We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,900
Open access books available

185,000
International authors and editors

200M
Downloads

Our authors are among the

154
Countries delivered to

TOP 1%
most cited scientists

12.2%
Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com



Chapter 5

Trichodynia (Scalp Dysesthesia)

Müge Güler Özden

Additional information is available at the end of the chapter

http://dx.doi.org/10.5772/67792

Abstract

Trichodynia is defined as a painful sensation in the skin of the scalp or the hair without an underlying cutaneous disease. The term "trichodynia" (cutaneous dysesthesia syndrome) has also been proposed for discomfort, pain, burning, or stinging of the scalp related to diffuse alopecia. Probably, the diffuse alopecia or telogen effluvium and trichodynia are related. The underlying mechanisms creating the pain are not clear, though it has been proposed that it is probably multi-etiological. The most accepted hypotheses are increased expression of the neuropeptide substance P, underlying psychiatric disorders, nutritional deficiencies, and perifollicular inflammation. Although dealing with trichodynia can be distressing and literature support is weak, there are a number of treatments available.

Keywords: trichodynia, scalp pain, scalp dysesthesia, cutaneous dysesthesia syndrome

1. Introduction

Trichodynia is defined as a painful sensation in the skin of the scalp or the hair itself and becomes more intense when hairs are touched. Before making a diagnosis of "trichodynia," the physician must be sure that there is no cutaneous disease [1]. If the patient reports headache or temporal pain by palpation, tension headaches or temporal arteritis should be evaluated first. The term "trichodynia" (cutaneous dysesthesia syndrome) has also been proposed for discomfort, pain, burning, or stinging of the scalp related to diffuse alopecia. It has been found that 34% of female patients with hair loss complained of this phenomenon [2]. In a recent survey, Grimalt et al. showed that 14% of their diffuse alopecia patients reported trichodynia [3]. Complaints such as pain and burning of the scalp in patients with diffuse

INTECH
open science | open minds

© 2017 The Author(s). Licensee InTech. This chapter is distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/3.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. CC BY

alopecia were described in the earlier dermatology literature [2, 4]. Both such studies and clinical observations have led to the idea that the diffuse alopecia or telogen effluvium (TE) and trichodynia are related. By definition, TE is a nonscarring and diffuse hair loss from the scalp that occurs a few months after a triggering event.

2. Ethiopathology

The underlying mechanisms creating the pain are not clear, though it has been proposed that it is probably multi-etiological. The most accepted hypotheses are increased expression of the neuropeptide substance P (SP), underlying psychiatric disorders, nutritional deficiencies, and perifollicular inflammation [1, 2, 5–7]. Substance P is involved in pain perception by the nerve endings, and changes in the production and activity of substance P around the hair follicles may be responsible for the pain and burning sensation [8]. Hair follicles are innervated by unmyelinated neural plexuses located around the hair follicle stem cells. These nerve fibers contain neuropeptides including substance P (SP) and calcitonin gene-related peptide (CGRP). These neuropeptides play an important role in the regulation of hair growth and are associated with the neurogenic inflammatory response. Perifollicular SP is also involved in the regulation of hair growth [9]. An imbalance in the tonic release of neuropeptides may result in inhibition of hair growth. Cutrer et al. hypothesized that chronic activation of the c-fibers, in addition to mediating inflammatory pain and follicular injury, might reduce SP and CGRP concentrations resulting in altered peribulbar antigen presentation and inhibition of further hair growth [10].

Another explanation may be an underlying psychiatric disorder. It has been found that 76% of the people who had trichodynia had psychopathic signs versus 20% in the control group, supporting this idea. Researchers have observed and speculated that there is a connection between psychopathologic findings (such as anxiety) and trichodynia [1, 5, 6, 11–14]. In 2006 Gupta and Gupta. found that numbness and pain are common symptoms of somatoform dissociation or conversion reaction [15]. Kivanç et al. found that trichodynia was associated with depression in the telogen alopecia group and with obsessive-compulsive personality disorder in the androgenic alopecia group [16]. However, this idea is controversial. Although increased rates of psychiatric problems have been reported in patients with trichodynia, Ozturk et al. found no association between trichodynia and depression or anxiety [17]. In this study the patients with telogen alopecia were consisting the control group, and they could have the opportunity to evaluate only the trichodynia patients.

Neuropathic pain can also be associated with nutritional deficiencies (Fe, B12, ferritin, zinc, vitamin D, vitamin E). Nutritional factors affect the hair directly, and dietary supplements containing B complex vitamins can influence hair growth [17–19]. Nutritional deficiencies have been reported in other cutaneous dysesthesia syndromes. For example, glossodynia is characterized by a burning sensation of the tongue and oral mucosa. Menopause, psychogenic disorders, and nutritional factors have also been suggested to cause this phenomenon [13]. However, evidence level is very low to confirm this nutritional hypothesis for trichodynia patients [20].

http://dx.doi.org/10.5772/67792

3. Treatment

Trichodynia symptoms are of great relevance to patients and place the physician in a challenging diagnostic and therapeutic situation. Although dealing with trichodynia can be distressing and literature support is weak, there are a number of treatments available. L-Cystine-containing oral preparations, topical corticosteroids (both high potency and low), and anti-inflammatory drugs have been advocated (remember inflammatory hypothesis). Inhibitors of SP can also be tried. Cannabinoids, for example, have been demonstrated to inhibit SP [21]. Capsaicin cream has been used because it blocks substance P when applied to the hair follicles. On the basis of psychiatric origin, the physician also may use low-dose antidepressants (venlafaxine, amitriptyline, and doxepin) and also pregabalin [22, 23].

In 2009, Cutrer et al. have investigated the efficacy of botulinum toxin treatment in cephalalgia alopecia patients and obtained improved pain control and hair regrowth following BoNT/A injections [10]. They also observed that botulinum increases substance P and calcitonin gene-related peptide-containing cutaneous nerves in the scalp. BoNT/A does not block low-level trophic release of neuropeptides such as CGRP and allows resumption of SP and CGRP baseline regulation of the hair follicle and hair regrowth [24]. However, we should keep in mind that BoNT/A treatment is temporary. The process of painful inflammatory activation, hair follicle regression, and hair loss is repeated after a few months.

Sensory tests revealed that trichodynia patients were significantly more sensitive to touch and to pressure pain and exhibited cranial mechanical hyperesthesia and cranial hyperalgesia [25]. So, gentle scalp maintenance may provide some relief. To support the treatment, it is important to inform the patients about not to use over hot water and harsh shampoos or wear tight pony tail. Other relaxation techniques such as gentle scalp massage may also help in reducing symptoms.

4. Other dermatological conditions causing scalp pain

Scalp pain can occur with cicatricial alopecia that can be caused by a fungus infection or autoimmune conditions such as cutaneous lupus and lichen planopilaris. Folliculitis decalvans and dissecting cellulitis are forms of primary neutrophilic scarring alopecia that are characterized clinically by chronic suppurative folliculitis and often associated with pruritus or even pain. The inflammatory cells may irritate nerve endings leading to a burning or painful sensation. Hair dye-related dermatitis may also cause burning sensations.

There are also painful tumoral lesions of the skin and subcutaneous tissue. These lesions can be found anywhere in the peripheral nerve tissue. They have a propensity for developing on the skin and subcutaneous tissue, as well as in oral and pharyngeal locations. An old acronym may help us to remember them. LEND AN EGG tumors (leiomyoma, eccrine spiradenoma, neuroma, dermatofibroma, angiolipoma, neurilemmoma, endometrioma, glomus tumor, and granular cell tumors) must always be considered when there is a tumoral lesion associated with pain [26].

Author details

Müge Güler Özden

Address all correspondence to: mgulerozden@hotmail.com

Medical Faculty, Department of Dermatology, Ondokuz Mayıs University, Samsun, Turkey

References

[1] Willimann B, Trüeb RM. Hair pain (trichodynia): Frequency and relationship to hair loss and patient gender. Dermatology. 2002;205:374–7.

[2] Rebora A, Semino MT, Guarrera M. Trichodynia. Dermatology. 1996;192:292–3.

[3] Grimalt R, Ferrando J, Grimalt F. Trichodynia. Dermatology. 1998;196(3):374.

[4] Hoss D, Segal S. Scalp dysesthesia. Arch Dermatol. 1998;134:327–30.

[5] Trüeb RM. Telogen effluvium and trichodynia. Dermatology. 1998;96:374–5.

[6] Trüeb RM. Idiopathic chronic telogen effluvium in the woman. Hautarzt. 2000;51:899–905.

[7] Baldari M, Montinari M, Guarrera M, Rebora A. Trichodynia is a distinguishing symptom of telogen effluvium. J Eur Acad Dermatol Venereol. 2009;23:733–4.

[8] Ericson M, Gabrielson A, Worel S, Lee WS, Hordinsky MK. Substance P (SP) in innervated and non-innervated blood vessels in the skin of patients with symptomatic scalp. Exp Dermatol. 1999;8:344–5.

[9] Paus R, Heinzelmann T, Schultz KD, Furkert J, Fechner K, Czarnetzki BM. Hair growth induction by substance P. Lab Investig. 1994;71:134–40.

[10] Cutrer FM, Sandroni P and Wendelschafer-Crabb G. Botulinum toxin treatment of cephalalgia alopecia increases substance P and calcitonin gene-related peptide-containing cutaneous nerves in scalp. Cephalalgia. 2010;30(8):1000–6.

[11] Ericson M, Gabrielson A, Rief W, Hiller W, Geissner E, Fichter MM. A two-year follow-up study of patients with somatoform disorders. Psychosomatics. 1995;36:376–86.

[12] Buchanan JA, Zakrzewska JM. Burning mouth syndrome. Clin Evid (Online). 2010;19:1301.

[13] Moore PA, Guggenheimer J, Orchard T. Burning mouth syndrome and peripheral neuropathy in patients with type 1 diabetes mellitus. J Diabet Complicat. 2007;21:397–402.

[14] Durusoy C, Ozenli Y, Adiguzel A, Budakoglu IY, Tugal O, Arikan S, et al. The role of psychological factors and serum zinc, folate and vitamin B12 levels in the aetiology of trichodynia: A case-control study. Clin Exp Dermatol. 2009;34:789–92.

[15] Gupta MA, Gupta AK. Stressful major life events are associated with a higher frequency of cutaneous sensory symptoms: An empirical study of non-clinical subjects. J Eur Acad Dermatol Venereol. 2004;18:560–5.

[16] Kivanç-Altunay I, Savaş C, Gökdemir G, Köşlü A, Ayaydin EB. The presence of trichodynia in patients with telogen effluvium and androgenetic alopecia. Int J Dermatol. 2003;42:691–3.

[17] Ozturk P, Orhan FO, Ozer A, Akman Y, Kurutas E. Evaluation of anxiety and levels of serum B12, folate, TSH, ferritin, and zinc in telogen alopecia patients with trichodynia. Int J Trichol. 2012;4(4):251–4.

[18] Rushton DH. Nutritional factors and hair loss. Clin Exp Dermatol. 2002;27:396–404.

[19] Lengg N, Heidecker B, Seifert B, Trueb RM. Dietary supplement increases anagen hair rate in women with telogen effluvium: Results of double-blind, placebo-controlled trial. Therapy. 2007;4:59–65.

[20] Durusoy, Ozturk P, Orhan FO, Ozer A, Akman Y, Kurutas E. Evaluation of anxiety and levels of serum B12, folate, TSH, ferritin, and zinc in telogen alopecia patients with trichodynia. Int J Trichol. 2012;4(4):251–4.

[21] OConnor TM, OConnell J, Obrien DJ, et al. The role of substance P in inflammatory disease. J Cell Physiol. 2004;201:167–180.

[22] Sarifakioğlu E, Onur O. Women with scalp dysesthesia treated with pregabalin. Int J Dermatol. 2013;52:1398–1461.

[23] Thorsberry L, English J. Scalp dysesthesia related to cervical spine disease. JAMA Dermatol. 2013;149:200–3.

[24] Durham PL, Cady R, Cady R. Regulation of calcitonin gene-related peptide secretion from trigeminal nerve cells by botulinum toxin type A: Implications for migraine therapy. Headache. 2004;44:35–43.

[25] Defrin R, Lurie R. Indications for peripheral and central sensitization in patients with chronic scalp pain (trichodynia). Clin J Pain. 2001;29(5):417–424.

[26] Naversen DN, Trask DM, Watson FH, Burket JM. Painful tumors of the skin: "LEND AN EGG". J Am Acad Dermatol. 1993;28(2):298–300.

IntechOpen

IntechOpen