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Hemangiomas

Hemangiomas, often referred to as "strawberry birthmarks," are benign vascular tumors that primarily affect infants. While they are not true congenital birthmarks (as they typically do not appear at birth), they develop shortly after birth and are characterized by abnormal growth of blood vessels. Hemangiomas can vary in size, from small, superficial lesions to large, deep tumors that may cause significant cosmetic or functional issues. Although many hemangiomas resolve spontaneously without treatment, there are cases where intervention is necessary to prevent complications, improve outcomes, and address psychosocial concerns.

Pathophysiology and Clinical Presentation

Hemangiomas arise from the proliferation of endothelial cells, which form abnormal clusters of blood vessels. They typically first appear in infancy, often within the first few weeks of life, and go through a rapid growth phase, which can last from a few months to up to one year. After this period, they typically enter a slow regression phase, where the vessels shrink and the lesion may gradually fade. Hemangiomas are generally classified based on their depth and location into superficial, deep, or compound types:

- ***Superficial Hemangiomas:*** These are the most common and appear as red or purple, raised lesions, often described as "strawberry-like." They are typically located on the face, neck, or trunk.
- ***Deep Hemangiomas:*** These lesions lack the red appearance of superficial hemangiomas and present with a bluish tint due to their deeper blood vessels.
- ***Compound Hemangiomas:*** These have both superficial and deep components and are often larger, potentially spreading across multiple body areas, such as the face or limbs.

Although hemangiomas are often asymptomatic, they can become problematic if they grow rapidly or are located in areas that impair function, such as the eyes, mouth, or airway. In such cases, early intervention is recommended to prevent complications such as vision or hearing obstruction, airway compression, or psychosocial distress due to disfigurement.

Treatment Options

The management of hemangiomas depends on the lesion's size, location, rate of growth, and potential for causing functional or cosmetic issues. While many hemangiomas resolve on their own, medical or surgical intervention may be required for those that pose risks to the patient.

- **Observation and Watchful Waiting**

  In the majority of cases, small, non-growing hemangiomas that do not cause functional impairment or cosmetic concern are left untreated, with regular monitoring to assess for

any changes. Hemangiomas located on skin areas covered by clothing typically do not require intervention. However, lesions that are likely to cause long-term disfigurement or functional impairment may necessitate more active management.

- **Laser Therapy**

  For superficial hemangiomas, early intervention with laser therapy can be effective. Laser treatment, especially with pulsed dye laser (PDL), targets the red coloration of the hemangioma by selectively coagulating blood vessels, leading to a reduction in lesion size and appearance. Laser therapy works best when the lesion is treated early, as it is most effective during the growth phase, and repeated treatments may be required for optimal results. However, lasers have limited efficacy in treating deeper components of compound or deep hemangiomas.

- **Intralesional Steroids and Cryotherapy**

  For small, non-superficial hemangiomas, especially those located on the face or near functional areas, intralesional corticosteroid injections (such as triamcinolone) are commonly used. When combined with cryotherapy (liquid nitrogen), this approach can help reduce the size of the lesion. Intralesional steroids are often effective for smaller lesions, but deeper or more widespread hemangiomas may require additional treatments.

- **Systemic Steroids**

  Oral corticosteroids are considered the standard treatment for larger hemangiomas, particularly those that involve significant cosmetic deformity or functional obstruction. The standard protocol typically involves initiating high-dose corticosteroids for a period of 4–6 weeks, followed by a tapering regimen. Some infants may experience regrowth after tapering, in which case treatment may be reinstated for an additional 4 weeks before a gradual taper is resumed. Though effective, long-term steroid use can have side effects, such as growth retardation and immunosuppression.

- **Beta-Blockers**

  In recent years, the use of oral and topical beta-blockers has emerged as a promising alternative to steroids for the treatment of hemangiomas. Propranolol, an oral beta-blocker, has been shown to reduce the size of hemangiomas by inhibiting the growth of blood vessels. Propranolol has been FDA-approved for use in infants over 5 weeks of age, and treatment is typically started early in the lesion's growth phase for the best results. The medication is dosed based on the child’s weight and requires regular monitoring. A topical beta-blocker, timolol, is also used for superficial hemangiomas and is generally better tolerated than oral propranolol.

- **Surgical Treatment**

  Surgical excision is typically reserved for hemangiomas that are life-threatening, disfiguring, or unresponsive to medical therapies. This may include hemangiomas that have

failed to shrink sufficiently after medical treatment or those located in areas that are difficult to manage with non-invasive methods. Surgical intervention is usually considered after the age of 2 to 3 years, once the hemangioma has entered its involution phase. For large lesions, plastic or reconstructive surgery may be required to repair or improve the aesthetic outcome after the hemangioma has regressed.

Conclusion

Hemangiomas are benign vascular lesions that can affect infants and young children, ranging from small, superficial lesions to large, compound growths. Most hemangiomas resolve without intervention, but in cases where they pose risks to function or cause significant cosmetic concerns, early treatment is essential. A variety of treatment options are available, including observation, laser therapy, corticosteroids, beta-blockers, and surgical excision. The choice of treatment depends on the size, location, and behavior of the hemangioma, as well as the age and health of the patient. As research continues, the options for managing hemangiomas are expanding, with improved outcomes for affected individuals.

References

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