Spitz Nevus and Variants
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Spitz nevus is also known as Spitz tumor, spindle and epithelioid cell nevus of large spindle and/or epithelioid cells, spindle cell nevus, juvenile melanoma, and benign juvenile melanoma. The Spitz nevus is a benign melanocytic neoplasm usually acquired with a distinct histopathologic appearance. The characteristic that sets this lesion apart from other nevi is the presence of large epithelioid and/or spindle cells in varying proportions. The lesion is frequently misdiagnosed as malignant melanoma.

TERMINOLOGY

Examples of melanocytic tumors resembling malignant melanoma on gross and microscopic appearance but behaving clinically in a benign manner were first described by Darier and Civatte in 1910 and Miescher in 1933. The discrepancy between histologic features that were at that time thought to represent melanoma and the benign clinical behavior was noted especially in children. This led Pack and Anglem (3) to develop the concept of prepubertal melanoma. They used this term for melanocytic tumors that histologically mimicked melanoma but failed to metastasize. Spitz’s (4) major contribution was to establish histologic criteria to distinguish such lesions, which she termed juvenile melanoma, from true metastasizing melanoma. In her original series of childhood melanomas, the presence of giant cells was highlighted as the single most distinctive feature favoring the diagnosis of a juvenile tumor.

Subsequently, it became apparent that lesions clinically and histologically similar to those described by Spitz occurred also in adults, although less frequently (5,6). The concept of a distinct type of benign melanocytic tumor, which was different from other known nevi thus emerged. The original term used by Spitz, juvenile melanoma, and its modification by Kopf and Andrade (7) to benign juvenile melanoma were ultimately abandoned, because the word melanoma indicates malignancy and the lesion could also be found in adults (6). A variety of alternative terms has been proposed to name this lesion. Helwig (8) suggested spindle and epithelioid cell nevus, which emphasizes the distinct cell types of this nevus and is widely accepted. The term nevus of large spindle and/or epithelioid cells (9) was proposed as a more precise name, since the spectrum of cytologic appearances of this nevus includes not only an admixture of both cell types but also exclusively spindle or epithelioid cells. However the term is too long and cumbersome for routine diagnostic use. Spitz nevus is now preferred by many because of its simplicity. This nondescriptive term allows one to include a spectrum of similar albeit variable histomorphology and does not carry misleading connotations.

Nonetheless, the biologic nature of the Spitz nevus has not been sufficiently defined and is often controversial owing to its striking resemblance to melanoma in some proportion of cases and rare instances of metastases emanating from lesions diagnosed as Spitz nevus. The reasons for the latter quandary are the lack of long-term follow-up information concerning a sufficiently large group of well-characterized Spitz nevi, which would facilitate the development of reliable criteria (clinical, histopathologic, cytogenetic, etc.) for distinction of atypical variants of Spitz nevi and “Spitzoid” melanomas. Thus we prefer the term Spitz tumor to give recognition to the unusual nature of these lesions and to the idea that they may possess neoplastic properties beyond those of ordinary nevi. We contend that although Spitz tumors indeed share features in common with conventional melanocytic nevi, they also...
may potentially constitute a neoplastic continuum with melanoma or a Spitz-like malignant tumor. There are some emerging data to support the latter idea. Although we prefer the term Spitz tumor, Spitz nevus is currently the favored term in the literature and is used interchangeably with Spitz tumor in this chapter.

Since the early descriptions of Spitz nevi, it has become apparent that variants exist that share certain features with Spitz nevi but are distinct enough to justify a separate terminology. Of these, a number of variants, including the desmoplastic Spitz nevus and pigmented spindle cell nevus (tumor), are discussed in this chapter.

The terms spitzoid, spitzian, and Spitz-like are often used when lesions resemble Spitz tumors in one way or another but lack sufficient other features needed for diagnosis as Spitz nevus. Spitzoid features have been described in melanomas as well as in congenital and other nevi.

**Epidemiology**

Spitz nevi are relatively uncommon and may account for about 1% of melanocytic lesions surgically removed. Epidemiologic data regarding their incidence, age distribution, sex preference, geographic or ethnic predilection are scarce. Their annual incidence in Queensland, Australia, was estimated to be 1.4 cases/100,000 people compared to 25.4 cases/100,000 people for cutaneous melanoma (10). Most cases are diagnosed in children or adolescents.

In a series of 262 patients with Spitz nevi in 1960, 85% were infants and children (11). In later series reported in the 1970s, the proportion of adult patients over 20 years of age was larger, reaching 20–30% of the cases (9,10,12). However, in these later series, there is probably a referral bias leading to an overrepresentation of adult patients (13). Although most Spitz nevi are acquired, congenital Spitz nevi occur (14,15) and may account for as many as 7% of cases. Some Spitz nevi are uncommon but do occur in individuals beyond the age of 40–50 years (12).

There is no obvious sexual predilection, although most reports indicate a slight female preponderance, especially in young adults (13). It has been suggested that the female preponderance of Spitz nevi in this age group may reflect the greater likelihood of their removal for cosmetic purposes (9). Most published cases of Spitz nevi have been described primarily in whites (13). Spitz nevi are thought to be rare in blacks and Asians (9,13).

Familial aggregation of Spitz nevi has been reported in identical twin boys (7), but the role of genetic factors has not been investigated systematically. It is believed that the great majority of Spitz nevi are sporadic with unknown cause.

**Clinical Features**

**Anatomic Site**

Spitz nevus may occur anywhere on the body. However, there is a predilection for the face, especially the cheeks, and the lower extremities (6,11,16). In a large series of solitary Spitz nevi (17), 30% of 652 lesions were located on the lower extremities, 26% on the head, and 25% on the upper extremities. Most series report a female preponderance for lesions from the lower extremities (13).

**Appearance and Presentation**

In general, Spitz tumors are not sufficiently distinctive to be clinically recognized with any degree of reliability. They may present in a number of different ways. The most common form, typically observed in children, is that of a solitary; asymptomatic; red, pink, or flesh-colored; hairless; dome-shaped nodule (13,18). Some lesions may be tan, brown, or even black in color. Pigmentation tends to be seen more often in adolescents and adults (16,19). The surface appearance is usually smooth, but may be verrucous. Pedunculated and polypoid forms occur (7), and telangiectasia may be noted (7). Scale-crust, erosion, and ulceration are uncommon and, when present, generally reflect exogenous trauma (10). In children, the nodules tend to be slightly soft, but in adults, they are more often firm (9,18). Borders are usually sharp but may be irregular. In one series, 73% of lesions measured < 0.6 cm; and in 94%, the lesions were < 1 cm in size (10), although sizes up to 3 cm have rarely been reported (11). Some Spitz nevi are pruritic and tender (13). The duration of solitary Spitz nevus is usually < 9 months (13) but may vary from 1 month to more than 20 years.

**Biologic Course**

The natural history of Spitz nevi has not been clearly delineated. A small percentage of these lesions are present at birth, and some acquired ones are long-standing. Although there has been speculation that these lesions involute as do conventional nevi (20), or possibly evolve to conventional nevi, these outcomes have not been documented. Spitz nevi occurring in children are often compound and deeply cellular, whereas those in adults are commonly dermal (or predominately dermal) and often show sclerosis (desmoplasia) of collagen, suggesting involution over time. However, the latter observations are only cross-sectional at best.

In most instances, there is a clinical history of recent onset and rapid growth or change. The vast majority of lesions with characteristics of Spitz nevi are benign. However, because of the histologic resemblance of Spitz nevi to some melanomas, the presence of atypical variants, and