

EPIDEMIOLOGY OF TRACTION ALOPECIA AMONG SECONDARY SCHOOL STUDENTS IN MINIA, UPPER EGYPT

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ABSTRACT:

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Background: Traction alopecia, as a distinctive disease, was first identified in 1904 but is still a major cause of scarring hair loss in young girls worldwide. Traction alopecia is initially reversible, but if it continues, it can become an irreversible (scarring) form of alopecia. It can be seen across all races due to tightly-pulled hairstyles. The pattern of alopecia depends on the hairstyle causing it, but it most commonly affects the frontotemporal hairline. There are some new clinical features associated with traction alopecia, which are traction folliculitis, the fringe sign, and hair casts (pseudonits) on dermatoscopy. The primary treatment for traction alopecia is to discontinue the contributing excessive hairstyles. Camouflage, anti-inflammatory, or growth-stimulating topical preparations are second-line treatments. In the later stages of permanent scarring form of traction alopecia, hair transplantation may be the only effective treatment.

Aim of the study: This study was conducted to study the incidence of traction alopecia among secondary school students in Minia, Upper Egypt.

Patients and Methods: A total of 2500 students were recruited from selected secondary schools in Minia, Upper Egypt. The respondents were interviewed using a pretested questionnaire to obtain data from the students.

Results: All 2500 students were female, with a mean age in the 15–18 year range. The prevalence of traction alopecia was 31%.

Conclusion: Traction alopecia is a common problem among secondary school children. The incidence of traction alopecia may be increasing due to the use of chemical relaxants and excessive or tight styling of hair. In its early stages, traction alopecia is a reversible form of hair loss that can be reversed if managed early; otherwise, it develops into permanent scarring alopecia.

Keywords: alopecia, hair loss, scarring alopecia, traction alopecia.

INTRODUCTION:

Traction alopecia (TA) is defined as hair fall caused by repetitive, continuous, and prolonged tension applied to the hair [1]. It was first called alopecia groenlandica to refer to the hair fall attributed to tight

ponytails that girls were wearing in Greenland [2].

Traction alopecia can affect people of all ethnic groups and results from an individual's hair care practises. Traction alopecia can present in a large variety of clinical patterns [3].

Traction alopecia usually poses diagnostic challenges if the clinical suspicion for traction is not high or if the history of traction is not obtained. It can be misdiagnosed as alopecia areata as these two diseases share common clinical features, such as a patchy or band-like pattern of hair loss [4].

Traction alopecia presents clinically mostly as frontal and temporal hair loss; however, it can affect many different regions of the scalp depending on an individual's hair care practises [5].

Perifollicular erythema is the earliest clinical sign of traction alopecia, which progresses to folliculitis if traction is continued. Broken terminal hairs can be seen within areas of hair loss [6].

Patients who develop symptoms with hairdressing, such as pain, pimples, stinging, or crusts, are also at increased risk of developing traction alopecia [7].

Traction alopecia in its early stages is preventable, i.e., if the tension is removed, the hair follicles will come back to a normal state and hair regrowth will continue on its own. However, if the traction is long enough or if the braiding is excessively tight, it can cause permanent damage to the hair follicles [6].

Treatment options available for traction alopecia vary according to whether or not long-standing traction has resulted in permanent damage to the hair follicles:

- Intralesional steroids directed at the periphery of hair loss have been reported to decrease peri-follicular inflammation in adults with traction alopecia [8].
- Topical minoxidil 2% has been reported to promote hair growth in some patients [9].
- Platelet-rich plasma (PRP) is a promising technique used in tissue regeneration [10]. PRP is defined as an

autologous diluted preparation of platelets and their growth factors in a small volume of plasma [11].

AIM OF THE STUDY:

This study was conducted to study the incidence of traction alopecia among secondary school students in Minia, Upper Egypt.

PATIENTS AND METHODS:

This was a cross-sectional study of secondary school students who were receiving education and training in schools in Minia governorate, Upper Egypt.

The study consisted of students living and receiving education and training in the schools situated in Minia and Abo Korkas cities.

All 2500 students were females, with a mean age of 15–18 years (secondary students).

50% of the students were living in Minia City, which is an urban area with a relatively high socio-economic and high parental education level, and 50% of them were living in Abo Korkas Villages, which are rural areas with a relatively low socio-economic and low parental education level, and generally, the livelihood of the people is agriculture and animal husbandry.

A total of 2500 students were recruited. The respondents were interviewed using a questionnaire to obtain data from the students.

Ethical consideration:

The study was approved by the ethics committee, and the necessary permissions were obtained from the Provincial Directorate of Education in Minia Governorate.

RESULTS:

All 2500 students were females with a mean age of 15–18 years. The prevalence of traction alopecia in secondary school girls was 31%. This was statistically significant (P = 0.0001).

50.1% of the students were living in urban areas with a relatively high socioeconomic level, high parental education level, and high family income, and 49.9% of them were living in rural areas with a relatively low socioeconomic level and low parental education level. However, there was a higher prevalence of traction alopecia in the students living in rural areas (43.8%) than in the students living in urban

areas (18.6%). This was statistically significant (P value = 0.0001).

Of the 2500 students who participated in this survey, 32.3% were using chemical relaxers or heat to straighten their hair. 27.5% of those with natural hair had traction alopecia, compared with 37.6% of those with treated hair. That was statistically significant (P value = 0.0001).

Traction alopecia was found to be higher in curly hair (28.8%) than straight hair (25.2%). That was statistically significant (P value of 0.019).

There was no correlation between hair length and increased incidence of traction alopecia (P value ≥ 0.05).

Table 1: Association between traction alopecia in secondary school students and selected variables

Variables	Traction Alopecia		Total	P Value
	Yes	No		
Residence				0.0001
Urban	227(18.2%)	1023(81.8%)	1250	
Rural	547(43.8%)	703(56.2%)	1250	
Education Level Of Parents				0.0001
High	227 (18.2%)	1023 (81.8%)	1250	
Low	547(43.8%)	703 (56.2)	1250	
Social Status Of Parents				0.0001
High	227(18.2%)	1023(81.8%)	1250	
Low	547(43.8%)	703 (56.2)	1250	
Hair Style				0.0001
Bun	283(32.9%)	576(67.1%)	859	
Braids	189(19.6%)	776(80.4%)	965	
Others	302(44.7%)	374(55.3%)	676	
Use of chemical treatment or Relaxers				0.0001
Yes	318 (37.5%)	529(62.5%)	1250	
No	456 (27.6%)	1197 (72.4%)	1250	
Hair Length				0.184
Long	301 (35.4%)	549 (64.6%)	1250	
Short	473 (28.7%)	1177 (71.3%)	1250	

DISCUSSION:

The prevalence of traction alopecia in this study population was 31%. Although there are no previous community studies of alopecia in females in Minia to compare it with, it is high. It is also alarming because it

occurs in young students, who are likely to continue to lose scalp hair with age.

This incidence is similar to the study of Khumalo et al., who looked at the incidence of traction alopecia among students in South Africa and found the prevalence of traction

alopecia to be 31.7% (Khumalo et al., 2007).

Traction alopecia and the residence; the socioeconomic and educational levels of the parents

In our study, we found that the prevalence of traction alopecia was much more higher in the low social class students living in rural areas with low family income levels and low parental education levels (43.8%) than in the high social class students

(18.6%). That was statistically significant ($P < 0.0001$). That was because of increased awareness of the problem among the high-social-class students and their seeking medical help in the early stages of the disease. So the poor socioeconomic status of the family, the poor environmental characteristics of the living place, and the low education level of the parents are risk factors that increase the incidence of traction alopecia.

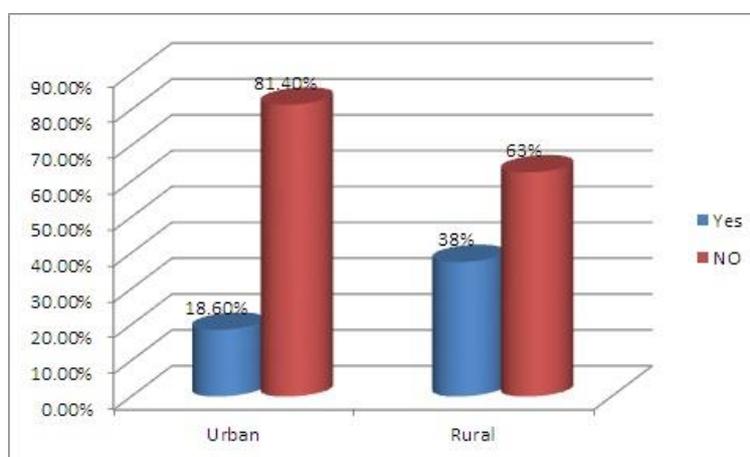


Fig .1. Association between the prevalence of traction alopecia and the residency of the students

Conclusion:

The incidence of traction alopecia among secondary school students in Minia, Upper Egypt, is 31 %, increases with age, and is significantly associated with relaxed hair. Excessive styling of hair can lead to hair loss. There is a need to train young students on the need to avoid excessive styling of hair, which causes hair loss.

Conflict of interest:

none.

Authors' contributions:

All authors had 1. made substantial contributions to the conception or design of the work or to the acquisition, analysis, or interpretation of data for the work; AND 2. drafted the work or critically revised it for

important intellectual content; AND 3. gave final approval to the version to be published; AND 4. agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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REFERENCES:

1. **Whiting DA.** Traumatic alopecia Int J Dermatol. 1999; 38 Suppl 1: 34–44
2. **Hjorth N.** Traumatic marginal alopecia; a special type: alopecia groenlandica. *Br J Dermatol.* 1957;69(9):319–322.

3. **Khumalo NP, Jessop S, Gumedze F, Ehrlich R.** Hairdressing and the prevalence of scalp disease in African adults." *British Journal of Dermatology* 2007;157:981–988.
4. **Karnik P, Tekeste Z, McCormick TS, Gilliam AC, Price VH, Cooper KD, Mirmirani P.** Hair follicle stem cell-specific PPAR deletion causes scarring alopecia. *Journal of Investigative Dermatology*. 2009 May 1;129(5):1243-57.
5. **James J., Saladi RN, and Fox JL.** Traction alopecia in Sikh male patients. *The Journal of the American Board of Family Medicine* 2007;20:497-8.
6. **Hantash BM, Schwartz RA, and Janniger CK.** Traction alopecia in children. *CUTIS-NEW YORK* 2003;71:18-20.
7. **Khumalo NP, Jessop S, Gumedze F, Ehrlich R.** Determinants of marginal traction alopecia in African girls and women. *Journal of the American Academy of Dermatology* 2008; 59:432-438.
8. **Callender VD, McMichael AJ, and Cohen GF.** Medical and surgical therapies for alopecia in black women *Dermatologic Therapy* 2004 ;17:164-76.
9. **Khumalo, N., and R. Ngwanya.** Traction alopecia: 2% topical minoxidil shows promise. Report of two cases. *Journal of the European Academy of Dermatology and Venereology* 2007;21:433–434.
10. **Hall, Michael P., Phillip A. Band, Robert J. Meislin, Laith M. Jazrawi, and Mirmirani P.** Hair follicle stem cell-specific PPARgamma deletion causes scarring alopecia. *J Invest Dermatol*. 2009;129:1243–57.
11. **Eppley, Barry L., William S. Pietrzak, and Matthew Blanton.** "Platelet-rich Plasma: A Review of Biology and Applications in Plastic Surgery." *reconstructive surgery* 118.6 (2006): 147–159.

دراسة انتشار مرض ثعلبه الشد بين طلاب المدارس الثانويه في محافظه المنيا مصر

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ثعلبة الشد هي شكل من اشكال فقدان الشعر، أو تساقط الشعر التدريجي، والذي ينتج بشكل أساسي عن قوة الشد التي يتم تطبيقها علي الشعر، كتسريحات الشعر مثل ما يسمى بذيل الفرس أو الضفائر، ويحدث ذلك ايضا عند الأشخاص ذوي الشعر الطويل الذين يستخدمون المشابك لإبعاد الشعر عن وجوههم، فتعتبر ثعلبة الشد ركود في خط الشعر بسبب الشد المزمن أو نتف الشعر.

غالبا ما تؤثر ثعلبة الشد على الجزء الأمامي والجانبى من فروة الرأس، ومع ذلك وجد أنها قد تؤثر على مناطق مختلفة ويمكن أن تحدث فى جميع الأعمار ويعتمد ذلك على ممارسات العناية بالشعر الخاصة بالشخص.

تهدف هذه الرسالة إلي دراسة مدي انتشار مرض ثعلبة الشد بين طلاب المدارس الثانويه في محافظه المنيا . أقيمت هذه

الدراسة في عدد من المدارس الثانويه المختلفة بمحافظة المنيا بما في ذلك المناطق الحضرية والقروية واشتملت عينة الدراسة علي ٢٥٠٠ طالبة تتراوح اعمارهم من ١٥ الي ١٨ عام. تم جمع البيانات المطلوبة باستخدام المقابلة الشخصية واستخدام

استبيان يشتمل علي العناصر الديموغرافية مثل السن، الإقامة ، مستوى تعليم الأباء، المستوى الإجتماعي. ويتضمن الإستبيان أيضا تقييم ثعلبة الشد إن وجدت من حيث مدة ومسار تساقط الشعر، وجود أعراض أو علامات للتساقط وهل يتم إستخدام وصلات شعر مستعار أم لا. وتم أيضا فحص الشعر لتحديد مكان التساقط ومعرفة نوعية الشعر وطوله واستنتاج تسريحات الشعر المسببة لثعلبة الشد.

أثبتت هذه الدراسة أن ثعلبة الشد كانت موجودة في ٣١ % من طلاب المدارس الثانويه في محافظه المنيا كما أثبتت هذه الدراسة أن أعلى نسبة إنتشار لثعلبة الشد كانت بين الطلاب المقيمين في المناطق القروية، ذو مستوى تعليمي وإجتماعي منخفض.

يعد التعرف علي ثعلبة الشد مبكرا بين الطلاب أمرا بالغ الأهمية لأن التدخلات المبكرة والإستشارة ستمنع تساقط الثعلبة الدائم. غالبا ما يعكس نمط تساقط الشعر تسريحات الشعر المستخدمة، ويجب مراجعة التاريخ الشامل لممارسات الشعر للمساعدة في التشخيص. يجب أن يكون أطباء الأمراض الجلدية علي دراية بتصنيفات الشعر المعرضة لخطر الإصابة بثعلبة الشد، فضلا عن أهميتها بالنسبة للمريض وعائلته، من أجل تقديم حلول عملية .