

Milia

Milia are small, benign, keratin-filled cysts that commonly occur on the skin, particularly on the face, especially around the eyes, cheeks, and forehead. These cysts are composed of trapped keratin and are typically white or yellowish in appearance. While they are generally harmless and self-limiting, milia can be a cosmetic concern for many individuals, particularly when they occur in visible areas of the face. Milia are often classified into primary and secondary types, depending on their origin and association with other conditions.

Pathophysiology

Milia form when keratin (a protein found in the skin) becomes trapped beneath the outer layer of the epidermis, typically within the stratum corneum. This results in the formation of small, hard, white cysts. The keratin can become trapped due to ductal obstruction of the sweat glands or follicular occlusion, leading to a localized buildup. Primary milia arise without an associated skin condition, whereas secondary milia are secondary to an external or internal insult, such as trauma, skin care products, or cutaneous diseases.

Clinical Presentation

Milia are most commonly seen in infants, though they can affect individuals of any age. In neonates, milia are often present at birth or appear shortly thereafter, and they typically resolve spontaneously within a few weeks. In adults, milia tend to form as isolated, firm, white or yellowish papules, most frequently on the periorbital area (around the eyes), cheeks, and forehead. These lesions are asymptomatic and non-inflammatory, meaning they do not cause pain, itching, or other sensations. While they are often seen in healthy individuals, milia can also be associated with certain dermatologic conditions, including dermatitis, solar elastosis, burns, or chronic use of topical steroids.

Types of Milia

- **Primary Milia:** These occur without any underlying disease or external factor. They are most commonly seen in infants but can also occur in adults. Primary milia are typically solitary and resolve without intervention.
- **Secondary Milia:** These are associated with an underlying condition or trauma, such as blistering diseases, topical steroid use, laser therapy, or chemical peels. Secondary milia may be more widespread and may require treatment.

- **Milia en plaque:** A variant of secondary milia, these are more commonly seen in adults and present as a localized plaque of multiple milia. They are typically seen on the eyelids or other sun-exposed areas.

Diagnosis

The diagnosis of milia is primarily clinical, based on the characteristic appearance of small, white papules. A skin biopsy is rarely necessary but can be performed in atypical or complicated cases to confirm the presence of keratin-filled cysts. Additionally, it is important to distinguish milia from other skin conditions with similar presentations, such as epidermal cysts, comedo lesions (from acne), and sebaceous hyperplasia.

Treatment

While milia are generally harmless and self-limiting, individuals seeking cosmetic improvement may opt for treatment. Spontaneous resolution of milia is common, especially in neonatal milia, which usually resolve within the first few weeks of life. However, treatment may be indicated for persistent or cosmetically bothersome lesions. Several treatment options are available, including:

- **Manual Extraction:** The most common method for removing milia is via manual extraction using a sterile needle or comedone extractor. This procedure is typically performed by a Dermatologist or esthetician and involves making a small incision in the skin to release the trapped keratin.
- **Topical Retinoids:** Topical retinoids (such as tretinoin) are often prescribed to help prevent the formation of new milia by increasing the turnover of skin cells and facilitating the shedding of the keratin. These can be effective, but they may cause skin irritation and should be used cautiously in sensitive areas, such as around the eyes.
- **Cryotherapy:** Cryotherapy, or the application of extreme cold, can be used to freeze the milia, causing them to rupture and resolve. This method is typically reserved for larger, more stubborn lesions.
- **Laser Therapy:** Laser treatment, particularly CO2 laser and pulsed dye laser (PDL), can be effective for more extensive or persistent milia, especially in secondary milia caused by trauma. Laser therapy works by vaporizing the cysts and promoting healing of the skin.
- **Chemical Peels:** Alpha-hydroxy acid (AHA) or beta-hydroxy acid (BHA) chemical peels may help to exfoliate the skin and prevent the recurrence of milia by unclogging pores and promoting keratin turnover. Chemical peels are more commonly used in the treatment of secondary milia or milia associated with oily skin.

Prevention

In individuals with recurrent or secondary milia, preventive measures may include avoiding the use of occlusive skin products or heavy moisturizers that can block sweat gland ducts. It is also advisable to minimize sun exposure, particularly in areas where milia are likely to form. In cases

where milia are associated with the use of topical steroids, a change to alternative treatments may help reduce their recurrence.

Conclusion

Milia are common, benign lesions that generally do not require treatment unless they cause cosmetic concerns. While they can occur as a natural skin variant, they are sometimes secondary to other dermatologic conditions, medications, or trauma. Treatment options range from conservative management, such as manual extraction, to more advanced therapies, including retinoids, laser therapy, and cryotherapy. Early diagnosis and appropriate management can provide effective relief, with most cases resolving over time without long-term consequences.

References

- ❖ Bologna, J. L., Schaffer, J. V., & Cerroni, L. (2021). *Dermatology* (4th ed.). Elsevier.
- ❖ Kaufman, J. A., Krieg, T. R., & Thompson, S. M. (2020). Topical retinoids for the treatment of acne and other disorders: A clinical review. *Journal of Clinical and Aesthetic Dermatology*, 13(1), 17-23.
- ❖ Lamb, R. P., White, A. R., & Bailey, A. J. (2020). *Dermatology essentials*. Wolters Kluwer.