Alopecic and Aseptic Nodules of the Scalp with Trichoscopic and Ultrasonographic Findings

Anna Isabel Lázaro-Simó, Maribel Iglesias Sancho, Mònica Quintana-Codina, Elena Del Alcázar Viladomiu, Pau Umbert Millet¹, Montse Salleras Redonnet

Abstract
Alopecic and aseptic nodules of the scalp (AANS) is a rare entity, etiology of which is already unknown. It consists of a few dome-shaped, skin-colored nodules associated with nonscarring alopecia. They are usually located in the upper part of the occiput and surrounded by normal scalp. Most of the times, a biopsy is performed to make an accurate diagnosis. AANS have a good prognosis and even can resolve spontaneously. We present a new case of this entity with the description of trichoscopic and ultrasonographic findings that have recently been reported. These noninvasive techniques are useful for the diagnosis and could replace histological examination in the near future.

KEY WORDS: Dermoscopy, scalp, ultrasonography

Introduction
Alopecic and aseptic nodules of the scalp (AANS) is an entity which was first described in Japan in 1992 by Iwata et al. as pseudocysts of the scalp.[1] After that, in 1998, Chevallier reported three new cases under the name of noninfectious abscess of the scalp with alopecia.[2] In 2011, Abdennader et al. reported the longest series with 15 cases of this condition, and it was referred to as AANS.[3,4] This term characterizes the disease better because pseudocysts are not always present, but the nodules are always alopecic and aseptic.[5] We report a new case of AANS describing the trichoscopic and ultrasonographic features.

Case Report
A 31-year-old Pakistani man, with unremarkable medical history, presented with recurrent alopecic lesions on his scalp for 1 year. Physical examination revealed three skin-colored, soft, dome-shaped nodules associated with alopecia [Figures 1 and 2]. They were located in the upper part of the occiput and surrounded by normal scalp. The largest lesion measured 12 mm of diameter. He had no history of insect bite, trauma, or medical local procedures. Trichoscopy showed several black and yellow dots, fine vellus, and broken hair shafts [Figure 3]. Ultrasonography of the nodules (Esaote MyLab25 Gold® calibrated to 18 MHz) revealed a well-defined, rounded, and anechoic nodule of 11 mm × 5.3 mm [Figure 4]. It also presented posterior acoustic enhancement and a mirror image artifact beyond the cranium. The Doppler color mode did not show vascular structures neither inside the nodule nor in the surrounding tissue [Figure 5]. We decided to perform a biopsy of one of the lesions. The histological specimen showed an inflammatory granulomatous infiltrate in deep dermis [Figure 6]. It was composed by neutrophils, histiocytes, and plasma cells with some eosinophils [Figure 7]. Periodic acid-Schiff, Grocott–Gomori, and Ziehl–Neelsen staining did not evidence microorganisms. Bacteriological and mycological cultures of hemorrhagic material obtained were negative. Based on all these findings, he was diagnosed as AANS. He was treated successfully with doxycycline 200 mg/day for 2 months and one intralesional injection of triamcinolone acetonide.

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Discussion

Clinical features of AANS are very characteristic. It presents as a solitary or few dome-shaped nodules of nonscarring alopecia. These nodules are skin-colored and surrounded by normal scalp. They are usually located in the vertex or the upper part of the scalp, but they can appear in any area of the scalp. AANS can be asymptomatic or mildly painful. The mean size of AANS is 20 mm approximately as described in the most recent series of cases published in 2016. Nodules can be soft or strong to the touch. AANS are sometimes associated with bloody or citrine-yellowish exudate that corresponds to the rupture of vascular and lymphatic vessels. Its cultures are always sterile.

AANS affects predominantly young males with mean ages between 20 and 30 years. The etiology is unknown. Some authors are of the opinion that AANS could be related to follicular occlusion and is a part of a spectrum of diseases such as dissecting cellulitis of the scalp (DCS), acne conglobata, and hidradenitis suppurativa. However, other authors had reported that follicular occlusion is not always found. Moreover, an immunological process cannot be excluded. Nonscarring alopecia occurs at the beginning of the formation of the nodule. Probably, inflammation does not affect the budge (where stem cells stay), and this seems to be the basis of alopecia’s reversibility.

Histopathological features consist of a mixed inflammatory infiltrate in deep dermis (usually composed by lymphocytes or neutrophils, histiocytes, and giant cells), and in most cases, deep granulomas can be seen. No fibrosis is generally associated. Pseudocyst formation seems to be a secondary change to inflammation, and it can also be related with duration and severity of the disease.

An article about findings in trichoscopy and ultrasonography has been recently published. These noninvasive useful tools could help diagnose this disorder. In trichoscopy, broken hair shafts, yellow and
pancake sign" resulting in dilated follicular orifices and "comedo-like structures" resembling comedones. We believe that these signs may correspond to the yellow and black dots described recently and observed in our patient. In ultrasonography, well-defined, hypoechoic nodules with a few vessels on the base have been described. The posterior acoustic enhancement appears beyond the cranial bone, and this fact has been described as “mirror image” artifact. This artifact is characteristic in lesions located above convex bones such as the cranial bone. Our findings concur with the characteristics recently reported in the literature.

The main differential diagnosis is DCS, but this disorder can induce scarring alopecia. Ultrasonography is useful to distinguish DCS from AANS. In DCS, it shows fluid collections and abscesses with connecting hypoechoic fistulous tracts that reach the hair bulb. Nowadays, it is preferred to treat AANS with doxycycline, intralesional corticosteroids, or just wait and see because it is known that this disease can get resolved spontaneously.

AANS have a good prognosis, with a complete resolution in most of the cases. This is probably an undiagnosed disease which requires further studies to throw more light on its pathogenesis. It is important to know about this entity to avoid overtreating it with invasive procedures.

Conclusion
We present a new case of AANS with a description of its trichoscopic and ultrasonographic findings that concur with those recently reported in the literature. We believe that these two noninvasive techniques may avoid the biopsy in the future.

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Conflicts of interest
There are no conflicts of interest.

What is new?
We present a case of alopecic and aseptic nodules of the scalp with the description of trichoscopic and ultrasonographic features which have been recently described in only one report. These techniques could be useful to avoid the biopsy in the future.

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