Recurrent, Sclerosing, Traumatized Nevi

26.1 Introduction

We describe here three forms of nevus that we consider in some ways as allied lesions. Recurrent (or persistent) nevus appears at the site of a previous biopsy or excision of a melanocytic neoplasm. Traumatized nevus is a nevus with the stigmata of an acute, recent trauma. Sclerosing nevus is (supposedly) a continuous recurrence of a nevus after its partial destruction by chronic traumatic injury. All of them are all too often successful simulators of melanoma. In many cases, clinicians will not indicate that a nevus has been previously biopsied, so it is especially important for histopathologists to be alert to the signs of past biopsy or injury. While a request to review sections from a previous biopsy is sometimes intimidating, in reality it can protect the patient, the colleague who examined the previous lesion, and the pathologist examining the current one from the consequences of misdiagnosis.

26.2 Recurrent or Persistent Nevus

Persistent nevi are benign lesions that regrow above the scar produced by an incomplete removal. The regrowth of melanocytes is most prominent along the dermoepidermal junction where active melanin synthesis makes the nevus visible, often darker than the original lesion.

Recurrent nevi can reappear after the seemingly complete removal of preexisting lesions. In this case the melanocytes probably come from cells rooted deeply within the adnexal epithelium. “Recurrent” junctional nevi have been reported after the excision of entirely intradermal nevi or the complete excision of melanoma or non-melanocytic neoplasms. The melanocytic growth seems to be induced by growth factors released by the scar or by the proliferating epidermis.

Some of the persistent and recurrent nevi have clinical and histological features closely simulating a melanoma, a finding that led to the term “pseudomelanoma.”

26.2.1 Clinical Features

The distinction between persistent and recurrent lesions does not seem very important from a clinical point of view, and the term “recurrent at the site of the biopsy” seems to be acceptable for all such lesions. The term recurrent is only confusing as metastatic melanoma has been referred to as recurrent melanoma. Most recurrences follow shave biopsy, a practice rare outside North America but becoming more popular in some European and South American countries. Superficial injuries (e.g., scratching, liquid nitrogen) can cause similar changes. Especially troublesome is the use of caustic agents such as “black cancer salve” by patients to ablate lesions.

The majority of recurrent lesions had no distinctive clinical or histological details prior to biopsy. Those in which a shave biopsy was done appear as small pigmented spots in the center of a scar, while recurrent nevi following excision may be more off center in a larger scar.

Some lesions are irregular, poorly circumscribed with jagged borders, and a variegated brownish color and can simulate a melanoma; however, the macules lie inside the borders of the scar in these quite worrisome cases.

The stereotypical patients are adolescents or young adults, usually females, to whom a slightly raised nevus has been shaved off about 6 weeks earlier, pigment reappears in the center of the lesion. Dysplastic nevi seem to recur later, on average at about 2 years. Less frequently the previously removed lesion was not a nevus, but another non-melanocytic neoplasm or a widely excised melanoma; presumably, a nevus that was incidentally present at the excision margins was transected.

In general, after its appearance and a short period of growth, the lesion becomes stable and does not pose a risk for melanoma. In the case of recurrent dysplastic nevi, there may be an increased risk of melanoma with recurrence, especially with lesions in sun-damaged skin. It may be that the cumulative genetic stress of actinic damage and increased proliferation with regrowth enables additional mutations and malignant transformation.
Recurrent nevi should be distinguished from the common phenomenon of hyperpigmented macules and streaks within scars (Botella-Estrada et al. 2006). The latter can occur in excisions of non-melanocytic lesions. Often these lesions present as multiple transverse brown bands within linear scars.

26.2.2 Histological Features

From a histological point of view (Figs. 26.1, 26.2, and 26.3), the lesion shows three clear-cut stratified zones (King et al. 2009; Sommer et al. 2011). At the top, in the epidermis, there is the new melanocytic proliferation, in the middle there is the scar of the previous surgical procedure, and at the bottom there is the residual previous incompletely removed nevus. The residual nevus in the deep dermis can be absent if the previous lesion was subtotally removed.

In the epidermis the proliferation of melanocytes closely resembles a melanoma in situ or a dysplastic nevus. Melanocytes at the junction are distributed singly and, to a lesser degree in nests, with variable degrees of confluence and disorganization. Nests, if present, are often elongated and parallel to the epidermis and show an alarming variability of shape and size which gives a striking impression of asymmetry.

The intraepidermal cells are large, sometimes elongated or dendritic; in such cases the nucleus is hyperchromatic and atypical. These cells are more frequent in early stages of recurrence.

Melanocytes can be found above the junction, and although pagetoid spread is not rare, it is actually uncommon for it to be well developed. The proliferation of melanocytes involves the intradermal portion of eccrine and follicular structures. The melanocytic proliferation is accompanied by epidermal alterations, such as the absence of rete ridges and a modest acanthosis.

Pigmentation is abundant and affects the basal layer and its melanocytes. Usually the new persistent or recurrent nevus is darker than the previously excised lesion. It may be that in a recurrent nevus, melanocytes that were in a resting state migrate from adnexa or from the dermis and go from a mature resting state to an activated one, increasing their RNA and protein synthesis (resulting in larger nuclei and nucleoli) and melanin production.

The new growth is initially limited to the epidermis, but in time cells enter the papillary dermis. They are initially plump, often with abundant pale cytoplasm but mature with descent. These cells are usually topographically separated from the undisturbed part of the original nevus, remaining separated from it by fibrosis.

In the papillary and reticular dermis, a band of cicatricial tissue is present with closely apposed collagen bundles oriented in parallel to the epidermis. Fibroblasts are plump with a prominent nucleus in recently biopsied lesions. Vertically oriented, newly formed, vessels are regularly scattered throughout the scar. In a few cases elongated fibroblast-like melanocytes are present in the scar tissue where they can be better spotted through an S100 immunostain.

When the first lesion was treated with laser or cryosurgery, the scar can be almost undetectable: in these cases a stain for elastic fibers will demonstrate their absence in the dermis underneath the junctional proliferation (also polarized light will reveal the loss or diminution of the collagen’s anisotropism). Elastic tissue stains are also useful if there is no overt history of a scar and help delineate the extent of scarring.

In the dermis beneath the scar, the remnants of a banal common nevus are present if the previous lesion had not been entirely removed. The cells of this nevus are not continuous with the melanocytes proliferating at the junction. The residual melanocytes are often around a follicle beneath the scar.

All the various types of melanocytic nevi can recur or persist with incomplete excision, but the two most common entities in which this occurs are small, superficial congenital nevus and the dysplastic nevus. Recurrent Spitz nevus, which also occurs, has been illustrated in Chap. 13.

An appearance histologically indistinguishable from that of recurrent nevus occurs in patients with cicatricial bullous diseases (Gallardo et al. 2005). Lentiginous irregular proliferation of melanocytes occurs in traumatized lentigo simplex or junctional nevi or in severely sun-damaged skin. We consider nevi which undergo trauma correlated with persistent nevi. These nevi are characterized by a large central scar which distorts the nevus’ architecture; these nevi have peculiar intradermal nests parallel to the epidermis and with an irregular shape, findings which simulate a nevoid melanoma (see Chaps. 4 and 33).

26.2.3 Differential Diagnosis

Junctional recurrent nevi occasionally simulate melanoma in situ, whereas recurrent nevi with an intradermal component in the scar can be similar to invasive melanomas.

The differential diagnosis can be usually solved through clinicopathological correlation: these persistent lesions usually happen a few weeks or months after a previous surgical procedure. Review of the slide from the original lesion will almost always show an obviously benign melanocytic nevus.

On the contrary, melanoma recurs at an incomplete excision site after many months or years and the histology of the first lesion will show an atypical proliferation of melanocytes.

In conclusion, if the initial lesion is a banal nevus and the interval between biopsies is short, there is no logical way for the recurrent neoplasm to be a melanoma, no matter how floridly atypical its histological changes may be (however, one should remember that recurrent nevi have been reported within the scars of previously entirely removed melanomas, presumably as the procedure transected an incidentally present nevus).