HEADACHES:

A STUDY OF SOME COMMON FORMS, WITH ESPECIAL REFERENCE TO ARTERIAL TENSION AND TO TREATMENT.¹

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I PROPOSE to set forth some of the commoner types of headache, arranged in the order of the period of life to which they belong. As the subject is large and its literature extensive I must confine myself to my own observations, which have been made chiefly upon out-patients, and these mostly women and children. My object is to inquire how far the common forms of headache are dependent upon states of general blood-pressure, and by what means they can be relieved. In infancy we can say little as to headache, yet sometimes the unappeased cry and the action of putting the hands to the ears or hair tell us with much probability of its presence. During childhood the chief causes of headache are school pressure and the rheumatic poison. The latter will come before us in connexion with a later age. School headaches are common among the children attending the public elementary schools. The boy or girl is subjected to mental stimulation under bad physical conditions—crowded insanitary homes, poor or scanty food—and the result is a frequent headache. The pain is usually frontal, worse on exertion, relieved by lying down or going into the open air; in severe cases it persists at night and may hinder sleep. When the rheumatic tendency is also present the proneness to headache is much greater. There is generally increase of arterial blood tension. Here let me say that in my experience the determination of the blood tension is not always easy. The pulse may tell us much, rather, however, by its sustained character between the beats than by incompressibility of the beats themselves. But the true tension of the pulse is often difficult to appreciate. Accentuation of the second sound of the heart, as heard over the aortic orifice, is a more certain sign, although here the observer must be mindful that a thick or thin chest wall, retracted lung, or stiffened aortic valves may greatly modify the sound. It is useful to listen also over the carotid arteries at the base of the neck. Headaches due to defects of eyesight must not be confounded with those from school pressure. The best remedies for school headaches are, in my experience, rest and cod-liver oil.

In adolescence and young adult life there are many kinds of headache prevalent. There is, first, the rheumatic headache—i.e., that which is associated with acute or sub-acute rheumatism or with a well-marked rheumatic habit. The subjects are children or young adults. The pain is generally frontal, often felt on waking in the morning, and almost always worse in the early part of the day. The heart is over-acting, with a loud second sound in the pulmonic area. There is increased vascular tension. The headache is relieved by salicylates and alkalies; if any specific remedy for the pain is required antipyrin has been found effective. Closely associated with the rheumatic headache is that due to over-action of the heart. This is also a condition of plus tension, and must be distinguished from rapid heart (tachycardia) where the tension is lowered. The heart's action is increased, not only in rate, but in force; the impulse is strong, the sounds loud, and especially the second sound, as heard on both sides of the base of the heart. The subjects are often rheumatic, so that a clear distinction between these two classes of headache cannot always be drawn. The site of the pain has seemed to be more varied than in the simply rheumatic headache; often it affects the vertex, and it is sometimes worse in the evening or in the night. Vertigo is common and there may also be tinnitus aurium. Rest, iodide of potassium, and alkalies are the remedies indicated. A third large class of plus-tension headaches in young persons is found in connexion with anæmia. The throbbing or shooting frontal headache is typical of anæmia, but the site may also vary a good deal. Constipation is generally present. The remedies for the pain are those for anæmia—purgative salines and iron—and the presence of

the headache need not deter us from giving iron if adequate saline treatment is used. This brings us to constipation headaches in general, still showing increased blood tension in the vessels. Constipation may cause pain in the head at all periods of life. The pain is more often referred to the forehead than elsewhere, but in many cases the vertex is spoken of, or other parts of the head. Vertigo is often complained of. Many of these cases are complicated by rheumatism or senile vascular changes. Albuminuric headaches also belong to the series of high-tension headaches. In a few cases I have observed the top or back of the head was mostly affected, and the pain, unlike that in most of the classes already mentioned, was not usually relieved by the recumbent posture at night, but was then as bad or worse than in the daytime. Migraine forms a very important class and will detain us a little longer. I understand by migraine a periodical nerve storm, the typical paroxysm consisting in severe pain in one brow or temple, giddiness, nausea, often vomiting, and sometimes disturbances of special senses, such as hemiopia or transient blindness, vibratile spectra, numbness of parts of the surface, &c. The pain is in some cases symmetrical. Such attacks occur at any age from childhood onward, but are less common after the climacteric period. In the majority of my cases the arterial tension has been increased, but in one notable case it was not so; this was the worst case I have ever seen, the attacks were very frequent and severe, reducing the subject, an intelligent professional man, to misery, and in his vessels the blood tension was very low. Instances of megrim are common in women with a gouty inheritance, and whose urine is over acid, often laden with urates, and depositing uric acid crystals. Such women have increased vascular tension and their catamenia are profuse. They are liable to strange pains, which puzzle their medical attendants, in the back, the side, or about the sternum. In the treatment of migraine we must, in the first place, deal with the patient's general condition. Saline purgatives, a mild mercurial course, potassium iodide, sodium salicylate, or alkalies are often indicated. There are generally bad habits of diet in these cases needing to be set right, also want of exercise, constipation, &c. For the relief of the paroxysms antipyrin and phenacetin have often been in my experience successful. Alkalies sometimes induce the attacks, perhaps by rendering the uric acid in the tissues soluble. But I am accustomed to rely much upon cannabis indica, having had a pretty large experience of this remedy. The extract, often combined with cascara sagrada, has controlled many, if not most, cases of migraine. The co-existence of a tendency to menorrhagia is a further reason for the use of Indian hemp. But it is a remedy which requires careful adjustment for each case, both from the varying susceptibility of different subjects to its influence, and I think also from the varying strength of the drug itself. I prefer to use the fresh extract, and have in a good many instances given it to the point of intoxication. This, however, does no permanent harm. In the case of a woman convalescent from acute lung catarrh attacks of migraine were occurring daily; one-fourth of a grain of the extract was prescribed, and she took by mistake two doses at once, half a grain in all; intoxication followed, as shown by strange delusions, and unconsciousness for two hours. On recovery she remained free from headaches for ten days. In another case the dose of the drug was gradually increased to seven-eighths of a grain, and then, a hearty meal following the administration, symptoms of intoxication came on, with hysterical excitement. The patient declined further use of the remedy, but was persuaded later to resume it, and the attacks of migraine were both distant and slight when she persevered with it. In a third case nearly half a grain used to cause some symptoms of intoxication when taken upon an empty stomach—"pins and needles," stupor, and strange feelings being complained of; but these were delayed for three or four hours when the dose was taken after a full meal. In the case of severe migraine alluded to with low blood tension cannabis only aggravated the patient's sufferings—I believe it is useless except for high-tension states—nor did caffeine, bromides, or salines help him, and change of air brought only a short respite. The patient left me unrelieved. I heard of him a year later; he had consulted other physicians, but the attacks continued much the same.

I have notes of about a dozen cases of epilepsy in which headache was a prominent symptom, but it varied much in site and other characters; in several of the cases the pain

¹ Introduction to a discussion at the Hunterian Society, April 28th, 1897, vide THE LANCET, May 8th, 1897, p. 1275.

was worse in the evening or during the night. With regard to neuralgic headaches, besides those which are localised in the area of a cutaneous nerve on one side of the head and some of which are reflex to ocular, dental, or nasal conditions, there are a few cases upon my list of severe habitual headache of long standing in women which do not seem to fall under any other category. The pain was in the back of the head and nape of the neck, coming forward over the vertex. There was plus tension in the arteries. Relief was obtained from cannabis, with alkalies or salines.

I now pass to some forms of headache, still in younger adult life, in which the arterial tension is lowered. The principal of these is the headache associated with tachycardia, or heart-hurry. This condition may be contrasted with that of the over-acting heart previously alluded to. The heart contractions are in both frequent, more so in tachycardia, but whilst the over-acting heart beats forcibly against tense blood-vessels, in tachycardia the beats are simply quickened, the second sound is weak, and the vessels are relaxed. The breathing is quickened, the skin perspires inordinately, and there is incapacity for much exertion, physical or mental. Graves's disease may be looked upon as tachycardia in its full development, but all degrees of the condition in a slighter form are very common—more common, I venture to think, than used to be the case. The headache of heart-hurry is again various in its location, frontal, vertical, posterior, or several of these combined. The head is often flushed or hot, and the pain is commonly worse at the catamenial epochs; it is usually relieved by quiet, by recumbency, and by drinking tea. Caffeine quells some of these headaches, and the iodide and bromide of potassium relieve others. Headache in alcoholic subjects may be coincident with plus or minus blood tension. When it is due to the direct action of alcohol the vessels are relaxed, the tension is low, and the condition is closely similar to that of tachycardia. On the other hand, the indirect and remoter effects of alcohol, by hindering elimination, increase the blood tension and contribute a large quota to the plus tension headaches of middle life, which we shall consider presently.

There is a well-marked type of headache which may be termed congestive. The head is flushed and hot, and the carotids often pulsate visibly, whilst the hands and feet are cold; the pain is frontal, or all over the head when severe, and is described as bursting, throbbing, beating, or shooting in character; it often begins on rising in the morning and is worse after exertion or meals. The subjects are well nourished, and in women the catamenia are scanty or absent. The blood tension, contrary to what might at first sight be supposed, is somewhat diminished. This form of headache seems to be very well relieved by caffeine. One woman, aged twenty-three years, came again and again during many months for her five-grain doses of the citrate of caffeine. "It seems," she said, "as if I cannot do without the medicine; I get relief half-an-hour after I take it." Caffeine is the most useful remedy we have for low-tension headaches. Antipyrin and phenacetin relieved some of the cases. Mention may here be made of the headache due to cough. It is, I think, of much the same type as the last; the pain is frontal or vertical and the head is hot. The blood tension is doubtful; sometimes, if not generally, lowered. Observations on this head are complex; in one case the tension was usually increased, but during a paroxysm of cough it was diminished and the vessels relaxed. The headache of influenza and of enteric fever belong also to the low-tension class.

Going on now to the headaches of middle life, it will be convenient to speak here of those attendant upon heart disorders, although many of these are found also at earlier ages; those belonging to old age will be considered later. My records of heart cases are too few to enable me to draw many conclusions. In the early stage of rheumatic heart disease, with or without slight valvular lesion, the vascular tension is generally heightened, and headache is very common. It may be thought that mitral regurgitation must lower the tension; when the reflux is large it probably must do so, but in my experience a small leak may coincide with tightened vessels. The site of the pain may be in any part of the head, and the headache is much the same as that already described under the heading of rheumatic. Cannabis relieves some of these cases. Headache occurs also in the latter stages of mitral disease when the tension has sunk; it attends also, often severely, aortic incompetency. Mitral stenosis

caused a characteristic headache in six well-marked cases. It was generally located at the vertex, often throbbing in character, came on on waking or rising, and was increased by exertion or by taking food. This headache was relieved, as is usually the case, on lying down; on the other hand, I have noted several cases of feeble, irregular, or irritable hearts, with headache aggravated by the recumbent posture. We shall see that this is very often the case with the high-tension headache of old age. Menorrhagia is commonly attended with headache, generally frontal or vertical and throbbing. I think the blood tension is most often heightened. Cannabis indica is especially indicated. Arterial tension is apt to rise during the middle period of life. The causes of this change, as they are seen in the well-to-do classes, are quite familiar—over-eating, alcohol, sedentary habits, and the gouty constitution. From these it results that the blood becomes charged with effete matters and the vessels thickened, the heart usually hypertrophies, and for long no serious difficulty hinders the due circulation of the blood. In the poorer classes another set of causes are at work—bad air, scanty and poor food, long hours of manual labour, shortened rest, and chills. These depressing causes generally, in my belief, lead to contraction and thickening of the arteries, or, I would say, to premature age of the vessels; for among the poor, at least, degenerated vessels are among the normal results of old age. Then arises the question, Will the heart hypertrophy in response to the greater pressure against which it has to act? In many cases it does so, but in others it fails to hypertrophy because its tissues are badly nourished and there is general lack of strength. Instances of this condition are often to be seen amongst the poor in broken-down, middle-aged men and women. The vessels are thickened, but the heart is dilated and feeble, with weak second sound; there is asthenia and short breath, and the pulse has nearly that character described by Broadbent as "virtual tension." Headache is very common amongst the gouty and those whose excreting organs are working ill—a high-tension headache, to be relieved by mercurial purgatives, salines, alkalies, potassium iodide, and perhaps cannabis. The poor with their high tension bred of want and fatigue suffer perhaps less in headaches, nevertheless many such cases have come before me. I shall refer to this again in connexion with old age. There is, however, one class of headaches in middle life of a kindred type to the foregoing—that which affects women about the climacteric epoch. The pain is commonly referred to the vertex, and is often spoken of as bewildering or as aggravated by noise or worry; vertigo is frequently complained of. The blood tension is increased. In other cases which showed symptoms of hysteria or mental depression, with headache, at this epoch the tension has been noted as lowered.² Bromides are the most useful drugs; cannabis relieves some of the cases.

It remains to speak of the headaches of old age. The poor age early; at fifty-five they are old, at sixty or sixty-five thickened vessels, tortuous temporal arteries, thin and wrinkled skin, and arcus senilis tell that the full age of the Psalmist has virtually been reached; and it is by reason of strength if they compass seventy years or seventy-five. Amongst over 12,000 patients at St. Luke's Dispensary I have not seen probably half-a-dozen over eighty years of age. The blood now circulates through inelastic tubes, no longer with the easy flow of health—a stronger propelling force must urge it forward. The heart responds and hypertrophies; there is heightened tension. But as the vascular changes go on there comes a time when the heart muscle can no longer easily meet the strain. There is increased action, making up in frequency of beat for the lessened power; there is præcordial distress and bad breathing. This condition is well described by Balfour in his book, "The Senile Heart"; also by Clifford Allbutt. Again, the heart may be vanquished in the strife, its cavities may dilate, and its action become rapid and irregular, with low tension in the arteries. And life may yet be prolonged for years, but it is life at a lower level, the sum of the action of feeble organs, when the flowing blood stream has fallen to a mere brook, meandering through the marshy tissues. Now whilst the tension is increasing monthly and yearly it is not to be thought that the various organs can work in comfort. Amongst the symptoms of

² Sir W. Broadbent states that high tension is the rule in melancholia. In the hystero-mental depression of the poor I have often found it lowered.

dis-ease headache is common, in site frontal, vertical, or posterior, often throbbing, and apt to be worse in the night. One patient has "dreadful sensations" in the head at night, another is awakened daily by the pain at 3 A.M., and it lasts until near tea-time. When the heart is distressed and labouring against pressure these pains become in some cases violent, "splitting," burning, and especially affect the night time, hindering due sleep. The bowels are almost always costive, the hand is shaky, and the last joints of the fingers are enlarged (Heberden's nodes). Headache is also common in the last stage of senile heart, when the blood tension is low, the heart dilated, and its action irregular; there are also giddiness and often faintings. The treatment of these headaches is that of their associated heart conditions. Mercury is perhaps our sheet anchor in the relief of the high tension of old age; salines and potassium iodide are of like help. I once gave nux vomica to a person aged eighty-eight years with thickened vessels. She begged it might be left off. "It strings me up so, sir; I cannot bear it." As has been well said, Epsom salts are the best tonic for the aged. A woman, aged fifty-seven years, came to me six years ago; she had chronic bronchitis, dilated heart, breathlessness, and œdema of the legs. I thought she was past cure, but sent her to bed and ordered her to take a course of sulphate of magnesia and grey powder. She came in recently, to my surprise, having lived in tolerable health these six years. "Ever since," she said, "you told me to take the salts I have flown to them whenever I was down; nothing ever does me as much good as the salts." I believe she is right; the saline has eased the vessels and given the heart time to hypertrophy, as it has done. In the low-tension headache of failing heart power digitalis, strophanthus, and the like are of chief use.

The chief points I have sought to bring forward are these:—
1. The state of the arterial blood tension is an important factor in many forms of headache. Increased tension is the rule, but there are some well-marked types of low-tension headaches. 2. In the treatment of headache the first thing is to treat the cause or the disorder which is associated with it. 3. The remedies which lower the general blood tension are often useful for high-tension headaches, and those which raise tension for the low-tension forms. 4. Of specific remedies, cannabis indica is of value in most high-tension headaches and caffeine citrate in many of those of low tension. Antipyrin, phenacetin, and acetanilide may be useful in both, but chiefly when the tension is high.

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A CASE OF PUERPERAL SEPTICÆMIA TREATED WITH ANTI-STREPTOCOCCIC SERUM; DEATH.

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MANY cases of septicæmia, puerperal and otherwise, have now been published in which the use of antitoxin has been followed by extraordinary recoveries, but I have seen few in which antitoxin has been tried and apparently failed. As negative results in such matters are as important, though not so gratifying, as positive ones, I offer the notes of the following case, in which serum treatment was begun three days after the onset of the disease and was continued until the patient was moribund, the case going steadily downhill all the time. On the only other occasion when I had the opportunity of trying anti-streptococcic serum the result was the same, but in that case the treatment did not have a fair chance, as it was not begun till twelve hours before death.

A primipara, aged twenty-four years, was admitted, on Aug. 24th, 1896, into the General Lying-in Hospital, Lambeth. Pregnancy had reached full term, and the patient was said to have been in labour for fifty-four hours. On the evening of admission an unsuccessful attempt had been made to deliver with forceps in the patient's own home. On admission to hospital the patient was in good general condition, showing no constitutional symptoms or local signs of obstructed labour. Fairly strong pains were occurring every ten minutes. The foetal heart was 156. Pelvic measurement showed a slight degree of general

contraction, thus:—Distance between the iliac spines, $9\frac{3}{4}$ in.; distance between the iliac crests, $10\frac{1}{2}$ in.; external conjugate diameter, 7 in.; diagonal conjugate diameter, $4\frac{1}{4}$ in.; and true conjugate diameter (measured after labour), 4 in. Immediately after admission a vaginal douche of perchloride of mercury (1 in 2000) was given. Two hours later chloroform was given and forceps applied. There was no unusual difficulty about delivery; the head was brought from the brim to the perineum in half an hour; there were no lacerations. The child, weighing seven and a half pounds, was born alive. The placenta was expressed from the vagina. The total amount of hæmorrhage during and after labour was twenty ounces. After delivery the uterus and vagina were very thoroughly douched with perchloride of mercury (1 in 2000). A little later the temperature was $99\cdot2^{\circ}$ F. and the pulse was 84. On the 25th, twelve hours after delivery, the temperature was $103\cdot6^{\circ}$ and the pulse 120, no rigor having occurred. On the 26th the temperature varied from $101\cdot4^{\circ}$ to $104\cdot2^{\circ}$, the pulse from 122 to 140, and the respirations from 28 to 36. The patient was sweating freely and had a headache, but no rigors. In the evening there was found to be some superficial sloughing of the lower part of the vaginal wall and vulva posteriorly. The lochia were normal in appearance, odour, and quantity. The vagina was douched with creolin and the vulva powdered with iodoform. Four ounces of brandy per day were ordered. The appetite was good and the patient slept well at night. On the 27th the patient was bright and cheerful, the temperature varied from $102\cdot4^{\circ}$ to $103\cdot4^{\circ}$, the pulse was 126, and the respirations were 28. The bowels were very freely relieved twice; the tongue was clean; there were no signs of pneumonia, pericarditis, or peritonitis, but the heart's apex was felt one and a half inches outside the nipple line and hæmic murmurs were heard at the base; the lochia were still normal; the breasts were flaccid. The dose of brandy was increased to six ounces, and digitalis and caffeine were ordered. In the evening a little chloroform was given, and the uterus was scraped with a blunt flushing curette; only a few shreds came away. During the operation creolin (1 in 200) was flowing through the curette; afterwards a quart of plain water was run through the uterus, and this was followed by two quarts of perchloride (1 in 4000). After the curetting the temperature suddenly fell to $97\cdot8^{\circ}$ and the respiration became infrequent and sighing, but the pulse was 100 and of good volume; the extremities were warm and there was no increase of pallor. The patient only slept two and a half hours. On the 28th the patient was still very bright and cheerful. The temperature gradually rose during the morning to $103\cdot2^{\circ}$ and the pulse to 120. At noon the uterus was douched with perchloride, when the vagina was looking better than it had done before. At 2 P.M. 9 c.c. of streptococcic antitoxin were injected. In the evening the patient was seeming a little better in herself, but the pulse was intermittent. The temperature was $102\cdot8^{\circ}$. The uterus was douched with perchloride, when a few sloughs came away and the vagina looked much more healthy than before. A further 9 c.c. of antitoxin were injected. The patient slept for two hours after half a grain of morphia. On the 29th the patient said that she felt better, but she looked worse, and certainly was so. The temperature varied from 102° at 2 A.M. to $98\cdot6^{\circ}$ at 10 A.M., twenty hours after the first dose of antitoxin; the pulse was generally 136, but very variable in rate and very irregular. The tongue was slightly furred but moist, and the appetite was good. Two liquid offensive motions were passed. The lochia were normal, but diminished in quantity. The dose of brandy was increased to twelve ounces. Antitoxin was injected at 1 P.M. and again at 9 P.M., but no fall in temperature occurred. Digitalis, strychnine, and caffeine were given hypodermically. In the evening the patient complained of intense pain in the back, which persisted almost without remission till her death, and was unaffected by morphia. She slept a very little after the administration of one grain of morphia. On the 30th the temperature ranged from $100\cdot4^{\circ}$ to $101\cdot4^{\circ}$; the pulse was 200. A cadaveric odour was present. The patient scarcely slept at all at night, in spite of morphia, which was given hypodermically in doses of half a grain, until three and a half grains had been given in eight hours. On the 31st the temperature was $103\cdot4^{\circ}$. The pulse was 208 and scarcely perceptible at the wrist. She was not in pain for a short time in the morning. She asked for solid food at dinner-time and ate a quarter of an ounce of cold beef and an ounce of mashed potato and drank half a glass of ale. In