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

Hamza Abdel-Raouf Mohamed, Rasha Turky Abdel-Razek and Mena Hany Isshak

ABSTRACT:

**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 practices[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[8].

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

- Intraleosional 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

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

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 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](image)

**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.

**Acknowledgments:**

We acknowledge all participants included in this study.

**REFERENCES:**


دراسة انتشار مرض انسداد الشعر بين طلاب المدارس الثانوية في محافظة المنيا مصر

حمزة عبد الروؤف محمد و رشا تركي عبد الرازق و مينا هاني اسحق
قسم الأمراض الجلدية والتناسلية وأمراض الذكورة كلية الطب، جامعة المنية

ثعلبة الشعر هي شكل من أشكال فقدان الشعر، أو تساقط الشعر التدريجي، والذي ينتج بشكل أساسي عن قوة الشد التي يتم تطبيقها على الشعر، كتسريحات الشعر مثل ما يسمى بذيل الفرس أو المغائر. ويرتكز ذلك أيضاً على الأشخاص ذوي الشعر الطويل الذين يستخدمون المشابك لإبعاد الشعر عن وجههم. فتتعلق ثعلبة الشعر ركود في خط الشعر بسبب الشد المزمن أو نفث الشعر.

غالباً ما تكون ثعلبة الشعر على الجزء الأمامي والجانبي من فروة الرأس، ومع ذلك وجد أنها قد تؤثر على مناطق مختلفة ويمكن أن تحدث في جميع الأعمار وتتعدد ذلك على ممارسات العناية بالشعر الخاصة بالشخص.

تهدف هذه الرسالة إلى دراسة مدى انتشار مرض ثعلبة الشعر بين طلاب المدارس الثانوية في محافظة المنيا. أقيمت هذه الدراسة في عدد من المدارس الثانوية المختلفة بمحافظة المنيا بما في ذلك المناطق الحضرية والريفية، وشملت عينة الدراسة على 2500 طالبة تتراوح أعمارهم من 15 إلى 18 عاماً تم جمع البيانات المطلوبة باستخدام المقابلة الشخصية واستخدام استبان يشمل على العناصر الديموغرافية مثل السن، الإقامة، مستوى تعليم الآباء، المستوى الاجتماعي. ويتضمن الاستبان أيضاً تقييم ثعلبة الشعر إن وجدت من حيث مدة ونوعية تساقط الشعر، وجود أعراض أو علامات للتساقط. وله أثر استخدام وصلات شعر مستعار أم لا. وتم أيضاً فحص الشعر لتحديد مكان التساقط ومعرفة نوعية الشعر وطوله واستنتاج تسريحات الشعر المسببة لثعلبة الشعر.

أثبتت هذه الدراسة أن ثعلبة الشعر كافية موجودة في 31% من طلاب المدارس الثانوية في محافظة المنيا كما أثبتت هذه الدراسة أن أعلى نسبة انتشار لثعلبة الشعر كانت بين الطلاب المقيمين في المناطق الفقيرة، ذو مستوى تعليمي واجتماعي منخفض.

بعد التعرف على ثعلبة الشعر مبكراً بين الطلاب أمرًا بالغ الأهمية لأن التدخلات المبكرة والإستشارة ستنجز تساقط الشعر بشكل دافئ. غالباً ما يمكن منع تساقط الشعر تسريحات الشعر المستخدمة، ويجبر مراعاة التاريخ الشامل لممارسات الشعر للمساعدة في الشخص، يجب أن يكون أطباء الأمراض الجلدية على دراية بتصنيفات الشعر المعرضة لخطر الإصابة بثعلبة الشعر، فضلاً عن أهميتها بالنسبة للمريض وعائلته، من أجل تقديم حلول عملية.