

Innovations

An innovative method to align all hair follicles of a scalp biopsy specimen into a single vertical section

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PROBLEM

Scalp biopsy plays a very important role in diagnosing various cicatricial and non-cicatricial alopecia. The clinicians face the dilemma of whether to send the scalp biopsy for horizontal sectioning or vertical sectioning.

Horizontal section has the advantage of showing all hair follicles present in the biopsy core at the same time. However, the entire anatomy of hair follicles cannot be visualized in a single section, and thus, multiple sections are required which can be tedious and time consuming.

Vertically sectioned scalp biopsies provide the advantage of providing complete hair follicle view from infundibulum to bulb and provide better assessment of the degree of peribulbar inflammation and fibrosis.^[1] The major drawback is that the vertical sections show only 10–20%^[2] of the total number of follicles in the biopsy core. In many cases of alopecia, the diagnosis hinges on just a few follicles and the chances of hitting these diagnostic follicles in a vertical section are low.

SOLUTION

To overcome this problem in vertical sectioning, we propose the following solution. Since punch biopsy tissue is cylindrical all the hair follicles do not lie in the same plane. Scalp punch biopsies can be mechanically compressed to flatten the tissue out between two glass slides [Figure 1a]. This will orient all the hair follicles in one plane so that maximum hair follicles can be visualized in single vertical sectioning [Figure 1b]. The pre- and post-mechanical compression histopathological photographs of the scalp biopsy specimen are shown in [Figure 2a and b]. As

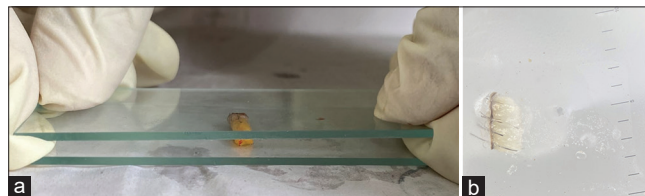


Figure 1: (a) Compression of scalp biopsy between two glass slides, (b) Flattening of scalp biopsy tissue orienting all hair follicles in one plane.

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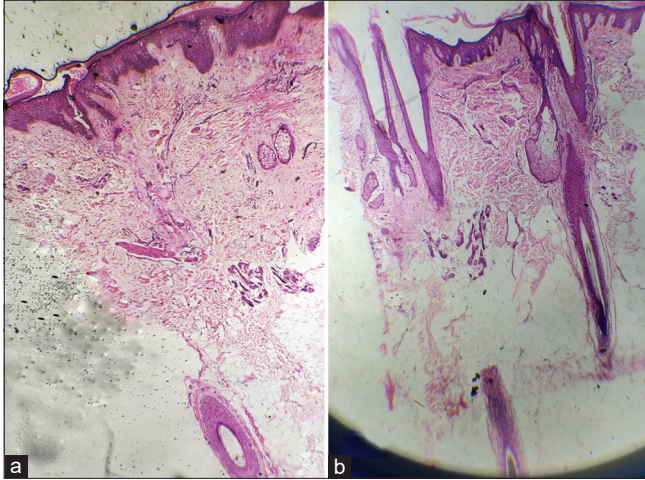


Figure 2: (a) Histopathology (vertical section) before compression of scalp biopsy not showing any hair follicles and (b) histopathology (vertical section) after compression of scalp biopsy showing multiple hair follicles.

seen in these figures, there is a significant increase in the number of visualized hair follicles following compression.

This solution will help clinicians who are hesitant to take vertical section of scalp biopsies for diagnosing various alopecia.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

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