

in larger quantities it produces general anaesthesia, and diminishes and ultimately abolishes reflex action by influencing the spinal cord, and probably also the spinal centres. The great muscular weakness observed is not due to any action on the higher cerebral centres, as they maintain their normal functional activity. Very large quantities depress the circulatory and respiratory systems, and, in poisonous doses, death is produced by failure of the respiration or by cardiac paralysis. Placed on the tongue, it at first causes a burning sensation, which is followed by numbness and anaesthesia, which continue for some time and are accompanied by a free flow of saliva. On the cornea and conjunctiva the same effect is produced. The local anaesthetic action is said to be equal to that of cocaine, but its use is restricted by the insolubility of the preparations in water.

Kava is the best simple diuretic that we possess. It quickly produces an abundant flow of pale urine without irritation, but, on the contrary, with soothing effect, and is hence very useful in removing dropsical effusions. At other times its action is favored by the use of an abundance of water. Such use of it is recommended in cystitis, gonorrhoea, and chronic inflammatory conditions of the mucous membrane of the urinary organs. The inflammatory action is rapidly moderated, and the purulent and catarrhal discharges diminish in amount.

The fluid extract is the most convenient preparation to use, and has been employed with decided success. It may be given in doses of ℥ xx.-lx. three times a day, and has been combined with sweet spirits of nitre and glycerin when these are indicated. The alpha resin is given in doses of gr. i.-iss., three times a day. A solid extract is prepared, the dose of which is gr. ij.-vi. The principle, kavahin, is not employed, as its therapeutic action and dose are uncertain.

Henry H. Rusby.

KEFIR GRAINS.—KEFIR SEEDS. Small pebble-like or seed-like masses, occurring in the Caucasus region, consisting of a fungus mass containing the ordinary yeast-plant, together with the bacterium *Diospora Caucasica* Kern., and there used for the fermentation of milk into a substance called kefir, the equivalent of koumyss. The vitality of the dry grains is excited by soaking in water for some hours before they are introduced into the milk.

Henry H. Rusby.

KELOID.—(Synonyms: Kelis; Kelos; Fr. *Cheloïde*; Ger. *Keloid*, *Knollenkrebs*.)

DEFINITION.—A circumscribed connective-tissue, benign, cutaneous neoplasm resembling an hypertrophic scar and consisting of accumulated embryonic connective-tissue elements.

To Alibert ("Précis théorique et pratique sur les maladies de la peau," 2 vols. 8vo, Paris, 1810, Art. "Cancroïdes," T. i., p. 417. Atlas, pl. 28; Vallerand de Lafosse, *Revue méd.*, October, 1829) belongs the credit of giving the first reliable description of keloid to the medical profession. The term is derived from the Greek word *κῆλις*, a scar, or *κῆλη*, a claw, and *εἶδος*, resemblance, from its fancied resemblance to a crab's claw. Alibert differentiated two forms of keloid, the true or spontaneous, *kelis genuina seu vera*, developing without any injury to the skin, and the false, *kelis spuria*, also called scar, cicatricial, or secondary keloid, the result of traumatism. This division, however, cannot be adhered to strictly, as the injury is often of such a slight character as to be readily overlooked. The term Addison's keloid refers to morphea or scleroderma circumscriptum, and is to be distinguished from the affection under consideration.

SYMPTOMS.—Keloid usually begins as an elevated nodule or tubercle, or several nodules may coalesce, varying in size from a pea or a bean to that of the hand. Its favorite seat is on the trunk, particularly over the sternum, although it may occur on the mammae, neck, ears, and arms. The tumor consists of a hard, fibrous growth, is irregular in contour, the surface is smooth or covered with lanugo hairs, the epidermic covering is thin and of a

white or pinkish color, due to the presence of dilated capillaries; it is firm and elastic to the touch, adherent to the cutis, and elevated and sharply defined. Keloid presents not only variations in size but also in form, at times appearing as a tumor of oval shape, from which prolongations extend into the surrounding neighborhood, resembling the appearance of crab's claws, at times it is simply ovoid or nodular without projection. Again it is met with as an elongated, cylindrical growth, or occurs as elevations, resembling cords or in the form of bands or ridges. Occasionally a slight depression of the centre with elevated margin exists. Keloid slowly increases and may remain stationary for years, and usually it persists throughout life. Even when the tumor has existed for years, ulceration never takes place, and spontaneous involution has been observed to occur in very exceptional cases. Although usually single, keloids may be quite numerous, and at times are distributed along the course of cutaneous nerves. Schwimmer in one case reported one hundred and five, and De Amicis in another individual three hundred keloids. Usually the growth is painful, especially when it is subjected to pressure, and occasionally the pain may be spontaneous. In some cases pain is entirely lacking. At times a pricking or burning sensation and occasionally itching are experienced; when the growth is situated on the flexor surfaces of articulations, it may interfere to some extent with motion.

ETIOLOGY.—The etiology of so-called spontaneous keloid is obscure, and it is regarded as of exceedingly rare occurrence; it is highly probable, as already stated, that it is due to injury of the cutis so minute in character as

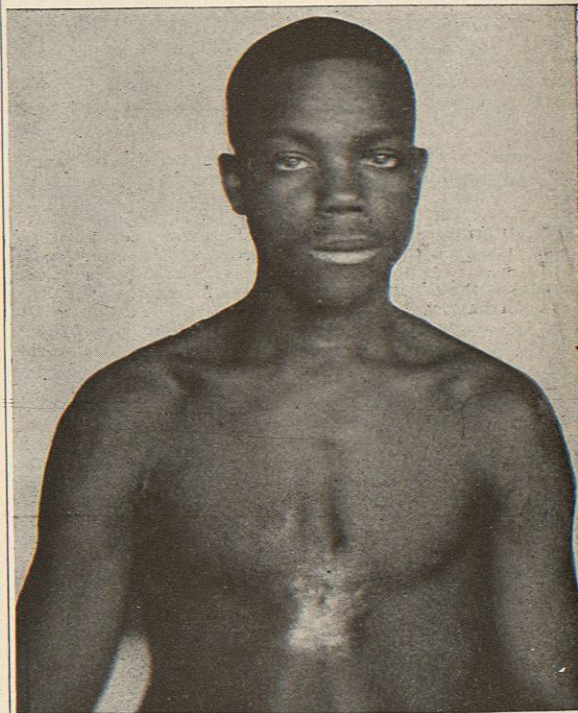


FIG. 3050.—Keloid of Sternum Developed after a Burn.

to be readily overlooked. Sex does not appear to influence its occurrence, although some observers are inclined to regard it as being of greater frequency in females than in males. It has been observed at all ages, although it is of rare occurrence in the very young and very old, and

usually appears during middle life. It is met with most frequently in tropical countries, and it appears that certain families and the negro race are predisposed to keloid. Cicatricial or scar keloid, on the other hand, is often met



FIG. 3051.—Keloid of Inferior Maxillary Bone following an Operation. Figs. 3050 and 3051 illustrate the occurrence of keloid in two negro brothers.

with and may appear in any locality. As an example of the disease occurring in the negro race and as an argument in favor of family predisposition (see Hebra's case in which three sisters and the mother were affected, "Hebra," vol. iii., p. 278; Wilson and Bryant have also recorded

the following cases: In the one individual, eighteen years of age, there existed a tumor on the sternum, about midway between the manubrium and ensiform cartilage. It dated from the third year of life and developed as a result of a burn. The tumor was about three inches in width by five inches in length, was elevated about one-sixteenth to a quarter of an inch over the surrounding skin, was sharply defined and felt firm and elastic to the touch. It was irregular in contour, and characteristic claw-like processes extended on either side, both laterally and above and below. The surface of the growth was smooth and totally devoid of hair, and the color was whiter than that of the neighboring parts; dilated blood-vessels on the surface were not visible. In the second case, a brother of the foregoing individual, aged twenty years, there developed in the scar, two weeks after removal of a tumor (presumably sebaceous), a keloid. This was situated on the ramus of the inferior maxillary bone, and extended from a point just below the articulation to one situated a little in front of the angle of the jaw. The growth projected about one-quarter of an inch above the surrounding surface, was of rather oval shape and of a lighter color than the adjoining skin, and measured about three inches in length by about two in width. On either side of the growth there existed three small keloids marking the site of the introduction of the sutures for closing the wound after operation.

Scar keloid often follows burns, operations, and other slight cutaneous injuries. Thus it has been observed to occur after blisters, in the lobe of the ear after piercing for earrings, in the scars of leech bites, also after the

scars of eruptions of smallpox, acne indurata, syphilis, herpes zoster, and non-parasitic sycosis, and in vaccination scars. The writer recently had occasion to observe, on the right cheek of a young lady, a keloid that had developed after an attack of dermatitis venenata. It has also been known to follow after psoriasis and is not infrequently seen (in male individuals of the African race) in the form of small, indurated, whitish, elevated lesions due to shaving.

PATHOLOGY AND PATHOLOGICAL ANATOMY.—Keloid is a growth consisting of dense, fibrous connective tissue, situated in the corium. According to Warren, the disease originates in the vessel walls of the corium, which are involved to quite a distance beyond the growth, which would explain the recurrence of the neoplasm after extirpation. The same observer states that it is impossible to differentiate between true and false keloid with the aid of the microscope. According to Kaposi, in true keloid the sections present a whitish, dense fibrous mass, the fibres running parallel to the long axis of the tumor and the surface of the skin; here and there they run in a vertical direction. The new growth is inserted in the corium in such a manner that normal layers of the latter, particularly the papillae and rete pegs, remain intact, while they are wholly absent in the hypertrophic scar. There are a few nuclei and nucleated spindle cells within the keloid body and around the vessels, which are compressed, as if by a sheath, by the dense bundles of fibres. The cells are abundant in the younger parts of the keloid, around the arteries; indeed, it appears as if the fibres of the keloid were derived from spindle-shaped cells sheathing the vessels. Neumann states that in keloid a new growth of parallel connective-tissue fibres takes place, and that these fibres are situated, in the shape of a wedge, in the substance of the corium and ultimately displace it entirely. Spindle-shaped cells accumulate along the adventitia of the vessels, especially of the arteries; a few oblique bundles may occur here and there. The sebaceous and sudariparous glands at first remain unchanged, later they disappear and the glandular substance in the centre of the keloid is lost. The tumor

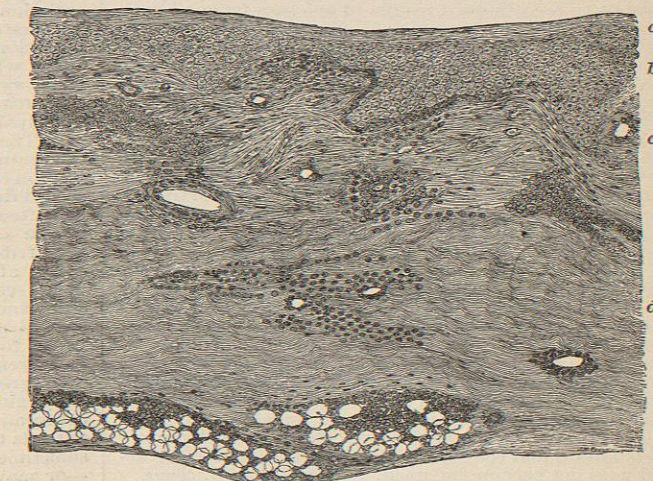


FIG. 3052.—Cicatricial Keloid from the Gluteal Region, following a Burn. a, Epidermis; b, Malpighian layer; c, remains of papillary layer near the border of the tumor; d, keloid tissue. The cellular infiltration around the blood-vessels is also indicated at several points. (From an original drawing by Dr. James M. French.)

develops in the following manner: Spindle-shaped cells appear along the vessels, especially the arteries, and they extend even into the neighboring normal tissue. This change in the adventitia is especially noticeable along the

margin of the new growth and at those points where the arteries give off branches to the papillae. The disease extends along the vessels of the corium.

DIAGNOSIS.—This is not usually difficult, as the symptoms are so characteristic as to render an error almost impossible. From a simple cicatrix keloid is to be distinguished by its course, color, contour, consistence, elevation, and frequently by the presence of pain. The diagnosis between spontaneous and spurious or cicatricial keloid is of no special importance. Hypertrophic scar differs from it in not extending beyond the limits of the injury, and in the facts that claw-like prolongations are absent, and that the tissue of the new growth is less pinkish in color and less permanent. Morphoea or scleroderma circumscriptum, occurring in raised patches, may simulate keloid to some extent; the latter, however, differs from the former by being more vascular, denser, and more elevated and by having claw-like prolongations.

PROGNOSIS.—The prognosis is unfavorable. Spontaneous involution is of rare occurrence. According to some observers, a keloid which has developed on a syphilitic scar is more apt to undergo involution. The growth does not interfere with the general health and may, after having attained a certain size, cease to enlarge and remain stationary.

TREATMENT.—The treatment of keloid is unsatisfactory; plastic surgery has accomplished very little in this affection. When removed with the knife or with caustics the growth is almost certain to return, and usually in a more aggravated form than before operation. According to Dühring caustic potash offers the most efficient remedy if an operation is insisted upon; he advises, however, against its employment if the disease is increasing. Erasmus Wilson paints the growth with a spirituous solution of soap and potassium iodide, and then keeps it constantly covered with lead plaster, spread on wash leather. Pressure with flexible collodion resulted in a cure in Professor Da Costa's hands in a case ensuing after variola. Pressure carefully applied with an elastic bandage has proved successful in Verneuil's hands; it should be distributed in such a manner as to avoid friction which might have a tendency to favor the growth of the tumor. Hardaway reports good results in one case from electrolysis; it is not safe, however, to employ a strong current for fear of stimulating the growth. Multiple scarifications, frequently repeated, have been followed, according to Vidal, by complete cessation of pain and diminution in the size of the growth. Severe pain may be combated with hypodermatic injections of morphine or cocaine. Chloroform liniment and applications containing belladonna or stramonium or emplastrum hydrargyri may also be resorted to for this purpose. Internally quinine, potassium iodide, and arsenic have been employed, but they are all of questionable utility. Local applications of remedies which promote absorption, such as tincture of iodine, iodized glycerin, etc., have all been found to be ineffectual. Recently Dr. Marie (*La Sem. médicale*, 1893, No. 14) has advocated injections into the keloid of a twenty-per-cent. sterilized solution of creosote in oil with a Pravaz syringe; this operation, as he states, being soon followed by slight swelling and paleness of the tumor, and also by pain which may last for several hours. After a lapse of two to three days the tumor assumes a violet-blue color, a vesicle forms on its surface, and then later the whole growth undergoes a transformation into a dry cicatrix. It is stated that by this process the tumor is embalmed and the skin in the neighborhood of the keloid does not become inflamed. *Emmanuel J. Stout.*

KERATIN.—The important constituent of the corneous layer of the skin and its appendages, extracted for use as a resistant coating against the gastric secretion. It is chiefly obtained from quills, or from horn. Various methods of preparation are employed, their object being to eliminate such substances as can be attacked by the gastric juice. One of these methods consists in eliminating such substances by maceration in a solution of hydrochloric acid and pepsin and extracting the residue.

Besides being insoluble in the gastric juice, it is so in alcohol and water, but is soluble in strong acetic acid, also in alkalis, hence in the duodenal contents. Keratin is used to coat pills containing substances, the action of which upon the stomach or upon its contents is undesirable or objectionable, but which is serviceable in the intestine. It apparently has no action of its own, except slightly as an albuminoid nutrient. *Henry H. Rusby.*

KERATODERMA PALMARE ET PLANTARE.—(Synonyms: *Keratoma palmare et plantare, hereditarium, ichthyosis palmaris et plantaris, tylosis palmae et plantae.*)

DEFINITION.—Keratoderma of the palms of the hands and of the soles of the feet is an affection characterized by a thickening of the horny layer, of a leathery consistence, yellow or brown in color and more or less symmetrical.

From a purely clinical point of view, much vagueness is attached to the term keratoderma, as it includes thickening of the palmar and plantar epidermis, the result of several and distinct causes—lupus for example, which is associated with a diminution in the epidermal tissue, except at the extremities, where it associates itself with hyperkeratosis. Dry eczema may show at all points an increased production of horny tissue, from which an extensive desquamation results, while at the palms and the soles the horny substance accumulates in such a manner as to cause the condition known as keratoderma. On the other hand, in default of the histological characteristics, we take the word hyperkeratosis, in a strictly clinical sense, to mean hypertrophy of the horny layer. Nevertheless, it is generally maintained that the palms and the soles are regions specialized by their structure; that no analogy exists between them and the other parts of the body by reason of their situation, their necessary exposure, and the exterior influence to which they are continually subject, showing that the hands and the feet should be affected in the same manner by the same disease. There can be no doubt that in the future, no matter what classification is adopted, the diagnosis will be founded upon characteristics revealed by the microscope. For upon microscopic examination depends the differentiation of the great variety of palmar and plantar hyperkeratoses. As they are the outcome of very different conditions and diseases, some being generalized, or diffused, while others are localized, a comprehensive and satisfactory classification becomes extremely difficult.

SYMPTOMS.—The Besnier classification embraces four principal divisions:

I. The symmetrical keratodermata of the extremities, congenital and hereditary, with or without naevi on any portion of the body. As a rule, the disease has been observed during the first weeks of life, yet its development has often been delayed until the close of the year, or even as late as the third or fourth year. It begins as a diffuse redness of the palms and soles, and later becomes scaly; after which the redness disappears, when the condition establishes itself and the epidermal thickening commences. At certain points it may become circumscribed and resemble a callus (Plate XXXVII, Fig. 2). In the folds of the flexures there are often deep rhagades. In extreme cases the horny layer is ploughed into fissures of a greater or less depth. The abnormal epidermal thickening of the involved areas generally stops abruptly, conforming to the outline of the palms, but quite often it extends to the back of the fingers. The horny carapace sometimes preserves its natural color—an amber yellow—or may become gray or black by the penetration of dust. Its surface is wrinkled, and it desquamates in the form of irregular masses.

This special type is not always well defined—in some cases it builds limited plaques. It may sometimes affect other parts of the body, such as the knees and elbows. Once established, the disease continues indefinitely and is likely to be worse in winter.

II. The common symmetrical keratodermata which develop in adults, possibly related to some central neurosis, are erythematous and influenced both by weather and by

EXPLANATION OF
PLATE XXXVII.