

# Frontal fibrosing alopecia during treatment of chronic hepatitis C: a case report

## Abstract

Frontal fibrosing alopecia is a predominantly frontotemporal type of cicatricial alopecia that determines an irreversible loss of hair strands. Its cause is unknown, however reports suggest that hormonal and immunological factors are involved in its etiology. It affects postmenopausal women more frequently and there are no cases associated with chronic hepatitis C in literature. This study reports a frontal fibrosing alopecia associated with treatment for hepatitis C with interferon and ribavirin.

**Keywords:** frontal fibrosing alopecia, cicatricial alopecia, hepatitis C, interferon, ribavirin

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Francisco Ronaldo Moura Filho, Dina Fabrício Da Silva, Silvana De Albuquerque Silva Damasceno, Sandra Adolfini Reyes Romero

Getúlio Vargas University Hospital, Amazonas Federal University, Brazil

**Correspondence:** Francisco Ronaldo Moura Filho, Getúlio Vargas University Hospital, Teacher Samuel Benchimol Street, number 543, apt 1506, tower 2, Neighborhood Park November 10, Manaus, Amazonas, Brazil, Tel 85 99736-6000, Fax 88 3437-1206, Email fronaldomoura@hotmail.com

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## Introduction

Frontal fibrosing alopecia is a type of cicatricial alopecia characterized by permanent hair loss. The disease manifests as frontotemporal hairline recession associated with eyebrows hair loss.<sup>1,2</sup> Several papers also reported hair loss in other areas, such as axilla, pubic, arms and legs.<sup>1,2</sup> It was first described in 1994 by Kossard and the etiology of fibrosing frontal alopecia is still unknown.

A hormonal etiology has been defended due to the observation of the disorder in menopausal women.<sup>2,3</sup> Recently, the coexistence of frontal fibrosing alopecia with autoimmune diseases, such as lupus erythematosus and vitiligo, has contributed to an immunological basis in its pathogenesis.<sup>4,5</sup> There are no data of frontal fibrosing alopecia associated with hepatitis C treatment with interferon and ribavirin.

## Case presentation

A 48-year-old female patient with prior history of 11 years of breast cancer, reported loss of eyebrows and hair associated with desquamation. The symptoms started during eighth month of treatment for hepatitis C with interferon and ribavirin. Her hepatitis C viral load was negative. A physical exam showed hair rarefaction in the frontotemporal hairline and eyebrows (Figure 1). The dermoscopy exam showed concentric perifollicular scaling, broken hairs, loss of follicular openings and absence of velus hair in hairline. Routine tests, including thyroid function, serum glucose, aminotransferases and laboratory test for syphilis were normal (Figures 2-4).

The histopathological exam showed concentric fibrosis around the hair shafts, some of which showed apoptotic cells in its sheath, moderate perifollicular lymphocytic infiltrate and follicular dropout (Figures 5-7). The treatment included topical clobetasol 0,05%, associated with 5% minoxidil and doxycyclin for anti-inflammatory effect with a partial improvement.

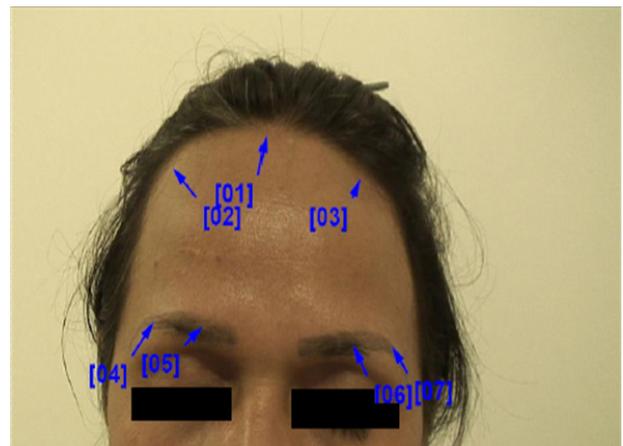


Figure 1 Frontal Hairline recession and hair loss in the eyebrows.



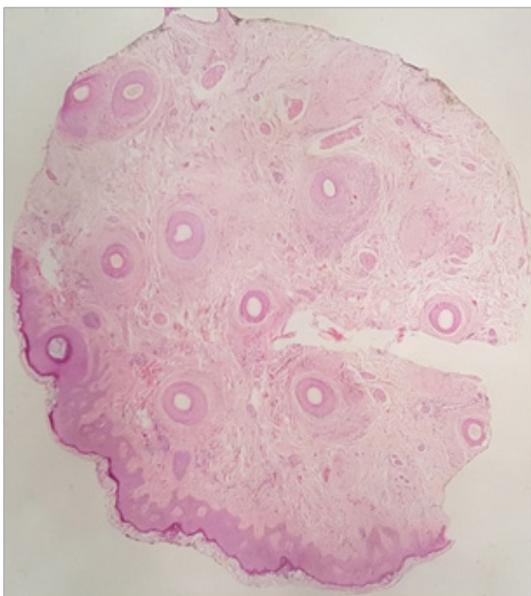
Figure 2 Dermoscopy of the frontal region presented concentric perifollicular desquamation, absence of velus hair and loss of follicular openings (70x).



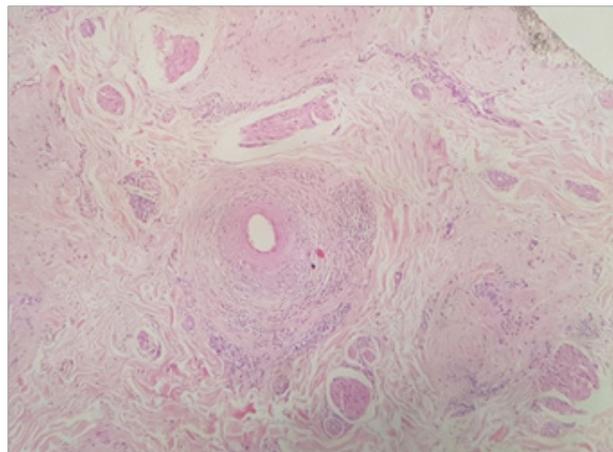
**Figure 3** Dermatoscopy of the right temporal region presented concentric perifollicular desquamation, absence of vellus hairs and white dots (20x).



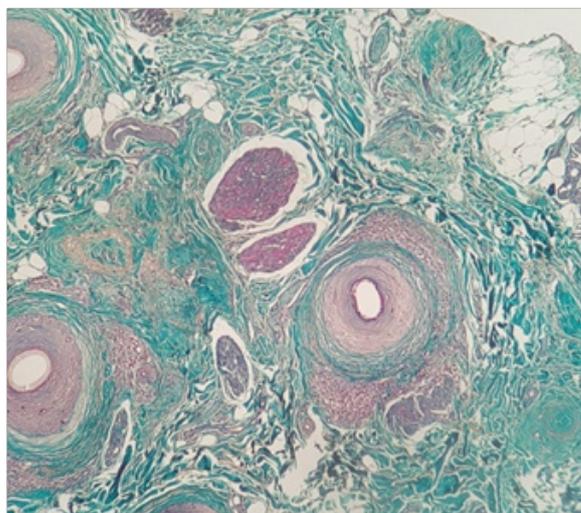
**Figure 4** Dermatoscopy of the left brow showing grey dots, perifollicular and interfollicular scaling (20x).



**Figure 5** Panoramic view with transversal section showing predominance of hairs in the anagen phase and follicular drop-out (20x).



**Figure 6** Presence of moderate lymphocytic infiltrate around the hairs in addition to concentric areas of fibrosis around hair and some of which show apoptotic cells in its sheath (50x).



**Figure 7** Presence of moderate inflammatory infiltrate around hair follicles and concentric fibrosis at the highest magnification (100x).

### Discussion

Many authors consider frontal fibrosing alopecia a variant of lichen planus pilaris, as the clinical and pathological findings are difficult to distinguish.<sup>6</sup> However, the predominantly frontal hair loss and postmenopausal age women affected in frontal fibrosing alopecia differs from classic lichen planus.<sup>1</sup> Lichen planus pilaris commonly is associated with lesions in other areas such as skin, mucosa and nails, unlike frontal fibrosing alopecia. Moreover, it is histologically characterized by lymphocytic lichenoid infiltrate, perifollicular fibrosis and the presence of apoptotic cells culminating in destruction and subsequent scarring alopecia.<sup>2</sup> Consequently, the affected skin is atrophic, hyperkeratotic and with absence of follicular ostia, associated with frequent rarefaction of the eyebrows.<sup>1</sup>

There is no paper report of frontal fibrosing alopecia related with hepatitis C or its treatment with interferon and ribavirin, however, it is known that combination of interferon and ribavirin can trigger many types of hair loss as telogen effluvium, alopecia areata and universal alopecia.<sup>7</sup> There is only a singular case of cicatricial alopecia in a

patient using interferon without treatment of hepatitis C; however, in this particular case the histopathological examination revealed a diffuse cutaneous fibrosis with mixed inflammatory pattern, different from the lymphocytic infiltrate pattern, characteristic of frontal fibrosing alopecia.<sup>8</sup>

It is widely known that chronic hepatitis C infection is related to several extrahepatic autoimmune diseases, caused either by direct action of the virus in the tissues, by formation of immunocomplexes, or cross-immune reaction with the presence of autoantibodies.<sup>9</sup> Among dermatological extrahepatic manifestations are cryoglobulinemia, porphyria cutanea tarda, palpable purpura, lichen planus, vitiligo and psoriasis.<sup>10</sup> In addition, there are skin diseases that may appear or worsen during the combination treatment of interferon and ribavirin. These manifestations can range from eczematous lesions to autoimmune processes, such as sarcoidosis and psoriasis.<sup>11,12</sup>

The wide variety of dermatological manifestations related both by hepatitis C virus and its antiviral treatment makes a difficult establishment of a causative effect reaction. Physicians may be tempted to hair loss complain during hepatitis C treatment and be aware that different types of alopecia, besides telogen effluvium, including scarring alopecia may affect these patients.

Therefore, a dermatological evaluation of the patients being treated for hepatitis C is paramount so that diagnosis and previous treatment avoid permanent sequelae.

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## Conflict of interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this case report.

## Patient consent form

Informed consent for patient information and images to be published was provided by the patient.

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