JOURNAL OF SCIENCE & DISEASES

An acro-cardio-facial syndrome characterized at adult age: a case report

Un syndrome acro-cardio-facial caractérisé à l'âge adulte : à propos d'un cas

Ngongang Ouankou C [1,2,3], Simeni Njonnou SR [1,2,4], Moulion Tapouh JR [5,6], Noukeu Njinkui D [7,8] , Chuente Sime SN [1,6] , Kemta Lekpa F [1,2,9], Noubom M [4,10]

Clinical Case

1. Department of Internal Medicine and Specialities, Faculty of Medicine and Pharmaceutical Sciences, University of Dschang, Dschang, Cameroon,
2. Health and Human Development (2HD) Research Network, Douala, Cameroon
3. Yaoundé Teaching Hospital, Yaoundé, Cameroon
4. Dschang Regional Annex Hospital, Dschang, Cameroon;
5. Department of Radiology, Biophysics, and Medical Imaging, Faculty of Medicine and Pharmaceutical Sciences, University of Dschang, Dschang, Cameroon
6. Department of Radiology and Medical Imaging, Regional Hospital Centre of Bafoussam, Bafoussam, Cameroon
7. Department of Pediatrics, Faculty of Medicine and Pharmaceutical Sciences, University of Dschang, Dschang, Cameroon.
8. Douala Gynaeco-Obstetric and Pediatric Hospital, Douala, Cameroon.
9. Douala General Hospital, Douala, Cameroon,
10. Department of Microbiology, Haematology and Immunology, Faculty of Medicine and Pharmaceutical Sciences, University of Dschang, Dschang, Cameroon,

Corresponding author: Christian Ngongang Ouankou, MD. Email: ngongangco@gmail.com, Department of Internal Medicine and Specialities, Faculty of Medicine and Pharmaceutical Sciences University of Dschang, PO Box 96 Dschang, Cameroon. Health and Human Development (2HD) Research Network, Douala, Cameroon, Yaoundé Teaching Hospital, Yaoundé, Cameroon

Key words: Acrocardiofacial Syndrome, adult age, ectrodactyly, kyphoscoliosis, aortic stenosis.

Mots-clés : Syndrome acro-cardio-facial, âge adulte, ectrodactylie, cyphoscoliose, sténose aortique.

Date de soumission: 15/02/2026
Date d'acceptation: 10/04/2026

ABSTRACT

Acrocardiofacial syndrome (ACFS) is a rare recessive autosomal disease first described at the end of the 80'. Since only a few cases have been acknowledged. It is characterized by ectrodactyly, facial, cardiac, genital and growth anomalies. The sentence is usually death at a young age. We report the case of a 20-year-old African woman, single, presenting with stage 2 NYHA dyspnea who was seen for the invalidity registration. Her physical exam found facial, cardiac and spinal malformations as well as ectrodactyly and growth retardation. The respiratory functional test found a restrictive pattern. There was no genital anomaly nor intellectual delay. All these were suggestive of ACFS. ACFS need to be recognized during pregnancy or at birth. This patient, contrary to others, was diagnosed at an adult age and presents specificities such as aortic stenosis (never described) and mild to severe scoliosis. Physiotherapy, orthopaedic treatment and psychotherapy, as well as a good follow-up, could help to slow the degradation due to this disease.

RESUME

Le syndrome acro-cardio-facial (SACF) est une maladie autosomique récessive rare. Il se caractérise par une ectrodactylie, des anomalies faciales, cardiaques, génitales et une atteinte de la croissance. L'issue est généralement le décès en bas âge. Nous rapportons le cas d'une jeune africaine de 20 ans, qui se présentait avec une dyspnée stade 2 selon la classification NYHA, dans le cadre d'une demande de reconnaissance d'invalidité. L'examen clinique a mis en évidence des malformations faciales, cardiaques et rachidiennes, ainsi qu'une ectrodactylie et un retard de croissance. Les épreuves fonctionnelles respiratoires ont objectivé un syndrome restrictif. Il n'existait ni anomalie génitale, ni retard intellectuel. L'ensemble de ces éléments était évocateur d'un SACF. Le SACF devrait idéalement être diagnostiqué pendant la grossesse ou à la naissance. Cette patiente a été diagnostiquée à l'âge adulte et présente des particularités notables : une sténose aortique (jamais décrite jusqu'ici dans ce syndrome) et une scoliose de degré modéré à sévère. La kinésithérapie, le traitement orthopédique, le soutien psychologique ainsi qu'un suivi régulier pourraient contribuer à ralentir la dégradation liée à cette maladie.

DOI : https://doi.org/10.64294/jsd.v4i2.343

Citation as **J Sci Dis 2026, Vol 4 (2): 130 - 133**

Introduction

Split-hand/split-foot malformation (SHFM), also known as ectrodactyly, is a congenital limb malformation characterized by a deep median cleft of the hand and/or foot due to the absence of the central rays [1]. It may be part of another syndrome, particularly the Acro-cardio-facial syndrome (ACFS). ACFS is an extremely rare congenital disorder characterized by split-hand/split-foot malformation (SHFM), craniofacial anomalies, cleft lip and/or palate, congenital heart defects, genital anomalies, and intellectual disability. Since its first description, fewer than ten patients have been reported worldwide, with most cases presenting in the neonatal period and associated with early mortality [2,3]. The inheritance pattern is autosomal recessive, supported by reports of parental consanguinity and recurrence in siblings [4]. The precise genetic mechanism remains unknown, though linkage to chromosomal regions implicated in SHFM has been suggested [5].

Because of the severe manifestations in infancy, survival into adulthood is exceedingly rare, and long-term outcomes remain poorly documented [3]. Recognition of ACFS in adulthood presents unique diagnostic challenges, as phenotypic variability and overlap with other ectrodactyly–craniofacial–cardiac syndromes may obscure the diagnosis [3,6]. Reporting adult cases is therefore crucial to expand the phenotypic spectrum, improve awareness among clinicians, and guide multidisciplinary management strategies.

In this case report, we describe an adult patient with features consistent with ACFS, highlighting the diagnostic process, clinical course, and implications for long-term care. This rare presentation underscores the importance of considering congenital syndromes even in adult patients and contributes to the limited body of knowledge on ACFS beyond the neonatal period.

Case presentation

A 20-year-old single African woman presented at the Medical and Social Centre of the university to establish her invalidity card. She presented since birth hand/foot malformations, facial anomalies and growth retardation. Her antenatal history was normal without any disease during pregnancy. The delivery was also normal with a neonate presenting hand/foot amalformation. Her schooling went well despite a growth delay (she was smaller than her brothers and sisters), with no intellectual delay. She is currently studying for her bachelor's degree and has had stage 2 NYHA dyspnea for two months. Since no characterization of the malformations had ever been performed, and as the patient requested it, we decided to proceed with their identification.

Her physical examination revealed facial dysmorphism with a high forehead, ectrodactyly, and a kyphoscoliotic spinal deformity, an intense systolic aortic murmur (4/6) (Figure 1).

X-ray confirmed ectrodactyly and kyphoscoliosis; cardiac ultrasound showed a bicuspid aortic appearance with mild aortic stenosis (increase in mean LV-Ao gradient to 33 mmHg and a permeability index of 0.25), while the abdominal ultrasound did not show any anomaly (Figure 2). Given the severe spinal malformation and its possible impact on the lungs, functional respiratory tests were performed, showing a restrictive pattern.

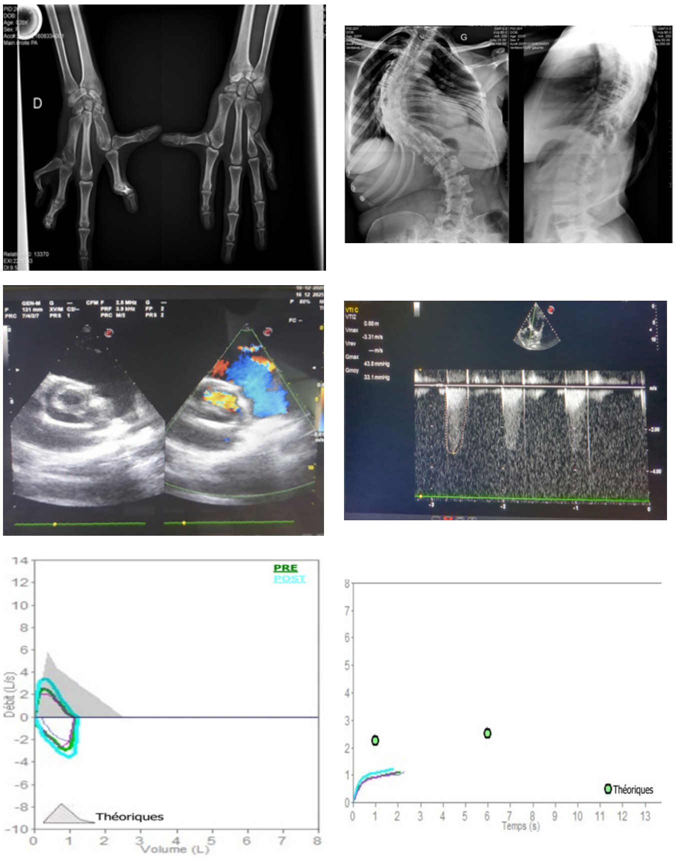

Figure 2: Paraclinical exams : Ectrodactyly at Xray (A) Kyphoscoliosis (B) Bicuspid aortic valve with mild aortic stenosis (C and D) restrictive pattern at the respiratory tests (E and F)

These anomalies were suggestive of ACFS. The patient received information about the disease, respiratory and spinal physiotherapy and a dorsolumbar belt has been prescribed. She will be frequently followed up.

Discussion

We report here the case of a patient with clinical and paraclinical manifestations of ACFS that has been misdiagnosed since birth. This is a rare malformative disease. Its clinical manifestations are diverse, including split-hand/split-foot malformation (SHFM), facial anomalies, cleft lip/palate, congenital heart defect (CHD), genital anomalies, and mental retardation [3]. The first case was described in 1987 in a Brazilian patient born to consanguineous parents [7]. Then, many other cases have been described with almost the same pattern [2,6,8–11] . However, there is a great variability among patients. Not all malformations are present in all patients, and death, which was initially the sentence for this disease, is no longer found in all patients today. The incidence of this disease is no precized giving the paucity of the reported cases, but it is likely a very rare disease (<< 1 in 100,000 newborns). A similar occurrence among genders is expected for an autosomal disorder [3].

Although genetic aetiology is strongly suspected in this disease based on an autosomal recessive model, the mechanism has not yet been proven. Some authors suggest mutations, while others assume deletions. However, to date, no genetic testing is required for the diagnosis of ACFS [5,11].

This patient, diagnosed as an adult, has digital, spinal, cardiac, and facial malformations that are compatible with life. These spinal malformations (leading to a restrictive respiratory pattern) and the aortic stenosis were responsible for the stage 2 NYHA dyspnea. The cardiac malformations are present in two-thirds of patients, including septal defects, left-sided obstructive lesions (aortic coarctation and hypoplastic left heart), and conotruncal defects (truncus arteriosus type 1 with dysplastic and stenotic truncal valves [4] and tetralogy of Fallot with absent left pulmonary artery). It is the first time that aortic stenosis has been described.

Multiple other syndromes involving digital, cleft palate and genital malformations may be considered as differential diagnoses, among which we can cite Rapp-Hodgkin syndrome and ctrodactyly-cleft lip/palate-hand/foot deformities-mental retardation. However, in most of these conditions, there are ectodermal abnormalities that are not present in ACFS [12–14].

This case is interesting for four reasons: firstly, it was misdiagnosed since birth. Secondly, we characterised a polymorphic syndrome leading to a diagnosis of ACFS. Thirdly, it is the first diagnosis of ACFS in sub-Saharan Africa that presents with vertebral involvement described for the second time; and fourthly, it is the second case to be described in an adult alive.

Conclusion

ACFS is a rare disease that probably remains underdiagnosed. It associates split-hand/split-foot malformation (SHFM), craniofacial anomalies, cleft lip and/or palate, congenital heart defects, genital anomalies, and intellectual disability. The diagnosis is usually made during pregnancy or at the time of delivery. Finally, prenatal ultrasound examination of pregnancies seems appropriate for fetal detection of this syndrome, and early recognition could help to implement appropriate care strategies and follow-up

Author's Contribution: Conception and design, acquisition of data, analysis, interpretation of data, and follow-up of the patient: CNO, SRSN, JRMT, DNN, SNCS. Drafting the article or revising it critically for important intellectual content: CNO, SRSN, FKL, MN. Final approval: All authors.

Acknowledgement: None

Funding: None

Competing interest: The authors declare no competing interest.

Ethical Approval and Consent to Participate: Administrative authorization and ethical approval were obtained from the direction of the Dschang Regional Annex Hospital.

Consent for Publication: Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor- in –Chief of this journal.

Availability of Supporting Data and Materials: The data used to support the findings of this study are restricted by the direction of the Medical and Social Centre of the University of Dschang in order to protect patient privacy. Data are available from Sylvain Raoul Simeni Njonnou upon reasonable request.

Abbreviations: ACFS: acro-cardio-facial syndrome; CHD: congenital heart defect; NYHA: New York Heart Association; SHFM: split-hand/split-foot malformation.

References

1. Duijf PHG, van Bokhoven H, Brunner HG. Pathogenesis of split-hand/split-foot malformation. Hum Mol Genet. 2003;12 Spec No 1:R51-60.
2. Guion-Almeida ML, Zechi-Ceide RM, Richieri-Costa A. Cleft lip/palate, abnormal ears, ectrodactyly, congenital heart defect, and growth retardation: definition of the acro-cardio-facial syndrome. Clin Dysmorphol. 2000;9(4):269-72.
3. Digilio MC, Dallapiccola B. Acro-cardio-facial syndrome. Orphanet J Rare Dis. 2010;5(1):25.
4. Genetic and Rare Diseases Information Center | GARD. : https://rarediseases.info.nih.gov/
5. Toschi B, Valetto A, Bertini V, Congregati C, Cantinotti M, Assanta N, et al. Acro-cardio-facial syndrome: a microdeletion syndrome? Am J Med Genet A. 2012;158A(8):1994-9.
6. Kariminejad A, Bozorgmehr B, Sedighi Gilani MA, Almadani N, Kariminejad MH. Clinical variability in acro-cardio-facial-syndrome. Am J Med Genet A. 2008;146A(15):1977-9.
7. Richieri-Costa A, Orquizas LC. Ectrodactyly, cleft lip / palate, ventricular septal defect, micropenis and mental retardation in a brazilian child born to consanguineous paterns. Rev bras genét. 1987;10(4):787-92.
8. Mingarelli R, Zuccarello D, Digilio MC, Dallapiccola B. A new observation of acro-cardio-facial syndrome substantiates

interindividual clinical variability. American Journal of Medical Genetics Part A. 2005;136A(1):84-6.

9. Sivasli O, Ozer EA, Ozer A, Aydinlioglu H, Helvaci M. Acro-cardio-facial syndrome associated with neuroepithelial cyst: a case report. Genet Couns. Geneva, Switzerland; 2007;18(2):247-50.
10. Giannotti A, Digilio MC, Mingarelli R, Dallapiccola B. An autosomal recessive syndrome of cleft palate, cardiac defect, genital anomalies, and ectrodactyly (CCGE). J Med Genet. 1995;32(1):72-4.
11. Tanpaiboon P, Sittiwangkul R, Dejkhamron P, Srikummool M, Sripathomsawat W, Kantaputra P. Expanding the phenotypic spectrum of acro-cardio-facial syndrome (ACFS): Exclusion of P63 mutation. Am J Med Genet A. 2009;149A(8):1749-53.
12. Rosselli D, Gulienetti R. Ectodermal dysplasia. Br J Plast Surg. 1961;14:190-204.
13. Rapp RS, Hodgkin WE. Anhidrotic ectodermal dysplasia: autosomal dominant inheritance with palate and lip anomalies. J Med Genet. 1968;5(4):269-72.
14. Bowen P, Armstrong HB. Ectodermal dysplasia, mental retardation, cleft lip/palate and other anomalies in three sibs. Clin Genet. 1976;9(1):35-42.
15. Macovei LA, Burlui A, Bratoiu I, Rezus C, Cardoneanu A, Richter P, et al. Adult-Onset Still’s Disease—A Complex Disease, a Challenging Treatment. Int J Mol Sci. 24 oct 2022;23(21):12810.