

Dupuytren's Disease: First Cases in Central Africa. Can Low Life Expectancy Explain the Disease Low Prevalence in African Black Patients?

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Abstract

Only ten cases of Dupuytren's disease (DD) in Africa have been reported so far. In West Africa: 3 cases in Ivory Coast, one case in Burkina-Faso. In Eastern Africa: one case in Tanzania. In Austral Africa four cases in Zimbabwe. In Northern Africa, a case was found on a mummy in Egypt. No case has been reported in Central Africa before this manuscript. None of the cases reported before in Africa had a family history of DD. What is new here is that the 2 cases reported here are the first cases of the disease in black patients from Central Africa with no foreign non-black ancestor known. The second patient has the first family history ever reported in Africa. All patients were male of 59, 61 and the father of the 61 years old patient was 83 years old and did not smoke. The disease exists in black people everywhere in Africa but according to the authors, the low prevalence of this condition is due mainly to the low life expectancy in sub-Saharan Africa which was 51 + 2 years old in 2008 and which was 54 + 4 years old in 2015 in Central Africa. According to them, the increase of the life expectancy up to near the usual age of onset of DD symptoms around 60 years, the improvement of hand surgery in Africa will increase in the future the prevalence of this condition. Therefore, DD should no longer be considered as a Caucasian disease. Usual etiologic factors are totally absent in the first case whereas in the familial case, the father worked as a manual laborer and the son reported little alcohol consumption which link evidence remains weak. DD is enigmatic in Africa but should be kept in mind when considering differential diagnosis of any hand contracture in Africa.

Keywords: Dupuytren's Disease; Hand Contracture, Black, Africa

Introduction

Dupuytren's disease (DD) is a benign, progressive and irreversible fibro-proliferative disorder of unknown origin affecting the palmar surface of the hand and fingers, leading to the formation of nodules and cords and ultimately to disabling extension deficits of the finger joints. It is most prevalent in Northern European Caucasian and males are more affected than females [1-4]. In 1979 the first black patient with Dupuytren's contracture who had no evidence of Caucasoid mixture in their genetic make-up was reported on in Miami [5,6]. In 1986, 5 other black patients were reported in USA [7]. Only ten cases of DD in Africa have been reported so far. Understanding the epidemiology of DD in Africa is important in order to provide clues to its etiology and pathogenesis. Many etiologic factors associated to DD have been mentioned: hand injury, manual labor, alcohol consumption, smoking, epilepsy drugs, and diabetes mellitus but apart from smoking none has made its sufficient evidence [8]. Among the five regions of Africa, sporadic cases were found in 4 regions [4,9-13] in Austral Africa (4 cases in Zimbabwe); in West-Africa (3 cases in Ivory Coast and one case over 220 diabetics in Burkina-Faso), in Northern Africa (a mummy in Egypt) and in Eastern Africa (one case in Tanzania). No case was reported in Central Africa. None of the African cases had a family history of DD. The first aim of this paper was to report the first cases in Central Africa in 2 patients from Congo-Brazzaville and among them the first familial history of DD found in Africa. Secondary, we wish to bring an explanation why in African black patients; we may assist in the future to an increase of DD prevalence.

Case Reports

1st Case

On November 2015, a 59-year-old black man; an anesthetist was diagnosed in Paris with a classic DD involving the third and the fifth finger of his left hand. Evolution of the fingers flexion deformities was gradual in a period of two years. He was born in Congo-Brazzaville from both Congolese parents. He reported no family history of non-black ancestor up to two generations. He came in France at the age of 19 for medical studies. In his medical past-history, there were no diabetes, no smoking, no alcohol consumption and had never suffered from epilepsy nor liver diseases. No past-history of trauma was found and there was no familial case. He underwent the surgery at the stage 2 of the disease (Figure 1). A palmar fasciectomy was done (Figure 2). Histopathology confirmed DD. The post-operative period was uneventful (Figure 3).

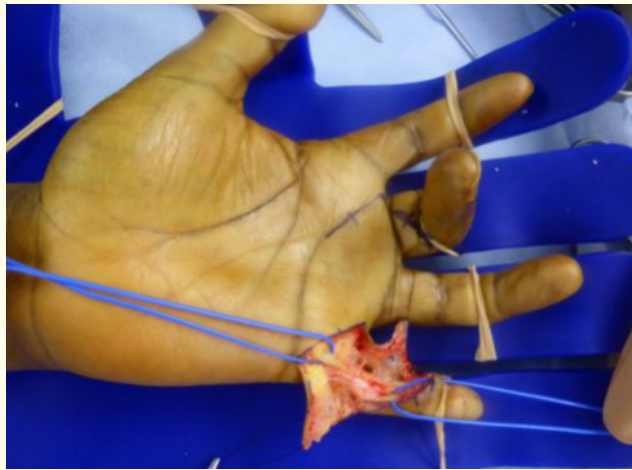


Figure 1: Dupuytren's contracture during intervention. The 3rd and 5th fingers of the left hand are concerned at the stage 2 of the disease.



Figure 2: Intraoperative findings in the little finger. We notice the piece which is about 4 cm.



Figure 3: Post-operative picture of the hand after 2 weeks. The flexion deformity of the fingers has disappeared and there is no extension deficit after intensive physiotherapy.

2nd Case

On January 2016, Mr TBI 61-year-old man, receptionist was diagnosed with a Dupuytren's contracture on the ring finger up to the palmar region of his right hand. The deformity had gradually developed during about three years with increasing flexion deformity of the right ring finger. He was born in the POOL region in the south of Congo. There was no evidence of familial clustering with Caucasian in his family lineage. He came in France thirty years earlier. In his medical past history, there were no diabetes, no smoking, little alcohol consumption. He had no liver disease and was not epileptic. No past-history of trauma was found but his father still living in Congo in the POOL region suffers from the same contracture of the hand. TBI consulted after three years of evolution because his right ring finger started becoming very uncomfortable with his job. A palmar fasciectomy was done and pathology examination showed the tissue to be a DD. According to the medical history and the picture taken from the phone, his father might be a third case.

3rd Case: A familial history of the 2nd case

TBI's father was 83 years old in 2016. Information given here is based on TBI anamneses and pictures of his father deformity sent through his phone. The father worked for several years as a manual laborer. He was still suffering from Dupuytren's contracture on his right little and ring finger at the stage 3 and he never went to the hospital. In his medical past-history, there was neither diabetes or epilepsy, nor smoking nor alcohol consumption, and no liver disease. There was a history of trauma of the hand during farming. He had not been operated.

Discussion and Conclusion

DD is found to be most prevalent in Northern European Caucasians [1-3] where it is one of the most common inherited connective tissue disorders with a prevalence that has been reported to reach up to 30% in the Norwegian population aged over 60 years [1]. Numerous cases of DD were described before in black American people since 1979 [5-7]. We found in the literature only ten cases of reported DD in black people from Africa [4,9-13]. The earliest reported case of DD is an Egyptian mummy dating back 3000 years [13]. A bilateral case was found in a 65-year-old patient from Tanzania in 1979 [4] Between 1990-2008, the first 3 cases were reported in Ivory Coast [10,11], in 1993 in Zimbabwe, 4 cases were reported during a period of 13 years [9], in 2009 in Burkina-Faso another case was found over 220 diabetics suffering from rheumatoid diseases [12]. No case of DD has been reported in Central Africa before this manuscript. The 2 cases reported here in Congolese patients are therefore the first cases of the disease in black patients with no history of familial clustering with Caucasian in Central Africa. The few cases reported in the literature confirm that the condition occurs in black Africans [2- 4,7,14] but no one reported a familial case. This first African black family with Dupuytren condition reported here suggests a genetic susceptibility in black patients just as the heritability described in Northern Europeans patients [1]. Some scientists think that this condition is rare in Africa [3,14]; this may not be true in the future. In fact, in Norwegians the onset of DD symptoms is around 60 years old [1]. Some cases have been reported earlier in children; however it is proved that there is an increasing incidence with increasing age [15]. If we consider the life expectancy in all the countries of Central Africa which was 51+2 years in 2008 and 54 + 4 years in 2015 according to demographic studies [16], we may conclude that many potential patients in Africa die before the age of 60s which is the approximate age at onset of DD. Therefore the prevalence of this condition could be higher in black Africans if in the future we assist to an increase of life expectancy in sub-Saharan African countries, if the patients consult early and don't have to pay for their care and if plastic or orthopedic surgeons are trained to DD diagnosis. In Ivory coast DD patients were 52 and 70 years old, alcoholism, micro trauma and diabetes were the main factors incriminated [10], In Zimbabweans DD patients, there were many incriminated factors: epilepsy drugs in a 55-year-woman and in the 3 other men whose ages were 45, 59, 74; tuberculosis drugs in one patient, 3 cases of smoking and history of trauma, 2 cases of alcohol consumption were found [9]. The patient from Burkina Faso was diabetic [12]. In our first patient, there was no literature usual incriminated factor as diabetes, smoking, alcohol consumption, no liver disease and no epilepsy drugs. The second patient reported to drink little alcohol and the third patient is a manual laborer. The link evidence with DD is weak. This let us think that DD remains really enigmatic in Africa patients. To date, DD appears to show a near autosomal pattern of inheritance with variable penetrance (estimated at 18%) [1,2,17]. A whole genome scan has found potential candidate genes (TGF β 1 polymorphism, Zf9 gene polymorphism, MMP2, MMP9, thymosines, RhoGDP d.i.1, mitochondrial 16sr RNA) within susceptibility loci on chromosomes 4, 8 and 11 [17]. In our first patient, there is no family history of DD and none of the usual risk factors. He changes his native environment in Africa to Europe. We suggest that there is a possibility that DD in black African patients has a strong but unknown environmental factor which may cause spontaneous genetic mutation causing the disease. Further genome scan have to be done on black African DD patients before conclusions.

Conflict of Interest

No conflict of interest.

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