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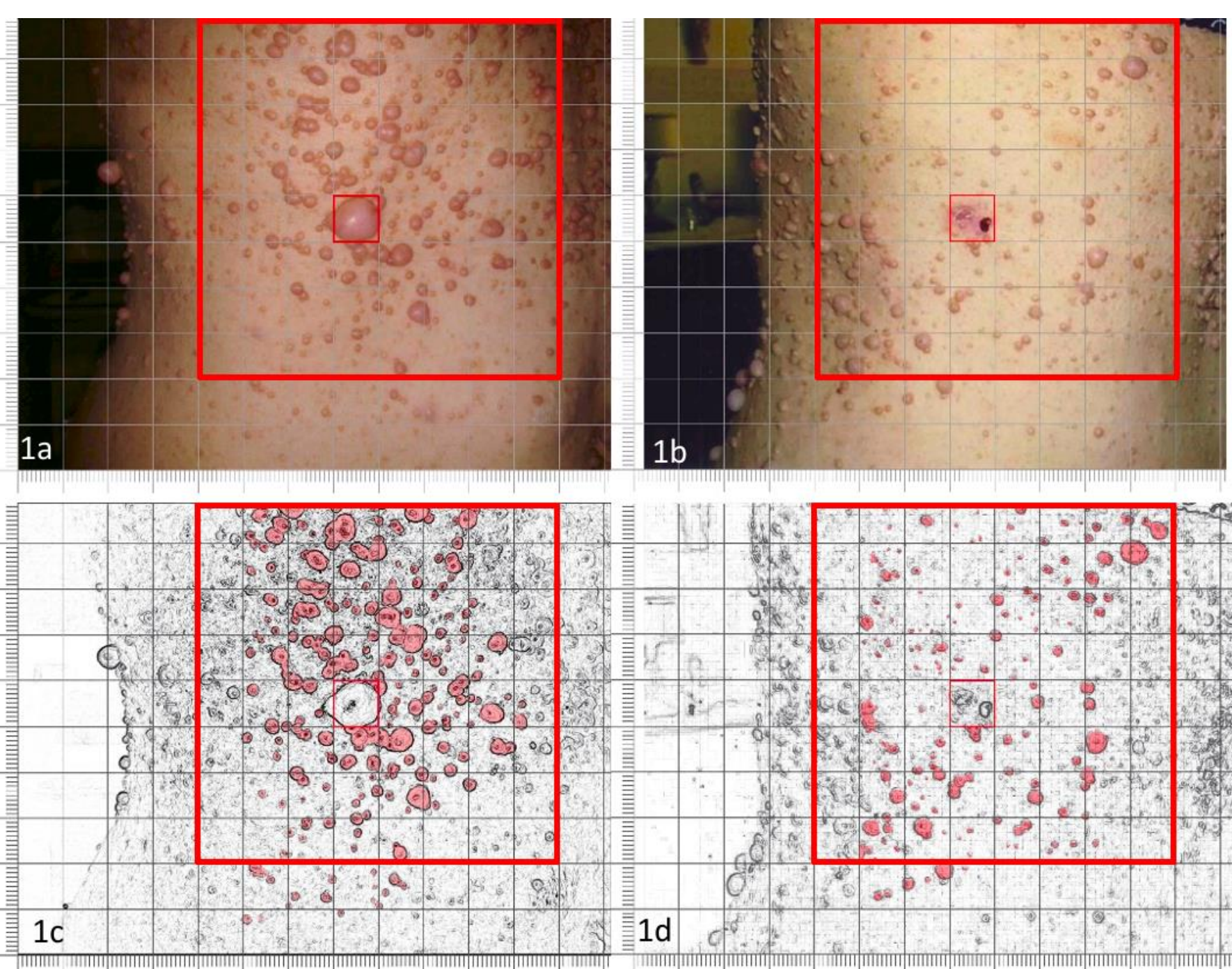
Aims

Neurofibromas are the hallmark lesions in Neurofibromatosis 1 (NF1) an autosomal dominant, multisystem disorder affecting approximately 1 in 3500 people; these tumors are classified as cutaneous, subcutaneous and plexiform [1]. In contrast to cutaneous and subcutaneous neurofibromas, plexiform neurofibromas can grow quickly and progress to malignancy. Curcumin, a polyphenol extracted from turmeric, has shown in in-vitro and in-vivo studies the ability to interact with several molecular targets implicated in carcinogenesis.

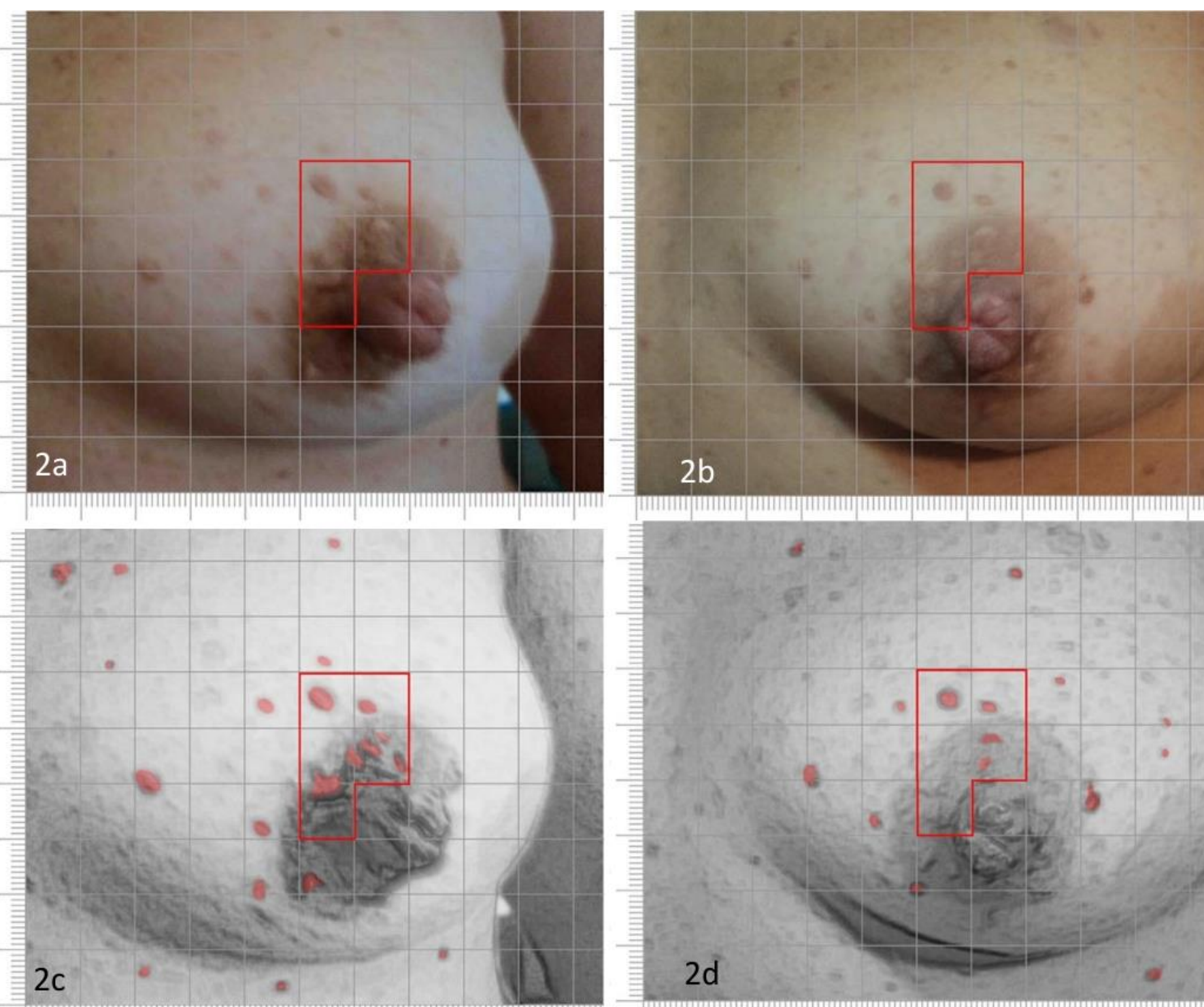
Results

At six months follow-up, in patients adopting a traditional MedDiet enriched with 1200 mg curcumin per day (MedDietCurcumin), we observed a significant reduction in the number (up to 51% in one patient) and volume of cutaneous neurofibromas; these results were confirmed in subsequent evaluations [Figure 1, 2]. Notably, in one patient, a large cranial plexiform neurofibroma exhibited a reduction in volume (28%) confirmed by Magnetic Resonance Imaging [Figure 3]. Conversely, neither unenriched MedDiet nor WeDiet enriched with curcumin exhibited a significant positive effect.

Patient 1, a 54-year-old woman, presented with widespread café-au-lait spots, intertriginous freckling and numerous cutaneous neurofibromas, on the neck, trunk, upper and lower limbs. In the highlighted area (Fig 1a, c) a manual counting of 212 distinct neurofibromas was obtained at baseline. Six months after the introduction of MedDietCurcumin (as shown in Fig. 1b, d) a striking reduction in the number of neurofibromas present in the same area could be observed. At this follow-up appointment, only 110 (51%) neurofibromas could be counted.

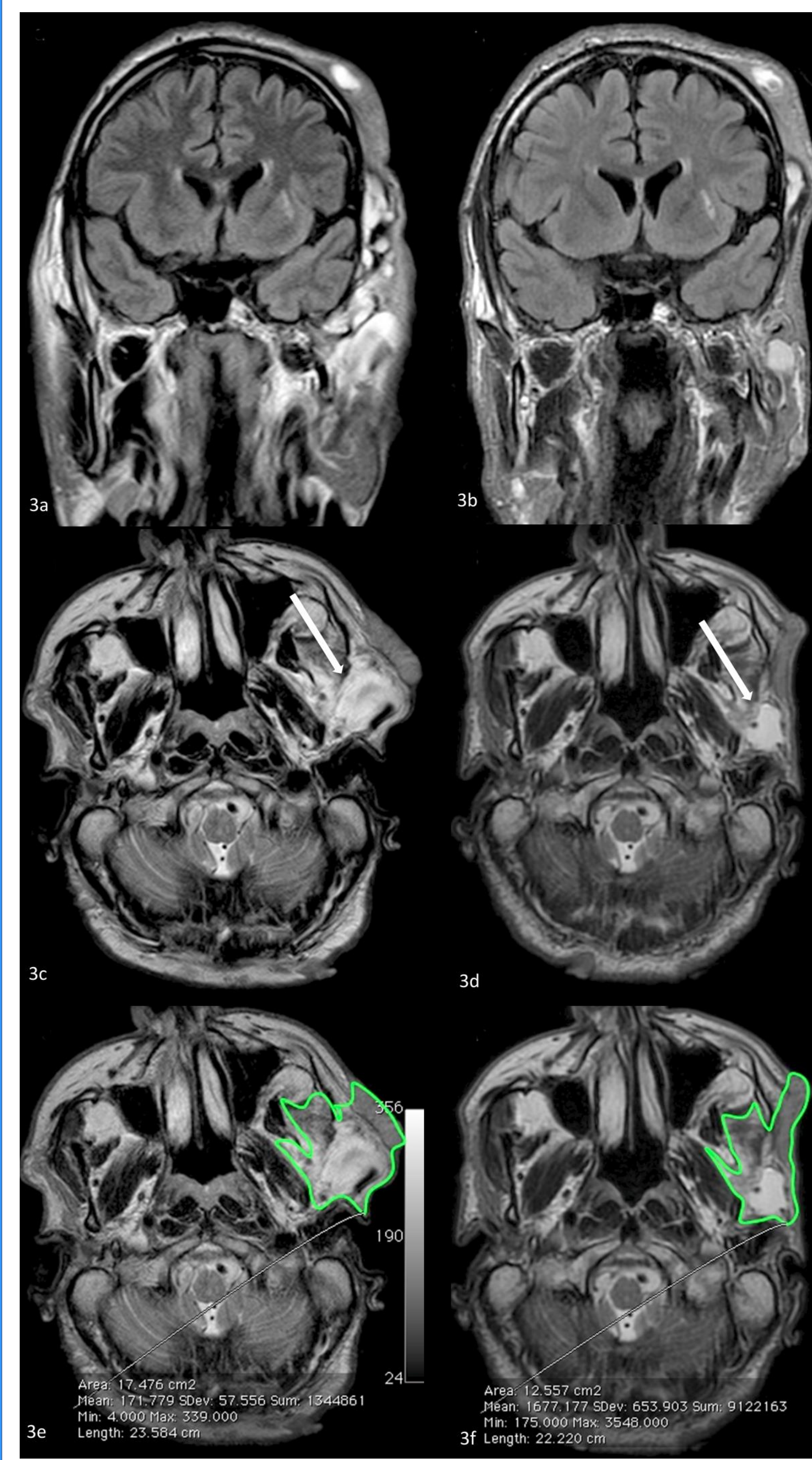


Patient 2, a 27-year-old woman, had been diagnosed in infancy due to the presence of more than six café-au-lait spots. During adolescence, she had also developed intertriginous freckling and a large number of cutaneous neurofibromas on the trunk and limbs. On the left breast, here pictured, 20 cutaneous neurofibromas could be observed at baseline (Fig. 2a, b). Six months after the introduction of the diet, the number of cutaneous neurofibromas in the same area had decreased to 14, as shown in Fig 2b, 2d.



Discussion and Conclusions

We can hypothesize that the combination of polyphenols rich Mediterranean diet with curcumin was responsible of the observed beneficial effect on NF1. This is, to the best of our knowledge, the first experience with curcumin supplementation in NF1 patients. Our report suggests that an integrated nutritional approach may effectively aid in the management of NF1.



Patient 3, a 50-year-old man, had presented since childhood with numerous café-au-lait spots and subcutaneous neurofibromas on the trunk and on the lower limbs. In his adult years, he also had developed a large mass in the the left orbito-temporal region. When he was 44 years old, this mass had been partially resected, and thus histologically diagnosed as a plexiform neurofibroma. During the following years, however, the plexiform neurofibroma had partially recurred, leading to an increase in volume and compression of the ipsilateral eyeball. At baseline, Magnetic Resonance Imaging of the head showed this lesion as a conglomerate of pseudo-nodular formations, which extended from the left fronto-parieto-temporal area to the ipsilateral orbital region (Fig. 3a, c, e). Six months after the introduction of the diet, the same radiologic technique showed a clear volume reduction of this plexiform neurofibroma (Fig. 3b, d) especially visible in axial TSE T2 weighted slices of the inferior portion. (Fig. 3e). The total volume reduction was about 28,2%.

Bibliography

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