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Aesthetic Plastic Surgery

Letter to the Editor

Late Onset of von Recklinghausen's Disease

Abstract. Neurofibromatosis is an autosomal dominant genetic disorder, although it may occur as a spontaneous mutation; clinically it is characterized by typical peripheral nerve tumours (Neurofibromas) and cafe au lait spots; they are more frequent over the trunk and legs. In this particular case study a patient with neurofibromatosis is described, who, besides the characteristic cafe au tait spots at birth, has developed, late and rapidly, lesions of neurofibromatous origin in the submammary region, right hip and bilaterally in the areolar region.

Key words: Neurofibromatosis, Plastic surgery, Recklinghausen.

Given the extreme variability of its clinical signs, neurofibromatosis is a difficult disorder to classify. Neurofibromatosis 1, the more common type, is a dominant autosomal genetic disease characterized by high penetration with variable expressivity. It has an incidence of approximately 1 in 3,000 live births [1]. The responsible gene is located on the long arm of chromosome 17, which normally encodes a protein that acts as a tumor suppressor. The spontaneous mutation is thought to contribute to 50% of neurofibromatosis cases [2]. Neurofibromatosis is characterized clinically by skin lesions, benign tumors of peripheral nerves, and sometimes tumors and malformations of the central nervous system [3]. The most common signs of neurofibromatosis are pigmented cafè au lait spots with regular margins, flat and variable in size, on the skin over the trunk, buttocks, and legs. Although the spots usually appear at birth or by the age of 1 year, the number of spots may increase in number during early infancy and in size during puberty [4]. Neurofibromas are very common and characterized by a noticeable proliferation of fibroblasts of neural mast cells and Schaumm cells. These are located along the skin nerves and mucosae as well as on the trunk of somatic and visceral nerves. Related osseous alterations such as kiphoscoliosis, pseudarthrosis, and erosive lesions of the long bones are frequent. Eye conditions such as hamartomas of the iris and Lish nodules are less common [5,6].

Case Report

A 27-year-old woman presented with multiple skin neoformations over the left and right mammary and submammary regions and the right hip. The family history for genetically transmitted diseases was negative back to the third generation. Medical examination showed multiple cafè au lait spots on the trunk and in the leg regions, which according to the patient, appeared in her infancy, but in smaller numbers and sizes. Multiple pedunculate neoformations were present on the right and left areolar regions as well as a large pedunculate neoformation that extended from the submammary region to the right hip. The neoformation was indolent, soft, and hyperpigmented (Fig. 1). According to the patient, these signs appeared at the age of 24 years on hyperpigmented skin spots. With regard to cranial nerves, no defect was detected. The total body computed tomography (CT) examination showed no lesion or malformation.

The patient underwent routine lab investigations. The patient then had surgery for complete removal of the submammary lesion, and subsequently underwent a histologic test, which confirmed the neurofibroma diagnosis. A total excision was performed for the right and left areolar lesions, with successive reconstruction of tissue layers by means of local flaps.

Thanks to the histologic test as well as clinical and instrumental findings, neurofibromatosis type 1 was

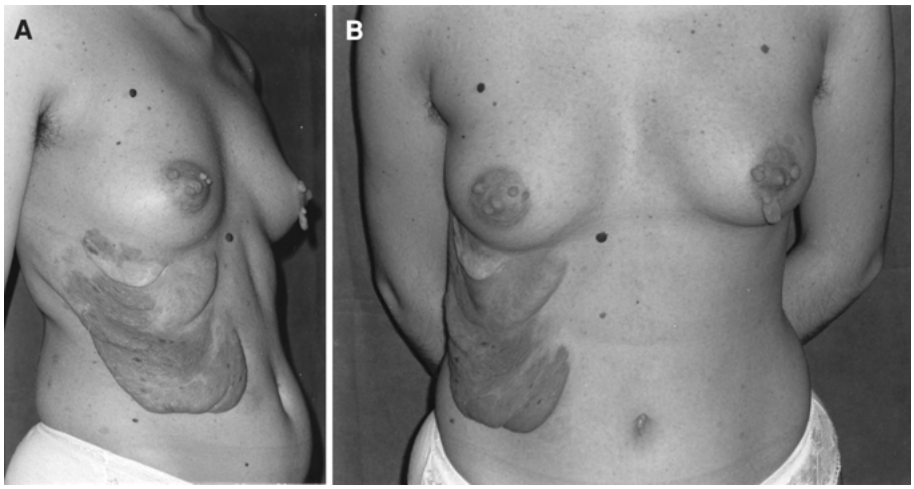

Fig. 1. A 27-year old woman with neurofibromatosis type 1. Note the multiple peduncolated neurofibromas arising from under the mammary region on the right side and on both nipple–areolar complexes. (**A**) Lateral projection. (**B**) Frontal projection.

Table 1. National Health Institute criteria for the diagnosis of Neurofibromatosis Type 1

1. Six or more café au lait spots with a maximal diameter of 5 mm in prepubertal individuals and larger than 15 mm in postpubertal individuals
2. Two or more neurofibromas of any type, or one plexiform neurofibroma
3. Inguinal or axillary freckling
4. Optic glioma
5. Two or more Lisch nodules
6. Distinctive osseous lesion such as sphenoid wing dysplasia or cortical thinning of long bones
7. A first-degree relative who meets the neurofibromatosis type 1 diagnostic criteria

diagnosed according to the diagnostic criteria of National Health Institute Consensus Conference (NHICC) (Table 1). With the patient's consent, a follow-up program with the following periodic examinations was begun:

- Clinical examination with accurate control of the whole cutaneous surface in order to detect new lesions
- Ophthalmologic, neurologic, and psychiatric evaluations
- CT or magnetic resonance imaging (MRI) examinations and total body scintigraphy
- Electroencephalogram and evoked visual potentials
- Mammography.

These examinations have yielded negative results since the surgery. This case is interesting because of the late onset of the cutaneous neoformations, which as a rule occur by the second decade of life. Neurofibromatosis is a very rare genetic pathology, and given the dramatic variability of clinical signs, may be difficult to diagnose, especially in patients with a negative family history and in cases with typical lesions that appear late. As a matter of fact, in the reported case, the first diagnosis of the pathology was made when the patient was 27 years old.

Discussion

In 1988, the HNICC established the criteria for a diagnosis of neurofibromatosis 1. For a diagnosis to be made, at least two of the signs in Table 1 must be present. A correct diagnosis requires careful clinical and instrumental evaluation to detect the presence of characteristic signs and to exclude the presence of related brain tumors.

The role of plastic surgery is fundamental to a correct evaluation and excision of cutaneous lesions. In cases similar to the reported case, total excision of neoformations with subsequent plastic surgery not only guarantees good aesthetic and functional results, but also protects the patient from rare but possible sarcomatous transformation of cutaneous lesions whose incidence varies between 2% and 16% [7]. Accurate pre- and postsurgery mammographic screening is indispensable for patients with this pathology. As a matter of fact, researchers describe cases in which lesions are early malignant neurofibromas [5–8].

Moreover, case studies have been described in which neurofibromatosis is associated with mammary cancer, such as the invasive duct cancer [1,4,8]. In such cases, the presence of large neoformations may impair the detection of nodules by means of palpation. It is advisable also to monitor the patient after surgery to

avoid the onset of complications associated with the disease that may make the prognosis worse.

Giuseppe Andrea Ferraro, M.D.
Gianfranco Nicoletti, M.D.
Pasquale Graziano, M.D.
Ferdinando Rossano, M.D.
Francesco D'Andrea, M.D.

Department of Plastic and Reconstructive Surgery, Second University of Naples, via De Crecchio 3, 80100, Naples, Italy; *email:* gaferraro@libero.it

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