OBSERVATIONS ON THE USE OF BLISTERS IN
ACUTE INFLAMMATORY DISEASES,
AND ON THE
EFFECTS OF BLEEDING, BLISTERS, AND MERCURY,
ON THE BLOOD.

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IN THE LANCET of the 31st of August, 1844, my attention was drawn to the treatment of acute inflammation by large blisters, from observing some excellent practical remarks on the subject by Dr. Henry Bennet, in which he has shewn that they may be safely and beneficially used at an earlier period of acute inflammatory diseases, especially of those of the organs contained in the thoracic cavity, than they are generally employed. The kind of cases to which blisters are best suited, as well as the period of the disease at which they may be most advantageously applied, are matters of great practical importance, owing to the extent to which they are used; and I take, therefore, the opportunity of making some observations on these points, as well as on the effects produced by bleeding, blisters, and mercury, on the different constituents of the blood.

My attention was first particularly directed to the safety and advantages of applying blisters in the early period of acute inflammatory diseases, from observing, when in Paris, nearly five years ago, the treatment adopted by M. Gendrin in pneumonia, and other acute inflammations, and I am glad to find that the results of his mode of treatment have been made known to the profession by one who has had the opportunity of closely observing it while holding, during nearly three years, the office of house-physician under him. I observed, as has been already pointed out by Dr. H. Bennet, that the greater part of M. Gendrin's treatment consisted in the application of very large blisters, and that their repeated application, with a very moderate use of bloodletting, was attended with very successful results in his practice at La Pitié. From having witnessed the safety and efficacy of this mode of treatment, which was different from what I had seen elsewhere, in the hospitals, either in this country or in Paris, I was led to entertain some doubt as to the correctness of the opinion held by most of our best writers, in regard to the injurious exciting effects of blisters in all acute inflammations during the early period. I have in consequence made use of blisters more freely, and at an earlier period, than I would otherwise have done, and have a high opinion of their value in the treatment of acute inflammations, especially after general or local depletion.

In robust and plethoric subjects, in whom the proportion of globules in the blood is, at the healthy standard, 127 in 1000, or above it, the treatment by general bleeding being found the speediest and most effectual in cutting short inflammation, has been almost universally adopted; and there can be no doubt of its superiority to every other in such cases, as it has been founded on the solid basis of practical experience. Looking, also, to the effects of general depletion upon the blood itself, though we are unable to trace clearly the mode in which it reduces the inflammation, we see no reason to doubt its superiority, for though it does not directly lessen the quantity of fibrin, the increase of which forms the essential change in the composition of the blood in acute inflammations, still there is reason to believe that it may indirectly prevent its increase, and in plethoric individuals the removal of a portion of all the constituents of the blood is assuredly the most effectual means which we possess of reducing inflammation.

Local depletion, by cupping or leeches, does not differ from general bleeding in its effects upon the blood, except in degree. It acts, however, less directly and powerfully upon the nervous system, and the action of the heart, from the blood being abstracted both more slowly and less copiously, but its less powerful action on the system is, in many cases, fully compensated for by its more direct effect upon the seat of the disease, and I agree with Dr. Stokes in considering it as a remedy of great importance, even in the treatment of pneumonia. Dr. Stokes has stated that he found the bold and repeated use of the lancet to be unnecessary in the great majority of cases, a single, or at most two bleedings, being sufficient; also that he regards general bleeding as only a preparation for other treatment, and that he considers local bleeding as the principal remedy. A case lately came under my care at the Liverpool North Dispensary, which may serve to illustrate the fact, that in large towns cases of acute inflammation of the lungs do occur, in which general depletion may be superseded by local bloodletting, assisted by blisters, and other antiphlogistic means. A middle-aged man, of large and rather robust frame, employed in a brewer's establishment, was attacked with well-marked acute inflammation of the lower and posterior

part of the left lung. He was treated by a single cupping to the extent of about ten ounces, and by two large blisters, and, as it was also found that slight effusion had taken place into the pleura, the effect of mercury was pushed, so as slightly to touch the mouth. In this case, though general bleeding was not practised, the recovery was almost as rapid and perfect as I have ever seen it.

The preceding observations apply to cases in which the quantity of globules in the blood is about the healthy standard, or not materially below it; there are, however, especially in large towns, a numerous class of individuals also liable to be attacked with acute inflammation, though of a less active kind, in whom the proportion of globules in the blood has fallen considerably below the healthy standard, from the operation of debilitating causes, such as sedentary occupations, the respiration of impure air, or deficient nourishment, as well as in consequence of the presence of other disease, such as tubercles, or of imperfect recovery from previous disease, such as fever. I have satisfied myself, from very frequent examination of venous and arterial murmurs, which are indications of this anæmic condition, that it is extremely common, and that it occurs, too, in persons who are not always deficient in flesh, or remarkably pale. Now, it is in inflammation occurring in individuals in such a condition that blisters have been found most useful, for, in addition to their counter-irritant action, they produce local depletion, without, however, withdrawing that part from the blood—viz., the red globules, which is already deficient, and the deficiency of which constitutes a state of disease which is directly aggravated by the abstraction of a portion of the whole of the constituents of the blood. The correctness, therefore, of the treatment, which experience has established, very generally, in such cases, is confirmed by an examination of the effects of blisters on the different constituents of the blood.

Dr. H. Bennet has shewn that, "both in non-inflammatory and in inflammatory diseases, blisters do not give rise to as much general excitement as is generally believed;" and in this I coincide with him, though I am disposed to regard their exciting effects, and the possibility of their doing harm, as greater than he has estimated them. We must hesitate, too, before we conclude that large blisters are devoid of injurious effect when applied in the early stage of acute inflammations, except in very rare cases, when we find that such writers as Copeland, Stokes, and Alison, express themselves strongly against the use of blisters before vascular depletion; and when, too, we find that Andral has expressed a doubtful opinion as to whether, by their influence on the fibrin of the blood, they may have a beneficial or injurious effect.

Dr. Stokes, in regard to the treatment of acute bronchitis, observes, that "counter-irritation may be considered inapplicable in the earlier periods of the disease so long as the skin is hot, the pulse strong, the expectoration scanty and difficult; in fact, so long as the first stage of the affection continues, that stage in which bleeding and tartar emetic are useful, blisters are inefficacious and often hurtful. It may be laid down as a general rule, that the longer we can with safety postpone the application of a blister, the greater certainty will there be of its favourable action." His views of their action in pneumonia are similar; for in treating of that disease, he refers to the observations he had previously made as to the treatment of bronchitis. We have here, then, the experience of one of our best practical writers, supported by the opinion of others of equally high authority in this country, opposed to the treatment of M. Gendrin.

Let us see what light is thrown upon the subject by investigating still further the effects which are produced upon the blood by the action of blisters. Andral has shewn that every local phlegmasia has the effect of raising the quantity of fibrin in the blood above the natural standard of three parts in a thousand, and that this increase is in relation to the extent of the inflammation, and the degree of febrile movement excited in the system, averaging, in acute inflammations, from six to eight parts, but in inflammation of the lungs, rising higher than in any other disease, in one instance having been found as high as ten and a half. This increase of the fibrin occurs, not only in inflammation of internal organs, but also in that of the skin as well as in burns, which most nearly resemble the effects of a blister.

We have no experiments to shew directly how far blisters may have the effect of increasing the fibrin in the blood; but from what has been observed in those cases of pleuritis in which a portion of the serum and fibrin have been separated from the blood, we have reason to think that the discharge of serum, or even of fibrin, at the surface of the wound caused by a blister, tends less to diminish than the artificial inflammation does to increase the quantity of fibrin. Andral has shewn that in two cases of pleurisy without effusion, the quantity of fibrin was 5.8 and 5.9, while, in eight recent cases with effusion, it varied between four and six. It would seem from this, that no

very decided diminution of the fibrin of the blood follows immediately from the effusion in pleuritis. Direct experiment only can, however, decide how far the quantity of fibrin in the blood is affected by blisters. In treating of the effects of revulsive remedies upon the blood, Andral expresses his opinion on this point as follows: "Thus, a large blister takes from the blood a certain quantity of its serum; but besides, some fibrin is deposited at the same time at the surface of the wound produced by the action of the cantharides. Where there exists in the blood a superabundant proportion of fibrin, would this be the means of diminishing the excess of this principle in the blood? Or, on the contrary, if the action of the cantharides be exercised on a pretty large surface, if the inflammation which results from its application have a great intensity, if especially it augment the febrile movement already existing, may there not arise from this a new cause for the superabundant formation of fibrin, and may not this cutaneous phlegmasia, artificially produced to diminish the intensity of another by the kind of influence which it may exercise upon the blood, have the effect of increasing the morbid condition, which represents in the blood the phlegmasious state, and from which its intensity is derived?" (*Essai d'Hematologie Pathologique*, p. 124.)

The same distinguished pathologist has himself furnished us with the means of pursuing this inquiry some degree further, in comparing the action of blisters with the effects produced upon the blood by mercury, when given so as to act upon the mouth. He examined the blood in four cases in which the mouth was affected with different degrees of severity, and it is a singular fact, that, instead of finding a diminution of the fibrin, as we should have expected, from our knowledge of the influence of mercury in subduing inflammation, he discovered that there was an increase in the quantity, which corresponded with the severity of the specific mercurial inflammation of the mouth, and the degree of febrile action excited in the system.

In the first case, in which the pulse was 80, the inflammation of the mouth slight, but the salivation abundant, the quantity of fibrin was 4.5. In the second, there was more inflammation, and more febrile action; the pulse was 100, and the quantity of fibrin 5. In the third, there was more intense inflammation; the febrile action was nearly the same as in the second case; the pulse was 96, and the quantity of fibrin 6.4. In the fourth case, the face was greatly swelled, and the mouth crusted with false membranes; the pulse was 120, and the quantity of fibrin 6.6. In the last case, the blood had been examined a few days before, when the patient had been bled, on account of a slight attack of apoplexy, and only 3.5 of fibrin had then been found. In all the other cases, there was no other disease present that could have affected its quantity.

We see, from these cases, that mercury, by its specific effect upon the mouth, acts not from any power of causing a state of dissolution of the blood, but as a counter-irritant or derivative, and that its power of subduing inflammation arises from a local counter-action, similar to that caused by a blister. Both remedies produce more or less febrile excitement, both seem to exercise a similar effect upon the blood, and both cause more or less secretion of fluid. The similarity in their mode of action being such, we must inquire how far they agree as to the circumstances in which they are useful in the treatment of inflammation. In this, too, we find that there is a similarity; for, in treating acute inflammatory diseases, we do not give mercury at once with the view of inducing its specific action on the mouth, but first make use of depletion, where it is admissible, with the double intention of reducing the inflammation, and of rendering the system more easily affected by the mercury. Both remedies, too, possess a powerful influence in causing absorption of the fluid which has been effused from inflammation of a serous membrane.

For these facts in regard to the effects of bleeding, blisters, and mercury, upon the blood, we are chiefly indebted to the recent researches of Andral. They seem to confirm the common opinion, that abstraction of blood should, in all cases in which it is admissible, precede the use of blisters and mercury; but while they throw some light upon the obscure but interesting subject of the effects of remedies on the blood, they would scarcely justify us in drawing any other positive inference.

Liverpool, September 7, 1844.

DISLOCATION OF THE HUMERUS, WITH FRACTURE OF ITS NECK.

By J. H. HOUGHTON, Esq., Dudley.

JAN. 6, 1844.—Isaac Cowan, aged 53, a Polish Jew, of spare habit, and small make, on the 27th of December, whilst spending the evening with a few friends, got too much to drink, and in

walking home slipped down, and received an injury of the right shoulder, producing symptoms as follow:—

Posterior aspect.—Looking from behind, the apex of the right elbow is about one inch and a half longer than that of the left. The axis of the bone is outwards and backwards. There is an evident and considerable depression on the surface of the arm, at about two inches above the insertion of the deltoid. The rotundity of the shoulder is very little, if at all, lost. On tracing (with the fingers) the spines of the scapulæ outwards, towards the acromion, a manifest difference is felt when the subacromial space of the right side is marked, there being a deep hollow there.

Lateral aspect.—Looking laterally at the arm, and taking the axis of the bone from the head to the olecranon, there appears to be a very slight angle at about two inches from the top of the head of the bone. The acromion was a little prominent, the arm was everted from the body, and inclined backwards.

Anterior aspect.—Looking from before, the hollow between the coracoid process and the centre of the clavicle, which is very deep on the sound side, is entirely filled up, and immediately beneath the acromion process the tuberosity formed by the head of the bone, on the sound side, is entirely lost, but at about three or four inches down the front of the arm a large and unnatural protuberance is seen projecting directly forwards. The whole shoulder seems dropped a good deal, and he cannot sleep unless the palm of the hand is placed at right angles to the perpendicular of the body, the thumb resting against the epigastrium.

Position of head of Humerus.—The prominence observed in front is external to a line drawn perpendicularly through the natural folds of the axilla. The external edge (so to speak) of the head of the humerus is distinctly felt, a little external to a line drawn from the acromion process, perpendicularly downwards, and by passing the fingers into the axilla, in front, the outlines of the head of the bone may be distinctly traced: it is found to be projecting forwards about one inch and a half; a hollow is also felt beneath the acromion from behind.

Motions of the arm.—The shaft of the humerus may be raised to nearly a right angle with the body without causing much pain, and in doing this a perfect crepitus is felt; the elbow is brought close to the side without pain or inconvenience, and it also admits of considerable motion backwards and forwards, without much pain. The acromion and coracoid are in place. The whole of the arm is much ecchymosed from the blow. I first saw him on the morning of the 28th, when the tumefaction, which was very considerable, prevented an examination sufficiently accurate to determine the exact nature of the accident. Crepitus was then distinct. The tumefaction was reduced by the usual means, when the nature of the accident became evident. He suffered a good deal, but not excessively, from pain. The tumefaction prevented any attempt at reduction till to-day; this was effected in the following manner:—The patient was placed on a stool; I stood behind him, with my knee firmly fixed against the scapula, (my foot resting on the stool;) with a folded towel placed through the axilla I made extension downwards and backwards, the towel, of course, pressing directly upon the head of the bone. Mr. Roberts at the same time, from before, directed the application of the towel, and with his own hand thrust very powerfully in the direction of the extension which I was making, and the head of the bone returned to its proper position in about five minutes. We both felt it distinctly, but no snap was heard. Splints were then applied, and the arm was carefully maintained in position by means of rollers and slings.

Jan. 19th.—Arms examined, and bones found to be in position.

30th.—Splints left off; union firm. The humerus was not quite so straight as it should have been, the bone projecting very slightly forwards at the spot where the fracture existed, which was probably caused by bracing up the elbow too tightly, which I felt very anxious to do during the treatment. He was now directed to give as much motion to it as he could bear, and in about six weeks very considerable progress was made, in spite of extreme nervousness, which made him afraid to use it so much as he should have done. The underhand motions of the joint were extensive; he could feed and dress himself, and raise his hand above the head without difficulty. He found the greatest difficulty in raising his elbow, and even with assistance was not able to get it to a right angle with his body. At his own urgent request he now left the town to resume his trade, (a pedler,) with a promise to call on me in three months; I have not seen him since. Before he left, I urged the necessity of continuing to increase the motions of the joint, particularly the elevation of the elbow.

Little requires to be said in addition to the above; the case was regarded as one of *partial* dislocation of the head of the humerus, with fracture of the neck. It was the position of the