ON A CASE
OF
EPITHELIOMA OF THE NECK
FOLLOWING A PATCH OF CHRONIC SKIN DISEASE,
IN WHICH
THE CANCER WAS TWICE EXCISED AND THE EXTERNAL
AND INTERNAL JUGULARS WERE LIGATURED.

BY
HENRY MORRIS, F.R.C.S.,
SURGEON TO, AND LECTURER ON ANATOMY AT, THE MIDDLESEX
HOSPITAL.

(Received April 10th—Read May 25th, 1880.)

ELIZA H—, æt. 60, an emaciated grey-haired woman, was sent to the Middlesex Hospital by Dr. Langmore, on account of an ulcerated growth on the right side of the neck. She was admitted into Queen Ward on September 8th, 1876.

History.—Nine years previously she had a small circular red and scaly patch about the size of a sixpence on the right side of the neck, which remained in much the same condition for about five years, shedding fine light scales. At the end of this time the surface of the patch was knocked off by the elbow of a child, and the resulting sore was soon covered by small scabs; it slowly but

gradually increased in size. Five months later the sore was cauterised in Petersfield Infirmary, where she remained six weeks; and on leaving, it was about the size of the original patch, and apparently healing. A few weeks later the ulcer began to enlarge and the discharge from it to increase. She placed herself again under medical treatment; and, for fourteen months prior to admission under me, had undergone a course of treatment by "burning plasters;" but still the disease continued to extend. Of late she had suffered great pain during the application of these plasters as well as between the times of their application. She had been losing flesh for eight months and had for a long while been subject to palpitation of the heart. She had also a large bilateral solid bronchocele, the posterior limits of the right lobe of which abutted upon the anterior border of the ulcer.

State on admission.—At the time of admission there was in the central and upper part of the right posterior triangle of the neck an epitheliomatous ulcer covering an area as large as half the palm of a man's hand. This ulcer had the usual raised, everted, and hard edges, and was of a greyish-yellow colour, prone to bleed, not very painful when covered, but apt to smart when exposed to the air. In the centre was a deeper part containing a yellowish slough, and the margin of this part was of a red colour and slightly everted. At the circumference the growth was free of the deeper tissues, so that the finger tips could be dipped between it and them. This was especially the case in front and below; but behind, where the ulcer spread over the anterior border of the trapezius, the margin of the growth was less capable of being raised. The central sloughy portion seemed firmly fixed to the subjacent structures of the posterior triangle. The carotid artery of each side was displaced outwards by the bronchocele, beyond the outer edge of the sternomastoid; whilst the right carotid communicated visible pulsation to the *anterior part* of the ulcer, and to the skin above it. Two hospital surgeons who had seen her

refused to operate, because it was thought impossible that the diseased parts could be removed without interfering with the continuity of the carotid artery; but the artery was proved, convincingly, to be free, by making the patient, whilst lying on her back, strive to raise her head, which was tightly held down upon the pillow by an assistant. The resisted effort to bring the chin towards the sternum brings into forcible action the sterno-mastoids, and thus any superficial growth is raised away from the influence of the carotid pulsations. The patient was very anxious to have the disease removed, so on September 20th ether was administered, and an incision was made through the skin about one-eighth of an inch from the margin of the ulcer all around it, and the less fixed parts were dissected off. As much as possible of the *central part*, which was now seen to be incorporated with the *scalenus anticus* muscle, and with the lymphatic glands at the back of the sterno-mastoid, was then cut away; the rest was scraped away with a raspator, and finally the suspicious points were seared with the galvano-cautery. The cautery served also to arrest the bleeding, which was not severe and chiefly venous. A ligature was applied early in the operation to the external jugular vein. The wound was dressed with terebene oil on lint, and covered with a figure-of-eight bandage. A sleeping draught was required at night.

On September 21st she was in no pain, but had had a restless night, and her pulse was 172 per minute, and very small. Throughout the pulse was very rapid and small; the wound healed slowly and was grafted.

On November 3rd it was quite healed, but subsequently a portion of the thin cicatrix gave way once or twice.

By November 27th it was however quite sound, and on the following day she left the hospital recovered.

The parts removed were examined microscopically and were seen to have the characters of an ordinary epithelial cancer of the skin.

In August, 1877, I heard by letter that she remained

quite well, and had been working in the fields all the summer.

In January, 1878, a lump showed itself on the neck in the old spot, which she was anxious to have removed; and for this purpose she went, in March, 1878, to the Petersfield Cottage Hospital. From Petersfield she came again to the Middlesex Hospital, and was admitted under me on March 21st, 1878. At this time there was a large irregularly circular sessile growth behind, but also slightly over the line of the cervical vessels, and in the cicatrix of the former operation; but again the artery was found to be uninvolved. On March 27th this recurrent growth was removed by means of a circular incision surrounding it, and then by dissecting it off the deeper structures from the periphery inwards. In this manner it was all removed, excepting the deeper stratum of the growth over the line of the great vessels, which was left to be separately and more scrutinizingly cut away. It was now seen that the sheath of these vessels was diseased, and on gently touching what remained of the growth with the dissecting forceps some of it immediately broke away, followed by a large gush of venous blood. It clearly came from the internal jugular. There was no possibility of doubting its source.¹ Instantaneously I pressed upon the vein below the bleeding point so as to prevent the entrance of air, which otherwise would have been all the more likely aspirated owing to the rigidity of the diseased walls of the vein. Mr. Hulke, who had been watching the operation, kindly assisted me at once, and arrested the hæmorrhage by keeping his fingers over the opening in the vein. As quickly as possible I exposed the vessel above and below its wounded part, and keeping wide of the disease, placed a silk ligature around it in both situations. All bleeding being stopped, I scraped away the remainder of the growth, excepting the diseased part of the vein between the ligatures, with the raspatory; the wound was dressed

¹ The lumen of the vein was in no way occluded by the disease, but was of quite large diameter both above and below the opening.

with terebene oil, and a compress was retained by a figure-of-eight bandage passed round the neck and opposite axilla. The diseased part of the vein assumed in a few days a peculiar cheesy yellow granular appearance and quickly sloughed away in little flakes and masses.

On April 9th, both ligatures having separated from the internal jugular, some chloride of zinc paste was applied to a small spot, the rest of the wound being protected by zinc ointment. The caustic was reapplied once or twice afterwards, but on April 21st the terebene oil dressing was resumed, and from this time the wound healed progressively, and she left the hospital well on May 23rd, 1878. The patient bore each of the operations, and the after-treatment remarkably well, her calm temperament assisting greatly her recovery.

On February 9th, 1880, I heard by letter that she had had no recurrence, that the neck was quite well, and that her only ailment was weakness and palpitation of the heart from which she still suffers a good deal.

In July, 1880, she was known to be alive and well.

Remarks.—The importance of this case is two-fold; first, as regards the origin of cancer; and, secondly, on account of the ligation of the internal jugular vein.

As to the origin of the cancer. The epithelioma was preceded by a superficial, circumscribed skin affection of several years' standing, and limited to the self-same spot at which the cancer commenced. It is thus closely allied to those cases in which a chronic sore has long preceded epithelioma of the lip; to those of epithelioma of the tongue engrafted upon ichthyosis glossæ, to which the attention of surgeons was first specially directed by Mr. Hulke; and to those other cases of epithelial or duct cancer of the breast preceded by so-called eczema of the nipple and areola, for the first account of which the profession is indebted to Sir James Paget. I have not ventured to apply any name to the antecedent skin disease, which is said to have consisted of the desquamation of

thin light scales from a slightly reddened but otherwise unaltered surface ; but though it had not been preceded or accompanied at any time by any appreciable moisture or discharge, it would doubtless be considered a form of chronic eczema.

But apart from the name most appropriate for it, the fact to which I wish to draw attention is the supervention of the epithelial cancer upon the diseased patch.

An abnormal condition of the epidermis had existed for five years, when the part became subjected to fresh and increased irritation, first by a blow, and afterwards by frequent cauterisation. The sore which formed was at first limited to the spot previously affected with the skin disease, and from this it spread wider and deeper, at first slowly, afterwards more rapidly.

The case supplies another illustration, although a somewhat different one from those already published, of cancer excited by long-standing irritation of epithelial surfaces, and spreading from those surfaces to the tissues beyond ; it also points to the truth of Sir J. Paget's suggestion, "that a superficial disease induces in the structures beneath, in the course of many months, such degeneracy as makes them apt to become the seats of cancer" ('St. Bartholomew's Hospital Reports,' vol. x, 1874). And, further, it gives, I think, support, like the other cases to which I refer, to the hypothesis of the local as against the constitutional origin of cancer.

As to ligation of the internal jugular vein. The ligation of this, the largest vein in the body which the surgeon is liable to be called upon to ligature, did not in this case cause the slightest untoward symptom, notwithstanding the external jugular of the same side had been ligatured also. The extent to which the vein was involved in the disease, and the friable tissue which had taken the place of the normal structure of its coats, made it impossible to employ the lateral ligature ; or, indeed, to rely on any hæmostatic measure short of the ligation of the whole circumference of the vein above and below.

From the knowledge that apoplexy occasionally results from obstruction to the return of blood from the head; having, also, seen patients suffering from cancer of the breast die in a state of coma after the supra-clavicular glands have enlarged sufficiently to resist the flow of blood through the cervical veins; and knowing that the external jugular in this patient was obliterated, I had some fears, during the first twenty-four hours, lest she should suffer from any of the effects of cerebral congestion; and I was, for a time, in doubt as to whether it would not have been better to have followed the advice of Langenbeck, who recommended that the corresponding artery should be tied for wounds of the internal jugular, axillary, external iliac, and femoral veins; or, as he also recommended for wounds of the internal jugular, to have tied artery and vein simultaneously. The sequel of the case shows, however, that there was no need for any such anxiety, and proves that through the agency of the various sinuses of the dura mater and opposite internal jugular vein, of the veins piercing the bones of the skull, and of the inosculation between the cerebral and spinal veins, the collateral circulation can soon adapt itself, even to the entire obliteration of both jugulars of one side. It will, I think, be granted that, though success has attended the procedure advised by Langenbeck when applied to the axillary, external iliac, and femoral vessels, the ligation of one common carotid can have very little effect in diminishing the danger in wounds of the internal jugular vein, either of cerebral gangrene and softening, or of hæmorrhage. The freedom of the anastomosis between the arteries within the cranium minimises the effects of the ligature in checking hæmorrhage, whilst experience has shown that the chances of cerebral gangrene are increased by the simultaneous ligation of the common carotid and its accompanying internal jugular. Professor S. W. Gross, in an admirable paper ('American Journal of the Medical Sciences,' January and April, 1867) on "Wounds of the Internal Jugular Vein," has collected thirty cases in

which the vein alone was tied; in twenty-five cases the ligature was applied circumferentially, and in five laterally.

In only one—Dr. Wattmann's case—were there any symptoms whatever of disturbance of the brain, and in this air had been aspirated, and the vein which was ligatured laterally remained pervious. The patient recovered, and there seems no reason for thinking that the symptoms were due to the ligature. On the other hand, out of *eleven* cases (two of which for good reasons should be left out of the calculation) in which the common carotid or one of its primary branches was tied at the same time as the vein, four (*i.e.* 44·4 per cent.) had brain affection; death ensuing in one case from acute softening, in one from chronic softening, and in one from chronic inflammation; the fourth case recovered, the symptoms being limited to impairment of power of the opposite arm and leg “not exactly paralysis.”

Finally, in two cases, Fleming's and Guthrie's, in which the common carotid was ligatured nine days and eight days respectively after the internal jugular, there was no cerebral affection. The first recovered, but Guthrie's patient died of arterial hæmorrhage the day following the ligation of the artery.

It thus appears that the simultaneous ligation of the common carotid and internal jugular, contrary to the opinion of Langenbeck, is nearly *fourteen* times more likely to excite brain mischief than the ligation of the internal jugular alone; and that in no case in which the ligature has been *circumferentially* applied has either apoplexy, softening of the brain, or other cerebral disorders ensued. If we confine our attention to the cases collected by Professor Gross, which are analogous to the one forming the text of this communication, *viz. where the injury to the vein has occurred during the removal of tumours of the neck*, it will be seen that of twenty-two cases of ligation of the vein alone, fourteen recovered and eight died. Of the eight deaths only four were attributable to the ligature, *viz.* one from pyæmia, and three from secondary hæmor-

rhage; the other four were directly due to the *injury*, viz. in two to asphyxia from aspiration of air, and in two from exhaustion from hæmorrhage. Thus we have eighteen operations with fourteen recoveries and four deaths, three of which were from secondary hæmorrhage the consequence of the ligature having been applied laterally. Out of seven cases in which the vein has been injured during the removal of tumours, and in which the vein and artery were ligatured simultaneously, there were five recoveries and two deaths, but neither due to the ligature: in one the patient died from bronchitis, in the other from shock.

Next, if we examine Professor Gross's article with a view of ascertaining the general results of all cases in which the ligature has been applied to the internal jugular, we find sixteen deaths out of a total of forty-two cases. But, if we deduct the five deaths, which were the immediate result of the *injury* and the one from bronchitis, all of which it is obviously unfair to include amongst the results of ligation of the vein, we have a total of thirty-six cases, with ten deaths, *i.e.* a percentage of 27·7. This is nearly 16 per cent. less than the mortality after ligature of the common carotid for all causes, and just about $6\frac{1}{2}$ per cent. less than that after ligature of this artery for tumours, judging by the statistics of 600 cases published by Dr. Pilz, of Breslau, in the 9th volume of Langenbeck's 'Archiv.'

Whilst it may be concluded that incised and punctured wounds of the internal jugular, if not treated by the ligature, are almost invariably fatal, yet the surgeon who may be unfortunate enough to injure this vein during any surgical operation, may take comfort from the thought that the chances of a good recovery, after the *complete* ligation of the internal jugular, are very considerable, provided the carotid artery is not interfered with, and that neither severe hæmorrhage nor the aspiration of air into the vein has occurred before the application of the ligature.

The mortality of cases hitherto reported, in which the ligature has been applied around the whole circumference

of the vein, and not laterally, is not more than 10 per cent. But if the artery be ligatured at the same time as the vein, the chances of recovery are about equal ; or, in other words, the mortality is about 50 per cent., being 7 per cent. higher than after ligature of the common carotid alone.