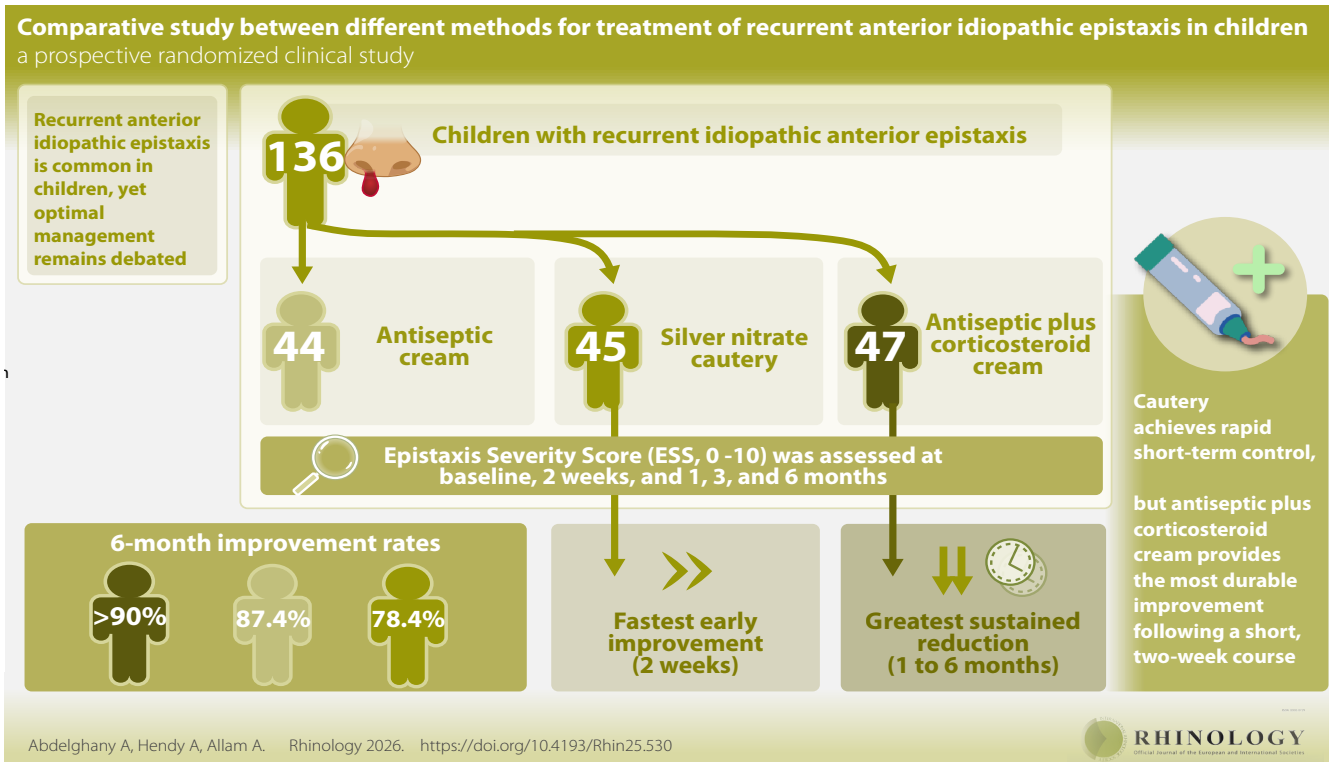
Comparative study between different methods for treatment of recurrent anterior idiopathic epistaxis in children: a prospective randomized clinical study

Ahmed Mohammed Abdelghany[1], Asmaa Atef Amen Hendy[2], Ahmed Farag Allam[3]

Rhinology 64: 3, 0 - 0, 2026
https://doi.org/10.4193/Rhin25.530



Abstract

Introduction: Recurrent anterior idiopathic epistaxis is common in children, yet optimal management remains debated. This study compared the efficacy of antiseptic cream, antiseptic plus corticosteroid cream, and silver nitrate cautery in reducing epistaxis severity in paediatric patients.

Methodology: In a prospective randomised dual-centre clinical trial, 136 children with recurrent idiopathic anterior epistaxis were evenly allocated to antiseptic cream, antiseptic plus corticosteroid cream, or silver nitrate cautery. Epistaxis Severity Score was assessed at baseline, 2 weeks, and 1, 3, and 6 months.

Results: All groups showed significant reductions in ESS over time. At 2 weeks, silver nitrate cautery produced the most rapid early improvement, compared with antiseptic cream and the combination cream. By 1 month, the antiseptic plus corticosteroid group showed the greatest improvement, with further reductions at 3 months and 6 months. At 6 months, improvement rates were highest with the combination therapy, followed by antiseptic cream and cautery.

Conclusions: Cautery achieves rapid short-term control, but antiseptic plus corticosteroid cream provides the most durable improvement following a short, two-week course. It should be considered a first-line therapy for recurrent idiopathic anterior epistaxis in children.

Key words: epistaxis, children, silver nitrate, antiseptic cream, corticosteroid cream

Introduction

Epistaxis is among the most common emergencies encountered in otorhinolaryngology, affecting up to 10% of the population. Its peak incidence in children occurs between 3 and 8 years of age, with approximately 30% of children under 5, 56% between 6–10 years, and 64% between 11–15 years experiencing at least one episode [1,2].

Most bleeds in children originate from the anterior septum, particularly Little's area, where fragile vessels of the Kiesselbach plexus converge. Posterior epistaxis is uncommon in this age group [1].

A wide variety of factors may contribute to nasal bleeding in children, including local trauma, mucosal irritation, infection, structural abnormalities, systemic diseases (e.g., coagulopathies), or iatrogenic causes. However, most cases in children are idiopathic [3]. Although most episodes are self-limiting, recurrent epistaxis may cause anxiety, affect quality of life, and in rare cases may lead to anaemia [2].

Nasal colonisation with *Staphylococcus aureus* has been associated with recurrent epistaxis, likely through chronic low-grade inflammation, mucosal crusting, and fragile vessel formation. Montague et al. studied visible blood vessels on the anterior septum in children with epistaxis and found that the prominent vessels were thin-walled arterioles and capillaries with surrounding inflammatory infiltrates [4]. These findings could potentially contribute to understanding cases classified as idiopathic.

Conservative management includes humidification, saline drops, and topical ointments [5]. Chemical cauterisation with silver nitrate is widely regarded as a standard treatment for anterior epistaxis, especially when conservative measures have failed and when the bleeding point is clearly visible [1]. Chemical cauterisation requires adequate cooperation of the child, may require anaesthesia, and carries risks of mucosal injury, septal perforation, and nostril stenosis [2,6].

Antiseptic creams reduce bacterial colonisation and local inflammation, while corticosteroid-containing preparations may further suppress inflammatory infiltrates, enhance healing and stabilise mucosal integrity. The potential benefit of incorporating corticosteroids into topical therapy remains under-investigated in previous reports.

This study aimed to compare the short- and longer-term efficacy of antiseptic cream, antiseptic plus corticosteroid cream, and silver nitrate cautery in children with recurrent anterior idiopathic epistaxis.

Materials and methods

Study design and setting

This prospective randomised clinical trial was conducted at two centres (Benha University Hospital and Kafr-Shokr Hospital, Egypt) between March 2023 and March 2024. Ethical approval was obtained from the Research Ethics Committee of Benha Faculty of Medicine (Approval code: MS612023). Written informed consent was obtained from the parents or legal guardians of all participants. The trial followed a parallel-group design, and no crossover between treatment arms was permitted.

Participants

The study included 136 children diagnosed with recurrent idiopathic anterior epistaxis.

Inclusion criteria: children <18 years with recurrent idiopathic anterior epistaxis, hemodynamically stable, with a localised bleeding source in Little's area, and no systemic or local causes of bleeding.

Idiopathic epistaxis was defined as spontaneous nasal bleeding occurring without any identifiable local or systemic underlying cause. Recurrent epistaxis was defined as the occurrence of at least one bleeding episode per week during the previous four weeks.

Exclusion criteria: prior nasal cautery or local pharmacological treatment in the past 2 months, acute upper respiratory infection, or active rhinosinusitis.

Randomisation and interventions

Children were randomly assigned (1:1:1) using opaque sealed envelopes containing a computer-generated randomisation sequence to one of three groups:

- Group I: antiseptic cream (Fucidic acid) applied to both anterior septal surfaces twice daily for two weeks.
- Group II: antiseptic plus corticosteroid cream (Fucidic acid + Betamethasone valerate) applied similarly for two weeks.
- Group III: silver nitrate cautery (75%) applied once to the bleeding point(s).

Topical cream therapy was limited to the initial two-week period, after which no additional nasal medications were allowed. Parents were explicitly instructed to refrain from initiating or repeating any topical or systemic treatments for bleeding during the follow-up period.

Assessment

All children underwent full history, ENT examination (anterior rhinoscopy ± nasal endoscopy), and laboratory investigations (CBC, coagulation profile, platelet function, von Willebrand factor assays) to exclude systemic causes. The severity of epistaxis was assessed using the Epistaxis Severity Score (ESS), originally described by Hoag et al. [7]. The ESS evaluates six domains: frequency, duration, intensity of bleeding, need for medical attention, presence of anemia, and transfusion requirement.

Each response is weighted by their respective coefficient (two decimal digits) and the final score is generated using computer software. The outcome represents the normalized ESS, ranging

Table 1. Basic characteristics and clinical and laboratory data among the studied group.

	Group I (n=44)	Group II (n=47)	Group III (n=45)	P value
Age (years)	8.6 ± 2.1	9.1 ± 2.9	8.4 ± 1.7	0.831
Male sex	25 (56.8%)	24 (51.1%)	28 (62.2%)	0.122
Visible vessels on septum	23 (52.3%)	23 (48.9%)	26 (55.3%)	0.831
Any side (visible vessels)				
Right side	10 (22.7%)	10 (21.3%)	10 (22.2%)	0.091
Left side	7 (15.9%)	9 (19.1%)	10 (22.2%)	
Both sides	6 (13.6%)	4 (8.5%)	6 (13.3%)	
Crusting	15 (34.1%)	17 (36.2%)	15 (33.3%)	0.604
Any side (crusting)				
Right side	7 (15.9%)	9 (19.1%)	8 (17.8%)	0.122
Left side	4 (9.1%)	4 (8.5%)	3 (6.7%)	
Both sides	4 (9.1%)	4 (8.5%)	4 (8.9%)	
Hb (g/dl)	10.6 ± 1.9	11.4 ± 2.3	10.2 ± 1.7	0.330
WBC (/mm^3)	6111.0 ± 120.5	6108.0 ± 122.3	6233.1 ± 123.4	0.493
PLT (10^9/L)	330.2 ± 75.3	329.8 ± 77.4	342.9 ± 72.6	0.875
PT (sec)	13.7 ± 2.3	14.8 ± 4.2	13.2 ± 3.1	0.781
PTT (sec)	28.9 ± 4.1	26.7 ± 7.2	28.2 ± 9.0	0.341
Factor VIII (%)	74.2 ± 9.1	76.8 ± 7.3	78.4 ± 9.1	0.726
VWF antigen (IU/dl)	135.8 ± 24.4	128.2 ± 26.5	133.5 ± 22.8	0.164

Data presented as mean ± SD, NS: P-value >0.05 is not significant. Hb: hemoglobin, WBCs: white blood cells, PLT: platelets, PT: Prothrombin Time, PTT: Partial thromboplastin time, VWF: Von Willebrand factor.

from 0 (no epistaxis) to 10 (most severe epistaxis).
For analysis, patients were categorized into mild [1- 4], moderate [5-7], or severe [8-10] groups according to their ESS [8].

Follow-up

Participants were evaluated at 2 weeks and at 1, 3, and 6 months after the start of treatment. During each visit, ESS was reassessed, the nasal cavity examined for complications, and compliance confirmed. All clinical data and findings were systematically recorded in standardized checklists before and after intervention. No crossover between treatment groups occurred during the follow-up period.

Definition of improvement

Improvement was defined as a reduction of at least one point in ESS compared with baseline. The percentage of improved patients at each follow-up visit was calculated based on this threshold.

Adherence monitoring

Parents received verbal instructions on proper application of the creams and on avoiding other nasal medications. Adherence was assessed at each follow-up visit through parental reporting, and supportive phone calls were made to reinforce instructions. No written diaries, electronic reminders, or objective adherence measures were used.

Sample size calculation

A pre-study sample size calculation was conducted for a one-way ANOVA comparing three independent groups. Assuming a moderate effect size (Cohen's f = 0.30), a two-sided α = 0.05, and power of 80%, the required total sample size was 111 (approximately 37 per group). Allowing for an anticipated 20% dropout rate, we aimed to recruit approximately 45 participants per group. Accordingly, 150 children were enrolled, of whom 136 completed follow-up and were included in the final analysis.

Statistical analysis

Data were analysed using SPSS v26 (IBM Inc., Armonk, NY, USA). Quantitative variables were expressed as mean ± standard deviation (SD). Repeated-measures ANOVA was used to assess within-group changes in ESS over time, while between-group comparisons were performed using one-way ANOVA with Tukey post-hoc testing. Categorical variables were compared using the Chi-square test. A p-value of <0.05 was considered statistically significant.

Table 2. Changes in ESS scores during the follow-up of the studied groups.

	Pre-intervention visit	2 weeks post-intervention	1-month post-intervention	3-month post-intervention	6-month post-intervention	P value
Group I (n=44)	6.1 ± 1.1	4.6 ± 1.4	3.4 ± 1.2	1.3 ± 0.8	1.0 ± 0.1	**<0.001***
Group II (n=47)	5.7 ± 1.2	3.1 ± 1.4	1.8 ± 1.1	0.7 ± 0.7	0.4 ± 0.1	**<0.001***
Group III (n=45)	6.3 ± 1.2	2.4 ± 0.8	2.2 ± 0.4	2.0 ± 0.6	1.8 ± 0.1	**<0.001***

Data presented as mean ± SD. *: statistically significant as p value <0.05.

Table 3. Comparison of the studied groups regarding the ESS score changes.

	Group I (n=44)	Group II (n=47)	Group III (n=45)	P value	
Pre intervention visit	6.1 ± 1.1	5.7 ± 1.2	6.3 ± 1.2	0.110	---
2 weeks post-intervention	4.6 ± 1.4	3.4 ± 1.4	2.4 ± 0.9	**<0.001***	**P1<0.001* P2<0.001* P3<0.001***
1 month post-intervention	3.4 ± 1.2	1.8 ± 1.1	2.2 ± 0.4	**<0.001***	**P1<0.001* P2<0.001* P3=0.043***
3 months post-intervention	1.3 ± 0.8	0.7 ± 0.7	1.9 ± 0.6	**0.002***	**P1=0.002* P2<0.001* P3<0.001***
6 months post-intervention	1.0 ± 0.1	0.4 ± 0.1	1.8 ± 0.3	**<0.001***	**P1<0.001* P2<0.001* P3<0.001***

Data presented as mean ± SD. *: statistically significant as p value <0.05. p1: p value between group1 and group 2. p2: p value between group 1 and group 3. p3: p value between group 2 and group 3.

Results

A total of 181 children were screened for eligibility. Thirty-one were excluded (17 did not meet the inclusion criteria and 14 declined participation). The remaining 150 participants were randomised equally into the three study arms. Fourteen children were lost to follow-up, leaving 136 children for final analysis (Figure 1). No crossover between treatment groups occurred during the follow-up period.

Baseline characteristics

Baseline demographic, clinical, and laboratory findings were comparable across the three groups (Table 1). There were no statistically significant differences regarding age, sex distribution, presence of visible vessels, crusting, or haematological parameters (p>0.05).

Epistaxis Severity Score (ESS)

All three groups demonstrated a significant reduction in ESS scores across follow-up visits (p<0.001 by repeated-measures ANOVA), reflecting substantial clinical improvement over time (Table 2).

At baseline, ESS scores were similar among the groups (p=0.110). By the two-week visit, the silver nitrate cautery group (Group III) showed the most rapid reduction in ESS compared with the other groups (p<0.001). At one month, the antiseptic plus corticosteroid group (Group II) demonstrated the lowest scores, followed by Group III, with the antiseptic-only group (Group I) showing a more gradual decline (p<0.001).

At three and six months, Group II maintained the greatest improvement, with Group I continuing to improve steadily and Group III demonstrating some relapse, though still significantly improved compared with baseline (Table 3).

Improvement rates

Improvement was defined as a ≥1-point reduction in ESS from baseline.

The proportion of children achieving improvement increased progressively in all groups over time (Table 4).

- At two weeks, Group III showed the highest rate of early improvement (71.1%).
- At one month, Groups II and III had similar improvement rates (77% and 73.3%, respectively).
- At three and six months, Group II had the highest sustained improvement rates (>90%), significantly exceeding those of Groups I and III (p<0.001).

Severity grades

Using the predefined categories for the ESS (mild 1–4, mode-

Table 4. Percentage of improvement among studied groups over follow up visits.

Improvement % post intervention	Group I (n=44)	Group II (n=47)	Group III (n=45)	P value
2 weeks	40.7%	56.2%	72%	**<0.001***
1 month	56.4%	77%	73.3%	**<0.001***
3 months	83.9%	91.7%	76.1%	**<0.001***
6 months	87.4%	94.3%	78.4%	**<0.001***
P value within group	**<0.001***	**<0.001***	**<0.001***	---

*: statistically significant as p value <0.05.

Table 5. ESS score grades among studied groups over follow up visits.

ESS		Group I (n=44)	Group II (n=47)	Group III (n=45)	P value
	Mild	5 (11.4%)	7 (14.9%)	4 (8.9%)	
Preintervention visit	Moderate	21 (47.7%)	20 (42.6%)	15 (33.3%)	0.475
	Severe	18 (40.9%)	20 (42.6%)	26 (57.8%)	
	Mild	25 (56.8%)	35 (74.5%)	20 (44.4%)	
6 months postintervention	Moderate	15 (34.1%)	9 (19.2%)	13 (28.9%)	**0.009***
	Severe	4 (9.1%)	3 (6.4%)	12 (26.7%)	
P value within group		**<0.001***	**<0.001***	**<0.001***	

*: statistically significant as p value <0.05.

rate 5–7, severe 8–10), most children initially presented with moderate-to-severe epistaxis.

At the six-month follow-up:

- Mild cases were most frequent in Group II (74.5%), followed by Group I (56.8%) and Group III (44.4%).
- Severe cases persisted in 26.7% of Group III but in fewer than 10% of Groups I and II.

These differences were statistically significant (p=0.009) (Table 5).

Complications

None of the interventions were associated with complications throughout the study period.

Discussion

In this prospective, randomised dual-centre clinical trial, we compared the efficacy of three commonly used modalities - antiseptic cream, antiseptic plus corticosteroid cream, and silver nitrate cautery - for the management of recurrent anterior idiopathic epistaxis in children. Our findings demonstrate that all three interventions significantly reduced the severity of epistaxis over a six-month follow-up period. However, the patterns of improvement and durability of response varied between groups. Silver nitrate cautery provided the most rapid reduction in ESS at the two-week follow-up, confirming its well-established role in achieving immediate hemostasis. This rapid effect is attributable to the chemical cauterization process, which induces a controlled burn at the site of bleeding that seals fragile vessels, resulting in vessel coagulation and cessation of hemorrhage. However, our results indicate that this benefit is not sustained in the longer term. By the three- and six-month follow-ups, a significant proportion of patients in the cautery group experienced recurrence or persistence of moderate to severe symptoms. This finding aligns with previous reports describing recurrence after cautery, likely related to crusting, mucosal irritation, and limited long-term modification of the underlying inflammatory milieu. Additionally, the discomfort associated with cautery may reduce adherence to post-procedure care, further increasing the risk of recurrence [1,2,6].

In contrast, the group treated with antiseptic plus corticosteroid cream (for only 2 weeks) exhibited the most sustained improvement, with over 90% reduction in ESS at three and six months. The superior longer-term efficacy of this combination therapy can be explained by its triple mechanism of action. The antiseptic component reduces bacterial colonization, particularly with *Staphylococcus aureus*, which has been implicated in chronic mucosal inflammation and increased vessel fragility in recurrent pediatric epistaxis [4,9]. The corticosteroid component further suppresses inflammatory infiltrates, reduces mucosal edema, and stabilizes the epithelium and microvasculature. Furthermore, the moisturizing effect of the cream also helps maintain mucosal integrity and prevents crust formation, creating a favorable environment for healing and long-term stability. These findings support the hypothesis that chronic low-grade inflammation and bacterial colonization play a significant role in the pathogenesis of idiopathic recurrent epistaxis in children, and

that addressing these factors can lead to more durable remission.

Antiseptic cream alone also resulted in significant improvement, although less pronounced than the combination treatment. This reflects the therapeutic value of reducing bacterial colonisation and providing mucosal hydration, both of which are established components of conservative management [5,10].

Our results are consistent with earlier reports showing that cautery is effective for short-term control but not consistently superior to topical therapy over time. Ruddy et al. [11] and Murthy et al. [12] reported that both cauterization and antiseptic treatment were effective within 4–8 weeks but did not demonstrate long-term superiority of one over the other. Calder et al. [13] found that combining cautery with antiseptic cream was more effective than cream alone at four weeks, while Kubba et al. [10] demonstrated improved outcomes with antiseptic cream compared to no treatment. The systematic review by Alsaif et al. [9] and the trial by Özmen et al. [14] found no clear long-term superiority of cautery over topical therapy, echoing our findings. More recently, Sarwar et al. [15] reported slightly higher success rates with cautery (75%) compared to topical treatment (65%), though the difference was not statistically significant. Similarly, McGarry [3] concluded that both modalities reduce recurrence and severity, supporting the pattern of progressive improvement observed in our study.

However, previous trials generally lacked corticosteroid-containing topical therapy, which may explain the stronger and more durable effects observed in our study.

A key strength of our work is its prospective randomised design, adequate sample size, and multi-timepoint follow-up extending to six months. The use of the ESS enabled structured assessment of symptom severity which allowed us to observe both short- and mid-term outcomes. Our study offered a direct comparison of multiple therapeutic approaches within a strictly pediatric cohort, producing results of clear clinical relevance. Conducting the study across two centres also improves generalisability at least within our local population.

Several limitations should be acknowledged. First, the study was not blinded, which may introduce subjective bias. We mitigated this by using a structured scoring system, although the ESS remains a patient-reported outcome rather than an objective measure. Second, adherence to topical therapy was based on parental reporting without diaries or electronic monitoring, and some degree of recall bias is possible. Third, topical therapy duration was limited to two weeks; while the long-term benefits were substantial, the optimal duration of corticosteroid-containing topical therapy remains undetermined. Finally, although follow-up extended to six months, longer-term recurrence patterns require further study.

From a clinical perspective, our results suggest that while silver nitrate cautery remains a valuable tool for achieving rapid haemostasis-particularly when immediate bleeding control is required-the brief, two-week course of antiseptic plus corticosteroid cream offers a major advantage. Despite its short duration, this regimen produced the most sustained long-term improvement and should be considered a first-line option for most children with recurrent idiopathic anterior epistaxis. The combination cream is inexpensive, easy to apply, well tolerated, and short-course corticosteroid use carries minimal risk in children. Cautery may be reserved for cases refractory to topical therapy or when rapid control is essential.

Conclusion

All three treatment modalities-antiseptic cream, antiseptic plus corticosteroid cream, and silver nitrate cautery-were effective in reducing the severity of recurrent idiopathic anterior epistaxis in children. Silver nitrate cautery provided the most rapid early improvement, but its effect was less durable. In contrast, the combination of antiseptic and corticosteroid cream produced the greatest and most sustained benefit following a short two-week course, with a favourable safety profile and high rates of symptomatic improvement.

These findings support the use of antiseptic plus corticosteroid cream as a first-line therapy for recurrent idiopathic anterior epistaxis in children. Silver nitrate cautery remains valuable for cases requiring urgent haemostasis or for children who do not respond to topical therapy. Further research with longer follow-up intervals and larger cohorts is recommended to define optimal treatment duration and to evaluate the role of combined or sequential modalities.

Author contributions

AMA: conceptualization, study design, methodology, supervision, manuscript drafting, and final approval; AAAH: patient recruitment, data collection, follow-up assessments, and initial manuscript drafting; AFA: Statistical analysis, interpretation of results, critical manuscript revision, and editing.

Conflict of interest

None.

Funding

None.

References

1. Bernius M, Perlin D. Pediatric ear, nose, and throat emergencies. Pediatr Clin North Am. 2006;53:195-214.
2. Béquignon E, Teissier N, Gauthier A, et al. Emergency department care of childhood epistaxis. Emergen Med J. 2017;34:543-548.
3. McGarry GW. Recurrent epistaxis in children. BMJ Clin Evid. 2013;2013:316.
4. Montague ML, Whymark A, Howatson A, Kubba H. The pathology of visible blood vessels on the nasal septum in children with epistaxis. Int J Pediatr Otorhinolaryngol. 2011;75:1032-1034.
5. Loughran S, Spinou E, Clement WA, Cathcart R, Kubba H, Geddes NK. A prospective, single-blind, randomized controlled trial of petroleum jelly/Vaseline for recurrent paediatric epistaxis. Clin Otolaryngol Allied Sci. 2004;29:266-269.
6. Beck R, Sorge M, Schneider A, Dietz A. Current approaches to epistaxis treatment in primary and secondary care. Dtsch Arztebl Int. 2018;115:12-22.
7. Hoag JB, Terry P, Mitchell S, Reh D, Merlo CA. An epistaxis severity score for hereditary hemorrhagic telangiectasia. Laryngoscope. 2010;120:838-843.
8. Jorgensen OJ, Steineger J, Bachmann-Harildstad G, Dheyauldeen S. A comparative study of two grading systems for epistaxis in hereditary haemorrhagic telangiectasia. Rhinology. 2021;59(2):212-218. doi:10.4193/Rhin20.540
9. Alsaif A, Karam M, Alhaider A, Almazeedi A, Aldubaikhi A, Alfayez A. The addition of silver nitrate cautery to antiseptic nasal cream for patients with epistaxis: A systematic review and meta-analysis. Int J Pediatr Otorhinolaryngol. 2020;138:110115.
10. Kubba H, MacAndie C, Botma M, et al. A prospective, single-blind, randomized controlled trial of antiseptic cream for recurrent epistaxis in childhood. Clin Otolaryngol Allied Sci. 2001;26:465-468.
11. Ruddy J, Proops DW, Pearman K, Ruddy H. Management of epistaxis in children. Int J Pediatr Otorhinolaryngol. 1991;21:139-142.
12. Murthy P, Nilssen EL, Rao S, McClymont LG. A randomised clinical trial of antiseptic nasal carrier cream and silver nitrate cautery in the treatment of recurrent anterior epistaxis. Clin Otolaryngol Allied Sci. 1999;24:228-231.
13. Calder N, Kang S, Fraser L, Kunanandam T, Montgomery J, Kubba H. A double-blind randomized controlled trial of management of recurrent nosebleeds in children. Otolaryngol Head Neck Surg. 2009;140:70-74.
14. Ozmen S, Ozmen OA. Is local ointment or cauterization more effective in childhood recurrent epistaxis? Int J Pediatr Otorhinolaryngol. 2012;76:83-86.
15. Sarwar MF, Rehman S, Mansoor M, Zahid A, Kanwal S, Rehman S. Comparison of topical treatments and chemical cauterization for recurrent anterior epistaxis in pediatric patients. J Islam Int Med Coll. 2025;20:54-58.

Ahmed Mohammed Abdelghany, MD
Associate Professor
Otorhinolaryngology Department
Benha University
El Azizi Street
Elmanshea Elgedida
Building No 15
Benha, Qalyubia
Egypt 13513

E-mail: ahmedent@gmail.com
ORCID: 0000-0003-4781-466

Ahmed Mohammed Abdelghany[1], Asmaa Atef Amen Hendy[2], Ahmed Farag Allam[3]

[1] Otorhinolaryngology Department, Benha University, Benha, Egypt

[2] Kafr Shokr Specialized Hospital, Egypt

[3] Otorhinolaryngology Department, Benha Faculty of Medicine, Egypt

Rhinology 64: 3, 0 - 0, 2026
https://doi.org/10.4193/Rhin25.530

Received for publication:
September 21, 2025
Accepted: December 7, 2025

Associate Editor:
Sietze Reitsma