Cicatricial and non-cicatricial alopecia; the diagnostic accuracy of vertical and transverse scalp biopsies

Background: Scalp biopsy provides worthwhile diagnostic clues when clinical observation and medical history alone fail to diagnose the non-cicatricial or cicatricial type of alopecia. Whether to choose traditionally vertical (V) or transverse (T) sectioning, has been challenging especially when single biopsy is taken for the evaluation.

Objectives: To compare diagnostic histopathology features of different types of alopecia in both types of vertical and transverse sections in large number of specimens. Also to compare the diagnostic accuracy measures for non-cicatricial or cicatricial alopecia in vertical and transverse.

Methods: The prospective study was approved by the Ethics Board of Tehran University of Medical Sciences and 242 patients with alopecia were included. Two 4 mm punch biopsies were taken for all the patients, one sectioned vertically and the other horizontally. The specimens were reviewed by three Dermatopathologists. The Final diagnosis was made by overall clinical, histopathology evaluation and complementary tests. The kappa agreement between two vertical and transverse sectioning was assessed. Distinct diagnostic features that were better detected in vertical vs. transverse section were determined. The sensitivity, specificity, likelihood ratio (LR), and diagnostic odd ratio values for vertical and transverse section were estimated in different types of alopecia.

Results: Cicatricial to non-cicatricial ratio of alopecia ratio was 0.68. Lichenplanopilaris, Discoid Lupus Erythematosus and Androgenic alopecia were major types of alopecia. The presence of pigment cast, interstitial edema and the type of perifollicular inflammatory cells were adequately detected in both V and T sections (kappa> 0.7). The hair follicle stage, fibromucinous change and distortion of hair layers were better detected in T section (p< 0.05). The presence of subcutaneous inflammation was better detected through V sections (0.05). For noncicatricial alopecia, the T section revealed higher diagnostic accuracy compared to V section (LR of 32.51 vs. 82.5, P-value< 0.05).

Conclusion: The accurate diagnosis
of alopecia requires evaluating both the vertical and transverse sections. The higher diagnostic accuracy for T section justifies applying transverse section for non-cicatricial alopecia, if patient consented for single biopsy.

کلمات کلیدی:
Cicatricial alopecia, Non- Cicatricial alopecia, Vertical biopsy sample, Horizontal biopsy sample, Diagnostic accuracy, Comparison

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