**ABSTRACT**

**BACKGROUND:** Lentigo maligna (LM) is a therapeutic challenge for surgeons because of its location in aesthetic areas and the difficulty in determining margins. **OBJECTIVE:** To investigate a new procedure combining the "spaghetti" technique described by Gaudy-Marqueste and colleagues in 2011 with in vivo reflectance confocal microscopy (RCM) to define the margins of LM more accurately and allow strict histologic control. **METHODS AND MATERIALS:** Thirty-three consecutive patients with LM of the head underwent a RCM-guided delineation of the margins followed by the "spaghetti" technique. **RESULTS:** The excision of the first "spaghetti" in a tumor-free area was obtained in 28 of 33 patients. In the other five cases, persistence of LM foci was found in <5% of the length of spaghetti. The average number of pieces of "spaghetti" was 1.2 (range 1-3). Definitive histologic examination of the lesion showed a minimum average margin of 2.7 mm. Follow-up in 27 patients after an average of 10 months (range 4-25 months) did not show any recurrence. **CONCLUSION:** This procedure allows accurate definition of the surgical margins of LM, with a low rate of multiple excisions, sparing tissue in functional and aesthetic areas. These results should be confirmed on the basis of a larger series with longer follow-up.