min	6 mo	N
W.R.	49	M	Laborer	+/−	2 yr	Y
A.M.	51	M	Laborer	+/+	4–5 yr	N
J.B.	56	M	Laborer	+/−	6 mo	N
F.C.	58	M	Laborer	+/+	18 mo	Y
J.R.	62	M	Carpenter	+/min	6 mo	Y
W.S.	64	M	Packer	+/min	10 yr	N
D.S.	74	F	Housewife	+/−	2 yr	N

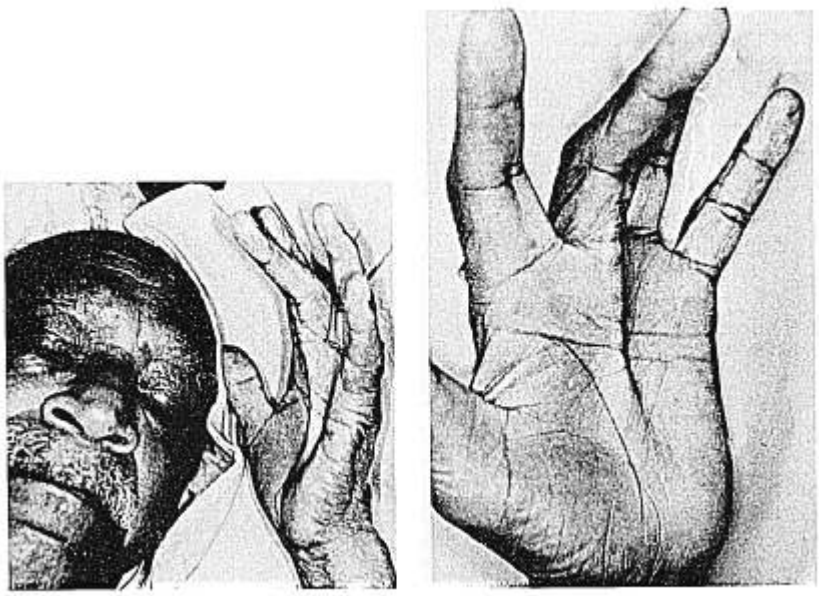

Fig 1. (A) Dupuytren's contracture of a 58-year-old black man involving his left hand. (B) Closer view of the same hand showing palmar and long finger Dupuytren's disease with proximal interphalangeal joint flexion contracture.

presentation varied from 6 months to 10 years. There was a history of trauma prior to the onset of the contracture in 3 patients. An example of 1 black patient with Dupuytren's contracture is seen in Figure 1A, B.

A review of the world literature yielded 16 black patients with documented Dupuytren's contracture [2, 5–13]. A summary of findings of the combined group of 23 patients is seen in Figures 2 and 3, with our series highlighted. All 23 patients had no knowledge of any family member with the disease. In addition, none of the patients had evidence of any interrelationships with people of Caucasian decent. In other words, there were no white or interracial admixture in the family tree.

Epidemiological factors affecting the diathesis of white patients with Dupuytren's disease were assessed in the black population review. Diabetes, epilepsy, tuberculosis, and alcoholism were assessed in all 23 patients. In addition, occupation status (i.e., laborer vs nonlaborer) was assessed.

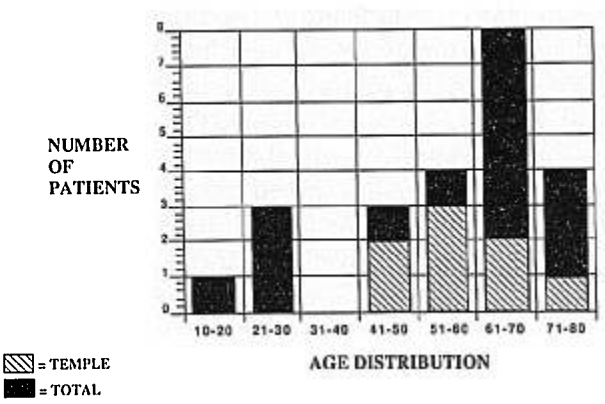

Fig 2. Age distribution of Dupuytren's contracture in 23 black patients.

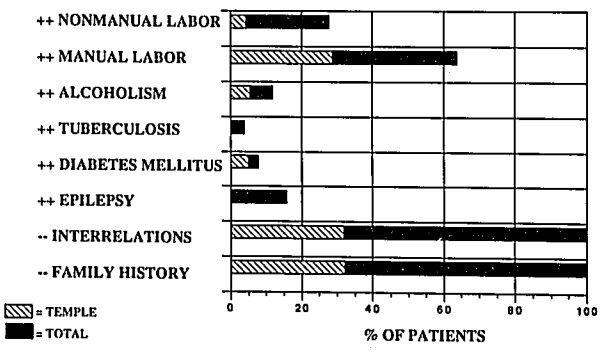

Fig 3. Summary of patient information.

Discussion

Dupuytren's contracture in the black population was first reported by Zaworski and Mann in 1979 [12]. In 1986, Mennen [11], in a series of 6 black patients, established through genotyping that this disease does in fact occur in purely black population. The existence of this disease with no family history and no Caucasian admixture has been shown. It was pointed out by Ling [14], however, in a study of 837 living relatives of 50 consecutive patients with Dupuytren's contracture, that on the first visit, 16% of patients knew of a relative, but later discovered 68% had a positive relative. Therefore, a negative family history may not be valid.

Of the 23 patients in the literature review, the age distribution was found to be greatest in the 50- to 80-year-old age group. This unimodal age group is consistent with that seen most prevalently in the Caucasian population.

Epidemiological factors affecting the diathesis of patients with Dupuytren's contracture include diabetes, tuberculosis, chronic obstructive pulmonary disease, epilepsy, alcoholism, and human immunodeficiency virus infection status. In addition, previous trauma or surgery, manual activity, and manual inactivity have been described as epidemiological factors [6]. These factors are seen in the black as well as in the white population. In our literature review, epilepsy and alcoholism were found to be present in several people, but they were of no statistical value in making an easy correlation with Dupuytren's disease. Therefore, no single overwhelming factor has been seen in the white population, nor can there be any specific correlations within the black population to make any of these factors part of the diathesis. Thus far, diathesis is determined mainly by family history, age at onset, and severity of disease progression.

More than 60% of the group of 23 black patients were manual laborers; the remainder had nonmanual occupations. Nonmanual workers in the Caucasian population were found to be equally or slightly more affected versus manual workers when bias of operational data was excluded [15]. It has been hypothesized that maximum manual labor actually keeps the hand in a state of maximal physiological normality, even in patients with Dupuytren's diathesis [16]. Cessation of this maximal manual use can be followed by rapid progression of Dupuytren's contracture.

A history of trauma has been elicited from several of our patients. A hypothesis has been put forth that a single injury, whether penetrating or nonpenetrating, can be followed within weeks to months by the appearance or aggravation of Dupuytren's contracture in patients with a diathesis [17].

Conclusion

We believe that Dupuytren's contracture exists in purely black individuals with no family history and no Caucasian admixture. This incidence, however, is very rare. History and clinical presentation are similar in the black population to that seen in the white population. Eliciting a history of trauma or past infection, as well as accurately determining the actual amount of physical labor being performed, must be achieved for every patient considered to have Dupuytren's contracture.

Finally, in our series of 8 black patients, Dupuytren's contracture appeared to be less extensive, which places these patients into the low diathesis category.

References

1 MacKenny RP. A population study of Dupuytren's contracture. Hand 1983;15:155
2 Leflore I, Antoine GA. Dupuytren's contracture and gouty tophi in a black patient. J Natl Med Assoc 1991;83:78–80

3 Hueston JT, Seyfer AE. Some medicolegal aspects of Dupuytren's contracture. Hand Clin 1991;7:617–632
4 McFarlane RM. Some observations on the epidemiology of Dupuytren's disease. In: Hueston JT, Tubiana R, eds: Dupuytren's disease, ed 2. Edinburgh: Churchill Livingstone, 1985:122–126
5 Makhlouf MV, Cubbebe EB, Shively RE. Dupuytren's disease in blacks. Ann Plast Surg 1987;19:334–336
6 Rosenfeld N, Mavor E, Wise L. Dupuytren's contracture in a black female child. Hand 1983;15:82–84
7 Plasse JS. Dupuytren's contractures in a black patient (letter). Plast Reconstr Surg 1979;64:250
8 Furnas DW. Dupuytren's contracture in a black patient in east Africa (letter). Plast Reconstr Surg 1979;64:250–251
9 Haeseker B. Dupuytren's disease and the sickle-cell trait in a female black patient. Br J Plast Surg 1981;34:438–440
10 O'Keefe SJ, Simjee AE, Seedat YK. Clinical presentation and biochemical abnormalities in black (Zulu) patients with cirrhosis in Durban. S Afr Med J 1982;61:775–778
11 Mennen U. Dupuytren's contracture in the negro. J Hand Surg [Br] 1986;11:61–64
12 Zaworski RE, Mann RJ. Dupuytren's contracture in a black patient. Plast Reconstr Surg 1979;63:122–124
13 Mennen U, Grabe RP. Dupuytren's contracture in a negro: a case report. J Hand Surg [AM] 1979;4:451–453
14 Ling RSM. The genetic factor in Dupuytren's disease. J Bone Joint Surg [Br] 1963;45:709–718
15 Hueston JT. Further studies in the incidence of Dupuytren's contracture. Med J Aust 1962;1:586–588
16 Hueston JT. The incidence of Dupuytren's contracture. Med J Aust 1960;2:999–1002
17 Hueston JT. Dupuytren's contracture and specific injury. Med J Aust 1968;128:1084–1085