Value of histopathologic analysis of skin excisions by GPs

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ABSTRACT

The clinical diagnoses of skin lesions in general practice may sometimes not be very accurate. The aim of this study was to compare clinical versus final histopathological diagnosis status (benign, pre-malignant/malignant) in 4595 consecutive submissions by GPs. The final diagnosis was pre-malignant or malignant in 215 cases (4.7%). From the 4436 lesions clinically diagnosed as benign, 134 (3.0%) were pre-malignant or malignant on final histological diagnosis. From the 159 lesions clinically diagnosed as pre-malignant or malignant, 78 (49.1%) were in fact benign, and 81 (50.9%) were indeed pre-malignant or malignant on final diagnosis. The sensitivity for a malignant diagnosis was 38%, and the specificity 98%. The proportion of pre-malignancies or malignancies was 0.9% below and 9.2% above the age of 40 years. In conclusion, histopathological investigation of skin excisions by GPs yields a high percentage of unexpected pre-malignancies and malignancies. The number of misdiagnoses was age dependent, with a proportion of 1% and 9% of pre-malignancies/malignancies in patients below and above the age of 40 years, respectively. This indicates that all skin excisions by GPs must undergo routine histopathological investigation to ensure that serious malignancies are not missed.

Keywords

diagnosis; histopathology; neoplasm; skin diseases; surgery.

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INTRODUCTION

Most GPs do not submit all skin excisions for histopathological investigation, apparently relying on their clinical assessment of the benign nature of some lesions. It has been estimated that only around 60% of lesions excised by GPs are referred to a pathologist.[1,2] However, clinical diagnoses by GPs may not be very accurate. Some studies found a discrepancy of at least 30% between clinical and histopathological diagnoses by GPs.[3,4] The question therefore remains whether GPs would be advised to submit all their skin excisions to a pathologist to catch all malignancies.[5] Primary incomplete excision of a malignancy could lead to untreatable local or metastasised recurrences, and some malignancies require additional treatment besides local excision, such as sentinel lymph node procedure[6] for melanomas or chemotherapy for lymphomas.

The aim of this study was therefore to evaluate the number of histopathological investigations of a large group of skin excisions by GPs, with special emphasis on discrepancies between clinical and histopathological diagnoses of malignancy in relation to age.

METHOD

From the years 1999 and 2000, all pathology reports from histological submissions by GPs through the SALTRO (a general practice laboratory for clinical chemistry, pathology and haematology) to the Department of Pathology of the VU University Medical Center in Amsterdam, The Netherlands, were reviewed. Multiple submissions under the same entry number were split up so that each resection or biopsy could be analysed separately, resulting in a total of 5105 entries. For each entry, the clinical diagnosis was noted and grouped as benign, premalignant or malignant, or unknown. All final diagnoses were also noted and grouped as benign, pre-malignant or malignant, or no diagnosis. The latter occurred in 22 cases (0.4%) where no or too little material was left after tissue processing, or the material was too damaged for diagnosis. These cases were left out of further analyses as were cases with no clinical diagnosis (n = 493), leaving 4595 cases (5 cases with unknown clinical diagnosis had no pathology diagnosis).

The clinical diagnosis status was then compared with the final diagnosis status. The rate of malignancies was calculated for the age categories <40 and >40 years.

RESULTS

The final diagnosis was benign in 4380 cases (95.3%) and pre-malignant or malignant in 215 cases (4.7%). Table 1 shows an overview of the premalignant and malignant final diagnosis. Most malignancies concerned basal cell carcinomas (46.5%), followed by squamous cell cancer (12.1%) and melanoma (12.1%). The pre-malignancies were mostly actinic keratoses (19.1%) and Bowen's disease (5.6%).

From the 4436 lesions clinically diagnosed as benign, 4302 (97.0%) were indeed benign on final histological diagnosis, but 134 (3.0%) were pre-malignant or malignant (Table 2). From the 159 lesions clinically diagnosed as pre-malignant or malignant, 78 (49.1%) were in fact benign and 81 (50.9%) were indeed malignant on final diagnosis. The malignancies appeared over all categories of clinical diagnoses. The sensitivity for a malignant diagnosis was 38% (81/215), and the specificity 98% (4302/4380).

The proportion of pre-malignancies or malignancies was 0.9% in patients below the age of 40 years, and 9.2% in those above the age of 40 years.

DISCUSSION

This study showed that in about 5% of GP skin excisions, the final histopathological diagnosis was pre-malignant or malignant, often in contrast with the clinical diagnosis. For the clinical diagnosis in this study we relied on the request forms. As all submissions were done by direct mail from the GPs offices, the patients were not likely to see the forms, so we have assumed that the GPs expressed their honest opinion on the request form. Although the pathologist's diagnosis can theoretically be wrong, all malignant diagnoses were confirmed by an expert dermatopathologist. The percentage of pre-malignancies or malignancies is in line with other studies.[3,5] The malignancies were often serious and unexpected, as they occurred over all clinical categories. Among the 215 pre-malignancies or malignancies, 58 required primary radical excision (melanoma, sarcoma, adenocarcinoma) with additional surgery (sentinel lymph node approach for melanoma), or adjuvant treatment (lymphoma), making these diagnoses clinically very relevant. This indicates that the clinical assessment of skin lesions by GPs is not reliable enough to keep certain clinical categories from histopathological evaluation. This finding is not unique for GPs, as even dermatologists face the same problem.[3,4]

The question therefore arises whether all excised material needs to be submitted for histopathological evaluation. This would obviously ensure detection of the vast majority of malignancies (pathologists can miss malignancies too), and prevent untreatable recurrences and ensure timely adjuvant treatment. Naturally, this approach involves costs, although histopathology is generally considered to be quite

Table 1. Frequencies of premalignant and malignant final diagnoses.

	Frequency	Percentage
Adenocarcinoma	1	0.5
Basal cell carcinoma	100	46.5
Dysplastic nevus	1	0.5
Fibrosarcoma	1	0.5
Atypical fibroxanthoma	1	0.5
Hemangioendothelioma	2	0.9
Hydroacanthoma	1	0.5
Actinic keratosis	41	19.1
Leiomyosarcoma	1	0.5
Lymphoma	2	0.9
Bowen's disease	12	5.6
Melanoma	26	12.1
Squamous cell cancer	26	12.1
Total	215	100.0[a]

[a]*The percentage column totals 100.2 due to rounding.*

Table 2. Comparison of clinical and final histological diagnosis in 4595 skin biopsies and excisions by GPs.

		Final histopathological diagnosis		
		Benign	Pre-malignant/malignant	Total
Clinical diagnosis	Benign	4302	134	4436
	Pre-malignant/malignant	78	81	159
	Total	4380	215	4595

How this fits in

It has been estimated that only around 60% of lesions excised by GPs are referred for histopathological investigation. However, clinical diagnoses by GPs may not be very accurate. This study shows that histopathological investigation of skin excisions by GPs yields a high percentage of unexpected pre-malignancies and malignancies, especially in patients above the age of 40 years. This indicates that all skin excisions by GPs must undergo routine histopathological investigation in order not to miss serious malignancies.

cost-effective. Perhaps GPs are capable of detecting the obviously benign lesions, and only submit the remainder for histopathology. In one study,[5] the percentage of malignancies in excised material by GPs was lower when they were asked to submit all material. However, it was estimated that the proportion of malignancies in the material that would normally not have been submitted was still in the order of 1%.

Although the pre-malignancy or malignancy rate was clearly age dependent, even in patients below the age of 40 years, two sarcomas and 11 melanomas would have been missed. None of these malignancies were diagnosed as clinically malignant. Missing these serious malignancies would be a high price to pay for not submitting material from patients under the age of 40 years.

In conclusion, histopathological investigation of skin excisions by GPs yields a high percentage of pre-malignancies and malignancies, often serious and unexpected, and even in cases with a common clinical diagnosis. This indicates that clinical assessment of skin lesions by GPs is insufficiently reliable to allow some skin excisions to be kept from histopathological investigation, and that all skin excisions by GPs must undergo routine histopathological investigation in order not to miss serious malignancies.

Competing interests
None

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