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Epidermal Nevus

Epidermal nevi are benign skin lesions that typically present in infancy or early childhood, though they may also appear later in life. These nevi are characterized by localized epidermal hyperplasia, which results in visible skin growths. While generally non-cancerous, epidermal nevi can occasionally lead to complications, including malignant transformations and systemic associations.

Characteristics of Epidermal Nevus

Epidermal nevi commonly present as solitary or multiple, oblong or linear growths that may range in color from skin-toned to brown or gray. The surface texture of the nevus can vary, with some presenting a wart-like or velvety appearance, and they typically have sharp borders. The size of the lesion tends to remain stable for those present at birth, but those that emerge later in childhood or adulthood may grow in proportion to the child until puberty. Common sites for epidermal nevi include the trunk, limbs, and neck, although these lesions can appear on virtually any part of the body.

Epidermal nevi occur in approximately 1 in 1,000 live births, with a prevalence that appears to be equal across sexes. Most cases of epidermal nevi are sporadic; however, familial occurrences have been documented, suggesting a genetic predisposition in some instances. These nevi are generally harmless, although rare instances of malignant transformation have been noted, primarily in middle-aged or elderly individuals.

Malignant Transformation and Systemic Associations

While most epidermal nevi are benign, there is a risk, albeit small, of malignant transformation into basal or squamous cell carcinomas. These transformations typically occur in individuals who have had the nevus for several decades, usually presenting in middle age or older.

Additionally, the presence of multiple or extensive epidermal nevi can sometimes be associated with systemic abnormalities affecting other organ systems, including the bones, eyes, and brain. This constellation of symptoms is referred to as epidermal nevus syndrome. Epidermal nevus syndrome can be linked to conditions such as neurofibromatosis, basal cell nevus syndrome, and various skeletal abnormalities. Infants and children with extensive or multiple epidermal nevi should undergo thorough evaluation for potential systemic involvement, including developmental assessments and imaging studies.

Diagnosis

The diagnosis of epidermal nevus is primarily clinical, based on the characteristic appearance of the lesion. However, when multiple or extensive lesions are present, or if there are concerns about systemic involvement, additional investigations may be required. This may include genetic testing, imaging of internal organs, and ophthalmologic or neurological evaluations to rule out associations with epidermal nevus syndrome or other systemic conditions.

Treatment Options

Although most epidermal nevi do not require treatment, management is necessary when the lesions are symptomatic, cosmetically concerning, or associated with complications. Available treatment options include surgical excision, laser ablation, topical therapies, and oral therapies.

- ***Surgical Excision***: Surgical excision is often the most definitive treatment for localized epidermal nevi, especially when the lesions are causing discomfort or are of significant cosmetic concern. However, excision is associated with the risk of scarring, and there is a possibility of recurrence if the cystic structures of the nevus are not completely removed.
- ***Laser Ablation***: Laser treatment, particularly fractional CO2 or pulsed dye lasers, can be effective in reducing the thickness of the epidermal nevus and improving the cosmetic appearance. However, like surgical excision, laser treatments can lead to scarring, and multiple sessions may be required.
- ***Topical Therapies***: Topical treatments such as retinoids, corticosteroids, or keratolytic agents can be used to reduce the thickness and visibility of the epidermal nevus. These therapies generally do not lead to complete resolution of the lesion but may help manage thickened or hyperkeratotic areas.
- ***Oral Therapies***: In some cases, oral therapies such as systemic retinoids (e.g., isotretinoin) have been explored to reduce the size and thickness of epidermal nevi. These medications can be effective in thinning the overlying epidermis, though they do not typically result in complete resolution of the lesion.

Prognosis and Follow-up

The prognosis for individuals with epidermal nevi is generally favorable, as the lesions are most often benign and self-limited. However, in the case of extensive or multiple nevi, close follow-up is important to monitor for potential complications, such as malignant transformation or the development of associated systemic abnormalities. Children with extensive epidermal nevi should be monitored for the development of developmental milestones and undergo regular evaluations for associated conditions.

Conclusion

Epidermal nevi are benign skin lesions that typically appear in childhood, with a characteristic wart-like or velvety texture and color ranging from skin-toned to brown or gray. Although most

cases are uncomplicated, some may be associated with systemic abnormalities or, rarely, malignant transformation. Treatment options include surgical excision, laser ablation, and various topical and oral therapies, with the goal of managing symptoms and improving appearance. Given the potential for systemic associations, thorough evaluation and follow-up are crucial, especially in cases involving extensive or multiple lesions.

References

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