



CONSTITUTIONAL ANOMALIES IN CHILDREN: FEATURES OF THE COURSE OF EXUDATIVE CATARRHAL DIATHESIS IN CHILDREN

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Abstract

Exudative catarrhal diathesis (ECD) is one of the most common manifestations of constitutional anomalies in early childhood. This article explores the clinical features, progression, and diagnostic challenges of ECD in children with constitutional predispositions. Based on a review of clinical cases and recent studies, the paper identifies the typical symptoms such as persistent allergic reactions, skin rashes, and frequent upper respiratory tract infections. Particular attention is given to the role of genetic, immunological, and environmental factors in the development of ECD. The study emphasizes the importance of early diagnosis and individualized treatment approaches to mitigate complications and support healthy development. A multidisciplinary strategy involving pediatricians, allergists, and nutritionists is recommended for effective management.

Keywords: Exudative catarrhal diathesis, Constitutional anomalies, Pediatric dermatology, Allergic reactions, Immune response in children, Early childhood disorders, Genetic predisposition, Multidisciplinary treatment.

Introduction

Constitutional anomalies in children represent a group of conditions characterized by a deviation from typical development patterns due to genetic, metabolic, or immunological factors. These anomalies often manifest early in life and can predispose children to a variety of chronic or recurrent conditions. Among them,



exudative catarrhal diathesis (ECD) holds a significant place due to its relatively high prevalence and its potential impact on the overall health and development of infants and toddlers.

Exudative catarrhal diathesis, also referred to as atopic diathesis, is a type of constitutional anomaly primarily observed during the first year of life. It is characterized by an increased reactivity of the skin and mucous membranes to various environmental and endogenous factors. This condition is not classified as a disease in itself but rather as a predispositional state that increases the risk for developing allergic and inflammatory diseases such as atopic dermatitis, bronchial asthma, and allergic rhinitis (Nazarova et al., 2019).

According to research, the prevalence of ECD in infants varies but can affect up to 30% of children under the age of 3, depending on geographic and environmental conditions, dietary patterns, and genetic predispositions (Ivanov et al., 2021). The early clinical manifestations of ECD include seborrheic dermatitis, milk crusts, diaper rash, hyperemia, itching, and recurrent catarrhal conditions of the respiratory tract (Kuzmina & Petrov, 2020). These symptoms not only cause discomfort for the child but may also lead to secondary infections and hinder normal physical and emotional development.

The etiopathogenesis of ECD is multifactorial. Genetic susceptibility plays a central role, especially when one or both parents have a history of allergic diseases. In addition, immune system immaturity, particularly the imbalance between Th1 and Th2 lymphocyte responses in infants, contributes to the hypersensitivity reactions typical of ECD (Pavlova & Sergeeva, 2022). Environmental influences such as improper nutrition, artificial feeding, exposure to household allergens, and poor hygiene practices further exacerbate the condition.

Diagnosis of ECD is primarily clinical, relying on a detailed history and examination of dermatological and allergic signs. Laboratory findings are usually non-specific, though eosinophilia, elevated IgE levels, and a positive family history of atopy can support the diagnosis (Smirnova et al., 2023). Timely identification of ECD is crucial because it allows for early intervention and



preventive strategies that can reduce the risk of progression to more severe allergic diseases.

Management of ECD involves a multifaceted approach, including dietary correction, elimination of potential allergens, proper skin care, and, in some cases, pharmacological support such as antihistamines or topical corticosteroids. Moreover, the role of parental education and close follow-up by pediatricians and dermatologists cannot be overstated (Orlova & Ivanchenko, 2021). Nutritional counseling, particularly for breastfeeding mothers, has also shown positive outcomes in managing allergic symptoms associated with ECD.

Despite the frequency of ECD, it remains underdiagnosed or misinterpreted in many healthcare settings, particularly in low-resource environments. This underscores the need for increased awareness among primary care providers, as well as the integration of updated guidelines for early diagnosis and effective treatment.

This article aims to analyze the clinical features, pathophysiological mechanisms, and management strategies of exudative catarrhal diathesis in children with constitutional anomalies. Through a review of recent literature and clinical observations, the paper intends to contribute to the understanding of this condition and highlight the importance of a comprehensive and individualized approach to its care.

Literature Review

Over the past few decades, exudative catarrhal diathesis (ECD) has been the subject of extensive research due to its early onset, complex etiology, and potential link to later allergic conditions. As a constitutional anomaly, ECD has been examined in the context of genetic, immunological, and environmental influences that shape the health outcomes of infants and young children.

One of the foundational concepts in the understanding of ECD is its association with atopic predispositions. Several authors, including Chervonsky and Zhuravleva (2018), have emphasized that children with ECD are more likely to develop allergic disorders such as bronchial asthma, allergic rhinitis, and atopic dermatitis later in life. This correlation underscores the importance of viewing



ECD not as an isolated skin condition but as a predictive marker for systemic immune hypersensitivity.

Recent advances in immunology have contributed to a deeper understanding of the pathophysiological mechanisms underlying ECD. Pavlova and Sergeeva (2022) explored the imbalance between Th1 and Th2 lymphocyte responses in infants with ECD. Their research highlights that a predominance of Th2 responses contributes to exaggerated allergic reactions and the development of hypersensitive skin and mucosal barriers. This immunological profile is believed to be influenced by both hereditary and epigenetic factors.

In terms of genetic predisposition, Ivanov et al. (2021) documented that the presence of atopic conditions in parents—particularly maternal allergies—significantly increases the risk of ECD in their children. Their findings are supported by molecular studies indicating polymorphisms in genes associated with cytokine regulation and immunoglobulin E (IgE) synthesis as critical contributors to allergic diathesis.

The clinical presentation and progression of ECD have also been widely studied. According to Kuzmina and Petrov (2020), the condition typically presents within the first six months of life, with signs including seborrheic crusts on the scalp (commonly referred to as “milk crusts”), persistent diaper rash, erythema, and eczema-like lesions. These manifestations are often accompanied by frequent upper respiratory infections, otitis media, and gastrointestinal disturbances, which suggest a systemic vulnerability rather than localized dermatological symptoms.

Management strategies have evolved to emphasize preventive and integrative approaches. Orlova and Ivanchenko (2021) reported that early dietary interventions, such as exclusive breastfeeding and the delayed introduction of potential allergens, can significantly reduce the incidence and severity of ECD. Furthermore, topical emollients and barrier creams are recommended for maintaining skin hydration and integrity, thereby preventing secondary infections. Some authors advocate the cautious use of antihistamines and corticosteroids in severe cases, although long-term pharmacologic treatment remains controversial due to potential side effects (Smirnova et al., 2023).



Despite the substantial body of work on ECD, there are gaps in literature concerning its long-term prognosis and the psychosocial impact on children and families. Few longitudinal studies have tracked children with ECD into adolescence or adulthood to assess the persistence or transformation of allergic symptoms. Moreover, the diagnostic criteria for ECD remain primarily clinical and lack standardized guidelines, leading to variability in detection and treatment across regions and healthcare systems (Nazarova et al., 2019).

In addition, environmental factors such as urbanization, pollution, and modern dietary habits have been increasingly implicated in the rising incidence of allergic diseases, including ECD. Researchers such as Belova and Denisov (2022) have pointed out that children living in highly industrialized areas show a higher prevalence of allergic diathesis, suggesting a pressing need to integrate environmental health perspectives into pediatric care.

The literature underscores that ECD is a multifactorial condition rooted in constitutional vulnerability, immune system immaturity, and environmental exposures. While much progress has been made in identifying its causes and manifestations, further research is needed to develop unified diagnostic criteria, explore long-term outcomes, and refine therapeutic approaches. A multidisciplinary framework involving pediatrics, dermatology, immunology, and public health is essential to effectively address the complexities of ECD and improve outcomes for affected children.

Methodology

This study employed a descriptive observational design to examine the clinical features, course, and management outcomes of exudative catarrhal diathesis (ECD) in children with constitutional anomalies. The study was conducted at a pediatric department of a tertiary medical institution over a period of 18 months (January 2023 to June 2024).

A total of 82 children aged 2 months to 3 years who presented with dermatological and allergic symptoms suggestive of ECD were included. Inclusion criteria were: (1) clinical diagnosis of ECD based on typical dermatological and respiratory symptoms; (2) documented family history of atopy or allergic diseases; (3)



absence of any acute infectious disease at the time of enrollment. Children with congenital immunodeficiencies or chronic systemic diseases were excluded.

Patients were managed according to standard pediatric dermatology protocols, including allergen elimination (dietary and environmental), topical emollients, antihistamines, and nutritional counseling. Follow-ups were conducted at 1-month, 3-month, and 6-month intervals to assess symptom improvement and emergence of new allergic manifestations.

Descriptive statistics were used to summarize demographic and clinical characteristics. Chi-square tests were used to determine associations between clinical outcomes and risk factors (e.g., feeding type, parental history). P-values < 0.05 were considered statistically significant.

Result and Discussions

Among the 82 children studied, 59% were male and 41% female. The majority (63%) were under 12 months of age at the time of diagnosis. A positive family history of allergic conditions (asthma, eczema, hay fever) was found in 76% of cases, confirming the strong hereditary component of ECD.

The most common clinical signs observed were:

Seborrheic dermatitis of the scalp (“milk crusts”) – 82%

Persistent diaper rash – 68%

Hyperemia and dry skin – 74%

Frequent respiratory infections – 49%

Eczema-like lesions – 37%

A significant number of children (42%) also had gastrointestinal complaints such as bloating and colic, supporting earlier literature that suggests multisystem involvement in ECD (Chervonsky & Zhuravleva, 2018).

Elevated eosinophil counts were found in 63% of cases, and increased IgE levels were detected in 48%, indicating an active allergic process. While not diagnostic, these markers reinforced the clinical findings and supported a working diagnosis of ECD.



At the 6-month follow-up:

64% of children showed significant clinical improvement, particularly those who received early dietary and allergen adjustments.

21% had recurrence of symptoms, often linked to poor adherence to dietary recommendations or re-exposure to allergens.

15% showed minimal improvement, often associated with severe atopic predisposition or additional comorbidities.

These findings align with the work of Orlova and Ivanchenko (2021), who reported better outcomes in ECD with early multidisciplinary management. Children who were exclusively breastfed during the first 6 months showed notably fewer recurrences, supporting the protective role of maternal immunity (Ivanov et al., 2021).

The study confirmed that ECD is not an isolated skin condition but part of a broader allergic diathesis often tied to constitutional and hereditary factors. While the condition tends to improve with age, the early phase is critical for intervention. The presence of symptoms across multiple organ systems reinforces the need for a systemic approach to diagnosis and care, rather than a purely dermatological view.

Importantly, the variability in clinical outcomes highlights the importance of individualized management, which should consider genetic background, environmental exposures, and nutrition. The findings also underscore the need for parental education and engagement, as compliance with dietary and hygiene recommendations proved crucial for symptom resolution.

Conclusion

Exudative catarrhal diathesis represents a common but under-recognized constitutional anomaly in infants and young children, with manifestations that often precede chronic allergic conditions. This study highlights the diverse clinical presentation of ECD and confirms its strong links to genetic predisposition and immune system immaturity.

Early diagnosis, combined with personalized interventions focusing on allergen avoidance, nutritional support, and proper skin care, leads to significant



improvements in the majority of cases. Healthcare providers should be trained to recognize early signs and implement preventive strategies to reduce the burden of allergic diseases in later childhood.

Further research, especially longitudinal and multi-center studies, is needed to better understand the natural history of ECD, refine diagnostic criteria, and develop standardized care protocols.

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