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Pederm Insights

An official publication of Pediatric Dermatology Foundation

In this Issue

Editor's Prologue

Welcome to the 7th issue of the Pediatric Dermatology Newsletter, the official publication of the Pediatric Dermatology Foundation.

We are truly grateful for the positive feedback and the expanding readership - your continued encouragement motivates our team to strive harder and deliver better with each edition.

This issue focuses on appendageal disorders, a topic of significant relevance in pediatric dermatology. The Journal Review section addresses frequently encountered conditions in daily practice, including childhood and adolescent acne, pediatric androgenetic alopecia, and twenty-nail dystrophy. We have made a sincere effort to simplify the study conclusions and highlight their practical application in routine clinical care. We hope these insights will prove useful in your day-to-day practice.

Aligned with this theme, our Clinical Vignette presents a compelling case of a child with congenital sparse hair, followed by a quiz based on a thought-provoking case of progressive hair loss in early childhood. We encourage all our readers to participate actively in the quiz.

We are delighted by the enthusiastic response to the crossword puzzle featured in our 5th issue. In this edition, we reveal the answers and extend our heartfelt congratulations to the winners.

The Drugs in Practice section covers a highly relevant and often challenging area—understanding the composition and basic science behind commonly used skin, hair, and nail care products in children and adolescents. With the growing influence of social media and the surge in pediatric-targeted cosmetic products, it is increasingly important for dermatologists to be well-versed in these topics. These are frequently raised by concerned parents and inquisitive teens during consultations.

In the Residents' Corner, we bring you a creative and engaging graphic story that simplifies the trichoscopic features of genodermatoses, making them easier to learn and recall.

We sincerely hope you enjoy reading this issue as much as we enjoyed putting it together.

As always, we welcome your feedback and suggestions for future issues. Please write to us at dr.resham@gmail.com.

Warm regards,

Resham Vasani

Editor-in-Chief

Journal Review

In this section, we highlight three increasingly common appendageal disorders encountered in pediatric and adolescent dermatology practice:

1.Childhood and Adolescent Acne

2. Pediatric Androgenetic Alopecia

3. Twenty-Nail Dystrophy

Each of these conditions presents unique clinical challenges and diagnostic nuances. To aid clinicians in managing these cases more effectively, we have reviewed recent literature that sheds light on their pathogenesis, diagnosis, and management. Relevant articles were carefully selected, their content simplified, and key clinical insights extracted to help address some of the common dilemmas faced in day-to-day practice.

Childhood and Adolescent Acne

Journal review by Dr. Malathi Munisamy

Layton AM, Ravenscroft J. Adolescent acne vulgaris: current and emerging treatments. Lancet Child Adolesc Health. 2023;7:136-44.

This comprehensive review discusses evidence-based and expert-driven treatment strategies for adolescent acne vulgaris. The article emphasizes a tailored and multifactorial approach to therapy selection, combining topical, systemic, and emerging treatments, while integrating psychosocial considerations.

Learning points from the article that are new and relevant to clinical practice -

Infantile acne is a prognostic marker – A history of infantile acne may predict more severe and persistent adolescent acne. This fact will be useful to stratify long term risk and counsel families on anticipatory management.

Sebum production as a predictor of antibiotic responsiveness – Adolescents with high sebum production respond less favourably to antibiotics like oral tetracyclines. Sebum levels assessed clinically or via sebometer may guide therapy towards early retinoid or hormonal intervention.

Use of non-antibiotic topicals – Non antibiotic topicals like benzoyl peroxide, retinoids) are first line even in moderate acne. Fixed dose combinations (eg Adapelene +BPO) show early efficacy and reduce the need for oral antibiotics.Short contact therapy for 1-2 weeks before transitioning to overnight use improves adherence in sensitive skin. Monotherapy with a topical or oral antibiotic or a combination of a topical and oral antibiotic should be avoided.

Hormonal treatment

- Inconsistent recommendations by International guidelines for use of combined oral contraceptives (OC) for acne – weak evidence.
- Combined OC showed some effectiveness because of their oestrogenic effects – low oestrogenic combined OC can be helpful.
- Avoid use within 2 years of first starting menses or in girls <than 14 years unless clinically warranted, because of potential risk of osteopenia or decreased bone mineral density.
- Cyproterone acetate +ethinyl estradiol - second-line treatment for patients with acne and polycystic ovary syndrome.
- High-dose long-term cyproterone acetate has been associated with meningioma.
- Antibiotics are superior to OC for reduction in acne at 3 months but were equivalent at 6 months – hence combine OC with topical agents and antibiotics rather than as a monotherapy. No interactions between antibiotics and OC.

Spironolactone in females – Though off label in adolescents, spironolactone starting at 50 -100 mg/day may be safe and effective in selected adolescents with hormonal acne phenotype or PCOS, especially where isotretinoin is not feasible.

Topical minocycline foam **-** In adolescents ≥ 9 years with moderate-to-severe acne, 4% topical minocycline foam delivers 850x higher dermal concentration with minimal systemic absorption—ideal for those needing antibiotic therapy but with systemic risks.

Sarecycline: Preferred oral antibiotic for long-term use. Narrow-spectrum tetracycline with lower risk of dysbiosis and resistance. Safe in adolescents ≥ 9 years and can be used up to 12 months, unlike traditional antibiotics.

Clascoterone*:* Topical antiandrogen for males and females. First topical androgen receptor antagonist—safe, non-systemic, and effective in both sexes ≥ 9 years. Consider early in patients who can't tolerate hormonal therapy or oral antibiotics.

Energy-based devices (e.g., PDT): Experimental and unstandardized

Although marketed heavily, photodynamic therapy lacks standardized protocols and should be considered only in highly selected or refractory cases, preferably in research or referral settings.

Jakobsen NE, et al. Adolescent acne: association to sex, puberty, testosterone and dihydrotestosterone. Endocr Connect. 2025;14:e250009.

This study, part of the Copenhagen Puberty Study, explored the prevalence and hormonal correlations of acne during puberty.

Objectives: To describe the prevalence and timing of acne during puberty in healthy Danish children and adolescents and to investigate the association between acne and serum concentrations of testosterone and DHT.

Methods: Secondary analysis of Copenhagen Puberty Study, a cross-sectional and **longitudinal population-based cohort study.**

Results:

- Prevalence of acne increases with advancing pubertal stage, especially among boys
- Acne observed in 44% at Tanner stage G4 and 83% at G5 in boys while in girls, acne was less frequent, with 15% at stage B4 and 12% at B5.
- Girls had an earlier age at presentation of acne than in boys related to the earlier onset of puberty in girls.
- Among the older age groups, clinical acne was more commonly observed and more severe in boys than girls due to higher sebum secretion in boys.
- Acne is related to pubertal stage rather than directly to BMI.
- DHT levels were significantly higher in adolescent boys and girls with current acne compared to adolescents without acne due to increased 5α-reductase activity causing the development of acne.

Conclusion:

Adolescent acne is related to age, BMI, stage of pubertal development and, a higher serum concentration of DHT.

Learning points from the article that can be applied to clinical practice -

- When evaluating acne, it needs to be mapped to the pubertal stage and not just the age. Delayed puberty may delay the acne onset and severity.
- Girls presented earlier due to earlier pubertal onset, but acne was less severe. Due to higher androgen driven sebum secretion in boys during later puberty, acne becomes more severe despite girls having an earlier onset. Hence more aggressive acne treatment needs can be anticipated in boys.
- Higher DHT levels were noted in both sexes with acne, reflecting increased 5α-reductase activity. For recalcitrant early onset acne, especially in cases where the total testosterone levels are normal, serum DHT levels can be considered in the hormonal workup.In appropriate cases we can consider DHT modulating therapies (eg. Clascosterone or spironolactone) in adolescents with demonstrably high DHT levels.

Berman HS, et al. Spironolactone in the treatment of adolescent acne: A retrospective review. J Am Acad Dermatol. 2021;85:269-71.

Design: single-centre retrospective medical-record review of adolescents (age ≤19) prescribed spironolactone at UCLA between Jan 2013 and Apr 2020.

• Patients: 73 female adolescents (median spironolactone dose 100 mg/day, range 50–200 mg). Most had features of hormonal acne (e.g., 70% had flares with menses).

• Outcomes (clinician-documented): 9/73 (12%) had acne resolution, 41/73 (56%) improved, 22/73 (30%) unchanged, 1 worsened — pooled "improved or resolved" = 68%. Average treatment duration was longer in responders (≈350 days) vs nonresponders (≈169 days), P = .0052.

• Subgroups: spironolactone + OCP (called HAAT) had higher rates of resolution/improvement than spironolactone alone (82% vs 46%, P = .0102). Small numbers w ere on concomitant oral antibiotics or isotretinoin.

• Safety: 4 patients stopped therapy for adverse effects (menstrual irregularities, breast tenderness, syncope). The paper does not report routine lab monitoring details.

Limitations of the study

- It was a retrospective study. When the authors say the acne 'improved' it is just from the clinical judgement. They have not prospectively measured the improvement using acne severity scores.
- There were confounding co treatments – 64% were on additional oral medications and all of them used topical therapies. The subgroup with OCPs did much better but we do not know why were the patients on OCPs. So attributing the improvement only to spironolactone is not completely correct.
- The sample size is small and subgroup sample size is smaller (eg only 6 patients on isotretinoin + spironolactone). So, this reduces the power of the study and make the subgroup p value fragile.
- This study only had female adolescents as subjects and most had hormonal acne patterns. There is not mention of any investigations to rule out PCOS.
- Safety reporting is minimal. They have mentioned 4 discontinuations for adverse effects but have not detailed any baseline or serial laboratory investigations – potassium checks or any other systematic monitoring.

Learning points from the study applicable in clinical practice

In female adolescents with acne that is unresponsive to conventional treatments such as antibiotics or isotretinoin, particularly in the context of PCOS or documented hormonal acne, spironolactone—especially when combined with an oral contraceptive—can be considered as part of a comprehensive acne management plan, with appropriate monitoring.

Pediatric Androgenetic Alopecia

Journal Review by Dr. Manjyot Gautam

PLee TS, O'Connor M, Castelo-Soccio L, Eichenfield D, Lee D, Paller AS, Valdebran M, Vroman J, Yang A, Lee GL, Craddock M, Sibbald C. An international multicenter, retrospective cohort study of 203 patients with pediatric androgenetic alopecia. J Am Acad Dermatol. 2025 Jun;92(6):1269-1276.

Pediatric androgenetic alopecia (AGA) is likely underdiagnosed and underreported, leading to delayed therapy. This large retrospective multicentre study sheds light on its presentation, comorbidities, and management in a diverse pediatric population.

Key Findings

Demographics:

Slight male predominance (56%)

The study population was ethnically diverse:

33% White, 29% Asian, 24.6% Hispanic

Average age of onset of AGA was 12.9 years;

8.4% had prepubertal onset (mostly girls).

Family History:

70% had a positive family history-

most often paternal.

Comorbidities:

- Nearly half were overweight or obese, highlighting possible links to insulin resistance.
- Common associations: acne (28%), PCOS (4%), hirsutism (5%), and atopic dermatitis (7.9%)

Clinical and Trichoscopy findings:

- Male patients typically showed vertex thinning with frontal hair preservation whereas females showed widening of the central part line.
- Trichoscopy showed miniaturized hairs in 76%.

Laboratory evaluation:

Hormonal abnormalities included elevated total/free testosterone (31.7%), raised DHEAS (28%) and elevated 17-hydroxyprogesterone(16.7%)

Low vitamin D, iron/ferritin and lipid profile changes were frequently observed.

Treatment:

Topical minoxidil (76.5%) was widely used and well tolerated. Oral agents (minoxidil, spironolactone, finasteride) were used selectively.

Limitations of the study :

- Retrospective study
- 42% patients were lost to follow-up, limiting treatment outcome assessment
- Underrepresentation of skin of color - limits generalizability

Learning points from this article -

- Pediatric AGA is underdiagnosed and often missed- the presentation may be atypical.
- Trichoscopy should be routinely used in pediatric hair concerns and scalp biopsy should be considered when in doubt.
- AGA should be suspected early in children with acne, PCOS, obesity, or a strong family history.
- Correction of underlying nutritional factors, emphasis on a better lifestyle should be a part of the counselling while handling these cases.
- In established cases, it is important to rule out underlying metabolic syndrome /PCOS
- There's an urgent need for Indian population-based data on pediatric AGA, considering our unique genetic risks and tendencies to metabolic syndrome.

Olamiju B, Craiglow BG. Combination oral minoxidil and spironolactone for the treatment of androgenetic alopecia in adolescent girls. J Am Acad Dermatol. 2021;84(6):1689-1691.

This case series explores the combined use of oral minoxidil (OM) and spironolactone in treating androgenetic alopecia (AGA) in adolescent girls—a population with few established treatment options.

Study Design

- Participants: 6 adolescent females (ages 13–18 years)
- Most patients had previously failed topical minoxidil or monotherapy with spironolactone.
- Treatment: Oral minoxidil (2.5 mg once daily) + Spironolactone (50 mg once or twice daily)
- Duration: 5–13 months
- Assessment Tool: Sinclair scale for grading AGA severity

Key Findings

Clinical Response:

- 5 out of 6 patients showed a 1-grade improvement on the Sinclair scale
- 1 patient had mild clinical improvement without grade change
- All treatments were well tolerated, with no adverse effects reported
- None of the patients developed hypertrichosis, a common concern with OM use—possibly mitigated by the anti-androgenic effects of spironolactone.

Limitations of the study

- Small sample size (n=6)
- They have not mentioned whether PCOS was ruled out in each case
- They have not mentioned any association with hirsutism or acne in these cases
- Retrospective design without a control group
- Lack of long-term safety data
- We do not know the end point of the treatment in these cases

Learning point that can be utilised in clinical practice

This study opens a potential therapeutic window for adolescent girls with moderate-to-severe AGA. Larger prospective studies with standardised monitoring and long-term follow-up are needed before wide adoption

de Nicolas-Ruanes B, Moreno-Arrones OM, Saceda-Corralo D, Hermosa-Gelbard A, Rodrigues-Barata R, Gil-Redondo R, Garcia-Mouronte E, Vañó-Galván S. Low-dose oral minoxidil for treatment of androgenetic alopecia and telogen effluvium in a pediatric population: A descriptive study. J Am Acad Dermatol. 2022

This retrospective study from a trichology clinic in Spain evaluates the use of low dose oral minoxidil (LDOM) in 45 pediatric patients (age: 10-17 years) with 87% (n=39) diagnosed with androgenetic alopecia and the remaining 13% (n=6) having telogen effluvium. LDOM was used alone (31%) or in combination with other topicals like topical minoxidil / finasteride (18%) or oral finasteride, dutasteride, bicalutamide or spironolactone (51%) treatments.

Key points

- The mean daily dose of oral minoxidil was personalized with lower doses in girls (mean dosage 0.63 mg) compared to boys (mean dosage 2.35 mg)
- Five patients were lost to follow up (4 patients of AGA and 1 patient with TE)
- Mean treatment duration in 40 patients - 9.8 months (range, 3-24)
- Hundred percent of TE patients and 77 % of AGA patients showed clinical improvement in hair density. Remaining 23% of AGA patients had stabilization of hair loss.
- Adverse effects were mild and reported in 25% (n=10) of patients- mainly facial hypertrichosis (n=7), hair shedding (n=2) and hypotension (n=1).

Limitations

- This is a retrospective, descriptive study with no control group. Without a comparator (placebo/topical minoxidil / watchful waiting) you cant separate the treatment effect from natural history, regression to the mean or concurrent therapies – especially since TE is a self limiting condition.
- Only 31% patients received LDOM monotherapy. 69% used it with other oral /topical agents. Hence any improvement cannot be attributed to LDOM alone.
- Outcome assessment is subjective in this study. It has not been defined with standardized photography, global photographic assessment scales, hair counts, patient reported measures. This invites observer bias
- Adverse events are listed but the methods don't specify systematic vitals monitoring, ECGs or edema tracking.
- The 100 % improvement in TE is based on 5 patients with follow up - it is too small for any conclusion – spontaneous remission is common.

Learning points from this study

Useful early signal that LDOM **could be** a tolerable option in older pediatric hair-loss patients, but the evidence is low quality and heavily confounded. It should **not,** on its own, justify routine pediatric prescribing without careful monitoring and shared decision-making

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Twenty Nail Dystrophy

Journal Review by Dr. Preeti Sheth

Starace M, Alessandrini A, Bruni F, Piraccini B.M. Trachyonychia: a retrospective study of 122 patients in a period of 30 years. JEADV 2020; 34: 880–884

This retrospective analysis, conducted at the University of Bologna over 30 years (1988–2018), examined 122 patients with trachyonychia. The study explored demographic, clinical, dermoscopic, histopathologic, and therapeutic aspects, with a mean follow-up of 10 years. The average age of onset was 19.7 years, though the condition spanned all age groups. While 66 patients had idiopathic trachyonychia, many had associated skin diseases—most notably alopecia areata, which correlated with more severe (20-nail) involvement. Opaque trachyonychia was the most common presentation and often indicated more severe disease, whereas shiny trachyonychia was linked to milder cases.

Pitting was the most frequent nail finding. Diagnosis was largely clinical, with biopsy reserved for select cases. Most patients were treated topically (urea, lacquers, steroids), and 38 received systemic therapy (IM triamcinolone or etretinate . Nearly half the patients improved significantly, with some showing spontaneous resolution, particularly in children. Recurrences were uncommon after therapy discontinuation.

Learning points from the article relevant to clinical practice

- **Trachyonychia is often benign and self limiting**
  Spontaneous resolution occurred in several patients (avg. 3.5 years), especially in children, justifying conservative management in mild or asymptomatic cases. Watchful non intervention is advisable especially when not associated with concomitant diseases. The parents must be counselled regarding the spontaneous resolution of the disease over a period of 6 years. However, some yet desire therapy due to impaired quality of life.

  At our institution, we first give a trial of topical therapy for 6 -12 months. A longitudinal nail biopsy is undertaken only in cases where there is a diagnostic confusion between psoriasis and lichen planus and before administering systemic agents. Methotrexate is advised if features of psoriasis are appreciated on histopathology and cyclosporine is given when features of lichen planus are noted

- **Opaque type indicates more severe disease**
  The opaque form (sandpaper-like nails) correlated with more inflammation and extensive involvement (≥10 nails or all 20 nails). Shiny form had superficial pitting and occurred in milder cases.

- **Association with alopecia areata signals severity**
  Twenty-seven patients had coexisting alopecia areata, and 20-nail dystrophy was strongly associated with it. Hence, dermatologists should evaluate hair and scalp when managing trachyonychia—especially in young patients with total nail involvement.

- **Pitting is the most common finding**
  Seen in 80%+ cases, often overlapping with psoriatic or eczematous presentations.
  Onychoscopy may aid in differentiating features, such as proximal scales or transverse striations.

- **Routine biopsy in trachyonychia is not recommended**
  Biopsy revealed spongiotic, psoriasiform, or lichenoid patterns, but was performed in only 29/122 patients. Routine biopsy is not recommended unless diagnosis is uncertain or systemic therapy is considered.

- **Topical therapies are first-line for cosmetic/functional complaints**
  Most patients were treated with urea creams, cosmetic lacquers, and topical steroids, with improvement seen in about 60%, often within 10 months.

- **Systemic treatment for severe or refractory disease**
  Intramuscular triamcinolone showed faster response (3–4 months). Etretinate was used in psoriatic patients; improvement seen only after 6 months.

- **Children with all nail involvement and alopecia respond poorly to topicals**
  These patients may require systemic therapy early or may be better managed through expectant observation due to possible spontaneous resolution.

- **Long-term prognosis is favourable**
  With an average 10-year follow-up, most cases improved or resolved, and recurrence after stopping therapy was uncommon.

Shemer A, Daniel R, Kassem R, Sharon N, Farhi R, Kaplan B, et al. Efficacy of fluocinonide\bifonazole cream for the treatment of trachyonychia: A retrospective case series. Indian J Dermatol 2022; 67: 834

This retrospective case series (2017–2020) evaluated 43 patients with trachyonychia (mean age 10 years, 69.8% male) treated with a topical combination of fluocinonide 0.05% and bifonazole 1% cream, with or without occlusion. Most cases were idiopathic, but some had coexisting dermatological conditions like atopic dermatitis (25.6%) and alopecia areata (11.1%). The average number of affected nails was 14, and 86% had the opaque type of trachyonychia.

Topical treatment under occlusion resulted in significantly better outcomes—35.3% complete response, 52.9% partial response. In contrast, non-occluded use yielded <50% improvement. Application frequency (daily vs alternate days) and trachyonychia type (opaque vs shiny) or severity did not influence treatment outcome. Three patients received methylprednisolone nail matrix injections (67% complete response), and one patient treated with oral cyclosporine showed 100% improvement.

Learning points from this article relevant to clinical practice

- Topical steroid therapy under occlusion significantly outperformed non-occlusive application (35.3% complete vs <50% improvement). Hence it is recommended to use plastic wrap, adhesive patches, or finger cots for occlusion, especially in moderate-to-severe cases. Response rates were not influenced by clinical type (opaque vs shiny) or severity, making this a versatile first-line treatment.
- Application frequency (daily vs alternate days) does not affect efficacy
  Flexibility in application regimen supports better adherence in pediatric patients, reducing caregiver burden.
- Adjunctive systemic therapies may help in recalcitrant cases

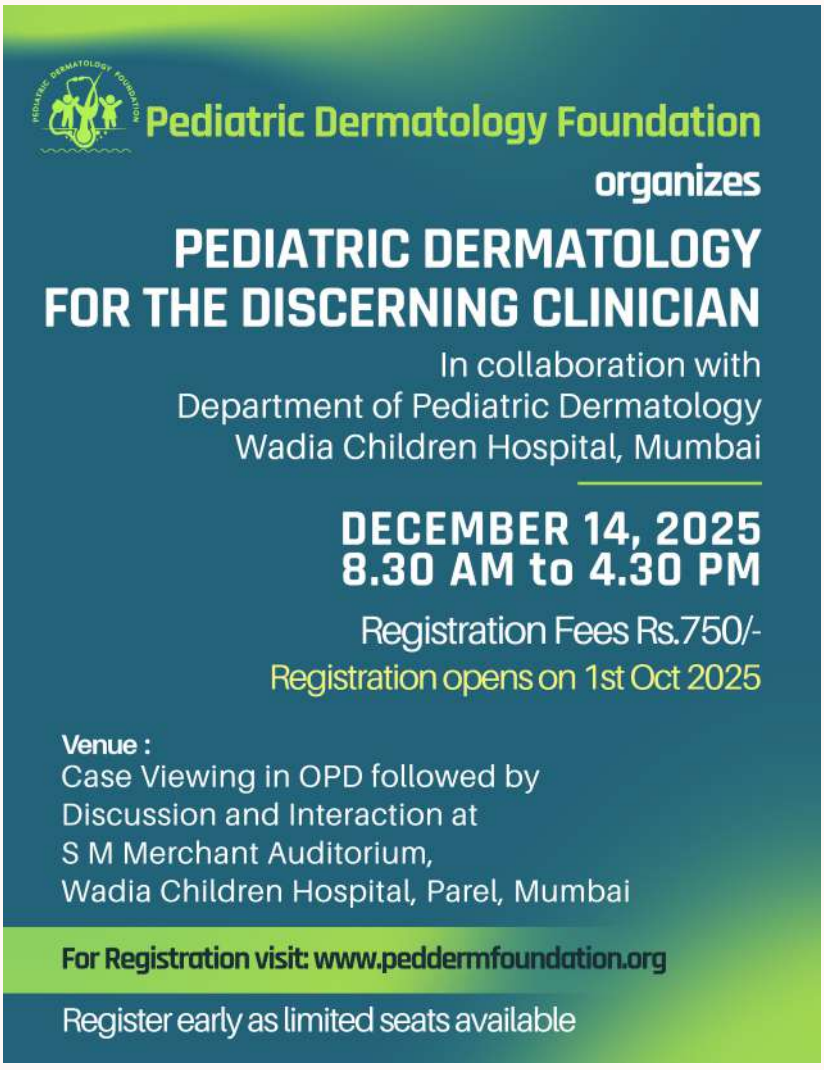
  20 out of 24 children received only topical therapy. IL Methypredisolone was considered when 2-3 nails were involved and there was no response to topical therapy in 3 patients. Oral cyclosporine was considered in 1 patient when there were all 20 nails involved and there was no response to topical treatment. Hence systemic or intralesional treatment was considered only when there was no response to topical treatment.

  – Nail matrix injections of methylprednisolone showed a 67% complete response, and oral cyclosporine achieved complete clearance in one resistant case. These may be reserved for severe, functionally impairing, or cosmetically distressing cases.

- **Most patients had partial or complete response within 7–12 months**

  Hence it is important to set realistic expectations with families: therapy is long-term, and visible improvement takes several months.
- **Topical combination therapy is safe and well-tolerated in children**

  No adverse events were reported, reinforcing this as a low-risk, child-friendly treatment option.



Reversing the Sparse Scalp: A Case Report on the Efficacy of Topical Minoxidil in Pediatric Hypotrichosis Simplex

Author - Dr Rashmi Agarwal

An 11-year-old girl presented with diffuse scalp hair thinning noted since infancy. She was born with no hair, which began growing at 2–3 weeks of age, followed by gradual shedding and limited regrowth. Hair remained short (5–8 cm), fine, and easily pluckable. There was no history of systemic illness, developmental delay, or syndromic features. Family history was negative. She was a term cesarean delivery from a non-consanguineous marriage, with an uneventful perinatal course.

Examination revealed diffusely sparse, fine, unruly brownish-black scalp hair with a negative hair pull test.(Fig 1a,b,c,d,e) Eyebrows, eyelashes, axillary and pubic hair and body hair were normal. Nails and teeth were normal.

Scalp dermoscopy showed reduced hair density, sparse terminal hairs, shaft thickness variation, white dots (empty follicles), and no broken hairs, black dots, or exclamation mark hairs. Trichoscopy and light microscopy revealed no structural abnormalities in the hair shafts. (Fig 2,3) Genetic testing was advised but not performed due to financial constraints.

Fig 1a

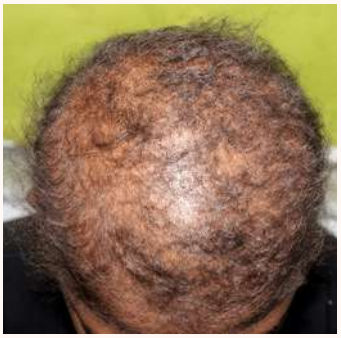


Fig 1b

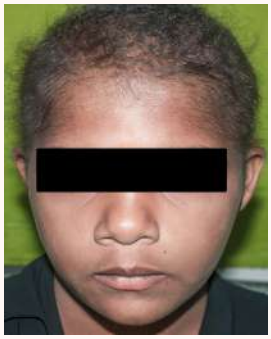


Fig 1c

Fig 1d

Fig 1e

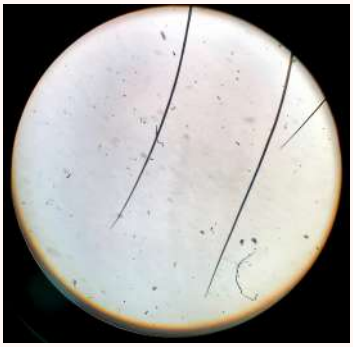


Fig 2: No hair shaft abnormality on Hair mount

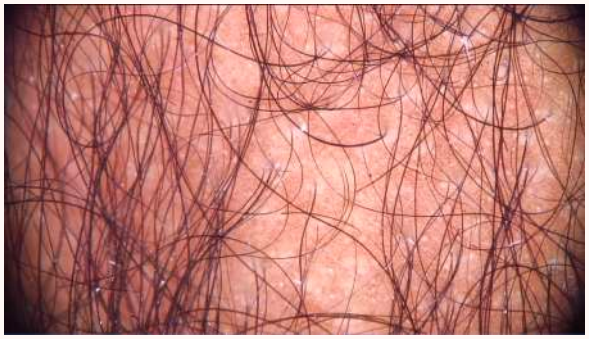


Fig 2: Trichoscopy demonstrating no hair shaft abnormalities

Based on clinical presentation and trichoscopic findings, a diagnosis of **hereditary hypotrichosis simplex** was made. The child was initiated on topical minoxidil 5% solution once daily, which was applied for 6 months, resulting in noticeable improvement in hair thickness and density (monitored photographically). However, following discontinuation of the treatment, the improvement gradually regressed. Upon re-initiation of topical 5% minoxidil, she again demonstrated visible improvement within 3 months.(Fig 1 f,g,h,i,j) She has been continuing topical 5% minoxidil for the past 1 year. No adverse effects like hypertrichosis or irritation were reported.

Fig 1f

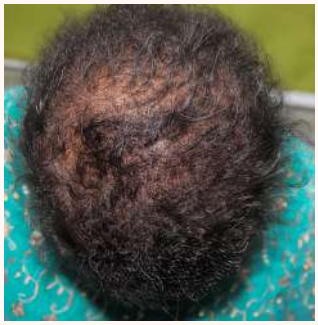


Fig 1g

Fig 1h

Fig 1i

DISCUSSION:

Fig 1j

Hereditary Hypotrichosis Simplex (HHS) is a rare non-syndromic congenital disorder characterized by progressive scalp hair loss, typically without abnormalities in other ectodermal structures. It often presents in early childhood with sparse, short, and slow-growing hair, while eyebrows, eyelashes, and body hair may be variably affected. The condition follows an autosomal dominant inheritance pattern in most cases, though autosomal recessive cases have also been reported. [1]

In the absence of genetic testing, diagnosis is primarily clinical and requires exclusion of other congenital hair disorders and syndromic associations, such as ectodermal dysplasias, trichothiodystrophy, and pili torti, which often show characteristic hair shaft abnormalities on trichoscopy or light microscopy. Hair disorders like loose anagen syndrome and Marie Unna hypotrichosis should also be taken into account. (Table 1, Fig 4)[1]

Given the phenotypic overlap with conditions like diffuse alopecia areata or androgenetic alopecia, a careful clinical examination and detailed history are essential, especially when the patient presents at puberty. Trichoscopy is a valuable non-invasive tool that can aid in narrowing the differential diagnosis. For clinically suspected cases, genetic testing is then recommended.

While there is no definitive treatment for HHS, recent literature suggests encouraging results with minoxidil in various formulations. Topical and low-dose oral and sublingual minoxidil have shown improvement in hair density and shaft thickness, likely due to their role in prolonging the anagen phase and enhancing follicular activity. [2] In our patient, sustained improvement was observed with topical 5% minoxidil, though recurrence occurred on discontinuation. Re-initiation led to visible regrowth within three months, without adverse effects. Other emerging treatments include platelet-rich plasma (PRP) therapy [3] and topical gentamicin [4], the latter showing promise in cases with specific genetic mutations by promoting read-through of nonsense mutations.

Recent evidence suggests that low-dose oral minoxidil (LDOM) may be a promising off-label option for managing pediatric hair disorders, including hereditary hypotrichosis simplex (HHS). A 2024 systematic review [2] demonstrated favorable safety and tolerability of LDOM in children, with hypertrichosis being the most common and usually mild side effect. Although robust data in HHS are limited, isolated case reports and small studies have shown improved hair density and thickness with LDOM, particularly when topical therapy is insufficient. Nonetheless, standardized dosing, long-term safety data, and controlled pediatric trials are lacking, underscoring the need for cautious, individualized use under close monitoring.

Fallacies in treatment of congenital hypotrichosis:

- Level of evidence is poor
- Treatment modalities not **biologically plausible**
- End points not defined
- No standardized dose, duration protocols
- Recurrence of hair loss after treatment stoppage

In the absence of genetic testing, diagnosis of HHS should be made cautiously through thorough exclusion of other conditions, with appropriate counseling provided to the family.

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5.

Table summarizing the **clinical, trichoscopic, and microscopic differences** among key **congenital hair disorder**

Disorder	Clinical Features	Trichoscopic Findings	Hair Microscopy
Hereditary Hypotrichosis Simplex (HHS)	Progressive scalp hair thinning since early childhood; no systemic features; hair density at birth is usually normal Can be localized to scalp or generalised.	Decreased hair density; no hair shaft defects	Normal hair shaft; no structural defects
Marie Unna Hereditary Hypotrichosis (MUHH)	Sparse hair at birth → growth of coarse, wiry, twisted hair during childhood → progressive hair loss beginning around puberty.	Twisted, irregular shafts; reduced density	Thickened, irregular shafts with longitudinal ridging, twisting, and disrupted cuticle pattern
Loose Anagen Syndrome (LAS)	Easily pluckable hair, mostly in girls aged 2–6 years; short hair that doesn't grow long	Short regrowing hairs, reduced density, upright/ angled shafts	Misshapen bulbs, ruffled cuticle, absent inner root sheath
Monilethrix	Onset during early childhood; diffuse hypotrichosis of the scalp with extremely short dull and fragile hair that breaks easily, especially in the sites of friction; may have keratotic papules Eyelashes, eyebrows, or the secondary sexual hairs may/may not be involved.	Regularly spaced nodes and constrictions along hair shaft	Beaded appearance (elliptical nodes and narrow internodes); periodic constrictions
Trichorrhexis Invaginata	Usually normal at birth; becomes sparse and brittle around 1-2 years of life; associated with ichthyosis and atopy; characteristic finding in Netherton syndrome	Comma or "ball-and-socket" appearance of hair shafts	Invagination of distal hair shaft into proximal (ball-and-socket deformity)
Pili Torti	Brittle, sparse scalp hair; can affect body hair also; may occur as isolated non-syndromic disease or can be syndromic (e.g., Menkes syndrome)	Flat twisted shafts with varying reflectivity	Hair shafts twisted 180° at irregular intervals
Trichothiodystrophy	Brittle hair; can be associated with photosensitivity, ichthyosis; developmental delay	Short, broken hairs; sparse density	"Tiger tail" banding under polarized light (alternating light and dark bands)
Short Anagen Syndrome	Hair that does not grow long; present since childhood; no increased shedding	Short vellus hairs; reduced density	Short anagen hairs with no abnormality in shaft or bulb

Fig 4: Clinical algorithm for assessment of paediatric hypotrichosis. (Adopted from So N, et. al. Paediatric Hypotrichosis: A Clinical and Algorithmic Approach to Diagnosis. Australas J Dermatol. 2025)

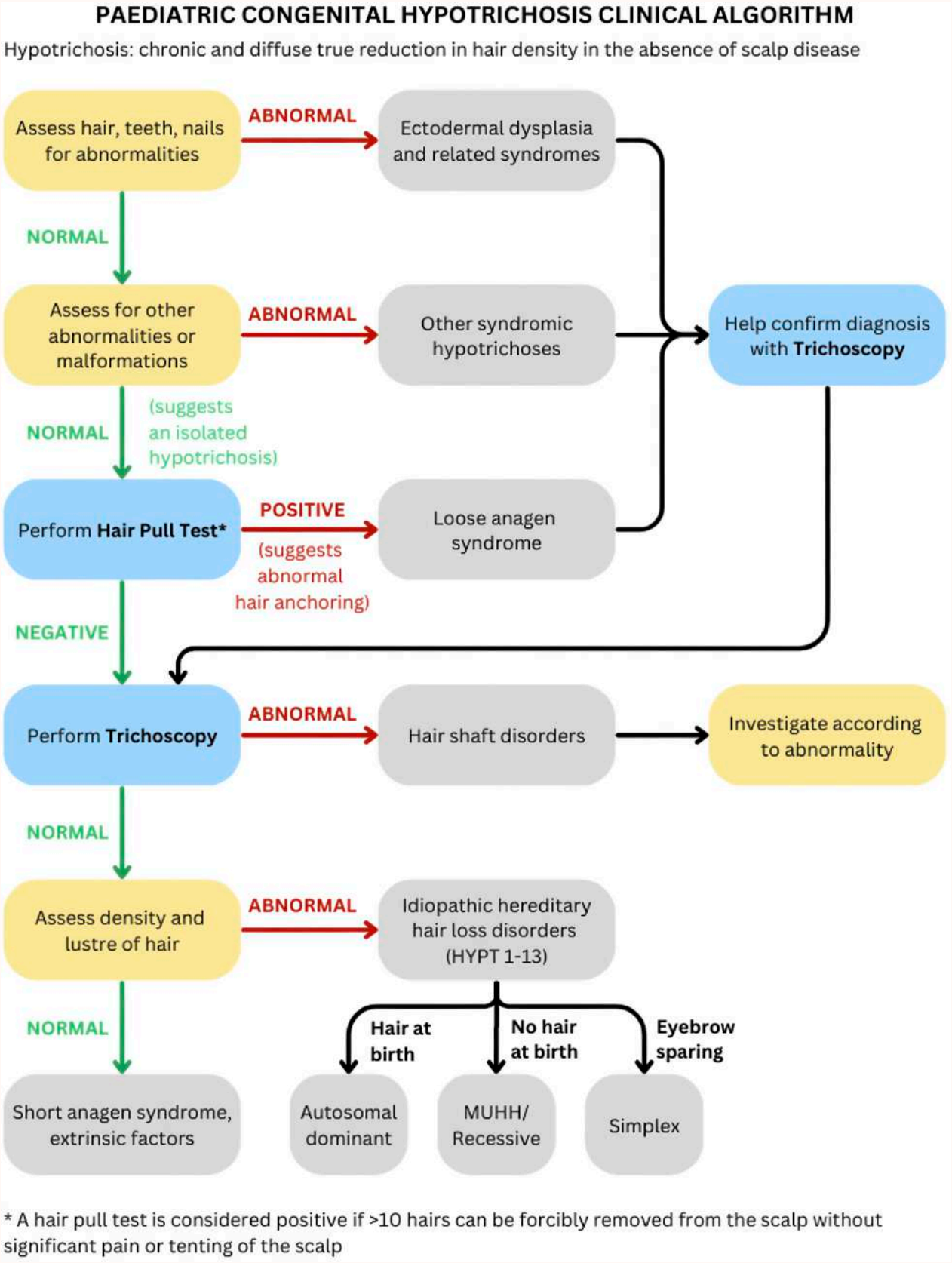


Figure 1

Photoquiz 5

Author: Dr Sirisha Varala

History: A 2 years old female child was brought with complaints of gradual loss of scalp and body hair since 1month of age. The child had normal hair at birth. No history of bone pains, difficulty in walking or reduced sweating. The child was first born to third degree consanguineous parents. No family history of similar complaints. Developmental milestones were normal. The child was treated with topical and systemic steroids previously with nil response.

Clinical examination: There was near total alopecia of scalp with few strands of hair over vertex with sparse eyebrows and absent eyelashes (figure 1). Tiny monomorphic skin colored papules seen over scalp on closer examination (figure 2) and few milia noted over cheeks (figure 3). Nails and teeth were normal. No skeletal abnormalities detected. Systemic examination was normal.

Investigations- Serum calcium, alkaline phosphatase levels and Vitamin D levels were normal. Dermoscopy findings of scalp are shown in figure 4. A 3 mm punch biopsy was taken from the scalp, the HPE findings of which are shown in figure 5.

Figure 1

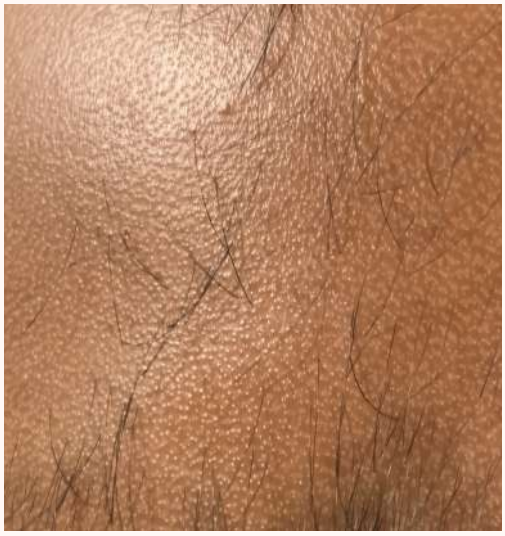


Figure 2

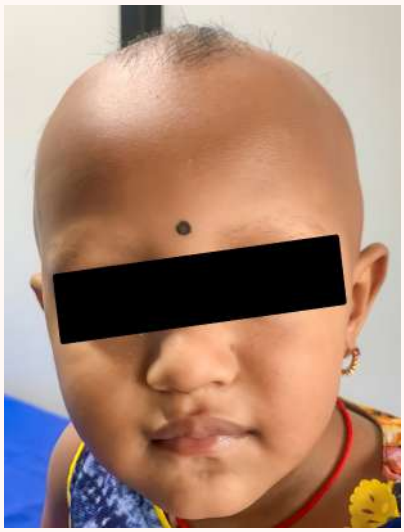


Figure 3

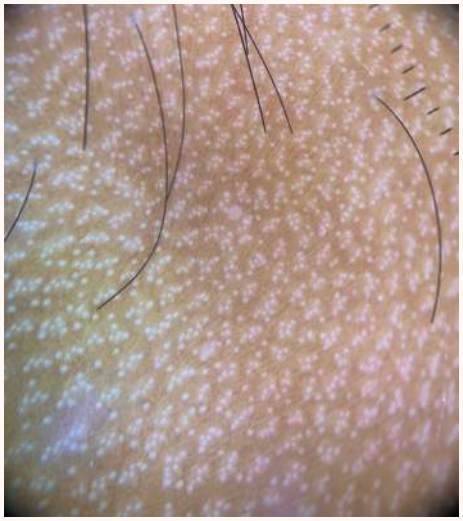


Figure 4

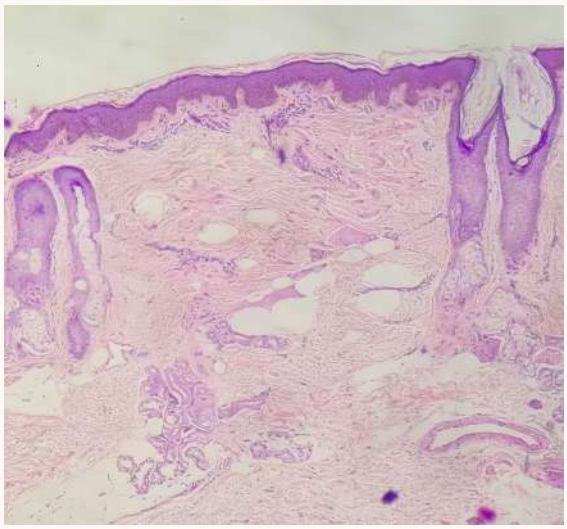


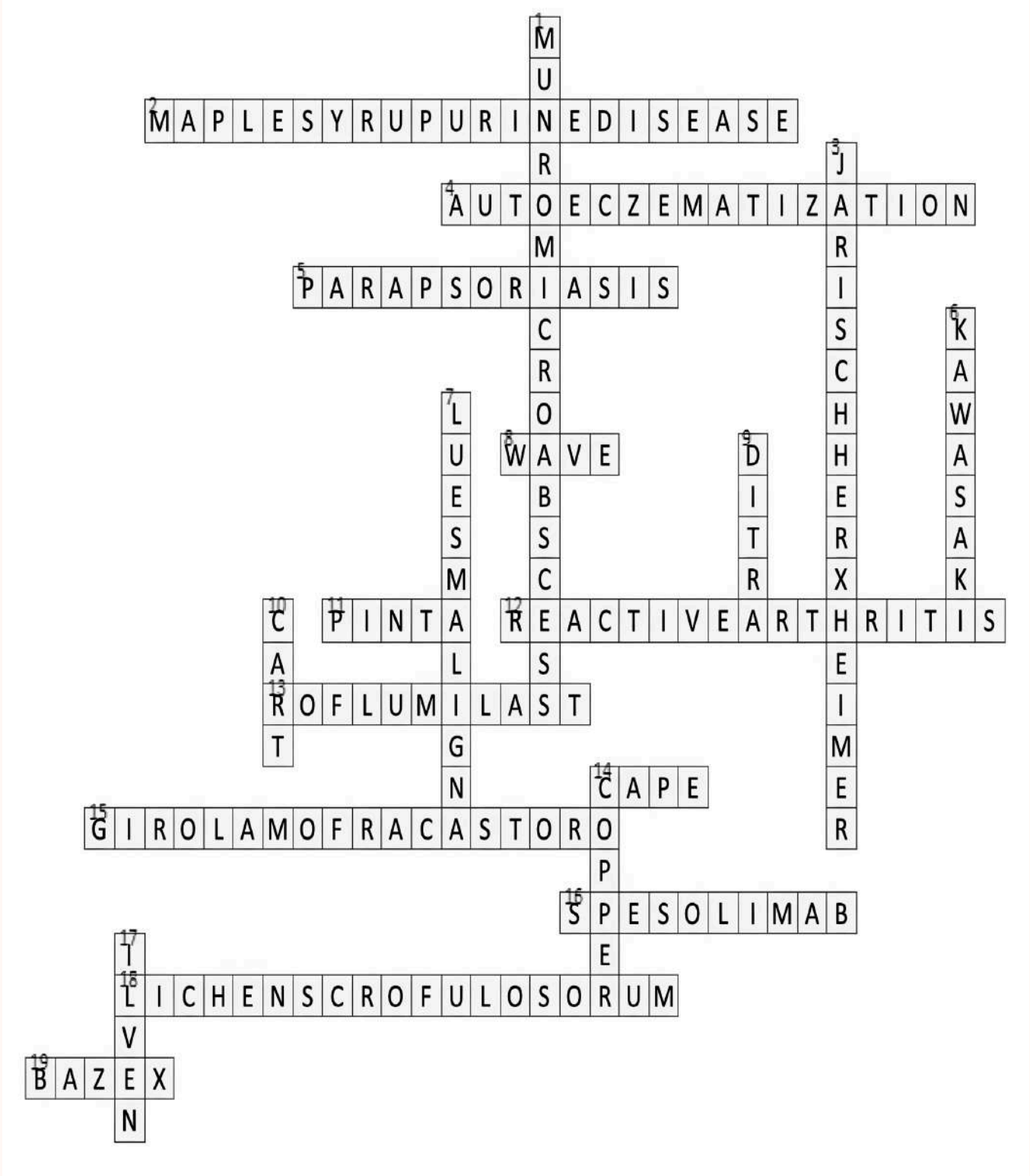
Figure 5

What is your diagnosis?

Kindly mail your answers along with your affiliation to peddermfoundation@gmail.com before 15th October 2025. The winners of Photoquiz 5 will be announced in the next issue}

Answers to Crossword on Pediatric Psoriasiform

Formulated by – Dr Jeta Buch



Across

2. Dysfunctional branched-chain amino acids metabolism yields a characteristic aromatic byproduct, masking severe neurologic sequelae. Though its name suggests a breakfast topping, its effects are far from a treat. Name the condition (5,5,5,7)
4. A secondary immunologic host response that occurs following a primary eczematous process (18)
5. A dermatologic condition, starting with digitate scaly patches >5cm, harboring the potential for a malignant transformation. What am I? (13)
8. Name the sign on ultrasound biomicroscopy which refers to the appearance of alternating echogenic layers in Bowen's disease (4)
11. A tropical treponematosis that mainly affects the skin, causing mottled pigmentation in later stages, historically found in Central and South America (5)
12. An 8 year old girl presented with mono-articular oligo-arthritis and conjunctivitis, 2-3 weeks after an episode of diarrhoea. Name the condition (8,9)
13. First and only FDA approved topical PDE-4 inhibitor for the treatment of plaque psoriasis. (11)
14. A new entity with clinical features that overlap between psoriasis and pityriasis rubra pilaris, has autosomal dominant inheritance and is resistant to conventional therapies. The name of the condition is an abbreviation derived from its genetic association. Identify the condition (4)
15. The physician and poet who gained fame from his work - " Syphilis sive morbus gallicus " (8,10)
16. Humanized monoclonal antibody targeting IL-36 receptor approved for the treatment of generalized pustular psoriasis (10)
18. The condition mimics lichen nitidus and keratosis pilaris, but is distinguished by perifollicular granulomas and a positive tuberculin test (6,13)
19. This psoriasiform eruption is a paraneoplastic phenomenon associated with upper aerodigestive tract malignancies. What is the eponymous name of this syndrome? (5)

Down

1. The histological pattern in psoriasis located within the parakeratotic areas of the cornified layer consisting of accumulation of neutrophils and pyknotic nuclei of neutrophils that have migrated from capillaries in the papillae through the supra-papillary epidermis (5,12)
3. Following the initiation of antibiotic treatment for Lyme disease, a patient develops fever, chills and muscle aches. Name the reaction (7,10)
6. Inflammation at the BCG inoculation site is the pathognomic feature of this disease. Name the disease (8)
7. A rare and severe form of secondary syphilis common in immunosuppressed particularly in HIV / AIDS. Name the condition (4,7)
9. Autosomal recessive condition where IL-36 fades, recurrent pustules rise, as family history cascades. What is the acronym for this condition? (5)
10. Gene-edited living drugs that target cancer cells for therapeutic purposes in precision medicine primarily refers to _____ cell therapy.(4)
14. Name the trace element which is deficient on long term high dose supplementation of zinc in acrodermatitis enteropathica (6)
17. A mosaic, inflammatory, pruritic, treatment resistant nevus characterized histologically by alternate orthokeratosis and parakeratosis. Mention the acronym for this condition (5)

The correct answers to the PDF Crossword were given by

1. Dr Asha B Panchagavi , Consultant Dermatologist, Sai Aadhar hospital , Mudhol, Karnataka
2. Dr L. Raghapreetha, Second year postgraduate , Madras Medical College , Chennai
3. Dr. Neetisha Agarwal, Consultant Dermatologist at Skin & Spine Clinic, Gandhinagar, Gujarat.

The Editorial board congratulates all the winners. Free complimentary registration will be provided to the next Pediatric Dermatology Update. Further information will be emailed.

Science of Pediatric Cosmetics: Hair, Nail, and Personal Care Products

Author: **Dr. Jeta Buch**

The integumentary system in infants and children is structurally and functionally immature, rendering it uniquely susceptible to environmental exposures and topical products. With increasing interest in cosmetic and personal care practices among children and adolescents, there is a critical need to understand the implications of product use based on developmental anatomy, physiology, and the biochemical profile of cosmetics. This comprehensive article addresses the anatomical and physiological context, product composition, benefits, potential harms, and recommendations related to hair, nail, and skin-related personal care items in the pediatric population.

A. Hair Care in Pediatrics

Developmental Changes in Hair

At birth, the scalp is predominantly covered by soft, non-pigmented vellus hair. Through childhood and into adolescence, hair progressively transitions through intermediate to terminal hair types.[1] This transformation is orchestrated by genetic factors and significantly influenced by endocrine signals, particularly androgens. These hormones regulate the anagen (growth) phase and determine follicular size and density. Hair structure and response to grooming practices differ across age groups, mandating age-appropriate product selection.

Hair Oils[2]

Hair oiling is a culturally ingrained practice worldwide. Oils serve as emollients, moisturizers, and carriers for bioactive compounds. They are broadly categorized into:

- **Vegetable Oils** : Coconut, sunflower, olive, argan, castor, mustard
- **Essential Oils** : Lavender, tea tree, bergamot, copaiba, ylang-ylang, geranium
- **Mineral Oils** : Derived from crude oil

Benefits of Oiling[3] :

- **Moisturization** : Oils reduce transepidermal water loss and maintain hydration.
- **Emollient Effect** : Form a coating over hair shafts, sealing cuticles and reducing frizz.
- **Lubrication** : Reduce friction between strands, easing detangling.
- **Protein Loss Prevention** : Coconut oil is particularly effective due to its low molecular weight and linear structure, allowing it to penetrate the hair shaft.[4]
- **Antifungal Properties** : Fatty acids in oils inhibit dermatophyte growth.

Indications : Mineral oil is useful in managing cradle cap by loosening crusts for easier removal after application.[5]

Adverse Effects[6] :

- Folliculitis, especially in humid climates
- Allergic/irritant contact dermatitis
- Contact urticaria
- Pomade acne

Contraindications :

- **Seborrheic dermatitis**: Malassezia species metabolize oils, worsening inflammation
- **Acne vulgaris and Mudichood[6]**

Concerns with Black Hair Products:
These may contain endocrine-disrupting chemicals (EDCs) like phthalates, parabens, and alkylphenols, cyclosiloxanes, ethanolamines and UV filters increasing risks of breast and ovarian cancer, cardiovascular disease, reproductive and metabolic disorders.[7]

Recommendations[8] :

- Safe: Coconut and safflower oils
- Avoid: Mustard oil (irritant), olive/almond/nut oils (may impair barrier)
- Massage should be gentle, in the direction of hair growth, using fingers only. Oils should be washed off after 30 minutes.

Shampoos[9]

Shampoos remove dirt, oil, and debris. The cleansing effect depends on surfactant type:

SURFACTANT TYPE	CHEMICAL CLASS	CHARACTERISTICS
Anionic	Sodium Lauryl Sulphate (SLS), Sodium Laureth Sulphate (SLES), Sulfonates, Sarcosinates	Strong cleansing, may cause dryness
Cationic	Trimethylalkylammonium chloride, Bromides	Softens hair, poor cleansing
Non – Ionic	Cetyl alcohol, Stearyl alcohol, Cetostearyl alcohol	Mild, improves manageability
Amphoteric	Cocomidopropyl betaine	Mild, suitable for children, non-irritating

Recommendations :

- Infants: Use mild, non-ionic or amphoteric surfactants
- Adolescents:
    - SLS: For greasy scalp, frequent outdoors, helmet users, sportsmen, and those who prefer quick showers
    - SLES: Oily scalp with dry ends
    - SLS-free: Dry scalp, individuals engaged in indoor activities, those intolerant to sulfates, daily washers

Washing Frequency :

- Newborns: 1–2 times per week or as needed
- Children: Twice weekly
- Adolescents: As frequently as needed with conditioner use

Conditioners[9]

Conditioners are essential to restore hair texture and reduce static. Ingredients include:

- **Cationic Surfactants**: Cetyltrimethylammonium chloride, Behentrimonium or propyltrimonium, stearamidopropyl dimethylamine
- **Cationic Polymers**: Polyquaterniums
- **Proteins**: Hydrolyzed proteins to strengthen hair
- **Silicones**: Dimethicone, Amodimethicone, Cyclomethicone, Cyclopentasiloxane (Provide shine but may cause build-up)

Recommendations :

- Use silicone-containing products with clarifying shampoos
- Deep conditioners: For dry/damaged hair, leave for 20–30 minutes
- Avoid leave-ins for short hair to prevent scalp build-up

Hair Cosmetics

Hair Straighteners and Perms[10] **:**

- Alter hair structure via thioglycolates, hydrogen peroxide, or strong bases
- Associated with increased risk of premenopausal breast cancer when used during adolescence[10]

Hair Dyes[11] :

- Contain PPD and ammonia derivatives
- Risks: Allergic dermatitis, Reihl's melanosis, contact leukoderma, telogen effluvium, alopecia totalis, cicatricial alopecia, chemical burns, triggers autoimmune disease, systemic toxicity (renal failure, rhabdomyolysis, severe electrolyte disturbances, anaphylaxis, myocardial infarction)

Henna[9] :

- Contains lawsone (oxidizing agent)
- Avoid in G6PD deficiency due to risk of hemolysis
- May cause allergic reactions and cross-reactivity with PPD

B. Nail Care in Pediatrics

Developmental Considerations[12]

- **Neonatal Nails**: Thin, pliable, highly absorbent
- **Growth Rate**: Comparable to adults; peak growth 1.5 mm/day in early adolescence
- Higher absorption potential of topical chemicals

Common Nail Cosmetics and Adverse Effects[13,14,15,16,17]				
PRODUCT	**PURPOSE**	**COMMON ALLERGENS (ACD)**	**COMMON IRRITANTS (ICD)**	**ADVERSE REACTIONS, PRECAUTION AND MANAGEMENT**
NAIL POLISH	Aesthetic	(Meth)acrylates Formaldehyde Tosylamide epoxy resin Benzophenone Camphor Dibutyl phthalate (DBP) Ethyl acetate (rare) Isopropyl alcohol (rare)	Acetone Ethyl Acetate Toluene	Allergic contact dermatitis (ACD), onycholysis, keratin granulations, discoloration
NAIL POLISH REMOVER	Removes nail polish	Acetone (rare) Ethyl acetate (rare)	Acetone Ethyl acetate	Brittle nails, paronychia, onycholysis, irritant contact dermatitis , systemic toxicity[9] if ingested)
NAIL TIPS/ EXTENSIONS	Adds length and shape to the nails	Cynoacrylate glue	-	Onychoschizia, ACD (rare
ACRYLIC NAILS	Adds length and shape	(Meth) acrylates Benzoyl Peroxide (occasional)	-	ACD, Paraesthesia
GEL NAILS	Adds length	UV light Photobonded gel nails	-	Non melanoma skin cancer, ACD, dryness of nails, paronychia, brittleness
NAIL WRAPS	Strengthens weak nail	-	-	ACD (rare)

Behavioral Risks: Nail-biting and hand-to-mouth activity elevate chemical exposure risk in children.

Nail Care Recommendations[18] :

- Use gentle cleansers, moisturize nails
- Avoid frequent polish/remover use
- Trim nails after soaking, avoid filing the surface
- Never share nail care tools
- Wear gloves for messy activities
- Avoid biting nails or picking skin

Avoid UV-curing kits marketed for home use

C. Personal Care Products

Deodorants, Antiperspirants and Perfumes

Deodorants[19] : Mask odor by inhibiting microbial growth

- **Ingredients**: Triclosan, fragrances (linalool, limonene, eugenol, geraniol, hexylcinnamaldehyde,)
- **Usage**: Begin at onset of body odor (typically puberty)

Antiperspirants[19] **:** Prevent sweating by forming gel plugs in eccrine ducts

- **Ingredients**: Aluminum salts, ethanol, propellants, fragrance

Safety Concerns :

- Risk of ACD from fragrances and preservatives
- Use "fragrance-free," non-EDC formulations

Perfumes[20] **:** Mask an individual’s body odor and improve its pleasantness

- **Ingredients** : Volatile organic compounds (VOCs), phthalates, synthetic musks, terpenes, ultrafine particles
- **Health Risks** : Neurotoxicity, endocrine disruption, allergies, autoimmune diseases, respiratory issues, cardiac insufficiency, mutagenesis and cancer. Hence generally not recommended in children.

Talcum Powder[5,21]

- **Ingredients :** Magnesium silicate, trace amounts of crystalline silica and asbestos (as contaminant)
- **Health risks** : Inhalation → acute respiratory distress or chronic talcosis
- **Safer Alternatives** : Cornstarch, tapoica starch, oat starch, sodium bicarbonate, bentonite, kaolin, zinc oxide

Usage Recommendations :

- Avoid use in neonates, infants and pre-school children unless medically recommended
- Apply via parent's hands (not directly)
- Avoid application in skin folds

Endocrine Disrupting Chemicals (EDCs)[22,23]

EDCs interfere with hormonal function and may lead to metabolic, reproductive, and developmental disorders. Found in many cosmetics under names like "fragrance" (phthalates), parabens or "antibacterial" (triclosan).

Populations at Risk :

- Fetuses, neonates, children, and adolescents

Heath Risks :

- Males : Testicular dysgenesis (cryptorchidism, hypospadias, oligospermia, and testicular cancer)
- Females : Premature thelarche, endometriosis, preterm birth
- Although evidence is sparse, Phthalates may have thyroid disrupting potential[24]

Health Risks of EDCs

- Females : Impaired folliculogenesis, irregular cycles, delayed fertility/infertility, polycystic ovarian syndrome, precocious delayed puberty
- Cancer : Breast, ovarian and cervical
- Thyroid gland : Hypothyroidism, disrupted thyroxine (T3/T4) synthesis, thyroid carcinoma, developmental issues in newborn
- Diabetogenic and obesogenic potential
- Disruption of neurodevelopment and neuroendocrine system

Patch Testing in Pediatrics[25]

- Safe from 6 months of age
- Same protocol as adults
- For small backs, sequential testing can be used
- Secure dressings with gauze to prevent detachment

General Recommendations for Cosmetic Use in Children

1. Choose mild, non-irritating formulations free from EDCs
2. Avoid early exposure to cosmetic chemicals
3. Ensure product labels are read carefully
4. Educate adolescents on long-term implications of cosmetic use
5. Maintain hygiene and avoid sharing personal care items
6. Observe for early signs of irritation or allergic reactions.

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THE GENOTRICHOSIS STORY : TRICHOSCOPY DEMYSTIFIED

Author: Dr. **Raj Chaudhari**,

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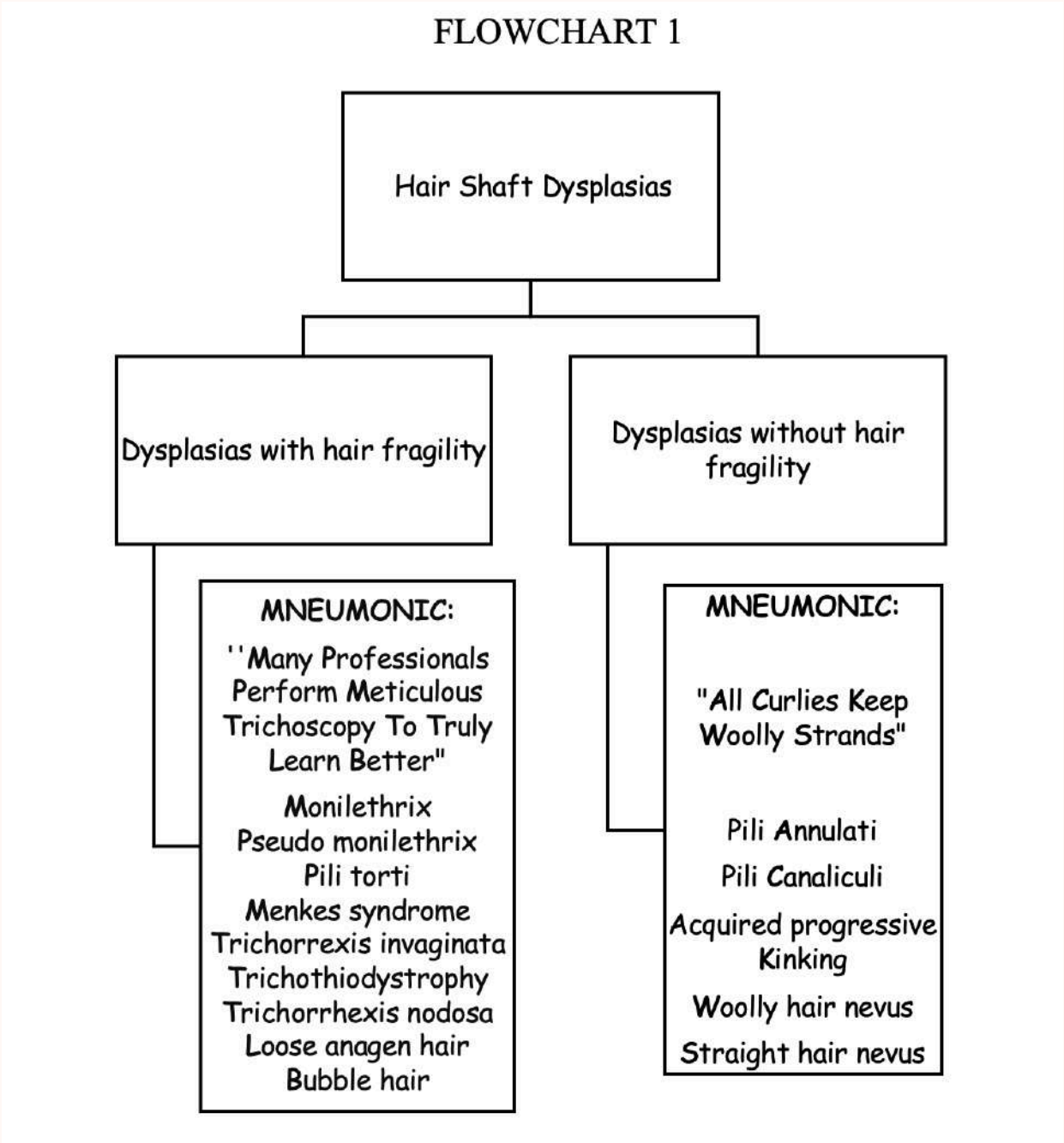
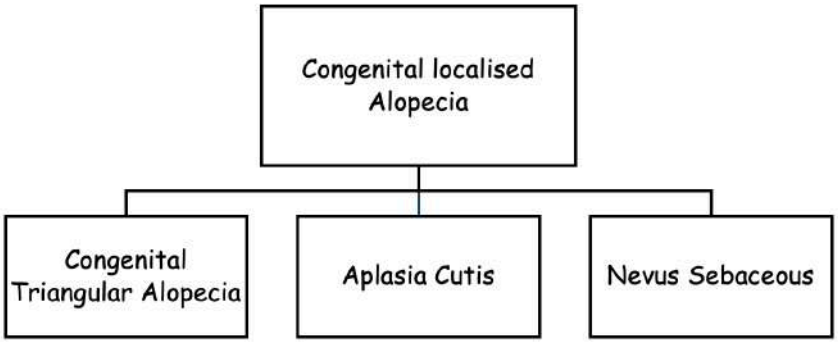
Trichoscopy plays a vital role in diagnosing certain hair disorders which have a congenital and genetic origin.

Classification of genotrichosis :

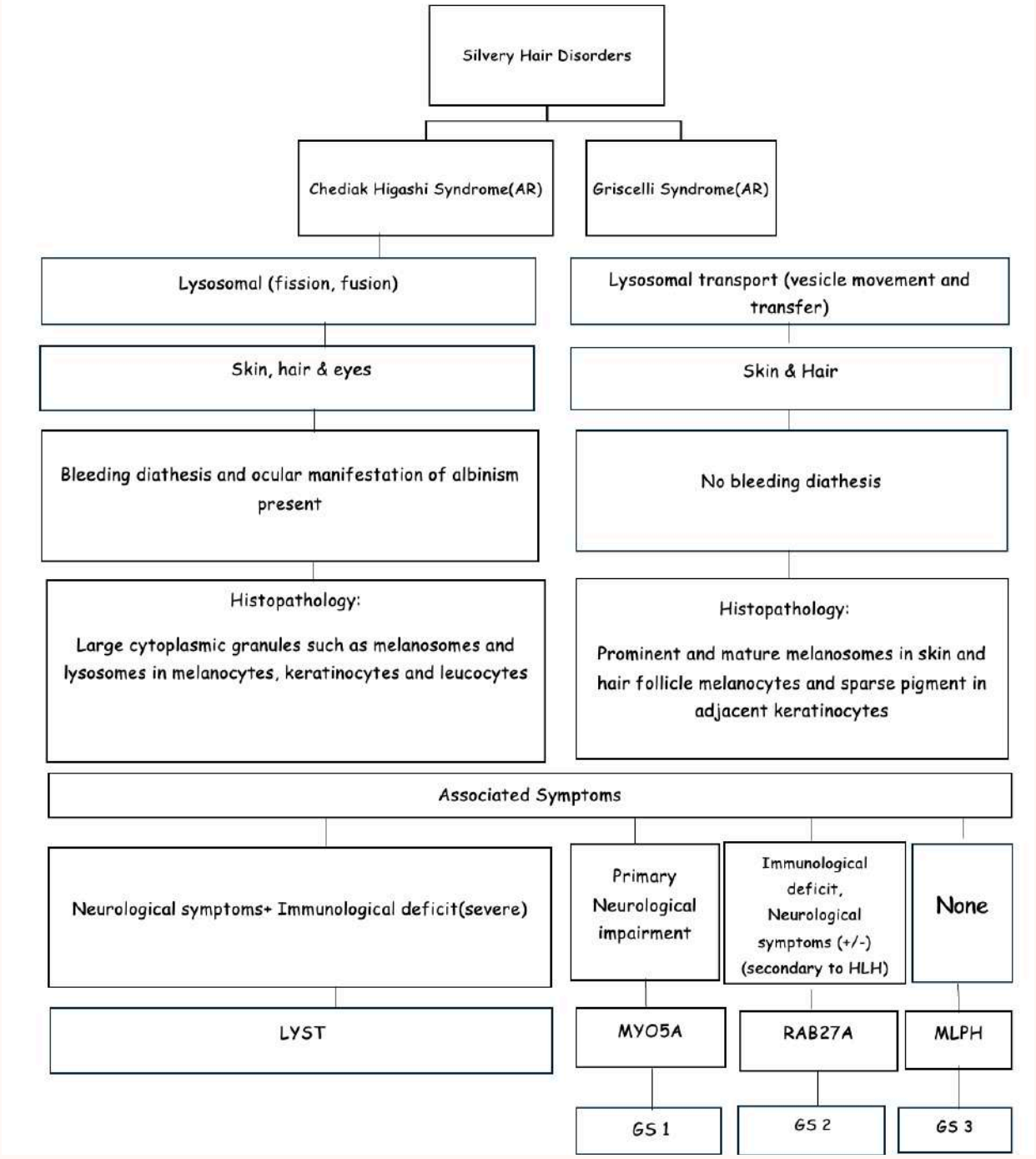
1. Hair shaft dysplasias (Flowchart 1)
2. Congenital localized alopecias (Flowchart 2)
3. Silvery hair syndromes (Flowchart 3)



FLOWCHART 2

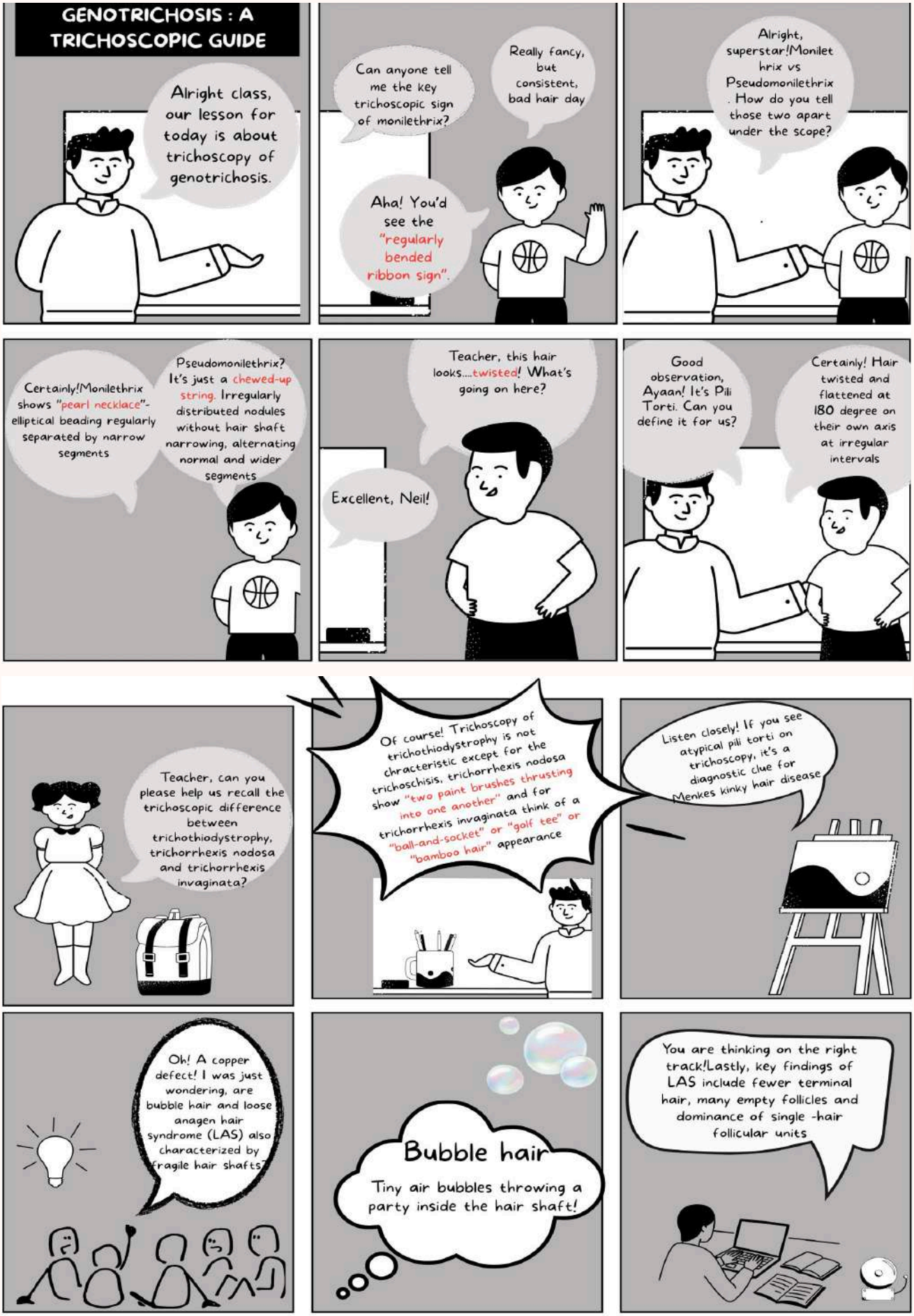


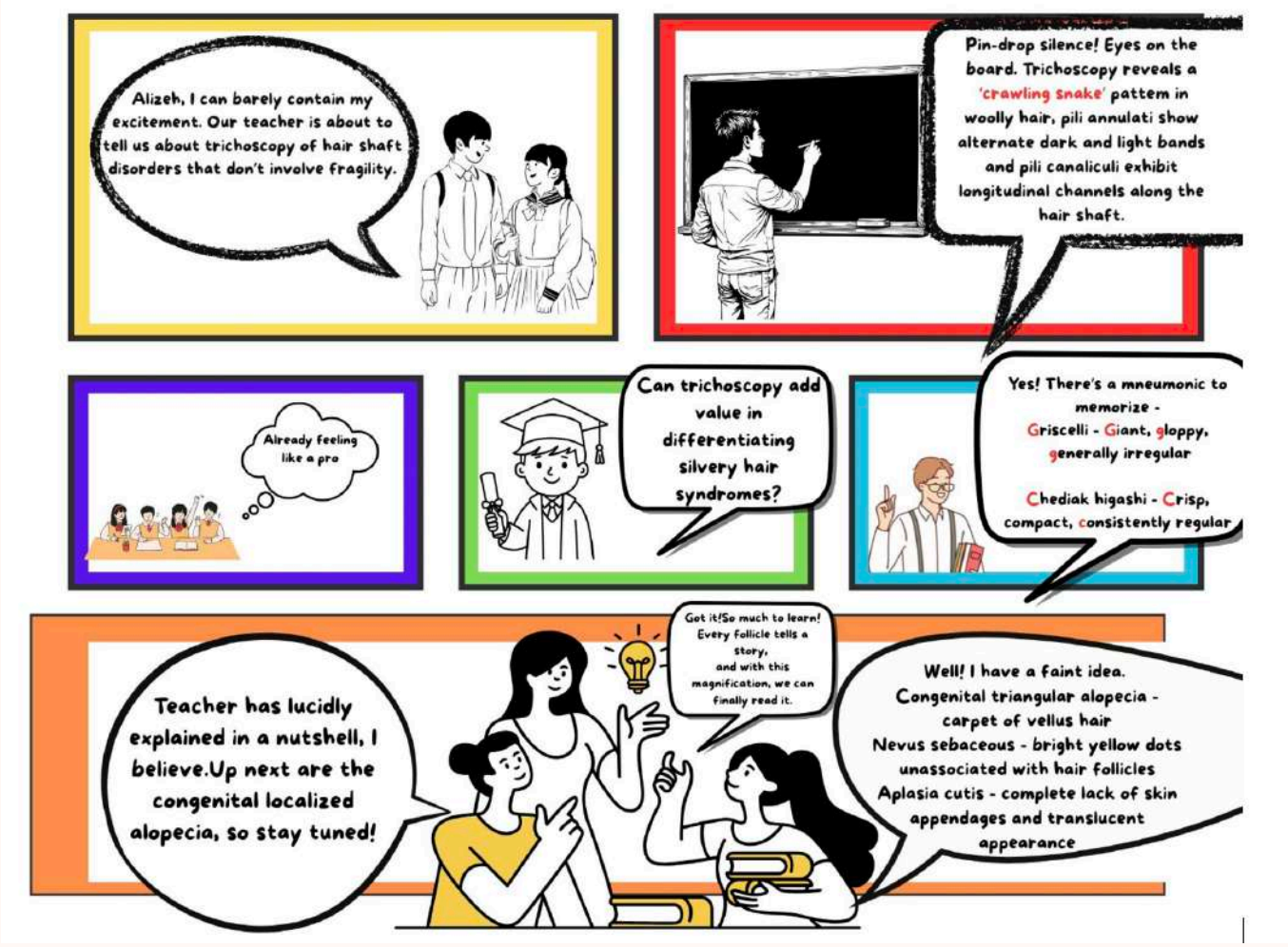
FLOWCHART 3



Now let's unravel the story of trichoscopic patterns it paints offering crucial clues to the presence of underlying genotrichosis.

Here you go -





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