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Management of dysplastic nevus by Italian dermatologists: a survey of the Italian Association of Hospital Dermatologists (ADOI)

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Availability of data and materials: the datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Abstract

Dysplastic nevus (DN) represents a diagnostic and management challenge due to low interobserver agreement among pathologists and the absence of universally accepted guidelines. This nationwide cross-sectional survey aimed to investigate the current surgical management of DN among Italian dermatologists and to explore the use of diagnostic tools.

A structured questionnaire was distributed to members of the Italian Association of Hospital Dermatologists (ADOI) and included four sections: (1) demographic and professional information; (2) use of diagnostic instruments for the evaluation and follow-up of pigmented lesions; (3) surgical practices and communication with dermatopathologists; and (4) clinical and therapeutic management of DN stratified by low-grade or high-grade dysplasia and by margin status.

A total of 190 dermatologists (response rate: 11.9%) completed the questionnaire. Most respondents opted for observation in cases of low-grade DN with clear margins (97.9%), while 68.9% recommended re-excision when margins were involved. For high-grade DN with clear margins, 64.2% preferred observation, whereas 35.8% performed re-excision. In cases of high-grade DN with positive margins, nearly all respondents (96.3%) indicated re-excision. Dermoscopy was universally used (99.5%), video-dermoscopy was applied by 77.4% of respondents, and reflectance confocal microscopy (RCM) by only 7.4%, with higher adoption in Central Italy and among mid-career dermatologists. Surgical removal was most often performed by elliptical excision (76.3%). The answers revealed substantial heterogeneity in management practices, particularly for high-grade DN with negative margins, and limited uptake of advanced diagnostic tools. These results underscore the need for updated, evidence-based national guidelines to standardize care, optimize resource allocation, and reduce unnecessary surgical procedures.

Introduction

Dysplastic nevus (DN) defines melanocytic nevi with cytological atypia and architectural disorder overlapping morphologically with common nevi and melanoma. Despite efforts to define diagnostic criteria, multiple studies have demonstrated low interobserver agreement among pathologists when diagnosing DN, particularly when distinguishing high-grade dysplasia from early melanoma.[1-3]

The World Health Organization (WHO) classifies DN as a benign tumor.[4] With the 2018 WHO classification, the grading system for DN was simplified and reduced from three to two categories: low-grade dysplasia and high-grade dysplasia. The second edition of the Melanocytic Pathology Assessment Tool and Hierarchy for Diagnosis (MPATH-Dx), which was revised in 2023, continues to group severe DN within the same risk category as melanoma *in situ*, thereby recommending the same treatment approach: re-excision with margins <1 centimeter.[5]

In Italy, the lack of uniformity in the interpretation and clinical management of DN has led to heterogeneous practices. Many dermatologists perform wide excisions or re-excisions of lesions completely removed, particularly for DN with high-grade dysplasia, treating them similarly to melanoma *in situ*. This approach raises concerns: it may overburden dermatologic surgery units, increase healthcare costs, prolong waiting times, and expose patients to unnecessary stress. Several studies, however, suggest that surgical re-excision is often unnecessary when the lesion has been fully excised, even in cases of high-grade dysplasia.[6,7]

In the past, several surveys have been published regarding the management of DN, such as those carried out in Spain, Canada, the USA, and Australia.[8-11] These surveys reported different approaches in the management of DN, with different treatments for these patients. Considering the most recent Spanish survey, it obtained 86 responses to the questionnaire; for high-grade DN, 1.2% of dermatologists would watch and wait to manage DN with positive margins, while 68.8% would use this approach for negative margins.[8]

The aim of this study was to assess, through a national survey, the current surgical management of DN among Italian dermatologists. As a secondary objective, we wanted to investigate the use of specific diagnostic tools (*i.e.*, dermatoscope, video-dermatoscope, and reflectance confocal microscopy [RCM]) and the surgical approaches among Italian dermatologists. The survey was conducted among members of the Italian Association of Hospital Dermatologists (ADOI).

Materials and Methods

A nationwide cross-sectional descriptive study was conducted *via* online survey (*i.e.*, Google Forms) among ADOI members using a snowball sampling technique. The questionnaire was distributed by e-mail to 1,600 dermatologists and remained open from July 1 to September 30, 2024.

The survey included four sections: (1) demographic and occupational data (years of specialization in dermatology; gender; geographical area; workplace); (2) use of diagnostic tools (use of dermatoscope to evaluate pigmented skin lesions; use of video-dermatoscope for follow-up of melanocytic skin lesions; use of confocal microscopy to evaluate pigmented skin lesions); (3) surgical practices and interaction with pathologists (which surgical technique do you use to remove a melanocytic lesion; your referring pathologist, in case of diagnosis of DN, specifies the degree of dysplasia?); and (4) management strategies for DN with low-grade or high-grade dysplasia, both with clear and involved margins (How do you behave if you receive the histological diagnosis of DN with low-grade dysplasia and negative margins? What should you do if you receive a histological diagnosis of a DN with low-grade dysplasia and positive margins? How do you behave if you receive a histological diagnosis of DN with high-grade dysplasia and negative margins? What should you do if you receive

a histological diagnosis of a DN with high-grade dysplasia and positive margins? What follow-up do you perform on patients with a histological diagnosis of DN with low- or high-grade dysplasia?).
All responses were anonymized and analyzed descriptively (frequencies and percentages). Statistical associations were tested using the chi-square test. All statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) version 28.0.

Results

A total of 190 Italian dermatologists completed the survey (resulting in a response rate of 11.9%). Of these, 112 were males (58.9%) and 78 were females (41.1%). In terms of professional experience, 45 respondents (23.7%) had been board-certified in dermatology for fewer than 10 years, 38 (20.0%) for 10-19 years, 35 (18.4%) for 20-29 years, and 72 (37.9%) for 30 years or more. Geographically, 86 participants (45.3%) practiced in Northern Italy, 55 (28.9%) in Central Italy, and 49 (25.8%) in Southern Italy or the islands. Regarding the workplace, 37% worked in hospitals, 28% in private activity, 20% in local health authorities, and 15% in universities (Figure 1).
Considering the questions about DN, for DN with low-grade dysplasia and clear margins, 97.9% opted for observation (Figure 2). When margins were involved, meaning that the lesion extended to the surgical margins, 68.9% performed re-excision with 1-4 mm margins (Figure 3).
For DN with high-grade dysplasia and clear margins, 64.2% preferred observation, while 35.8% performed re-excision (19.5% with 1-4 mm and 16.3% with 5-10 mm margins) (Figure 4).
When margins were involved in high-grade dysplasia, 54.7% chose re-excision with 1-4 mm and 41.6% with 5-10 mm margins; only 3.2% opted for follow-up.
Regarding follow-up of other melanocytic lesions in patients diagnosed with DN (low or severe dysplasia), 126 respondents (66.3%) reported performing follow-up in all patients regardless of melanoma risk factors. Another 58 (30.5%) reported follow-up only in patients with additional risk factors.
Pathologists reported routinely specifying the degree of dysplasia in 81.6% of cases.
Concerning the questions about the diagnostic tools, 189 out of 190 dermatologists (99.5%) reported using a dermatoscope routinely for the evaluation of pigmented skin lesions during assessments. The video-dermatoscope was used to assess changes in melanocytic lesions during follow-up by 147 respondents (77.4%). Only 14 dermatologists (7.4%) reported using RCM. A significant correlation was found between years of specialization and confocal use ($p=0.013$), as well as between geographic location and confocal use ($p=0.009$), with the highest usage in Central Italy.
Surgical excision of melanocytic lesions was most commonly performed using elliptical excision alone (n=145, 76.3%).

Beyond descriptive statistics, a series of chi-square tests were conducted to investigate the existence of potential associations between demographic or professional features of the sample, and the selected clinical practices.

A statistically significant association was found between years since board certification in dermatology and the use of video-dermatoscopy for patient follow-up (p=0.013); among dermatologists who reported not using video-dermatoscopy for follow-up, the largest proportion had over 30 years of experience (58.1%), followed by those with fewer than 10 years (20.9%). Finally, gender differences were observed in the surgical approach to melanocytic lesion excision. Female dermatologists predominantly used elliptical excision, whereas male dermatologists more frequently reported combining elliptical excision with shave or punch techniques. Although this difference was not tested statistically, it may reflect differing training backgrounds or practice preferences by gender.

Discussion

This national survey offers a current snapshot of the surgical management of DN by Italian dermatologists. The key finding is the considerable heterogeneity in re-excision practices, particularly for DN with high-grade dysplasia and negative margins. Despite the absence of universally accepted guidelines, over one-third of respondents still perform re-excision in these cases, mirroring a conservative surgical approach likely driven by diagnostic uncertainty and fear of missing early melanomas. These findings likely indicate a possible confusion or misinterpretation arising from the MPATH-Dx. In fact, the MPATH-Dx class 2 encompasses 6 different melanocytic entities as clinical and histopathological presentations as well as biological behaviors (atypical/DN with high-grade atypia; Spitz nevi, tumors, or melanocytomas and atypical variants; cellular blue nevus, melanocytomas, and atypical variants; plexiform or deep penetrating nevi or atypical variants; lentigo maligna; melanoma *in situ*), advising for a re-excision when lesions have not been completely removed, therefore *de facto* considering atypical/DN, Spitz nevi, cellular blue nevus, plexiform blue nevus, deep penetrating nevus as malignant lesion.[5] It must be underlined that this approach is justified when a shave excision is performed because a shave biopsy, even a saucer one, could often result in an incomplete one. Therefore, when atypical/DN, Spitz nevi, cellular blue nevus, plexiform blue nevus, deep penetrating nevus have been completely excised with an elliptical excision, a re-excision may result in overtreatment. Unfortunately, no randomized control trials are now available on this topic; Consequently, no clear guidelines on managing atypical/DN have been published, and this topic remains controversial with an unmet need, often relying on personal or experience-based approaches.

Regarding our survey, in cases of DN with low dysplasia and clear margins, almost all respondents (97.9%) opted for observation. This aligns with the Spanish survey, which found that 97.7% would conduct an observation.[8] Similarly, in high-grade dysplasia with positive margins, our cohort opted for re-excision (96.8%), and this matches international consensus.[8-11]

The widespread use of dermoscopy and video-dermoscopy reflects adherence to best practices. However, the limited use of RCM, despite its potential usefulness in reducing unnecessary excisions, highlights the need to improve access and training in academic centers. The low adoption of RCM (7.4%), however, mirrors findings from both European and U.S. surveys, where only 11-20% of dermatologists reported using novel diagnostic technologies such as reflectance RCM or multispectral imaging.[10,12] Notably, mid-career dermatologists (10-19 years clinical practice since specialization) exhibited higher RCM usage (13.2%) compared to early-career (<10 years: 6.3%) and senior colleagues (>30 years: 4.2%), suggesting generational shifts in technology adoption. Moreover, we documented a geographical disparity: confocal use was concentrated in Central Italy (9/14 users), aligning with evidence that diagnostic resource distribution varies among regions.

The regional differences observed support the hypothesis that resource distribution influences clinical decision-making. Chi-square analyses confirmed significant associations between confocal use and both years of clinical practice and geographic origin, underlining the influence of training exposure and resource availability. Gender also appeared to influence surgical technique selection, suggesting the need for further investigation into procedural preferences and their impact on clinical outcomes.

The fact that 68.9% of respondents perform re-excision even for low-grade DN with positive margins raises questions about risk-benefit balance, especially when literature suggests a low malignant potential for completely excised DN.[13] Surgical approaches also varied. Complete elliptical excision was favored by 76.3% of dermatologists, with male practitioners more likely than females to employ shave or punch techniques. Though this gender difference has not been broadly reported in previous surveys, it may reflect different training experiences or institutional protocols.

Conclusions

This study underscores the variability in surgical management of DN in Italy and reinforces the need for updated, evidence-based national guidelines to standardize care and reduce unnecessary surgical procedures for DN with high-grade dysplasia.

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Figure 1. Dermatologists' workplace (n=190).

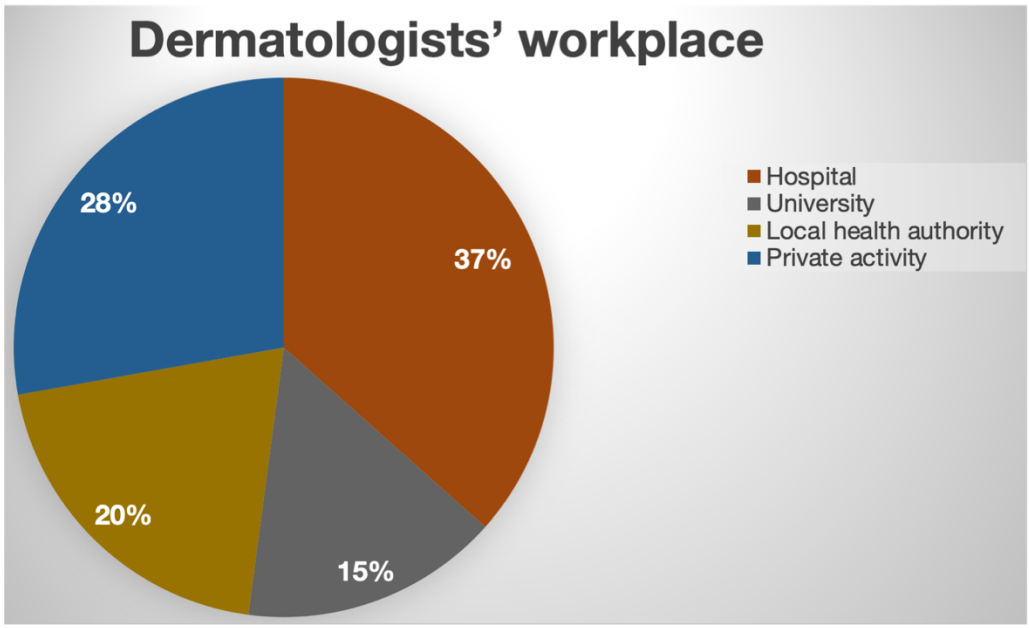

Figure 2. Management of low-grade dysplastic nevus with negative margins (n=190).

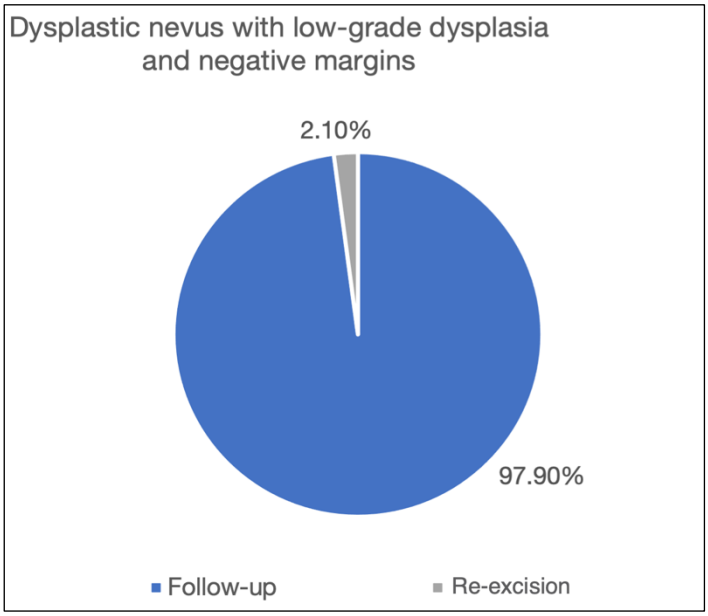

Figure 3. Management of low-grade dysplastic nevus with positive margins (n=190).

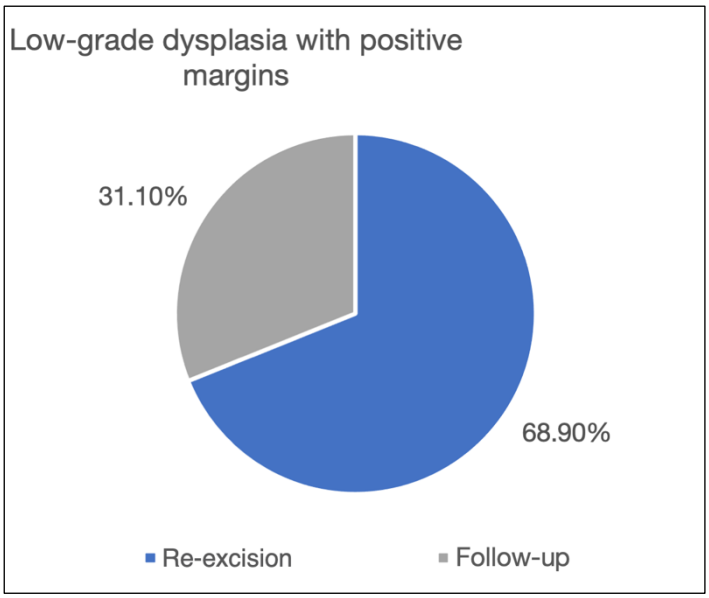

Figure 4. Management of high-grade dysplastic nevus with negative margins (n=190).