brain and cord, there was not enough local mischief to cause death. Indeed, the affection of the nervous centres had nothing to do with the fatal result, which was entirely due to rupture of the spleen, an accident which could not possibly have been foreseen or guarded against.

Dundee.

A CASE OF

DISTAL LIGATURE OF THE CAROTID AND SUBCLAVIAN ARTERIES FOR ANEURISM OF THE ARTERIA INNOMINATA AND AORTA.

BY KELBURNE KING, F.R.C.S.,
SURGEON TO THE HULL GENERAL INFIRMARY.

EDWARD C——, aged thirty-seven, was admitted into the Hull Infirmary on the 16th October, 1876, in consequence of a pulsating tumour at the right side of the root of the neck. He had been a soldier, having served six years in India; had suffered from syphilis, and had been a great spirit-drinker. He had felt occasional pain in the back before he went to India, but on the whole he enjoyed good health there. On his return to England he frequently complained of pain caused by the pressure of his knapsack. In spite of this, he was able to perform his duties (though he had considerable difficulty in so doing) from the year 1871 till 1874, when he was compelled to resort to surgical treatment. In that year he was admitted to the Hull Workhouse, where Mr. Dix, surgeon to that institution, compressed the right carotid artery by means of a wire compress. Considerable relief followed the operation for a time, but getting gradually worse, he consulted me in October, 1876, and was sent into the infirmary, as before mentioned.

His general symptoms were a constant irritating cough, severe pains shooting upwards from the pulsating tumour to the back of the head, and running down to the back part of the right shoulder. There was no affection of the voice, no difficulty in swallowing, nor, when at rest, had he any dyspnœa. On examining the root of the neck there was found a distinct pulsating tumour extending above the right sterno-clavicular articulation. The pulsations of the right carotid and subclavian arteries were full and distinct, rather more so than is natural; the former vessel was perfectly pervious; the pulse in the right wrist was natural, but that on the left side was very much diminished in force. Beneath the pulsating tumour of the neck there was decided dulness over a space about three inches in length, from the centre of the manubrium of the sternum outwards beneath the internal portion of the clavicle, and about an inch and a half in breadth. Throughout the whole of this space there was a loud bruit, which diminished in intensity as the distance from the tumour increased, and which disappeared altogether as the region of the heart was approached. The heart-sounds were healthy. From these symptoms, and more especially from the fact of there being a space clear, both on percussion and auscultation, between the aneurismal sounds and the base of the heart, I concluded that this was a case of aneurism of the innominate artery. Absolute rest, unstimulating diet, and large doses of iodide of potass, were prescribed, but no relief to his symptoms was procured. Indeed, his sufferings increased so much that he was most anxious that anything which might afford a chance of relief should be done for him, his reckless nature making him impatient of pain and indifferent to risk.

Under these circumstances, I took into consideration the only operation applicable to this case—that of distal ligature of the common carotid and third portion of the subclavian. Of nine recorded cases, I found that one case (Fean's) survived four months; one (Heath's) survived four years; one (Hutchinson's, of Brooklyn) recovered from the operation, but died of suffocation on the fourth day; and one (Sand's, of New York) recovered from the operation, but the disease was not cured; the remaining five cases terminated fatally. The operation was performed by double consecutive ligature in three and by simultaneous ligature in six of these cases. Two of the former and three of the latter died from the effects of the operation. The balance was therefore in favour of the simultaneous ligature; but in this case, on account of the forcible pulsation in each of the arteries, I would have preferred this mode of operating, from fear of extension of the disease into the artery left unligatured.

Accordingly on Dec. 9th, 1876, I placed a catgut ligature on the common carotid, and another on the third portion of the subclavian. The operations were performed antiseptically. I have nothing to remark regarding them, except that the ligature of the carotid was more tedious than usual, in consequence of the matting together of the tissues caused by the former operation of compression; and that, in taking up the subclavian, I noticed the small vein running in front of and across the artery, to which Mr. Maunder[1] calls attention. The ligature was placed round the carotid first, but not tightened until after the subclavian was exposed, so that the stoppage of the arterial flow in both vessels was as nearly as possible simultaneous. The ends of the ligatures were left hanging out of the wounds, which were dressed with carbolic gauze. Professor M'Kendrick, of Glasgow, who happened to be present, observed a slight spasm pass over the patient's features when the ligatures were tightened; but there was no cerebral disturbance after he recovered from the effects of the chloroform; nor, indeed, had he any symptom indicating the important nature of the change which his circulatory system had undergone. On Dec. 14th the parts of the ligatures external to the wounds dropped off, and on the 18th both wounds had healed. From the first the pain was greatly relieved, and gradually disappeared entirely. The pulse at the right wrist became discernible, but feeble, a week after the operation. Pulsation was felt at the bifurcation of the right external and internal carotids three days after, and it was soon apparent that free anastomosis between the right and left external carotids had taken place. The pulse at the left wrist, whose feebleness I had attributed to pressure in some way made by the aneurism on the left subclavian, did not improve after the operation. The pulsating tumour in the neck soon began to feel firmer, gave considerably less impulse to the fingers, and extended over a smaller area. But the most marked improvement was in the general symptoms. The pain and cough gradually diminished, and finally disappeared entirely.

For some weeks the patient submitted to restraint; then he became fractious in temper, impatient, and insubordinate. He ultimately made up his mind to leave the house, insisting that he felt better than he had done for many years, and his purpose could not be changed by any remonstrance. Accordingly he was dismissed, or, rather, he dismissed himself, on the 24th February, 1877.

On Feb. 27th he again presented himself at the hospital. During the interval he had been in a state of constant intoxication. He felt miserably ill, and there was greatly increased pulsation along the region of the carotid, with redness of the skin and distension of the adjacent parts.

On March 27th an abscess opened at the seat of the lower part of the scar of the wound over the carotid. This was followed by hæmorrhage, which, recurring frequently, wore him out, and he died on the 30th March, one hundred and eleven days after the operation.

Permission was with difficulty obtained to make a partial examination of the body. We were, however, enabled to remove the heart, the affected vessels to beyond the ligatures, and the whole of the thoracic aorta. Besides the aneurism of the innominata, there was found a large thoracic aneurism extending nearly to the termination of the thoracic aorta, consisting mainly of dilatation of the coats, but adhering firmly to the bodies of the dorsal vertebræ, of which the sixth and seventh were denuded of their periosteum and formed part of the sac. The whole length of the innominate artery was in an aneurismal condition, and its interior was occupied by a firm fibrinous clot, which extended as far as the ligatures on the carotid and subclavian arteries. Jutting out from the root of this innominate aneurism was an appendage or diverticulum passing to the front of the carotid and communicating with the remains of the abscess of the neck. It was from this that hæmorrhage took place, and to it therefore was to be attributed the fatal result.

The explanation of the deficiency in the left pulse afforded by the post-mortem examination is one of the most interesting features of the case. About an inch above its origin the calibre of the artery was found to be reduced, by internal deposition, to an opening barely sufficient to admit a probe, so that the supply of blood to the head and both arms was,

[1] Surgery of the Arteries, p. 30.

after the tightening of the ligatures, very nearly limited to that conveyed by the left carotid and by the branches given off by the first part of the right subclavian.

The history of this case proves, with those to which I have alluded, and cases subsequently treated by Mr. Barwell, that even where the disease is so extensive the distal operation very greatly alleviates the symptoms, and, when the patient is moderately careful, may indefinitely prolong life.

Hull.

ON THE TREATMENT OF PHTHISIS AT DAVOS AM PLATZ.

BY DR. CLIFFORD ALLBUTT.

IN the autumn of last year I published the impressions I received from a visit paid to Davos am Platz in the Grisons in the preceding summer.[1] As the time for the summer residence is rapidly approaching, it seems desirable that I should state the results of my experience of Davos during the past winter, and add any words of advice which are likely to be useful to persons who intend to visit Davos in the coming season.

In my former paper I gave some account of the situation and climate of Davos, and of the curative work I saw in progress there. I did not hesitate to say that the results there obtained, especially in phthisis, seemed to me to be far in advance of those secured at any other health-resort, and I ventured to suggest an interpretation of the results apparently obtained. For many years I have held that the majority of phthisical patients die of septicæmia, and that the arrest of this daily repoisoning is a primary object of treatment. To reach, cleanse, and dress ulcers of the lungs by surgical methods seems impossible, and the effects of antiseptic inhalations are disappointing; if, however, there be an antiseptic climate, we may hope to counteract this secondary blood-poisoning by sending our patients to live in it. Such antiseptic or aseptic climates are found in Switzerland, in Upper Egypt, and in other districts; and in the mountain air of Switzerland there is found also a tonic virtue which no doubt largely aids the physician in his work. The aseptic state of the air on alpine heights has been proved by Professor Tyndall's experiments at the Bel Alp; but the Bel Alp, in common with most other alpine resorts, is insufficiently sheltered. In Davos alone, so far as we yet know, is found an air at once aseptic, bracing, and still. Upon these points I must refer the reader to my former paper. Very few English invalids have as yet found their way to Davos, and observations based upon the cases of English invalids are therefore not many. During the past winter my friend Dr. Rüdi has treated nineteen cases among the English; some of these were patients of my own, and others had been seen by me. Dr. Rüdi has kindly sent me notes of all. Of these nineteen, nine were cases of pulmonary disease.[2] Shortly put, they fared as follows:—

CASE 1.—Arrived on August 6th, 1877. Large cavity in upper lobe of left lung below the clavicle, infiltration of the whole lobe, and moist râles all over the left lung. Ordered to keep quiet, sit out in the fresh air, take abundant food and milk, and wine twice daily. Soon strength was restored, perspirations ceased, fever ceased, and appetite returned. At the end of December came on an attack of bronchitis in the whole left lung and renewed fever; this attack lasted four weeks. Recovery was satisfactory; respiration in the lower lobe became normal, and the cavity almost ceased to secrete. The surrounding tissue is still infiltrated, but shows no sign of irritation. The cavity is contracting. Next winter it will close. Although this patient has to return to Davos good progress was made; for on arrival the disease was still progressing and liquefaction rapidly at work.

CASE 2.—Came with infiltration of the right apex and adhesions of the right lung to the diaphragm after pleuro-pneumonia. Perfect recovery in five months.

CASE 3.—Had a very large cavity in the right lung, extending into both upper lobes; moist râles all over the right lung, infiltration being extensive. In four months expectoration diminished to one-third, and strength and weight were gained. There was no inherited disposition. The process being now arrested and the cavity closing, recovery may be expected next winter.

CASE 4.—Convalescent from a pneumonia. No infiltration. Very feeble breathing, and imperfect expansion of left lobe. Douches used. Recovery perfect.

CASE 5.—Course exceptional. The appetite improved directly on arrival, sleep returned, fever and night-sweats ceased, and there was no diarrhœa. The state of the lungs also much improved. But this patient lost constantly in weight. He is a medical man, and says of himself, "in every other respect I made a splendid cure, only the constant loss of weight frightens me." [I may add that this gentleman saw me late in the year, and I would have dissuaded him from going so late to Davos; but he, knowing too well the probable course of his malady, stopped me, saying quietly he had determined to go. Both lungs were diseased, but I have not the exact notes at hand.—T. C. A.]

CASE 6 is one in which I (T. C. A.) am deeply interested. I shall give hereafter some extracts from letters this gentleman has written to me. I urged him decidedly to spend the winter at Davos rather than proceed to Egypt as he had intended. He had cavities at one apex and infiltration at the other. He had been a *poitrinaire* for four years, and when he reached Chur could scarcely walk up to his bedroom. His hectic was continuous and severe. Dr. Rüdi now reports of him:—"After staying here another winter he may return to England, although the infiltration at the back part of the left apex will not have fully disappeared." I shall, as I have said, speak further of Case 6.

The two following cases died.

CASE 7.—Had come to me (T. C. A.) for many months in 1876–7, in hopeless phthisis. Both lungs were extensively involved, and he had been repeatedly in bed with intercurrent pneumonia. There were other reasons for despairing of his state, among them great anxiety and pressure of business. As his life was very valuable I named to him last October the chance Davos might give him, and I put fairly before him the risks and the hopes. He decided to go on his own responsibility, and I described his going to his friends as a bold stroke for life. The patient wrote to me several times in good spirits, and assured me how much better he was. His appetite and his strength improved; his fever diminished, but *never ceased*. It was normal some days, but it would then run up in an evening to 100° to 101° F., and Dr. Rüdi always found the physical signs gaining ground rather than giving way, and wrote to me without holding out any hope. He died in the middle of February, but his departure from England is not wholly to be regretted, as he certainly suffered less than he had done at home.

CASE 8.—Came to Davos on Dec. 20th, 1877, with both lungs infiltrated, the right more extensively. In right middle lobe a cavity. Fever considerable, 102° to 104°, commonly 103·5°. This never diminished. Death occurred on March 20th following. It was a lost case when patient arrived, and should have been sent much earlier in the year if sent at all.

CASE 9.—Arrived Aug. 6th, 1877, very ill. Insufficiency of mitral valves after rheumatic fever; there was also a catarrhal state of the right apex. This was therefore a complicated case. Patient gained weight, recovered well, and was sent home cured as regards his lung.

The rest of the cases contain no phthisis, and are as follows:—

CASE 10.—When at Davos I thought the patients had, for the most part, an air of well-being, but Mr. ——, on the contrary, looked wretchedly weak, pallid, and ill. Mr. ——, subject to catarrh of the stomach, came to Davos Aug. 25th, 1877, aged twenty-five, and left again on April 3rd, 1878. The patient writes as follows:—For years he had suffered from chronic dyspepsia, debility, constipation, headache, &c. In March 1876, was put under a "vegetarian-starvation" diet. In three months lost three stones and a half in weight, and could not rise from bed. Rallied under different treatment, but never regained power of digesting food without great pain and distress. Thus from July, 1876, to June, 1877. Then went to Aix-la-Chapelle, and for six weeks had stomach washed out every morning before breakfast by

[1] Vide THE LANCET, October 20th and 27th, 1877.

[2] These cases are purposely divested of personal data, as in a society like that of Davos each is known to all. Full particulars of the cases are, however, on record, and will be gladly supplied to any medical man who wishes for them.