Bilateral Segmental Neurofibromatosis on the Lower Limbs

Neurofibromatosis segmentaria bilateral en extremidades inferiores

To the Editor:

Segmental neurofibromatosis (NF) is a rare entity characterized by neurofibromas, with or without the presence of café au lait spots, distributed in either 1 or, less frequently, 2 or more dermatomes.1,2

A 55-year-old woman with no personal or family history of interest was seen at our dermatology department for multiple skin-colored papules and nodules (3–15 mm in diameter) with an elastic consistency that had appeared 10 years earlier and were located exclusively in the distal areas of the legs and on the feet (Figs. 1 and 2). Café au lait spots, axillary freckles, and plexiform neurofibroma lesions were absent. Two of the lesions were excised and subsequent histology confirmed the clinical suspicion of neurofibroma (Fig. 3). The patient was diagnosed with bilateral segmental NF. Ocular, neurological, and visceral involvement were ruled out. The patient was monitored for 10 years, during which no new lesions appeared in other areas of the body.

Segmental NF is 10 to 20 times less frequent than classical type I NF.2,3 It is caused by somatic mosaicism due to a postzygotic mutation in the NF1 gene. Therefore, all cases are sporadic by definition. Some familial cases have been described, and can be explained by somatic and gonadal involvement due to mosaicism, although there are also some cases of vertical transmission of segmental NF that this mechanism cannot adequately explain. Depending on whether the mutation occurs before or after tissue differentiation, the clinical phenotype of mosaicism can be generalized or localized, respectively.1,6

NF was first classified in 1982, and divided into 8 subtypes, of which type 5 corresponded to segmental NF, defined by the presence of pigmentation disorders (including café au lait spots or axillary freckles) or of neurofibromas located in a single unilateral segment of the body without crossing the midline, without a family history of NF and

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Figure 1 Skin-colored papules and nodules compatible with neurofibromas on the front of the legs and on the feet.

Figure 2 Skin-colored papules and nodules compatible with neurofibromas on the soles of both feet.
without systemic involvement or extracutaneous lesions.2,7
Because not all patients with segmental involvement corre-
sponded to the description of type 5 NF, in 1987 Roth et al
proposed a classification system for segmental NF consisting
of 4 categories: true segmental NF; localized NF with deep
involvement; hereditary segmental NF; and bilateral seg-
mental NF.1,2,7 Yet another classification system describes
4 types of segmental NF according to the corresponding
lesions: pigmentation disorders only; neurofibromas only;
pigmentation disorders with neurofibromas; and isolated
plexiform neurofibromas.5,6
Bilateral segmental NF is an uncommon form of segment-
al NF, first described by Gammel in 1931.7 In their series
of 82 cases of segmental NF, Hager et al8 found that the
most frequent clinical presentation was isolated unilateral
neurofibromas occupying dermatomes (predominantly in the
cervical region, with decreasing frequency in the thoracic,
limb, and sacral regions), and observed bilateral involve-
ment in 5 cases.
A review of 15 published cases of bilateral segmental
NF suggests that the most frequent clinical presentation is
the exclusive presence of bilateral neurofibromas without
pigmented lesions affecting the lumbar region, scalp, chest
wall, chest, upper extremities, and infraorbital region.7 We
have not found any published cases of bilateral segmental
involvement of the lower extremities.
Diagnosis of segmental NF requires a physical exami-
nation to evaluate other cutaneous manifestations of the
disease and rule out generalized involvement, and an oph-
thalmological examination to rule out the presence of Lisch
nodules.1,3 Clinically, the disease course is similar to that
of type I NF, with progressive development of pigmenta-
tion disorders and plexiform neurofibromas in childhood and
neurofibromas in adulthood.2,5,6
Interestingly, segmental NF is twice as common in women
than men, and the right side of the body is more commonly
affected than the left.2,3,9
There are no specific guidelines for the treatment and
follow-up of segmental NF and there is some controversy as
to whether segmental NF is associated with an increase in
comorbidities typical of type I NF.10 However, patients should
know that the absence of generalized type I NF implies
a low risk of disease-related complications.1,2,6 Given that
mosaicism can also affect the germline, genetic counseling
should be considered for affected individuals.4,9

Conflicts of Interest
The authors declare that they have no conflicts of interest.

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