ON
ENUCLEATION OF NÆVUS.

BY
T. PRIDGIN TEALE, JUN., M.A. OXON., F.R.C.S.

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IN the following paper I propose to advocate, and illustrate by cases and specimens, a method of dealing with large subcutaneous nævus, which appears to me to have received less attention, in operative surgery, than it deserves. Having for several years adopted more and more exclusively the method of extirpation by the knife, in preference to the various modes of producing destruction or atrophy of the nævoid structure by ligature, setons, nitrate of silver, or injection, I have been forcibly struck with the degree in which in many cases the nævoid growth was distinct from the neighbouring tissues. The conclusion was gradually forced upon me that in a large majority of cases in which the nævus was more or less subcutaneous, the new growth was surrounded by condensed connective tissues forming a more or less perfect capsule, and that this limiting capsule was sufficiently distinct to enable the surgeon to coast along the surface of the tumour, enucleating to a great extent, and using the knife here and there if necessary to assist the process of enucleation.

This fact of the existence of a capsule, such as to serve as a guide to the surgeon in extirpation by the knife, and the possibility of excising such tumours with comparative safety, *without cutting wide of the disease*, is insisted upon by Mr. Paget in his article on vascular tumours in the first volume of 'Holmes's System of Surgery,' published in 1862. Most surgical writers give the knife a subordinate and exceptional position in the treatment of nævus, and do not even mention the existence in many of the most formidable cases—of a limiting capsule. Mr. Paget describes these growths as follows, page 498: "They are well circumscribed by connective tissues which would probably form a perfect capsule but for the number of blood-vessels that pass through it to and from this contained vascular mass." Again, page 501, he says, "But there is no such danger (*i. e.* of hæmorrhage) in the capillary and venous forms; and if these be not cut into, and the knife be kept close to the investing capsule, they may be excised as safely, and almost as easily, as any other tumours of the same dimensions. The objections to the plan are that it leaves unsightly scars, &c."

The second principle which I advocate would do away with Mr. Paget's objection as to destruction of skin; namely, *that when a portion of the skin covering a nævus is involved in the disease it is not necessary to sacrifice such diseased skin*, as it may be dissected off the surface of the tumour, and, being retained as a cover to the wound, will regain gradually its natural appearance. The vessels of the nævoid portion of skin are mainly fed from the nævus itself, but when the nævus has been removed, the diseased skin becomes united to the surface whence the tumour has been taken, by new material, that is, by an internal cicatrix. There being in all cicatricial structures a tendency to contract, the new vessels which pass through this cicatrix become *gradually* more and more narrowed and choked off, until at last the diseased skin, being mainly dependent for nutrition upon its lateral continuity with healthy skin, is hereby brought back to its normal state and appearance. This change does not follow immediately after the operation, but goes on

gradually in the course of months, simultaneously with the process of contraction in the cicatrix.

In Case 1, treated by enucleation in 1863, I intentionally preserved the nævoid skin in order to prove that this change would take place. This is but one instance among many of the "designed production of atrophy by means of cicatrix," a subject on which I have for several years been collecting observations, and which I hope ere long to bring before the profession. Recently this same principle (of preserving nævoid skin) has been carried out successfully and proved to be true by Mr. Nunn ('Lancet,' 1866, vol. i, page 456), and by Mr. Furneaux Jordan ('Lancet,' 1866, vol. ii, page 618), independently, I believe, of each other, and without being aware of my own case, which, although it occurred in 1863, is now published for the first time.

The following three cases are the most formidable of those in which I have carried out the principle of enucleation. In two of these I should not have ventured upon extirpation by the knife had I not by previous cases acquired full confidence in the capsulated character of the tumours.

CASE 1.—Emily R—, a patient of Mr. Taylor and Mr. Easton of Scarborough, æt. 16 weeks, was brought to me in October, 1863, suffering from a large nævus situated at the angle of the jaw, and extending over the right cheek and the parotid gland, involving also the lobe of the ear. The tumour had existed from birth. Nine weeks previously a ligature had been applied in the hope of arresting the growth of the tumour. This operation was attended by formidable hæmorrhage and convulsions. The tumour afterwards increased rapidly, and had almost doubled in size in the course of three or four weeks.

The following were the characters of the tumour when the child was brought to me.

It measured three inches from side to side, and four inches vertically, the greater part being subcutaneous, but a portion of the investing skin of the size of half-a-crown, and extending over the lobe of the ear, was involved in the disease.

Over the centre of the tumour there was the scar resulting from the use of the ligature nine weeks previously. The tumour was soft and lobulated, and after being partially emptied by pressure, slowly refilled like a sponge.

Having explained my views as to the existence of a capsule and the possibility of enucleation, I obtained the approval of the hospital staff to the course I proposed to adopt, and with the assistance of Mr. S. Smith, my father, and others, carried out the operation in the following manner.

Having isolated the scar resulting from the previous insertion of the ligature, I reflected in flaps the skin covering the surface of the nævus, including in the flaps the nævoid as well as the sound skin. The outer surface of the mass having been laid bare, mainly by careful dissection by the knife, the operation was completed by tearing and enucleating the tumour from its deep-seated connections with comparatively little use of the knife. During the early part of the operation the child was kept under the influence of chloroform, and towards the latter end became faint, vomited, and then rallied. The chief hæmorrhage occurred during the reflection of the skin, but was controlled by the fingers of those assisting me. On separating the deep surface there was comparatively little bleeding. Only five vessels required ligature. About half an inch of the internal jugular vein was exposed during the operation, and the styloid process could be felt by the finger. A small portion passing deeply in front of the styloid process was ligatured, as it was not thought safe to risk the sudden hæmorrhage that might occur from one of the larger branches of the external carotid.

I was not able to make out whether a portion of parotid gland had been removed along with the nævus; or whether the diseased growth had originated in the parotid and had extended outwards until it reached the skin. The infant rallied quickly and recovered without any unfavorable symptom.

The history of the diseased portion of skin is interesting. About one third sloughed. The remainder became gradually

drawn down over the wound by cicatrization, and at the end of three months had the usual appearance of cutaneous nævus, being as large as a shilling. At the end of a year all appearance of nævus had faded away.

The tumour was composed of a lobulated pinkish mass, with large venous sinuses in the middle limited by walls of very slender structure hardly to be distinguished from the investing membrane of the lobes of the tumour. A hasty microscopical examination did not reveal any distinct structure.

The operation was followed by facial palsy of the right side, which at the end of two years had diminished, but had not completely ceased.

CASE 2.—Alice B—, æt. 7 months, a patient of Mr. Edwin Moore of Halifax, was admitted into the Leeds Infirmary, in January, 1865, on account of a large nævus situated over the left parotid gland. The tumour was first noticed a month after birth as a bluish mark under the left ear. A month later it became more blue and swollen, and was punctured to ascertain whether it was an abscess or not. The puncture was attended by considerable flow of blood. The tumour had doubled in size during the last three months, the growth being most rapid during the last month. It measured 4 inches by $3\frac{1}{2}$, and was entirely subcutaneous, and could be much reduced in size by pressure.

January 19th, 1865.—Chloroform having been administered, the skin was carefully reflected from the surface of the tumour, and the operation was then rapidly completed by enucleating the mass from its bed, partly by the handle of the scalpel and Key's director, and partly by tearing it away by the fingers.

During the early part of the operation there was considerable hæmorrhage, the vessels passing from the tumour to the skin being numerous. From the deep surface of the wound the bleeding was slight. Five ligatures were required.

The next day the child was faint, and had two convulsive fits. After the first two or three days its condition rapidly

improved, and it was able to return home to Halifax in ten days, convalescent.

A few days after returning home it was seized with malignant scarlet fever and died; the wound being reported as healthy, and healing well before the fever set in.

CASE 3.—Although the nævus in this case was not large, and was much less formidable than the two preceding ones, I publish it along with the rest, as the fatal result must be attributed directly to the operation.

Mary R—, æt. 5 months, a patient in the Leeds Infirmary, admitted on March 31st, 1864. A nævus, chiefly subcutaneous, of the size of a walnut, was removed from the right parotid region by enucleation aided by the knife. The deep surface was easily separated without the use of the knife, and the capsule covering the parotid was recognised at the bottom of the wound. The wound became swollen and unhealthy, and the child died on the fifth day, in a fit of laryngismus to which it had been subject. In this case there was no facial palsy after the operation.

On reviewing the foregoing cases it may be remarked, 1st, That all the patients were of tender age, the youngest being four months old, the eldest seven months; 2nd, That in two the disease was advancing with great rapidity; 3rd, That in all, the existence of a capsule and the possibility of enucleation was established; 4th, That in the first case, after the lapse of twelve months, the preserved nævoid skin had lost its undue vascularity.

Note on the danger of injection of chemical fluids into nævus.

About six years ago an infant, æt. 6 weeks, came under my care on account of a large nævus situated at the edge of the right pectoral muscle, which was increasing rapidly and had attained the size of a billiard ball. As the treatment by injection by perchloride of iron was then on its trial and had succeeded in several cases which I had seen, I determined to adopt it in this case.

Several punctures were made and a few minims of the perchloride were introduced at each puncture. The greater part of the tumour became rapidly solidified. Three weeks later the effect of the injection had passed off and the tumour again began to increase rapidly. I therefore repeated the injection. After three or four punctures and injection of the tincture of iron the child looked pale, became convulsed, and died in a few minutes.

At that time I supposed that the convulsion was nothing more than such as is occasionally set up in infants by comparatively slight causes. I now feel convinced that the needle had penetrated a large venous sinus in the centre of the tumour, and that blood coagulated by the perchloride had been carried to the heart and had there arrested the circulation. Unfortunately I was unable to make a post-mortem examination.

P.S.—The anatomical characters of subcutaneous nævus, and especially the existence of a capsule, are well described by Mr. Birkett in the ‘*Medico-Chirurgical Transactions*’ for the year 1847. Mr. Birkett also infers, as a result of his examination of the tumour, the danger of treating nævus by injection of chemical fluids.