Austin Journal of Dermatology

Open Access

Austin Publishing Group

Special Article - Skin Biopsy

Dermatoscopy can Impact Biopsy Method

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Received: August 09, 2018; **Accepted:** August 30, 2018; **Published:** September 06, 2018

Keywords

Melanoma; Non-melanoma skin cancer; Biopsy; Excisional biopsy; Shave biopsy

Introduction

Dermatoscopy has impacted diagnostic accuracy for skin malignancy to the extent that this now has the potential to influence choices of surgical biopsy procedures for the benefit of patients. For this potential to be realised dermatoscopy and surgical decision-making need to be integrated. This can happen in dermatology, primary care and surgical practice. This editorial will consider what is possible by applying recent advances in dermatoscopy to optimise decisions on biopsy method in the management of all suspected skin malignancies, both melanocytic and non-melanocytic.

The Role of Dermatoscopy for Diagnostic Accuracy and the Extent of Its Use

Dermatoscopy is a relatively recent non-invasive diagnostic tool only having made an impact on the management of skin malignancy in the last 30 years. It was shown to significantly improve diagnostic accuracy for pigmented melanocytic lesions as early as 2001 [1] and for pigmented non-melanocytic lesions in 2010 [2] but it was not until 2018 that dermatoscopy was shown to improve diagnostic accuracy for non-pigmented skin lesions in general [3]. In Australia and New Zealand, the countries with the highest incidence of skin cancer in the world, dermatoscopy has been standard of care with respect to the management of pigmented skin lesions since 2008 [4]. Parallel to the compelling evidence for its efficacy the uptake of dermatoscopy is increasing as evidenced by membership of the International Dermoscopy Society, now exceeding 14,000 individuals from 168 countries [5].

Dermatoscopy use varies world-wide which is understandable with technology which did not exist when senior dermatologists, surgeons and general practitioners (GPs) were trainees. A cross sectional study in the USA in 2010 reported that 79% of dermatologists had used a dermatoscope [6]. In a survey in the UK in 2012, 98.5% of respondents, mainly consultant dermatologists and registrars reported regular dermatoscopy use [7]. A survey on dermatoscopy use by Australian dermatologists published in 2011 reported a rate of 98% [8], compared to 33% for Australian GPs in 2007 [9]. In 2016 a pan-European survey across 32 countries reported that 89% of 7480 dermatologists used dermatoscopy in clinical practice [10].

Management of Non-Melanoma Skin Cancer in One Step due to a Very High Level of Diagnostic Accuracy with Dermatoscopy

While dermatoscopy has been shown to improve the benign to malignant ratio with respect to the management of melanocytic lesions substantially, so that as few as four [11] to 8.5 [12] benign lesions are reportedly excised for each melanoma detected, the improved diagnostic accuracy for the most common skin malignancy, basal cell carcinoma (BCC), both pigmented and non-pigmented is even greater, being reported as exceeding 95% [13]. Less is published about the impact of dermatoscopy on diagnostic accuracy for invasive Squamous Cell Carcinoma (SCC) but it is known that the keratin clues of white circles, white structureless areas and surface keratin are robust clues to SCC in raised non-pigmented skin lesions [14]. This degree of enhancement of diagnostic accuracy of non-melanoma skin cancer provides a compelling argument for proceeding with definitive surgical management of these conditions if this is appropriate, based on confident dermatoscopic assessment rather than deferring such management until after partial biopsy and histological confirmation. Advantages of this approach include reduced surgical manipulation of the patient, avoidance of sampling error and an obvious cost saving with respect to surgery, pathology and lost productivity for the patient in the form of downtime from employment. Of course the patient should be an integral part of the decision making process and in situations where complex closure may be required it is reasonable to consider partial biopsy to confirm absolutely the need for definitive surgery. If non-surgical treatment is anticipated a preceding partial biopsy may also be prudent to exclude unexpected melanoma.

Biopsy of Melanocytic Lesions: Elliptical Excision Biopsy as Standard of Care

The gold standard to confirm or exclude melanoma is elliptical excision biopsy in all published national guidelines [15-18] for reasons including optimising accurate histological processing of an oriented specimen, avoidance of sampling error, higher rate of uninvolved margins [19], substantially reduced re-excision area and length [20] and avoidance of diagnostic uncertainty associated with recurrent naevi [21], but in spite of this there has recently been a trend for the more expedient shave biopsy technique [22]. There have been studies published to support favourable outcomes of shave biopsies along with the justification given in one study that such a practice may "… encourage liberal use of biopsies by dermatologists and primary care providers to facilitate earlier diagnoses of cutaneous malignancies" [23]. The counter-argument presented here is that with the improved specificity provided by effective dermatoscopy use, the need for an expedient method to facilitate more biopsies is diminished.

While shave biopsy may certainly be indicated in situations where elliptical excision biopsy would cause an unfavorable cosmetic

Citation: Cliff R. Dermatoscopy can Impact Biopsy Method. Austin J Dermatolog. 2018; 5(2): 1086.

outcome should the lesion prove to be benign, there is an additional compelling reason why elliptical excision biopsy should remain the default procedure when melanoma is suspected.

In a study published in 2017 evaluating inter and intra observer concordance in the dermatopathology reporting of melanocytic lesions it was found that out of 8976 individual case interpretations by 1187 pathologists, 8.0% (6.2% to 9.9%) of cases were over interpreted by the initial pathologist and 9.2% (8.8% to 9.6%) under interpreted [24]. What was previously suspected is now known: that many lesions reported as naevi would be reported as melanoma by a different pathologist and even in a proportion of cases, by the same pathologist at a later time. Given the consistently higher reported incidence of involved margins with shave biopsies compared to elliptical excision biopsies this has implications for patient safety and survival, with respect to misdiagnosed and incompletely removed melanoma.

Conclusion

The suspicion of melanoma by a dermatoscopist means that the lesion has been selected from literally thousands of others as a lesion of concern with a potentially lethal diagnosis. Such a lesion should be accorded due respect and be effectively removed at the point of biopsy by an elliptical excision unless there is a specific, documentable reason to choose an alternative method. Any alternative approach is arguably for the benefit of the physician, while being potentially hazardous for the patient.

Acknowledgement

The author wishes to acknowledge Jan Lapins MD, PhD, Associate Professor, Karolinska University Hospital and Karolinska Institutet, for reviewing this editorial.

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