



Common Lumps and Bumps in Children: A Colour-coded Differential

Abstract

Many conditions present as 'lumps and bumps' in the pediatric population. Some follow a benign course and can be safely observed with parental education and reassurance. Others require definitive therapy or carry the potential for serious complications. Understanding and recognizing the different lesions will help guide the care, counseling and management of patients with these common 'lumps and bumps'. This review presents and categorizes common pediatric cutaneous lesions according to colours as a tool to help the general practitioner recognize and remember these lesions.

Keywords: benign; pediatric; tumours; vascular; hemangioma; nevus

? Pre-test CME Quiz

The discovery of an unidentified papule or nodule on a child's skin can be a source of anxiety for parents. However, with prompt identification and accurate diagnosis, parents can be given reassurance and appropriate guidance. The purpose of this review article is to provide a brief overview of select common cutaneous growths that may be seen in the pediatric population. To provide a simple method of remembering these conditions, we have catego-

rized them in the shade they often present: red, yellow, and blue.

Red:

Pyogenic granuloma

This acquired lesion typically presents in childhood as a shiny, solitary, bright red, raised papulonodule (Figure 1) that is often pedunculated, occurring on the skin or mucosa. Despite its name, these lesions are not infectious, nor are they granulomatous. Pyogenic

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granulomas are benign vascular lesions and can often bleed or ulcerate, causing patients and parents to seek medical attention. They

tend to occur on the head, neck, extremities and upper trunk. Under dermoscopy, pyogenic granulomas appear as red homogenous papules and may have a collarette of scale around their base. The differential diagnosis of a pyogenic granuloma includes other red

entities such as infantile hemangiomas, Spitz nevi and amelanotic melanomas. Pyogenic granulomas have been traditionally treated with shave excision and electrodesiccation. However, topical imiquimod 5% cream has recently found to be an effective, non-surgical treatment option with resolution of many lesions within 4 weeks' time after daily application.¹

Superficial infantile hemangioma

Infantile hemangiomas are typically solitary and develop within days to weeks after birth. They may have superficial and deep components and have a predilection for the head and neck area. The superficial component has sometimes been called a “strawberry” because of its bright

Figure 1: Pyogenic granuloma

Red-brown raised pedunculated papulonodule with surrounding hemorrhagic crust



red hue (Figure 2). Superficial infantile hemangiomas often form a rubbery papule or plaque that is warm to palpation early in its course. The natural history of hemangiomas is a predictable one with proliferation of lesions during the first 6 to 9 months of a child's life. Following this, most hemangiomas will undergo a plateau phase before spontaneous involution. A useful percentage to remember is that involution of these lesions occurs at a rate of approximately

Figure 2: Superficial hemangioma

Bright red plaque on the flexor aspect of the neck



PYOGENIC GRANULOMA ARE BENIGN VASCULAR LESIONS AND CAN OFTEN BLEED OR ULCERATE, CAUSING PATIENTS AND PARENTS TO SEEK MEDICAL ATTENTION.

Key Point

Pyogenic granulomas can be treated non-surgically with topical imiquimod 5% cream.

NEVUS SEBACEOUS SYNDROME IS RARE AND HAS EXTRACUTANEOUS MANIFESTATIONS, WHICH INCLUDE CEREBRAL, OCULAR AND SKELETAL ABNORMALITIES.

10% per year, such that in 5 years time, 50% of hemangiomas would have involuted completely. Multiple factors must be considered when deciding whether or not a hemangioma requires treatment. Infantile hemangiomas that ulcerate or pose a threat to vision, airway or good cosmesis should be considered for treatment. First line agents for complicated infantile hemangiomas include systemic glucocorticoids and, more recently, systemic propranolol.² For superficial hemangiomas, particularly facial hemangiomas, the use of topical timolol, a non-selective beta blocker has shown favorable results without any adverse local or systemic side effects.³ For most uncomplicated hemangiomas, 'active non-intervention' is typically employed where education and counseling is given to parents and the lesion is monitored on a regular basis to ensure that spontaneous involution occurs in a timely manner.

Yellow Mastocytoma

A mastocytoma is a manifestation of mastocytosis, the accumulation of mast cells under the skin. Lesions typically develop during

Figure 3: Mastocytoma

Well-demarcated tan colored macule on the right upper back



early infancy and are characterized by skin-coloured to yellow-orange papules or plaques (Figure 3) with a predilection for the arms, neck and trunk. A helpful diagnostic clue that can be elicited is known as "Darier's sign" in which rubbing the surface of the lesion will result in the development of an urticarial plaque (Figure 4). Another feature of some of these lesions is a cobblestone-like surface texture which has been described as a "peau d'orange" (or like the peel of an orange). For

Figure 4: Mastocytoma (Darier's sign)

Well-demarcated light tan colored edematous papule with surrounding erythema on the right upper back



Key Point

Hemangiomas that ulcerate or threaten vision, the airway or good cosmesis should be considered for treatment

most children, complete resolution typically occurs by adolescence. Pharmacotherapy such as oral antihistamines can be helpful for those that experience uncomfortable side-effects like frequent urtication, flushing or diarrhea.

Nevus Sebaceous

A nevus sebaceous is a tumor of the epidermal appendage, which present at birth as a yellow-orange plaque with a verrucous or velvety surface (Figure 5). Its distinct color is due to the high concentration of sebaceous glands. Although these lesions are generally solitary, multiple or extensive lesions can be seen and are associated with a syndrome known as nevus sebaceous syndrome. Nevus sebaceous syndrome is rare and has extracutaneous manifestations, which include cerebral, ocular and skeletal abnormalities. Even in the absence of nevus sebaceous syndrome, it is important to monitor the nevus sebaceous for any nodules or growths, as these can signal the development of secondary malignancies such as basal cell carcinomas.⁴ Definitive treatment of a nevus sebaceous is surgical excision.

Figure 5: Nevus sebaceous

Well-circumscribed, greasy, hairless yellowish plaque on the scalp



appear more yellow (Figure 6), flatten and can be associated with fine overlying telangiectasia. Juvenile xanthogranulomas are the most common type of non-Langerhan cell histiocytosis and the prognosis of this condition is generally good with regression of lesions within 3-6 years. Systemic manifestations can be seen in patients with multiple cutaneous lesions and extracutaneous sites that may be affected are the eyes, liver, lungs,

Figure 6: Juvenile xanthogranuloma

Well-circumscribed yellow-orange papule with surface scale on extensor surface of the elbow



Key Point

Patients with a nevus sebaceous should be monitored for secondary growths and counseled about surgical excision

Juvenile Xanthogranuloma

A juvenile xanthogranuloma is a yellow lesion that may begin as a red-brown papule in early infancy. It most commonly affects the head, neck and upper trunk. With time, these lesions typically

spleen, lymph nodes and bone.⁵ The most common extracutaneous site affected is the eye and any child presenting with multiple juvenile xanthogranulomas should be referred to an ophthalmologist.⁶

Blue *Pilomatricoma*

Pilomatricomas are benign subcutaneous tumours derived from the hair matrix and are characterized by their firmness to palpation due to calcification. They are often solitary lesions that appear on the head, neck, trunk and upper back. The skin overlying a pilomatricoma often has a bluish hue (Figure 7) and this is a clue to the presence of the pilomatricoma. A useful diagnostic clue is the 'teeter totter sign' in which pressing one side of the lesion causes the other end to spring up. Multiple pilomatricomas have been reported in association with myotonic dystrophy and Gardner's syndrome; these cases warrant further investigation and treatment. Surgical excision is the definitive treatment for all pilomatricomas.⁷

Blue Nevus

Two variants of blue nevi exist, the common and the cellular blue nevi. The common blue nevus presents as a well demarcated blue-black dome-shaped nodule or papule typically <1cm in diameter (Figure 8) with a predilection for the dorsal aspects of the hands, feet, scalp and buttocks. Cellular blue nevi are

Figure 7: Pilomatricoma

Deep bluish-violaceous papule that was firm to palpation on the right aspect of the cheek



distinguished from the former by their larger diameter (>1cm) and their smooth, slightly irregular surface. The potential for malignant transformation is low for blue nevi. However, cellular blue nevi carry a slightly higher risk of melanoma. Blue nevi that are benign appearing and stable in their size do not require excision. However those that present with rapid growth or colour change should be biopsied or completely excised.

Figure 8: Common blue nevus

Well-circumscribed slate-grey to blue papule with retention of normal skin markings the right buttock



Figure 9: Deep infantile hemangioma

Firm bluish-grey nodule with surface telangiectasias on the lateral aspect of the lumbar spine



Deep infantile hemangioma

Infantile hemangiomas are the most common benign soft tissue tumor in childhood and the superficial variant has been described earlier under the topic of red lesions. Deep hemangiomas, however, can present as subcutaneous tumours with an overlying bluish hue (Figure 9). The differential diagnosis for deep hemangiomas includes lipomas, rhabdomyosarcomas, dermoid cysts and myofibromas. Most hemangiomas can be diagnosed clinically although some might require additional studies including Doppler ultrasonography, computed tomography and magnetic resonance imaging if the diagnosis is unclear.

Conclusion

There are many conditions that can present as ‘lumps and bumps’ in the pediatric population. Some follow a benign course and can

Table 1: A list of cutaneous lesions in the pediatric population categorized according to colour
Red Pyogenic granuloma Superficial infantile hemangioma * Spitz nevus * Amelanotic melanoma
Yellow Juvenile xanthogranuloma Mastocytoma Nevus sebaceous * Planar xanthoma
Blue Pilomatricoma Blue nevus Deep infantile hemangioma * Dermal melanocytosis (Mongolian spots) * Glomuvenous malformation
* Not discussed in this review

be safely observed with parental education and reassurance. These lesions include self-resolving entities like most juvenile xanthogranulomas, mastocytomas and superficial infantile hemangiomas. However, some lesions

SUMMARY OF KEY POINTS

Pyogenic granulomas can be treated non-surgically with topical imiquimod 5% cream

Hemangiomas that ulcerate or threaten vision, the airway or good cosmesis should be considered for treatment

Patients with a nevus sebaceous should be monitored for secondary growths and counseled about surgical excision

Clinical Pearls

Most infantile hemangiomas do not need to be treated. However, in those that require treatment, systemic propranolol has become the first line treatment for problematic hemangiomas.

Darier’s sign (an urticarial plaque produced from rubbing the lesion) is a helpful test in the office to confirm the diagnosis of a mastocytosis.

The “teeter-totter” sign is a useful technique to diagnose a pilomatricoma

itioner recognize a select number of these lesions and may help the practitioner to remember them based on their presenting colours on the skin (Table 1).

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INDEX



Post-test CME Quiz

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will not go away on their own and require definitive therapy, such as pilomatricomas and pyogenic granulomas. Still others carry the potential for serious complications, such as problematic deep hemangiomas and the risk of malignant transformation in lesions of nevus sebaceous. Understanding and recognizing the different lesions will help guide the care, counseling and management of patients with these common ‘lumps and bumps’. This review can help the general prac-