

ATROPHIA PILORUM PROPRIA.

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ATROPHY of the hair exists under two forms, namely, *Fragilitas crinium*, and *Tichorrhæxis nodosa*. In both forms the hair-shaft is easily friable and splits or breaks of itself, or by the slightest traction. In certain diseases, as *trichophytosis*, *favus*, and *seborrhœa*; and in those that are attended with a general lowering of nutrition such as *phthisis*, *scrofula*, and the various *cachexiæ*, the hair becomes dry and splits or breaks off. This form of fragility of the hair may be considered as symptomatic *fragilitas crinium*, but does not properly belong to the essential atrophies of the hair.

FRAGILITAS CRINIUM.

This disease has been called *scissura pilorum*, and has for its distinguishing features splitting of the hair. The cleft is usually at the free extremity, and at times runs some distance up the shaft. The split hairs are either scattered here and there through the otherwise normal hair, or all the hairs of the part are split. The disease occurs most often upon the scalp, the beard being the place next most frequently affected. Splitting of the ends of the hair is a common occurrence in the long hair of women. The shaft may be split into two or more fibrillæ, and these spread out from each other simply, or curve up upon themselves. The cleft may also occur in the middle of the shaft, or at its exit from the follicle, and in the latter case the shaft will be split throughout its entire length, the segments either separating or holding together. Dühring¹ has reported a case occurring in the beard in which the hair began to split within the bulb, and which was attended by an irritation of the follicles so great as to cause follicular papules and pustules. In this case "the hairs were very bristly, sometimes they were of good length, sometimes short, sometimes thicker than normal, sometimes abnormally slender, sometimes straight, sometimes crooked, sometimes came out easily when pulled upon or fell out of themselves, and sometimes they were quite fast in the follicle and broke off, leaving the root behind when epilation was attempted." Besides the splitting, the hair may show no

¹ Amer. Journ. Med. Sc., 1878, July, fol. 88.



other abnormality, but it is generally more dry and brittle than normal, and may be irregular and uneven in its contour. The bulb of the hair may be normal or atrophied.

Etiology and Pathology. The cause of the idiopathic fragilitas crinium is yet undetermined. Kaposi has said that the splitting of the ends of the long hair in women was due to the distance of the distal extremity of the hair from its source of nourishment, the hair-root or bulb. But this explanation does not apply to those cases in which the splitting affects the short hair of the beard. Gamberini regards neglect of the hair and allowing it to grow to excess as being favoring motives of fragility of the hair. The disease is without doubt due to some interference with the nutrition of the hair, probably a yet undetermined tropho-neurosis.

In Duhring's case the microscopical examination showed marked atrophy of the hair bulbs, and fissure of the hair-shaft beginning within the bulb, separation of the segments taking place at the bulb or at variable distances beyond it. The cortical substance presented a dry and brittle look in the narrowed portions and a spongy luxuriant appearance in the thickened portions of the hair. The medulla was nowhere normal, but was present here and there in broken tracts.

Treatment. When occurring only at the free end of long hairs, they should be cut above the cleft. In all cases the scalp should be kept in good condition, as directed under alopecia prematura. If the disease occur in the beard, shaving would at least remove the deformity, and possibly cure the disease.

TRICHORRHEXIS NODOSA.

Synonyms. Trichoclasia; Trichoptuose; Tinea nodosa; Piedra.

Under this heading is grouped a number of abnormalities or diseased conditions of the hair which have one common feature, that is, that the hair shaft suffers a lesion of continuity, and is deformed by the presence of nodular swellings. Properly speaking, trichorrhexis nodosa is a non-parasitic disease of the hair occurring chiefly in the beard; piedra is a fungoid growth met with, as far as reported, only in Colombia; while tinea nodosa is a parasitic disease which may be found in any country. We will consider each separately and begin with the typical disease,

Trichorrhexis nodosa. Wilks and Beigel were the first to describe this peculiar affection, but of late it has received considerable attention from various observers. The disease generally affects exclusively the hair of the beard and moustache, and here it reaches its highest development. Very infrequently it is found in the hairs of the pubic region, and still more rarely in the head-hair. It consists of one or more whitish

or grayish shiny transparent nodular swellings occurring along the shaft of the hair. In people with red hair the color may be black. The number of nodes that may be present is from one to five; and their size will vary with the diameter of the hair. The nodes, according to S. Kohn,¹ occur usually in the upper third of the hair. These nodes give to the hair an appearance not unlike that produced by the presence of the nits of pediculi. The hair is exceedingly brittle and fractures upon slight traction, or spontaneously, the fracture taking place through a node, and the hair-fibres separating like the hairs of a brush. When many hairs in the beard are thus broken, their frayed out ends make the beard look as if it were burnt. Sometimes the hair-fibres splinter about the node, but the two ends do not separate, and this gives an appearance like as if two small brushes were pushed together. Sometimes the hair presents an irregular contour, and looks as if frayed along its entire length. While the fracture is usually transverse, if there should be an excessive amount of medulla present in the node, it may be longitudinal. The hairs themselves are usually firmly fixed in the follicles.

W. G. Smith² reports a case in which the ends of the broken hairs were pointed, the fracture taking place through the internodular portion, and many of the hairs were bent at a right angle. This case occurred in the hairs of the head.

The microscopical examination of the affected hair shows that in the early stage of development of the disease there is simply a spindle-formed thickening in the continuity of the shaft of the hair, and a swelling of the medulla, while the cuticle is still intact. Later the cuticle becomes cleft, and the cleavage extends on all sides of the node till the brush-like appearance is produced by spreading of the separate fibres. At the same time with the cleaving of the cuticle, the medulla undergoes degenerative changes, and either slowly disappears or else, according to Pye-Smith, oozes out as a finely granular material between the separated fibres. There is either no marked change in the appearance of the hair-root, or it is slightly atrophied. Air globules are only very occasionally found in or about the nodes.

The cause of the disease is obscure. It is probably a tropho-neurosis interfering in some way with the proper nutrition of the hair. That it is not parasitic is the almost unanimous opinion of those who have studied the disease. It does not seem to depend upon any diathesis, nervous or otherwise. Anderson³ has recently reported a case of hereditary trichorrhæxis nodosa, the disease in his patient being congenital or nearly so. He gives a "family tree" of this case in regard to the disease, by which

¹ Vrtljsch. f. Derm. u. Syph., 1881, viii., 581.

² Brit. Med. Journ., 1880, i., 654.

³ Lancet, 1883, ii., 140.

it may be traced as far back as a great-grandmother. One member of the family had three sons and two daughters with what the patient called "weak hair," and it was peculiar that this "weak hair" occurred almost invariably in those of the family with dark complexions.

The cause of the splitting of the hair is ascribed by some investigators to a degeneration of the medulla, a consequent rapid accumulation of cells at one point which eventually bursts open the hair sheath.¹ Pye-Smith² regards it as due to a gradual drying of the cortical substance, a consequent loss of coherence of its constituent fibre-cells; the breaking-up into a granular material and swelling of the cells of the medulla, till the rupture of the cortex is complete, there being nothing left to hold the hair together.

The treatment of the disease is very unsatisfactory. Continued shaving probably offers the best hopes of any plan. All sorts of applications have been made to the affected parts, generally of a stimulating character, particularly various forms of mercurials, but without curative effect. Gamberini, in his work on the hair, recommends either bathing the part with a lotion composed as follows:

R Potass. subcarb. 15.— $\frac{3}{ij}$.
Alcohol. dil. 150.— $\frac{3}{v}$.

M.

or inunctions of tannic acid or oil of cade.

Schwimmer advises that an ointment of

R Zinci oxid. 0.5.—gr. vij.
Sulphur loti. 1.0.—gr. xv.
Ung. simp. 10.0.— $\frac{3}{iiss}$.

M.

be rubbed in morning and evening.

Piedra. The best description of this disease is given by Malcolm Morris in his paper reported in the "Transactions of the Pathological Society" of London, 1870, volume xxx., and page 441; also in the *Lancet*, 1879, x., 407. It is upon this paper we mainly rely in the following account of the disease, as from its very rarity we have not had an opportunity to study the disease.

This disease, or deformity of the hair, is said to occur only in one of the United States of Colombia, and was first described in 1874 by Dr. N. Osorio, of the University of Bogota. It consists in the occurrence along the shaft of the hair of from one to ten small, dark-colored nodes which are very hard and gritty, and rattle like stones when the hair is combed or shaken. The stony hardness of the nodes gave the disease its name, "Piedra," which is the Spanish for "stone." These nodes are always

¹ Startin, *Lancet*, 1878, ii., 866.

² *Trans. Path. Soc. (Lond.)*, 1879, xxx., 439.

placed at irregular intervals along the hair-shaft, and are first met with at about half an inch from the point of exit of the hair, the root being unaffected. The disease occurs most commonly in women, men being but rarely affected, and it is the head-hair alone which exhibits these nodes. The disease is non-contagious, and is met with only in warm valleys.

Dr. Osorio thought that the nodes were produced by an agglomeration of epithelium in certain parts of the hair. Dr. Morris believes it is due to the use of a peculiar mucilaginous linseed-like oil, which is used particularly by the native women to keep their hair smooth and shiny. Another theory is that it is due to the use of the water of certain stagnant rivers which is very mucilaginous. Heat seems essential for its production, as the employment of either of these fluids will not cause the disease in cold climates.

Microscopical examination of the affected hair shows that the nodes consist of a honey-combed mass of pigmented spore-like bodies, the whole mass arising from one cell which sends out spore-like columns radially in all directions. As soon as the cells have reached a certain size, they seem to alter their shape, become darker in color, and form a pseudo-epidermis. It is, therefore, a fungous growth. The nodes were found to be very hard to cut, and when considerable force was used they broke.

Piedra differs from trichorrhexis nodosa in the stony hardness of the nodes, in its occurring principally upon the head-hair, in its probable etiology, and in the microscopical appearances it presents.

Tinea nodosa is the name selected by Cheadle and Morris¹ to designate a condition of the hair which differs from trichorrhexis nodosa in the presence of a parasitic growth resembling, though larger than, that of tinea tonsurans; in the marked incrustation of the hair-shaft by this parasitic growth; and in the absence of multiform symmetrical nodosities. Paxton² has also reported a case of nodose condition of the hairs of the axillæ in which parasites were found on section through the nodes.

Besides these three forms of atrophy of the hair, there have been several abnormalities of growth reported from time to time, which deserve mention in this chapter. Thus Ferber³ reports two cases in nervous individuals in whom under special nervous irritation or exhaustion, the hair which naturally was soft and curly, became over night flabby and harsh.

Bulkley⁴ describes a case occurring on the hair of the pubis of a man

¹ Lancet, 1879, i., 190.

² Jour. of Cutaneous Med. (Lond.), 1869, iii., 133.

³ Virchow's Archives, 1866, xxxvi., 598.

⁴ Archv. Dermat., N. Y., 1881, vii., 403.

affected with itching and sweating of the genitals, which resembled in its appearance trichorrhexis nodosa. The hair looked as if invested with the nits of pediculi, but the microscope showed that the appearance was due to the presence of a double knot on each hair, composed of several turns.

The writer of this article has recently met with a case of undoubted trichorrhexis nodosa of the beard in which, besides the nodes, there was the knotting of the hair described by Bulkley. The patient was not quite in his right mind, and kept constantly pulling at the hair of his beard. The knotting of the hair was ascribed to this habit.

