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Case Report Open Access

# First Case of Maffucci Syndrome Associated with Multiple Epidermal Nevi

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**Abstract**

Maffucci syndrome is a congenital non hereditary disease caused by a mesodermal dysplasia in multiple regions of the body and resulting in both vascular and cartilaginous abnormalities. We describe the first case of Maffucci syndrome associated with multiple epidermal nevi suggesting a possible genetic link.

**Keywords:** Maffucci; Enchondroma; Epidermal nevus

## Introduction

Maffucci syndrome (MS) is a rare non hereditary congenital disorder that was first described by Maffucci in 1881 [1]. It classically associates multiple soft tissue haemangiomas and enchondromas of the limbs. Epidermal nevi and visceral haemangiomas have been seldom reported in this disease [2,3]. We report here the first case of Maffucci syndrome with both a splenic haemangioma and multiple epidermal nevi and discuss the possible causes of the variable expressivity and pleiotropy observed in this syndrome.

## Case Report

An eight-year-old child, known to have an enchondroma of the parietal bone of the skull, presented to the clinic with asymptomatic deep bluish lesions of the lower extremities and skeletal deformities involving both hands. Family history was unremarkable and parents were not consanguineous. On physical exam, she had large sized congested dusky macules over the lower extremities (Figure 1A) and hard nodules on the 2nd right and the 2nd and 4th left metacarpo-phalyngeal joints causing deformities of both hands (Figure 1B). Brown papules closely set in a linear fashion were noted on the neck and on the flexor surface of the left elbow and were compatible with an epidermal nevi. Histology of the bluish lesions of the legs showed blood-filled cavities lined with a single layer of endothelial cells compatible with haemangiomas; that of the nodules on the hands revealed bony outgrowth compatible with enchondroma.

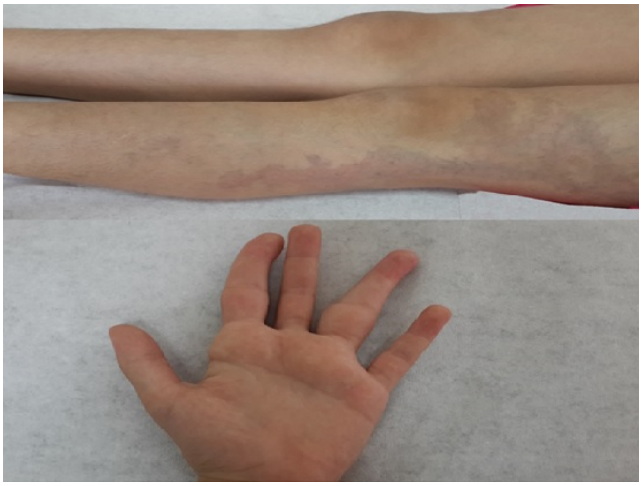

**Figure 1:** Large deep hemangiomas of the lower extremities, hard nodules on 2nd and 4th left metacarpo-phalyngeal joints.

A full body magnetic resonance angiography showed multiple haemangiomas of the spleen (Figure 2) along with haemangiomas on the lower extremities as well as focal periarticular abnormalities of the hands. A Doppler Ultrasound revealed the large hemangiomas on the lower legs. The diagnosis of MS was established; an orthopaedic surgeon and a general surgeon were consulted and a non-surgical approach with close monitoring was indicated.

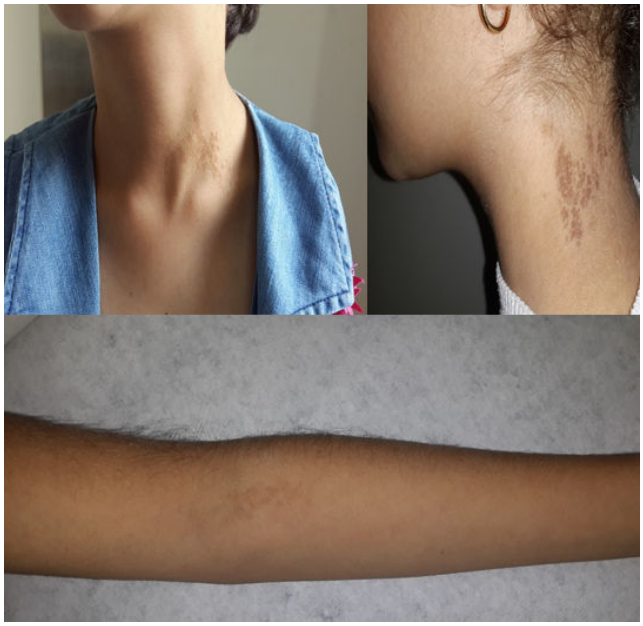

**Figure 2:** (A) Epidermal nevi on the neck, (B) Epidermal nevus on the flexor surface of the left elbow.

## Discussion

MS is a congenital non hereditary disease caused by a mesodermal dysplasia in multiple regions of the body [4] and resulting in both vascular and cartilaginous abnormalities. It appears early during childhood, affects both genders equally and has no race predilection [5].

Cavernous haemangiomas, phlebectasias and lymphangiomas [1] are the main cutaneous vascular manifestations and most commonly occur on the hands and feet. Extra cutaneous vascular abnormalities have been rarely reported [6]. Involvement of the digestive system for instance has been only described in five patients [2]; the case we report here is the 2nd case associated splenic haemangioma. Total body imaging studies in MS patients is therefore mandatory to look for any deep or life threatening visceral haemangiomas.

Skeletal involvement with dyschondroplasia and enchondromas result from the abnormal proliferation and differentiation of chondrocytes [2] and occur most frequently in the small bone of the hands and feet [7] leading, as in our patient, to severe deformation of the extremities.

In addition to the disfigurement and the risk of internal bleeding due to deep haemangiomas, studies show that MS can be associated in up to 30% of the cases with chondrosarcomas that arise from pre-existing enchondromas [5] and with many malignancies of mesodermal origin as nasal cavity, tracheal and ovarian carcinomas [3]. Routine and close clinical and imaging monitoring of enchondrosarcomas is recommended.

We report here the first case of MS associated with multiple epidermal nevi [2], over the neck and one over the left upper limb. Khoudri et al. previously described the case of a 33-year- old women with MS and only one verrucous epidermal nevus on the right lower limb [3].

The cause of this phenotypic variability and the exact pathophysiology of MS are still poorly understood. Multiple hypothesis have been reported, including a mutation of the parathormone receptor 1 (PTHRP1) [8], chromosomal rearrangements affecting chromosomes 1 and/or 6 [9-12], dysembryoplasias affecting different territories [3]. According to Happle, sporadic syndromes with mosaic skin defects could be due to a gametic mutation or to an early somatic mutation [13]. This would explain the non-fortuitous association of the classic manifestations of MS and the epidermal nevus skin.

With the promising developments of gene therapy, a better understanding of the pathophysiology of this syndrome is possible, which might help treat this rare but potentially life-threatening syndrome.

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