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ORIGINAL ARTICLE



Analysis of trichoscopic signs observed in 24 patients presenting tinea capitis: Hypotheses based on physiopathology and proposed new classification

Analyse des signes trichoscopiques observés chez 24 patients porteurs d'une teigne du cuir chevelu : hypothèses fondées sur la physiopathologie et proposition d'une nouvelle classification

Y. Bourezane^{a,*}, Y. Bourezane^b

^a *Cabinet de dermatologie, 11, rue Alfred-de-Vigny, 25000 Besançon, France*

^b *Faculté de pharmacie de Montpellier, 15, avenue Charles-Flahault, 34000 Montpellier, France*

Received 7 June 2016; accepted 19 December 2016

KEYWORDS

Trichoscopy;
Scalp dermoscopy;
Comma hair;
Corkscrew hair;
Barcode-like hair;
Zigzag hair

Summary

Introduction. — Trichoscopy (hair dermoscopy) is a non-invasive and very useful technique for the diagnosis and follow-up of hair and scalp disorders. In tinea capitis, specific aspects of the hair shaft have been described, with the main ones being: comma hair, corkscrew hair, bar code-like hair (BCH) and zigzag hair (ZZH).

Method. — Herein we report on a retrospective study of 24 patients with tinea capitis (TC). All patients underwent trichoscopic examination and mycological culture.

Results. — Trichoscopy was abnormal in all 24 patients showing hair-shaft abnormalities. We observed three types of images depending on the nature and the mechanism of infection and discuss the different trichoscopic aspects of the hair shaft (comma hair, corkscrew hair, bar code-like hair, zigzag hair, broken hair and black dots) resulting from 3 mechanisms of penetration of the fungus in the hair shaft (endothrix, ectothrix and ectothrix-endothrix). All patients had positive mycological cultures: 15 with trichophytic TC (8 with *Trichophyton tonsurans*, 5 with *T. soudanense* and 2 with *T. verrucosum*) and 9 microsporic TC (7 with *Microsporum audouini*, and 2 with *M. canis*).

* Corresponding author.

E-mail addresses: ybourezane@gmail.com, ybourezane@free.fr (Y. Bourezane).

Discussion. – We propose for the first time, to our knowledge, a classification of trichoscopic signs of TC. This classification will enable rapid diagnosis and prediction of the nature of the fungus before mycological culture.

Conclusion. – Our study shows the importance of trichoscopy in the diagnosis and monitoring of TC as well as its very good correlation with mycological culture. We propose a new classification of trichoscopic signs dependent on the nature of the mycological agent and the mechanism of infection. Further prospective studies with more patients are needed to confirm this classification.

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MOTS CLÉS

Dermoscopie du cuir chevelu ;
Trichoscopie ;
Teigne ;
Cheveu en virgule ;
Cheveu en tire-bouchon ;
Cheveu en code barre ;
Cheveu en zigzag

Résumé

Introduction. – La trichoscopie (dermoscopie du cuir chevelu) est une méthode très pratique, non invasive et peu coûteuse, utile au diagnostic et au suivi de nombreuses pathologies du cuir chevelu. Dans les teignes du cuir chevelu, des aspects particuliers de la tige pileaire ont été décrits dont les principaux sont : le cheveu en virgule (CH), le cheveu en tire-bouchon (CSH), le cheveu en code barre (BCH) et le cheveu en zigzag (ZZH).

Méthode. – Nous rapportons une étude rétrospective menée chez 24 patients atteints d'une teigne du cuir chevelu. Un examen trichoscopique a été réalisé chez tous les patients, ainsi qu'une culture mycologique.

Résultats. – La trichoscopie était anormale dans tous les cas, objectivant des anomalies de la tige pileaire. Nous avons observé 3 types d'anomalies en fonction de la nature du champignon et du mécanisme de l'infection mycosique (endothrix, ectothrix ou ecto-endothrix). Les cultures mycologiques étaient positives chez tous les patients: 15 teignes trichophytiques (8 à *T. tonsurans*, 5 à *T. soudanense* et 2 à *T. verrucosum*) et 9 teignes microsporiques (7 à *M. audouini* et 2 à *M. canis*).

Discussion. – Nous proposons, pour la première fois à notre connaissance, une classification permettant de simplifier le diagnostic de teigne, de comprendre les images trichoscopiques observées et d'orienter sur la nature du champignon en cause avant la confirmation du diagnostic par la culture mycologique.

Conclusion. – Cette étude montre l'intérêt de la trichoscopie dans le diagnostic et le suivi des teignes. Elle confirme la très bonne corrélation entre la trichoscopie et la mycologie. Nous proposons une nouvelle classification des signes trichoscopiques en fonction du mécanisme physiopathologique et de la nature du champignon en cause. Des études prospectives à plus grande échelle sont nécessaires pour confirmer ces hypothèses.

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Trichoscopy, or scalp dermoscopy, is a simple, non-invasive and very inexpensive technique that is useful in the diagnosis and follow-up of numerous scalp disorders [1–3]. Herein, we report on a retrospective study conducted in 24 patients presenting with tinea capitis over a period of 8 years. We analyse the different dermoscopic appearances of the hair shaft: comma hair (CH), corkscrew hair, barcode-like hair, zigzag hair, broken hair and black dots. We discussed the underlying physical mechanisms of these images and propose, for the first time to our knowledge, a classification of these signs.

Patients and methods

Between January 2008 and January 2016, we collated 24 cases of tinea capitis seen during external consultations in a

dermatology office in Besançon. In all patients, dermoscopic examination was carried out with a manual dermatoscope (Heine Delta20®), coupled with a digital camera. Clinical and dermoscopic photographs were taken of all patients. Mycological confirmation (direct examination and culture) was also available for all patients.

Results

Twenty-four children (17 boys and 7 girls) of mean age 6.7 years (range: 3–12 years) were included in the study. Their family origins were in sub-Saharan Africa (9 cases), Mayotte (9 cases) and North Africa (6 cases).

In clinical terms, three types of appearance were noted:

- a single plaque of non-inflammatory alopecia in 11 cases (Fig. 1);

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