lesion appears suddenly, forms erosion and bleeds. Pyogenic granuloma should be differentiated from amelanotic melanoma.

**Pathology**

Pathologically, there is an angioma accompanied by secondary inflammatory granuloma, or there is granuloma that is non-angiomatosus in structure.

**Treatment**

Excision, cryotherapy and laser therapy are conducted; there may be recurrence in cases of incomplete treatment.

17. **Intravascular papillary endothelial hyperplasia**

The blood vessels proliferate as a result of thrombotic recanalization in the dilated venulae. It is a reactive change of thrombotic vessels often seen in adults. A purplish-red nodule occurs, most frequently in the veins of the palmar surfaces of fingers. Thrombus formation may cause pain.

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### H. Fibrous tumors

#### 1. Soft fibroma

*Synonyms:* Fibroma pendulans, Acrochordon, Skin tag

**Clinical features**

A soft, dome-shaped or pedunculated tumor with wrinkles on the surface and a color of normal skin or light brown occurs on the neck, axillary fossae or groin (Fig. 21.50). Small, multiple, threadlike tumors 2 mm to 3 mm long on the neck and axillary fossae are called acrochordon. A solitary, relatively large tumor of about 1 cm on the trunk is called soft fibroma. An enlarged soft fibroma hanging from the skin is called a soft fibroma pendulum. Soft fibroma tends to occur in obese persons and women; it is thought to relate to skin aging.

**Pathology**

The primary condition of soft fibroma is proliferation of collagen bundles with few fibroblasts. In soft fibroma, fat cells are contained in tumors in many cases.

**Treatment**

The peduncle of the soft fibroma may be excised and the site treated by cryotherapy.
2. Dermatofibroma

**Outline**

- It is a firm benign tumor in which fibroblasts or macrophages proliferate in the dermis. It may be caused by external injury, such as an insect sting.
- Elevated brown nodules of several millimeters to 2 cm in diameter are produced, most commonly on the extremities of adults.

**Clinical features, Pathogenesis**

A dermatofibroma is an intradermal nodule often described as “a button buried in the shallow area of skin.” The skin surface of the nodule is pigmented (Fig. 21.51). Dermatofibroma is solitary in most cases, but it may occur multiply. Tenderness may be present. Connective tissue factors are thought to proliferate reactively against a minor injury and cause dermatofibroma; some dermatologists do not consider it a tumor in the strict sense. Dermatofibroma develops slowly and usually stops changing when it reaches a certain size. In rare cases, a giant dermatofibroma (benign) with a diameter of 5 cm or larger occurs on the lower legs.

**Pathology**

Dermal and subcutaneous proliferation of collagen fibers, fibroblasts and histiocytes occurs (Fig. 21.52). When the main finding is histiocytic proliferation, it is called cellular dermatofibroma, and the tumor is slightly reddish and soft. Dermatofibromas in which fibroblasts and collagen fibers proliferate are called fibrous dermatofibromas. Fibroblasts scatter among collagen fibers.

**Differential diagnosis**

When the lesion is firm and blackish or relatively quick-growing, differentiation from malignant melanoma is necessary. Dermatofibrosarcoma protuberans, xanthoma, lentigo and blue nevus are also differentiated from dermatofibroma.

**Treatment**

Excision is conducted. As dermatofibroma is asymptomatic and there is no malignant transformation, it can be left untreated if it has been differentiated from malignant melanoma.

3. Hypertrophic scar, Keloid

**Outline**

- A flat, sharply marginated, red or brown elevation is caused by proliferation of connective tissue.
- It usually occurs secondarily after external injury or...
operation, but it may occur spontaneously in some cases.

- There is itching and tenderness.
- Local injection and ODT of steroids are the main treatments. It is intractable.

**Classification**

An elevated, reddish-brown lesion occurs on preexisting scarring from excessive production of collagen fibers in fibroblasts. A lesion that atrophies spontaneously within a few years after onset is called a hypertrophic scar. However, a lesion with a persistent elevation in which the hyperplastic scar does not disappear is called a scar keloid; it is known to be a pathologic response of skin. Cases in which proliferation expands beyond the edge of the scar are called true keloids; these are highly intractable.

**Clinical features**

Hypertrophic scars and keloids are flat or dome-shaped, sharply demarcated, and elevated. They range in color from bright red to brown (Fig. 21.53). True keloids are characterized by gradual enlargement as they progress. When pinched firmly from the side, they are painful (lateral tenderness). Scar keloids and hypertrophic scars do not enlarge beyond the scar width. Lateral tenderness is not present in scar keloids and hypertrophic scars.

**Treatment**

Hypertrophic scars and keloids are intractable, although pressure dressing, topical ODT of steroids, local injection of steroids, and oral Tranilast are useful at the early stages. For severe cases and when dysfunction is present, these treatments and radiation therapy are performed after surgical removal. Particularly for true keloids, simple excision may double the probability of tumor recurrence versus leaving it untreated.

**4. Palmoplantar fibromatosis**

*Synonym: Dupuytren’s contracture*

A superficial fibroma of firm cordlike substance occurs in the aponeuroses of palms and soles. The fingers flex and contract (Dupuytren’s contracture) (Fig. 21.54). Palmoplantar fibromatosis may accompany diabetes mellitus (Chapter 17).

**5. Dorsal fibromatosis**

*Synonym: Knuckle pad*

Multiple keratotic elevations of 1 cm to 2 cm in diameter and ranging in color from normal skin color to brown occur on the joint regions of dorsal fingers and toes.
Multiple, systematized, dome-shaped, whitish papules 1 mm to 3 mm in diameter occur on the coronary sulcus of the penis. Pearly penile papules are angiofibromas; they are considered a normal variant, and require no therapy.

7. Acquired digital fibrokeratoma

A small, dome-shaped or cylindrical, protruding, elastic, firm nodule with a keratinous surface and normal skin color occurs (Fig. 21.55), frequently on the fingers and toes but sometimes on the palms and soles.

8. Fibrous papule of the nose

A solitary, firm, dome-shaped papule ranging in color from normal skin color to brown or red and with a diameter of 10 mm or less occurs on the face and neck (Fig. 21.56). Angiofibroma is histopathologically observed.

9. Elastofibroma

A dome-shaped or flat, discoidal tumor occurs, usually to the side of the subscapular region. There is proliferation of elastic fibers (Fig. 21.57).

10. Sclerotic fibroma

A dome-shaped tumor of 2 cm in diameter occurs. Histopathologically, firm collagen fibers are packed densely in the tumor. Because cellular components are largely absent, sclerotic fibroma appears as be a well-defined tumor in the dermis.

11. Nodular fasciitis

Fibroblasts around the fasciae rapidly proliferate, forming a subcutaneous nodule of 2 cm to 3 cm in diameter (Fig. 21.58). External injury may induce nodular fasciitis. The forearms of persons in their 30s are most frequently affected. The condition is often accompanied by tenderness and spontaneous pain. Pathologically, premature fibroblast-like cells proliferate in irregular patterns, such as bundles or spirals. Nuclear division is seen. Differentiation from sarcoma (fibrosarcoma, malignant fibrous histiocytoma, leiomyosarcoma, myxoid liposarcoma, dermatofibrosarcoma protuberans) is necessary. Nodular fasciitis tends to heal spontaneously.

12. Giant cell tumor of the tendon sheath

A painless, intradermal or subcutaneous, firm, multilobular
nodule of several millimeters to 4 cm in diameter occurs, most commonly on the proximal joints of fingers. It is thought to be a tendon-derived or synovial membrane-derived tumor that is characterized by proliferation of histiocyte-like cells. It should be completely removed surgically.

13. Desmoid tumor

It is a firm, deep-seated tumor of several centimeters to 10 cm in diameter and normal skin color. The muscles of the shoulders, chest wall, thighs and aponeurosis are most frequently involved. It is a benign tumor that histologically consists of differentiated fibroblasts and collagen fibers. It slowly enlarges and infiltrates, and it has a high probability of recurring after it resolves.

14. Cutaneous myxoma

This is an asymptomatic, soft, nodular benign tumor of up to several centimeters in diameter. Histopathologically, star-shaped or spindled tumor cells appear to float in mucous-membrane-like tissue. Cutaneous myxoma is not a focal mucinosis, but an independent disease.

15. Digital mucous cyst, Ganglion

A false cystic lesion containing mucin occurs on the dorsal surface of a finger or toe (Fig. 21.59). It presents a blistered or verrucous appearance. Digital mucous cysts are divided into myxomatous and ganglionic. A myxomatous digital mucous cyst is caused by overproduction of hyaluronic acid by fibroblasts and is essentially focal mucinosis. A ganglionic digital mucous cyst is a joint capsule or tendovaginal hernia. Incomplete removal of the lesion leads to recurrence. Needle aspiration of accumulated mucin is useful.

16. Mucous cyst of the oral mucosa

A soft, dome-shaped tumor of 2 mm to 10 mm in diameter occurs, predominantly on the lower lip, or on the buccal mucosa and tongue in rare cases (Fig. 21.60). When incised, the tumor discharges transparent yellowish mucin. The pathogenesis is thought to be rupturing of the salivary excretory duct by a bite, leading to salivary flow and granuloma.

17. Pseudocyst of the auricle

An intense, pulsating cyst occurs unilaterally in the cartilage of the upper part of the auricle. Inflammatory symptoms including reddening and sharp pain are rarely present. The treatment is local injection of steroids, although the condition is intractable.