e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2026; 18(4); 1892-1896

Original Research Article

Otological Manifestations in Pediatric Seborrheic Dermatitis: A Cross-Sectional Study

Anwar Kabir[1], Sanjay Kumar[2], Bhawesh Rajak[3]

[1]Senior Resident, Department of ENT, GMCH, Purnia, Bihar, India
[2]Associate Professor, Department of Physiology, GMCH, Purnia, Bihar, India
[3]Senior Resident, Department of Skin and VD, GMCH, Purnia, Bihar, India

Received: 14-01-2026 / Revised: 13-02-2026 / Accepted: 14-03-2026
Corresponding Author: Dr. Bhawesh Rajak
Conflict of interest: Nil

Abstract:

Background: Seborrheic dermatitis (SD) is a common chronic inflammatory dermatosis affecting sebaceous gland–rich regions, including the scalp, retroauricular area, and external auditory canal (EAC). Although ear involvement is frequently observed clinically in children with SD, systematic data characterising the prevalence and spectrum of otological manifestations in this population remain limited.

Objectives: To evaluate the prevalence and spectrum of otological manifestations among children diagnosed with seborrheic dermatitis attending a tertiary care hospital.

Methods: A hospital-based cross-sectional study was conducted among 120 children aged 1–14 years with a clinical diagnosis of seborrheic dermatitis, recruited from the Dermatology and ENT outpatient departments of a tertiary care teaching hospital over a 12-month period. All children underwent detailed dermatological assessment (including grading of SD severity as mild, moderate, or severe) and otoscopic ENT evaluation for ear canal scaling, pruritus, impacted cerumen, otitis externa, recurrent ear discharge, and chronic suppurative otitis media (CSOM). The chi-square test was used to assess the association between SD severity and otological involvement, with $p < 0.05$ considered statistically significant.

Results: Of the 120 children studied (mean age 6.8 ± 3.2 years; 68 [56.7%] male, 52 [43.3%] female), otological manifestations were identified in 54 children (45.0%). The most frequent findings were EAC scaling (25.0%), pruritus (20.0%), impacted cerumen (15.0%), otitis externa (10.0%), recurrent ear discharge (8.3%), and CSOM (6.7%). Children with moderate-to-severe SD demonstrated a significantly higher prevalence of otological manifestations than those with mild disease ($p < 0.05$).

Conclusion: Otological manifestations are common among children with seborrheic dermatitis, particularly in those with moderate-to-severe disease. Routine otological screening in pediatric SD patients, particularly those with ear symptoms or higher disease severity, may facilitate early identification of preventable complications such as recurrent infections and CSOM.

Keywords: Seborrheic Dermatitis; Pediatric Dermatology; Otological Manifestations; Chronic Suppurative Otitis Media; Otitis Externa; External Auditory Canal.

DOI: 10.25258/ijcpr.18.4.300

Introduction

Seborrheic dermatitis (SD) is a chronic, relapsing inflammatory dermatosis that characteristically affects sebaceous gland–rich anatomical regions, including the scalp, face, retroauricular area, and upper trunk. [1,2] In infants, SD frequently manifests as cradle cap — greasy, yellowish scaling of the scalp that typically appears within the first three months of life and tends to resolve spontaneously within the first year. [3,4] Beyond infancy, SD may persist or recur in a milder, chronic-relapsing form through childhood and adolescence, with clinical features resembling those seen in the adult population. [2]

The pathogenesis of SD remains incompletely understood but is thought to involve a complex interplay between Malassezia yeast overgrowth, sebaceous gland hyperactivity, individual host immune responses, and disruption of the epidermal skin barrier. [1,2] Areas of high sebaceous density — including the scalp, eyebrows, nasolabial folds, and the skin behind and within the ears — are particularly susceptible to involvement. [2]

The external auditory canal (EAC) and retroauricular skin share the sebaceous-rich histological characteristics that predispose to SD involvement at other craniofacial sites. Chronic

inflammation and disruption of the stratum corneum in these regions may compromise the local skin barrier, creating an environment conducive to secondary microbial colonisation and recurrent otological infection. [5,6] In children, this is of particular clinical relevance, since chronic suppurative otitis media (CSOM) remains a significant and largely preventable cause of hearing impairment, especially in low-and middle-income countries. [7,8,9]

Despite the recognised anatomical overlap between SD-prone areas and the ear, and despite anecdotal clinical observation of ear involvement in children with SD, there is a paucity of systematic studies characterising the prevalence and pattern of otological manifestations in pediatric SD populations. Identifying this association is of practical importance: children with SD who also present with subclinical or overt ear pathology may benefit from earlier multidisciplinary referral, potentially reducing the risk of progression to chronic or complicated middle-ear disease. The present cross-sectional study was therefore undertaken to evaluate the prevalence and spectrum of otological manifestations among children with a clinical diagnosis of seborrheic dermatitis attending a tertiary care hospital.

Materials and Methods

Study Design: This was a hospital-based, cross-sectional, observational study conducted jointly by the Department of Dermatology and the Department of Otorhinolaryngology (ENT) at a tertiary care teaching hospital, over a period of 12 months. The study was approved by the Institutional Ethics Committee, and written informed consent was obtained from a parent or legal guardian of each participating child, with assent obtained from older children where appropriate.

Study Population: Children aged 1–14 years with a clinical diagnosis of seborrheic dermatitis, presenting consecutively to the Dermatology and ENT outpatient departments during the study period, were screened for eligibility. A total of 120 children fulfilling the inclusion criteria were enrolled in the study.

Eligibility Criteria

Inclusion Criteria

- Children below 14 years of age
- Clinical diagnosis of seborrheic dermatitis, established by a consultant dermatologist
- Written informed consent obtained from a parent or legal guardian

Exclusion Criteria

- Clinically diagnosed psoriasis
- Clinically diagnosed atopic dermatitis
- Congenital ear anomalies
- Known immunodeficiency disorders
- Recent ear surgery

Clinical Assessment: All enrolled children underwent a detailed history and clinical examination performed jointly by the dermatology and ENT teams. Dermatological assessment included evaluation of scalp scaling, erythema, retroauricular lesions, and external auditory canal involvement. The severity of seborrheic dermatitis was clinically graded as mild, moderate, or severe based on the extent and intensity of erythema, scaling, and the body surface area involved.

ENT evaluation was performed by otoscopy in all children and specifically assessed for: ear canal scaling, erythema, impacted cerumen, otitis externa, recurrent ear discharge, tympanic membrane abnormalities, and chronic suppurative otitis media (CSOM). Findings were systematically recorded on a structured proforma.

Outcome Measures: The primary outcome measure was the overall prevalence of otological manifestations (defined as the presence of one or more of the otoscopic findings listed above) among children with SD. Secondary outcome measures included the prevalence of each individual otological finding and the association between SD severity grade and the presence of otological manifestations.

Statistical Analysis: Data were entered and analysed using SPSS software ([Version Number Required]). Categorical variables are presented as frequencies and percentages. The association between SD severity and the presence of otological manifestations was assessed using the chi-square test of independence:

$$\chi^2 = \Sigma [(O - E)^2 / E]$$

where O represents the observed frequency and E the expected frequency in each cell of the contingency table. A two-tailed p-value of less than 0.05 was considered statistically significant for all analyses.

Results

Demographic and Clinical Characteristics: A total of 120 children with a clinical diagnosis of seborrheic dermatitis were enrolled during the study period. The mean age of participants was 6.8 ± 3.2 years, with a male predominance: 68 children (56.7%) were male and 52 (43.3%) were female. The largest proportion of children were in the 1–5-year age group (38.3%), followed by the 6–10-year (36.7%) and 11–14-year (25.0%) age groups.

With regard to disease severity, 58 children (48.3%) had mild SD, 44 (36.7%) had moderate disease, and 18 (15.0%) had severe disease. Scalp involvement

was the most common cutaneous manifestation, observed in 104 children (86.7%), while retroauricular involvement was noted in 61 children (50.8%). Demographic and baseline clinical characteristics are summarised in Table 1.

Table 1: Demographic and Clinical Characteristics of the Study Population (N = 120)

Characteristic	n	%
Total children enrolled	120	100.0
Mean age (years), mean ± SD	6.8 ± 3.2	—
Age group: 1–5 years	46	38.3
Age group: 6–10 years	44	36.7
Age group: 11–14 years	30	25.0
Male	68	56.7
Female	52	43.3
Disease severity: Mild	58	48.3
Disease severity: Moderate	44	36.7
Disease severity: Severe	18	15.0
Scalp involvement	104	86.7
Retroauricular involvement	61	50.8

SD, standard deviation. Percentages are calculated out of the total study population (N = 120) unless otherwise specified.

Prevalence and Spectrum of Otological Manifestations: Otological manifestations were identified in 54 of the 120 children studied, corresponding to an overall prevalence of 45.0%. The most frequently observed finding was external auditory canal (EAC) scaling, present in 30 children (25.0%), followed by pruritus of the ear canal in 24 children (20.0%) and impacted cerumen in 18 children (15.0%). Otitis externa was identified in 12 children (10.0%), recurrent ear discharge in 10 children (8.3%), and chronic suppurative otitis media (CSOM) in 8 children (6.7%). The complete spectrum of otological findings, together with 95% confidence intervals, is presented in Table 2.

Table 2: Prevalence and Spectrum of Otological Manifestations Among Children with Seborrheic Dermatitis (N = 120)

Otological Finding	n	%	95% CI
Any otological manifestation	54	45.0	36.1–54.2
External auditory canal scaling	30	25.0	17.7–33.6
Pruritus (ear canal)	24	20.0	13.3–28.3
Impacted cerumen	18	15.0	9.1–22.7
Otitis externa	12	10.0	5.3–16.8
Recurrent ear discharge	10	8.3	4.1–14.8
Chronic suppurative otitis media (CSOM)	8	6.7	2.9–12.7

CI, confidence interval. Percentages are calculated out of the total study population (N = 120); some children exhibited more than one otological finding.

Association Between Disease Severity and Otological Manifestations: A clear gradient was observed between the clinical severity of seborrheic dermatitis and the prevalence of otological manifestations. Among children with mild SD, otological manifestations were present in 14 of 58 children (24.1%). This proportion rose to 26 of 44 children (59.1%) among those with moderate disease, and to 14 of 18 children (77.8%) among those with severe disease. This association between SD severity and the presence of otological manifestations was statistically significant on chi-square testing (χ^2 = [Information Required]; $p < 0.05$), confirming that children with moderate-to-severe disease were significantly more likely to exhibit otological involvement than those with mild disease. The distribution of otological manifestations across severity grades is presented in Table 3.

Table 3: Association Between Seborrheic Dermatitis Severity and Presence of Otological Manifestations

SD Severity	Otological Manifestation Present, n (%)	Otological Manifestation Absent, n (%)	Total
Mild (n = 58)	14 (24.1)	44 (75.9)	58
Moderate (n = 44)	26 (59.1)	18 (40.9)	44
Severe (n = 18)	14 (77.8)	4 (22.2)	18
Total (n = 120)	54 (45.0)	66 (55.0)	120

Chi-square test of independence; $p < 0.05$ considered statistically significant. Values are n (%) within each severity row.

Discussion

This cross-sectional study demonstrates that otological manifestations are common among children with seborrheic dermatitis, affecting almost half (45.0%) of the study population, and that the prevalence of such manifestations increases significantly with increasing dermatological disease severity. External auditory canal scaling and pruritus were the most frequently observed findings, while a smaller but clinically important subset of children exhibited recurrent ear discharge and chronic suppurative otitis media.

These findings are consistent with the recognised distribution of seborrheic dermatitis across sebaceous gland–rich regions of the head and neck, which includes the scalp, eyebrows, nasolabial folds, and the skin of the external ear and retroauricular sulcus. [1,2] The EAC shares the same sebaceous-rich epidermal characteristics as other commonly affected sites, rendering it similarly susceptible to the inflammatory and scaling changes characteristic of SD. [2] Disruption of the epidermal barrier in this confined anatomical space, combined with reduced local clearance of debris and secretions, may predispose affected children to secondary bacterial or fungal colonisation, recurrent infection, and — in a subset of cases — progression to chronic middle-ear pathology. [5,6]

The observation that moderate-to-severe SD was associated with a significantly higher prevalence of otological involvement than mild disease lends support to a dose-response relationship between cutaneous disease burden and ear pathology. This is biologically plausible: more extensive epidermal inflammation and barrier disruption would be expected to extend more readily into contiguous EAC and retroauricular skin, increasing the likelihood of canal scaling, pruritus, cerumen impaction, and secondary infection.

The identification of CSOM in 6.7% of the study population, although affecting a comparatively small proportion of children, is of particular clinical significance given the well-documented burden of CSOM as a cause of preventable childhood hearing impairment, particularly in low- and middle-income settings. [7,8,9] Global epidemiological estimates suggest that CSOM disproportionately affects children in resource-limited settings and remains a major contributor to disabling hearing loss when inadequately managed. [7,8] The present findings raise the possibility that chronic inflammatory changes associated with SD may represent a modifiable risk factor contributing to recurrent otitis and, in susceptible children, progression to CSOM — although this cross-sectional design cannot establish causality.

These findings align with the broader literature describing the involvement of sebaceous-rich, hair-bearing, and intertriginous regions in seborrheic dermatitis, including the skin behind and within the ears. [2,4] While most prior dermatological literature has focused on the cutaneous manifestations of SD at classical sites such as the scalp and face, our findings suggest that systematic otological screening may be a valuable, underutilised component of the clinical assessment of children presenting with SD, particularly those with moderate-to-severe disease or with overt ear symptoms such as itching or discharge.

From a clinical standpoint, these findings support a multidisciplinary approach to pediatric seborrheic dermatitis, incorporating routine otoscopic examination as part of the standard assessment, particularly in children with moderate-to-severe cutaneous disease. Early identification of EAC involvement impacted cerumen, or otitis externa may allow timely intervention before progression to recurrent discharge or CSOM, with the potential to reduce the burden of preventable pediatric hearing impairment.

Strengths and Limitations: This study benefits from its prospective, hospital-based design with systematic, structured otoscopic evaluation performed jointly by dermatology and ENT specialists in all enrolled children, which allowed for a comprehensive assessment of the full spectrum of otological manifestations associated with pediatric seborrheic dermatitis — an area that has received limited prior systematic study. The inclusion of a clinically meaningful sample size (n = 120) and stratification of findings by disease severity strengthens the internal validity of the reported associations.

Several limitations should nonetheless be acknowledged. First, the cross-sectional design precludes any assessment of causality or temporal sequence between SD severity and otological pathology; a longitudinal or cohort design would be required to establish whether SD is a true risk factor for progression to CSOM, or whether the observed association reflects shared predisposing factors. Second, this was a single-centre, hospital-based study, which may introduce selection bias toward children with more severe or treatment-refractory disease and may limit the generalisability of the findings to community-based pediatric populations. Third, microbiological assessment of ear discharge or canal swabs was not performed, precluding characterisation of the causative organisms underlying secondary otological infection in this population. Fourth, while inter-observer reliability for severity grading and otoscopic assessment is

assumed to have been high given joint dermatology–ENT evaluation, formal inter-rater reliability statistics were not reported [Information Required]. Finally, audiometric assessment of hearing outcomes in children with CSOM or recurrent discharge was not performed as part of this study, limiting the ability to quantify functional hearing impact.

Future prospective, multicentre, longitudinal studies incorporating microbiological evaluation and audiometric outcome assessment are warranted to further elucidate the relationship between pediatric seborrheic dermatitis and otological disease, and to determine whether early dermatological treatment reduces the incidence of otological complications.

Conclusion

Otological manifestations are common among children with seborrheic dermatitis, affecting almost half of the children evaluated in this study, with a clear and statistically significant association between increasing dermatological disease severity and the prevalence of ear involvement. External auditory canal scaling and pruritus were the most frequent findings, while a smaller proportion of children exhibited recurrent ear discharge and chronic suppurative otitis media. These findings support the incorporation of routine otological screening into the clinical evaluation of children with seborrheic dermatitis, particularly those with moderate-to-severe disease, with the goal of facilitating early identification and management of preventable otological complications.

Acknowledgements: The authors wish to acknowledge the faculty, residents, and nursing staff of the Departments of Dermatology and ENT for their assistance in patient recruitment, clinical assessment, and data collection. We are grateful to the parents and guardians of the participating children for their cooperation.

Funding Statement: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. [Alternatively: This study was supported by (Funding Agency, Grant Number).] The funding source had no role in study design, data collection, analysis, interpretation, or the decision to submit for publication.

Conflict of Interest: The authors declare that they have no conflicts of interest relevant to the subject matter or materials discussed in this manuscript.

Author Contributions

Dr. Anwar Kabir: Conceptualisation, study design, patient recruitment, dermatological assessment, manuscript drafting.

Dr. Sanjay Kumar: ENT/otoscopic evaluation, data acquisition, manuscript review.

Dr. Bhawesh Rajak: Statistical analysis, critical revision of the manuscript.

All authors have read and approved the final version of the manuscript and accept accountability for all aspects of the work.

References

1. Clark GW, Pope SM, Jaboori KA. Diagnosis and treatment of seborrheic dermatitis. Am Fam Physician. 2015;91(3):185-190.
2. Borda LJ, Wikramanayake TC. Seborrheic dermatitis and dandruff: a comprehensive review. J Clin Investig Dermatol. 2015;3(2):10.
3. Victoire A, Magin P, Coughlan J, van Driel ML. Interventions for infantile seborrhoeic dermatitis (including cradle cap). Cochrane Database Syst Rev. 2019;3(3):CD011380. doi:10.1002/14651858.CD011380.pub2. PMID: 30828791.
4. Hay RJ, Graham-Brown RAC. Dandruff and seborrhoeic dermatitis: causes and management. Clin Exp Dermatol. 2017;42(1):13-18.
5. Wikramanayake TC, Borda LJ, Miteva M, Paus R. Seborrheic dermatitis-looking beyond Malassezia. Exp Dermatol. 2019;28(9):991-1001. doi:10.1111/exd.14006. PMID: 31310695.
6. Schaefer P, Baugh RF. Acute otitis externa: an update. Am Fam Physician. 2012;86(11):1055-1061. PMID: 23198673.
7. World Health Organization. Chronic suppurative otitis media: burden of illness and management options. Geneva: WHO; 2004.
8. Monasta L, Ronfani L, Marchetti F, et al. Burden of disease caused by otitis media: systematic review and global estimates. PLoS One. 2012;7(4):e36226. doi:10.1371/journal.pone.0036226. PMID: 22558393.
9. Acuin J. Chronic suppurative otitis media: burden of illness and management options. Epidemiology and pathogenesis of chronic suppurative otitis media: implications for prevention and treatment. Ann Otol Rhinol Laryngol Suppl. 1998. PMID: 9466224.
10. Bluestone CD, Klein JO. Otitis Media in Infants and Children. 4th ed. Philadelphia: Saunders; 2007.
11. Global Epidemiology of Chronic Suppurative Otitis Media: Systematic Review to Estimate Global Prevalence. J Epidemiol Glob Health. 2025. doi:10.1007/s44197-025-00396-9. PMID: 40178730.