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# Benign pigmented skin lesions other than melanocytic nevi (moles)

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**INTRODUCTION** — Benign pigmented skin lesions and melanocytic nevi (moles) are common in children and adolescents. Benign pigmented skin lesions, including lentigines, café-au-lait macules, Becker nevi, and dermal melanocytoses (Mongolian spots, nevus of Ota, and nevus of Ito), will be discussed below. Melanocytic nevi and melanocytic nevi variants are discussed separately. (See "Congenital melanocytic nevi" and "Acquired melanocytic nevi (moles)".)

**We present here only the information on LENTIGINES:**

**LENTIGO** — Lentigines are benign pigmented macules that result from increased activity of epidermal melanocytes [1]. In contrast to the ephelides (freckles) that are commonly seen in lightly pigmented children and fade in the absence of sun exposure, lentigines are persistent. There are two major types of lentigines: simple lentigo and solar lentigo. The mucosal melanotic macule is a variant of simple lentigo that is located on mucosal surfaces, in particular the lower lip.

**Simple lentigo** — Simple lentigines often appear during childhood as sharply circumscribed, round-to-oval, uniformly brown or brownish-black macules that are usually <5 mm in diameter. There are typically few lesions, with no predilection for sun-exposed sites. However, multiple lentigines may be seen in a variety of disorders (table 1), and lentigines may increase in number or darken in patients with Addison's disease or other syndromes associated with elevated circulating levels of adrenocorticotropic hormone. (See"Causes and clinical manifestations of primary adrenal insufficiency in children".)

**Mucosal melanotic macule** — Mucosal melanotic macules, which most commonly develop on the vermilion portion of the lower lip, have a predilection for white adolescent girls and young women [2]. Mucosal melanotic macules may also occur on the oral mucosa and genitalia. Patients present with

one or more brown to black macules, sometimes with irregular borders and mottled pigmentation. Genital lesions are occasionally >1 cm in diameter.

Multiple perioral and oral mucosal melanotic macules characterize disorders such as Peutz-Jeghers and Laugier-Hunziker syndromes. Multiple genital melanotic macules are a feature of Bannayan-Riley-Ruvalcaba syndrome (a type of PTEN hamartoma-tumor syndrome) (table 1). (See "Peutz-Jeghers syndrome: Epidemiology, clinical manifestations, and diagnosis".)

**Solar lentigo** — In contrast to simple lentigines, the distribution of solar lentigines is limited to sun-exposed areas, in particular sites of greatest cumulative exposure such as the face, dorsal hands, extensor forearms, and upper trunk [3]. Because the incidence of solar lentigines increases with age, they are most often seen in adults. However, solar lentigines can develop in fair-skinned children who have had significant sun exposure, especially on the shoulders following severe sunburns. Multiple tan to dark brown macules, often with irregular borders, are typically present; the lesions range from a few millimeters to >1 cm in diameter (picture 1).

Children with xeroderma pigmentosum develop numerous solar lentigines at an unusually early age (table 1). (See "Hereditary neuropathies associated with generalized disorders", section on 'Xeroderma pigmentosum'.)

Large, jagged solar lentigines are a characteristic finding in children with type 2 oculocutaneous albinism. (See "The genodermatoses", section on 'Oculocutaneous albinism (OCA)'.)

**Differential diagnosis** — The major consideration in the clinical differential diagnosis of a simple lentigo is a junctional melanocytic nevus. (See "Acquired melanocytic nevi (moles)", section on 'Common acquired melanocytic nevi'.)

The differential diagnosis of a genital melanotic macule that has irregular borders and pigmentation may include early acral lentiginous melanoma. However, acral lentiginous melanoma is unusual in children and adolescents; if there is no palpable component, a shave biopsy can be performed to make the distinction. (See "Pathologic characteristics of melanoma", section on 'Acral lentiginous melanoma'.)

In children, ephelides are the major consideration in the differential diagnosis of solar lentigines, since both are characterized by multiple pigmented macules in sun-exposed areas. However, ephelides fade in the winter, whereas solar lentigines are present year-round [4]. In adults, the differential diagnosis is primarily macular seborrheic keratoses and occasionally lentigo maligna.

Some variants of solar lentigines, such as ink-spot lentigines and tanning bed-induced lentigines, have dark pigmentation and a stellate outline that may result in consideration of early melanoma. (See "Skin examination and clinical features of melanoma", section on 'Clinical features' and "Skin examination and clinical features of melanoma", section on 'Introduction'.)

**Management** — Solar lentigines that are of cosmetic concern can be treated with liquid nitrogen cryotherapy, lasers that target melanin (eg, the Q-switched ruby laser), or intense pulsed light [broadband light]. (See "Laser and light therapy for cutaneous hyperpigmentation", section on 'Lentigines'.)

Although solar lentigines themselves have no malignant potential, they represent a sign of photodamage that indicates an increased risk for the development of melanoma and nonmelanoma skin cancers during adulthood. In children and adolescents with solar lentigines, a skin examination

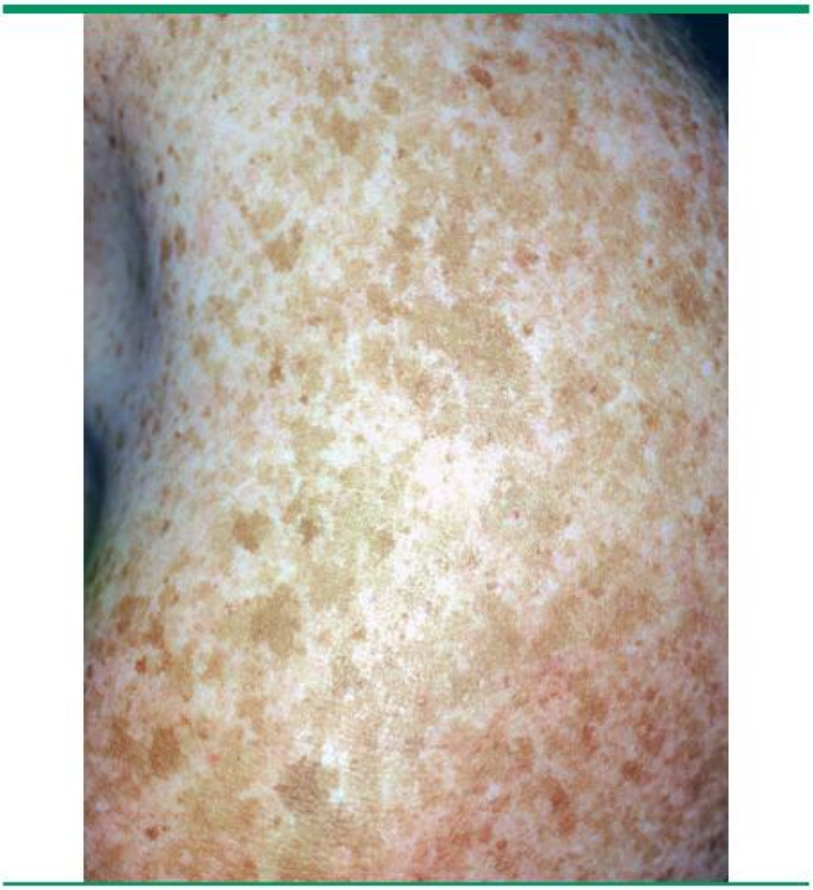
should be included in the annual physical examination performed by the primary care provider. If the patient also has atypical or numerous nevi and/or a family history of melanoma, then referral to a dermatologist is often warranted. (See "Risk factors for the development of melanoma", section on 'Sun exposure and UV radiation' and "Risk factors for the development of melanoma", section on 'Typical nevi' and "Epidemiology and clinical features of basal cell carcinoma", section on 'UV radiation' and "Epidemiology and risk factors for cutaneous squamous cell carcinoma", section on 'UV light exposure'.)

**SUMMARY**

Lentigines are persistent benign pigmented macules (usually <5 mm in diameter) that result from increased activity of epidermal melanocytes. Multiple lentigines may be seen in a variety of disorders (table 1). Solar lentigines occur only in sun-exposed areas and represent a sign of photo-damage that indicates an increased risk for the development of melanoma and nonmelanoma skin cancers during adulthood. (See 'Lentigo' above.)

**PICTURES (PICTURE 1)**

**Solar lentigines**



Numerous tan macules with irregular borders on the posterior neck and shoulder of an adolescent with a history of several severe sunburns.

*Courtesy of Jean L Bolognia, MD, and Julie V Schaffer, MD.*

## TABLES (TABLE 1)

**Disorders associated with multiple lentigines**

| Disorder | Genetics | Features of lentigines | Other manifestations |
|---|---|---|---|
| **Generalized** | | | |
| LEOPARD (multiple lentigines) syndrome | AD<br>*PTPN11* (nonreceptor protein tyrosine phosphatase) | Onset in infancy/early childhood<br>Generalized<br>Spare oral mucosa<br>Also café-noir and café-au-lait macules | Electrocardiogram changes<br>Ocular hypertelorism<br>Pulmonary stenosis, hypertrophic obstructive cardiomyopathy<br>Abnormal genitalia<br>Retardation of growth or mental retardation<br>Deafness<br>Also triangular facies, skeletal abnormalities |
| Carney complex (NAME/LAMB syndrome) | AD<br>*PRKAR1A* (type 1-alpha regulatory subunit of protein kinase A) | Onset in early childhood, but the full distribution is not seen until puberty<br>Generalized<br>May involve eyelids, conjunctiva, vermilion border of lips, genitals<br>Usually spare oral mucosa | Atrial myxomas<br>Mucocutaneous myxomas (often on eyelids, ears, nipples)<br>Blue nevi (epithelioid variant)<br>Pigmented nodular adrenocortical disease<br>Pituitary, thyroid, and testicular (calcifying Sertoli cell) tumors<br>Myxoid mammary fibroadenomas<br>Psammomatous melanotic schwannomas |
| Arterial dissection | AD versus AR | Onset in childhood<br>Generalized | Dissection of aortic, internal carotid, and vertebral arteries |
| **Localized** | | | |
| Peutz-Jeghers syndrome | AD<br>*STK11* (serine/threonine protein kinase 11) | Onset in infancy/early childhood<br>Perioral (may fade), oral mucosa (persist), hands, feet<br>Longitudinal melanonychia | Multiple hamartomatous gastrointestinal polyps (intussusception may occur)<br>Increased incidence of gastrointestinal, ovarian, cervical (adenoma malignum), pancreatic, and breast cancers |
| Laugier-Hunziker syndrome | AD<br>? | As in Peutz-Jeghers<br>Also genital melanosis | None<br>May see similar lesions in patients receiving zidovudine (AZT) |
| Cowden disease | AD<br>*PTEN* (phosphatase and tensin homolog) | Onset in childhood to young adulthood<br>Periorificial and acral lentigines (occasionally seen)<br>Café-au-lait macules | Facial trichilemmomas<br>Oral mucosal cobblestoning<br>Acral keratoses<br>Lipomas, sclerotic fibromas<br>Macrocephaly, adenoid facies, mental retardation<br>Thyroid adenomas/carcinoma<br>Breast fibroadenomas/carcinoma<br>GI hamartomas/carcinoma<br>Uterine fibroids/carcinoma |
| Bannayan-Riley-Ruvalcaba syndrome | AD<br>*PTEN* (phosphatase and tensin homolog) | Genital melanosis<br>Café-au-lait macules | Capillary and/or venous malformations<br>Lipomas<br>Facial trichilemmomas<br>Acanthosis nigricans<br>Macrocephaly, mental retardation<br>Gastrointestinal hamartomas<br>Thyroid tumors |
| Centrofacial lentiginosis | AD<br>? | Onset in infancy; increase in number in childhood<br>Butterfly distribution on nose and cheeks > forehead, eyelids, upper lip | Neuropsychiatric disorders<br>Osseous anomalies |
| Inherited patterned lentiginosis | AD<br>African Americans with light brown skin | Central face, lips > buttocks, elbows, hands, feet<br>Usually spare oral mucosa | None |
| Partial unilateral lentiginosis | -- | Onset in childhood, with wavefront extension over time<br>Segmental distribution (no background hyperpigmentation)<br>Often have café-au-lait macules in same area<br>Can have ocular lesions | May be associated with segmental neurofibromatosis<br>A few reports of associated mental retardation and seizures |
| Xeroderma pigmentosum | AR<br>XP-A through G and variant (abnormal nucleotide excision repair) | Favor (but not limited to) sun-exposed sites (represent solar lentigines) | Photosensitivity<br>Markedly increased incidence of basal and squamous cell carcinomas and melanoma<br>Also increased incidence of internal malignancies<br>CNS degeneration in a subset of patients |
| Neurofibromatosis type 1 | AD<br>*NF1* (neurofibromin) | "Freckling" (actually represents lentigines) favors flexural sites (neck, axillae, groin), but may be generalized<br>≥6 café-au-lait macules (in 80-90 percent of patients) | Cutaneous neurofibromas<br>Lisch nodules (iris hamartomas)<br>Optic glioma<br>Distinct bone lesions, eg, sphenoid dysplasia<br>Macrocephaly<br>Learning disabilities |
| Legius (neurofibromatosis type 1-like) syndrome | AD<br>*SPRED1* (Sprouty-related EVH1 domain containing protein 1) | Intertriginous 'freckling' (actually lentigines) in approximately half of patients<br>≥6 café-au-lait macules in >80 percent of patients | **Lacks** neurofibromas, Lisch nodules, optic gliomas, and typical osseous lesions of neurofibromatosis type 1<br>Macrocephaly and learning disabilities are common<br>Occasionally lipomas, hypopigmented macules, and vascular anomalies |

AD: autosomal dominant; AR: autosomal recessive; CNS: central nervous system.

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