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CORRESPONDENCE

Diagnostic Accuracy in Subtyping Basal Cell Carcinoma by Clinical Diagnosis Compared with Punch Biopsy

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Sir,

We read with interest the recent article by Roozeboom et al. (1) reporting that a punch biopsy seems to be a better diagnostic tool than clinical diagnosis for the detection of histological basal cell carcinoma (BCC) subtypes. We wish to report our own results from a similar investigation and comment on the study design.

To achieve an optimal therapeutic outcome it is important to identify those tumours most likely to respond to a chosen method (2). With the increasing use of topical therapies, which are unsuitable for the treatment of deep infiltrating and aggressive subtypes of BCC, studies aimed at evaluating the diagnostic performance of those methods most commonly used in daily practice to diagnose BCC are of great importance. BCC features can easily, and without discomfort to the patient, be assessed by clinical examination. By use of this method the entire tumour surface can be evaluated, but limited information about deeper tumour areas is obtained. Histological examination of a biopsy specimen is perceived to give a more accurate diagnosis of tumour subtype. A limitation of a diagnostic punch biopsy, however, is that it offers information from only a small, selected area of the whole tumour.

The suggestion by Roozeboom et al. (1) that clinical diagnosis is inferior to punch biopsy in accurately subtyping BCC partly corroborates our own findings in a fairly similar designed investigation. This investigation emanates from an earlier described small, prospective study in which the primary aim was to investigate BCC thickness, but also included information about tumour subtype (3). The clinical diagnosis, punch biopsy and surgical excision of individual BCCs were obtained at a single visit. Through inspection and palpation, 2 consultants and an experienced registrar in dermatology first classified tumours clinically as either of superficial, nodular or aggressive subtypes, based on recognized clinical features (4). Then, a 3-mm biopsy punch was taken from the part of the tumour that was considered thickest in the clinical examination. Finally, a fusiform resection of the whole tumour was made. Biopsy and excision specimens were haematoxylin- and eosin-stained before examined under a light microscope. Histopathologically, the tumours were subclassified into 3 categories: superficial, nodular, and aggressive growth types; the aggressive category included morphoeaform, infiltrative, and basosquamous types (5). Upon identification of mixed-growth pattern, the tumour was classified according to the most invasive/aggressive component. The diagnostic gold standard was the histological diagnosis on surgical excision.

In total, 43 BCCs (21 head, 20 trunk, 2 extremities) from 42 patients (24 men, 18 women) were clinically classified. On surgical excision, tumours were histopathologically of superficial, nodular and aggressive growth types in 11, 22 and 10 cases, respectively. A mixed growth pattern was identified in 6 (14%) of the surgical excisions; 5 were of nodular-infiltrating type. Table I shows the results with calculated estimates of sensitivity and specificity for clinical and punch biopsy diagnosis of BCC subtypes.

Punch biopsy was more sensitive than clinical evaluation for the detection of aggressive tumour subtypes. Of the 7 clinical misdiagnosis of BCC subtype, histopathology of biopsy specimens showed mixed nodular-infiltrating and basosquamous growth patterns in 4 and 2 cases, respectively. This suggests that a significant number of aggressive tumours could be overlooked and incorrectly chosen for topical therapy if clinical assessment of tumour subtype only is performed; this

Table I. *Evaluation of diagnosis by clinical and punch biopsy for basal cell carcinoma (BCC) subtype with the histopathological result on surgery excision as gold standard*

BCC subtypes comparisons	Sensitivity % (*n*) (95% CI)	Specificity % (*n*) (95% CI)
Clinical		
Superficial vs. nodular/aggressive	73 (8/11) [44–97]	94 (30/32) [79–99]
Nodular vs. superficial/aggressive	95 (21/22) [77–100]	62 (13/21) [38–82]
Aggressive vs. superficial/nodular	30 (3/10) [7–65]	97 (32/33) [84–100]
Punch biopsy		
Superficial vs nodular/aggressive	73 (8/11) [39–94]	100 (32/32) [63–100]
Nodular vs. superficial/aggressive	95 (21/22) [77–100]	76 (16/21) [53–92]
Aggressive vs. superficial/nodular	80 (8/10) [44–97]	97 (32/33) [84–100]

95% CI: 95% confidence interval.

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compares positively with the conclusion of Roozeboom et al. (1).

On the contrary, we found little difference in the diagnostic performance of clinical and punch biopsy methods for superficial and nodular tumours. The inferior sensitivity shown for the superficial subtype may have been the result of the sampling procedure, as the biopsy sites were not chosen at random. In the study by Roozeboom et al. (1) a punch biopsy was taken from the clinically most aggressive tumour area, while in our study it was taken from the area clinically evaluated as thickest. To illustrate this point, we had 3 (7%) cases where the histological diagnosis of BCC on surgical excision was superficial, while both clinical and punch biopsy investigation demonstrated the nodular type. In these cases, the biopsy may have removed the part of tumour clinically appearing thickest; hence this component is not represented in the remaining excision specimen (the gold standard). Likewise, the most aggressive part of tumour may have been removed from excision specimens in the Roozeboom et al. study. We believe that this is a major restriction of the study design and a concern with regard to interpretation of the results.

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The corresponding author of the original article (1) has been given the opportunity to comment on this correspondence and wishes to make no further comments.