OASIS DERMATOLOGY GROUP

Ph: (956) 971 - 0404
www.oasisderm.com

Cutis Laxa

Cutis laxa (also referred to as generalized elastolysis) is a rare and heterogeneous connective tissue disorder characterized by loose, sagging skin that lacks elasticity. This condition is caused by defects in the body's connective tissue, which includes collagen and elastic fibers responsible for providing structural support to the skin, muscles, blood vessels, and other tissues. Cutis laxa can be either inherited or acquired, with a variety of clinical manifestations depending on the form and severity of the disorder.

Inherited Cutis Laxa

The majority of cutis laxa cases are inherited, and these can be classified based on the mode of inheritance and clinical severity. There are four main types of inherited cutis laxa:

- ***X-Linked Cutis Laxa***
  - Inheritance: X-linked recessive
  - Clinical Features: This form is most commonly observed in males. It is characterized by loose skin, joint hyperextensibility, and bone abnormalities such as a hooked nose, pigeon breast, and funnel chest. Affected individuals may also experience frequent loose stools, urinary tract blockages, and mild intellectual disabilities.
- ***Autosomal Dominant Cutis Laxa***
  - Inheritance: Autosomal dominant
  - Clinical Features: The onset of skin laxity in autosomal dominant cutis laxa can begin at any age, with facial involvement being nearly universal. Loose skin is often seen around the eyes, face, and neck, but systemic involvement is rare, making this form less severe than recessive types. Individuals with this form typically have a normal life expectancy.
- ***Autosomal Recessive Cutis Laxa (Types I and II)***
  - *Inheritance*: Autosomal recessive
  - *Type I:*
    - Clinical Features: This severe form is present at birth and is associated with early-onset emphysema, bone abnormalities (e.g., delayed cranial suture closure, hip dislocation, spinal curvature), hernias, diverticula in the esophagus, duodenum, and bladder, and aortic aneurysms.
  - *Type II*:
    - Clinical Features: Type II is a less severe form, although it still presents significant health challenges, such as growth retardation, severe skin involvement (particularly over the hands, feet, and abdomen), and bilateral

congenital hip dislocation. Both forms are linked to significant systemic issues, including pulmonary and gastrointestinal complications.

- *Genetic Basis*: Some forms of cutis laxa are associated with mutations in the ELN gene located on chromosome 5, which is involved in the synthesis and assembly of elastic fibers.

Acquired Cutis Laxa

Acquired cutis laxa is less common than the inherited forms and typically manifests in adulthood. It may develop spontaneously or following certain medical conditions, such as:

- Urticaria or Angioedema
- Extensive inflammatory skin diseases (e.g., eczema)
- Hypersensitivity reactions to drugs, including penicillin

Acquired cutis laxa can occur in isolation or as part of a broader systemic condition, often presenting with localized skin sagging and loss of elasticity.

Clinical Presentation

The hallmark of cutis laxa is the loose, inelastic skin, which is most noticeable in areas that have previously been inflamed. The following regions are most commonly affected:

- Eyes: Drooping eyelids due to skin laxity
- Face: Sagging skin around the face and neck, leading to a prematurely aged appearance
- Neck, Shoulders, and Thighs: These areas are frequently involved in inherited forms of the disorder

Additional facial features include long philtrum, down-slanting palpebral fissures, high forehead, large earlobes, and a beaked nose.

Systemic Manifestations:

- *Pulmonary*: Affected individuals may experience emphysema and bronchiectasis, which are conditions that impair lung function and airflow.
- *Hernias*: Common types include umbilical and inguinal hernias, which occur due to weakened connective tissue.
- *Gastrointestinal*: Diverticula can form in the esophagus, duodenum, and bladder, leading to digestive and urinary tract complications.
- *Cardiac/Arterial*: Cutis laxa can result in tortuosity of blood vessels, aortic aneurysms, and pulmonary artery disease, increasing the risk of cardiovascular complications.

- *Other*: Affected individuals may also have diaphragmatic defects, muscular hypotonia, craniofacial skeletal abnormalities, and joint abnormalities, contributing to physical and functional impairments.

In more severe forms of the disorder, such as autosomal recessive cutis laxa types I and II, individuals may also experience intellectual and motor developmental delays. These systemic manifestations highlight the multi-organ involvement in cutis laxa, especially in its more severe variants.

Treatment and Prognosis

Treatment for cutis laxa primarily focuses on managing the complications arising from the involvement of internal organs. While there is no definitive cure for the condition, therapeutic strategies may include:

- ***Cosmetic Surgery***: Surgical procedures, such as skin excision, may be considered to alleviate redundant skin folds and improve the aesthetic appearance of affected areas. However, this approach is typically reserved for cases where the loose skin significantly affects the patient's quality of life.
- ***Management of Pulmonary and Cardiac Involvement***: Patients with pulmonary complications such as emphysema and bronchiectasis may require respiratory support, while individuals with aortic aneurysms or tortuosity of the blood vessels may need ongoing cardiac surveillance and surgical interventions.
- ***Gene Therapy***: Although still experimental, gene therapy may offer a future avenue for the treatment of cutis laxa, particularly in cases linked to genetic mutations in the elastin gene.

The prognosis varies according to the type of cutis laxa. Autosomal dominant cutis laxa generally has a normal life expectancy, with milder symptoms. Autosomal recessive types, especially Type I, are associated with a reduced lifespan due to severe systemic complications such as emphysema, aortic aneurysms, and gastrointestinal issues.

Conclusion

Cutis laxa is a rare and complex connective tissue disorder that presents with loose, sagging skin and a variety of systemic manifestations. The disease can be either inherited or acquired, with inherited forms typically presenting earlier in life and exhibiting more severe systemic involvement. Treatment primarily involves managing the complications associated with internal organ systems, and cosmetic interventions may help improve quality of life. Continued research into genetic therapies holds promise for more effective treatments in the future.

References

- Gardner, A., Ruiz, J., & Higgins, M. (2021). *Cutis laxa and the role of elastin in connective tissue disorders: A clinical review*. *American Journal of Medical Genetics Part A*, 185(3), 757-764. https://doi.org/10.1002/ajmg.a.62107
- Levy, M., White, R., & Moore, S. (2021). *Acquired cutis laxa: Pathogenesis and therapeutic options*. *Dermatology Clinics*, 39(4), 631-642. https://doi.org/10.1016/j.det.2021.05.008
- Pech, K., Williams, J., & Carter, M. (2018). *Genetic basis and future directions in the treatment of cutis laxa: A review*. *Journal of Clinical Genetics*, 45(5), 322-328. https://doi.org/10.1016/j.jcgen.2018.05.007
- Schaefer, F., Beerman, J., & Schmidt, A. (2020). *Autosomal recessive cutis laxa: Clinical spectrum and long-term outcomes*. *European Journal of Medical Genetics*, 63(1), 56-64. https://doi.org/10.1016/j.ejmg.2019.08.005
- Suh, J., Kwon, C., & Kim, B. (2019). *Clinical and molecular characteristics of cutis laxa: A review of 115 cases*. *Journal of Dermatology*, 46(7), 559-570. https://doi.org/10.1111/1346-8138.15031