

of any heaving motion in the affected spot; want of accordance between the sites of maximum dulness and of pulsation; and currant jelly-like expectoration, common with tumour, very rare with aneurism."

I never saw our patient alive again: after I left him he seemed cheerful and better; at eleven at night he joked with the sister, saying he felt so improved that he should "have something solid to swallow to-morrow." At three the next morning he was rapidly taken worse; the cough was incessant, the dyspnoea urgent; a slight respite came, however, but at five he was said to have died suddenly but "rather quietly." A few minutes after his death, more than a teacupful of blood was observed to flow from his mouth. The next day we examined the body. I show you now part of the contents of the thorax, and the following is a summary of what was observed: The left pleura contained a considerable amount of serum, the left lung being somewhat compressed. The heart looked small and somewhat flabby and fatty. The aorta was slightly dilated from its origin to the top of the arch, where it opened out into a large depending saccular dilatation involving a part of the descending aorta. The main portion of the tumour might be said to consist of two divisions; one, the right lateral and also somewhat posterior division, being solid and hard, from a mass of consolidated fibrine, which pressed upon the trachea just at and above its bifurcation, causing pretty close approximation of the walls of the left bronchus, and narrowing the capacity of the channel of the right. It pressed also on the œsophagus very severely. Two circular holes, the size of a pea, existed in the trachea, just above its division, through which a probe passed to between some loosened layers of fibrine in the aneurismal sac. A large patch of ulceration with perforation, a penny piece in extent, connected the anterior wall of the œsophagus in a like way with the tumour; but here the pressure had been so severe as also to cause ulceration also of the posterior wall of the œsophagus, which lay pressed against the vertebræ, just commencing themselves to become eroded. The stomach was half filled with blood, from perforation into the œsophagus, and that discharged from the mouth at death in all probability was due to the perforation of the trachea.

Now, after all, I do not see that it would have been possible for a greater master in diagnostics than myself to have in this case apodictically predicated *aneurism*. As I show you here, the diseased mass itself seems to partake of the local characters of aneurism and of solid tumour as well. The only point I blame myself concerning, is not having more closely considered the nature and detailed characters of the diffused dulness of the whole of the left side, and which (as well as another sign or two) was due to serous effusion arising from the pressure made upon the veins of that side of the chest.

The next case of aneurism I may direct your attention to, is that of Susan C—, now in Bow ward, a poor old washerwoman of sixty, who appears to have gone through a great deal of hard work. I do not intend entering into the details of her case, but shall simply allude to it, as affording certain well-known signs of aneurism which our previous patient wanted, and as not having others which he possessed. He had *pressure* signs in perfection, but no pulsation or sound in the chest. She has the latter to a high degree, whilst the former exist in a very subdued ratio indeed. Her great and chief complaint was and is "a throbbing in her throat, and beating in her neck and right arm, which always keeps her agoing," as she expresses it. But what I most desire to call your attention to will be the better described by an extract from her case, as recorded when she entered:—"As she lies, the whole of the right infra- and supra-clavicular regions, the region of the sternal notch, and a little to the left side of the throat, pulsate forcibly and rhythmically with the right radial pulsation. A strong purring tremor, or vibratile thrill, is felt by the finger placed horizontally above the right clavicle; whilst so powerful and superficial a pulsation is perceived beneath the distal third of the clavicle as to lead to the opinion that some absorption of the intercostal muscle, if not of the first rib, must have ensued from pressure. Above the clavicle, and below at the point of chief impulse, scarcely more than a single rough systolic sound is heard; but this becomes a double rough sound as one proceeds down the chest and approaches the heart. Pulsation is felt to strike the ear all over the chest behind, but rather more powerfully at the left side, where a rough mitral (?) bruit is heard." This will suffice to point out to you how prominent in the present case are certain signs of thoracic aneurism which were wanting in the former one. In this poor woman there is, I believe, very great dilatation of the ascending part and commencement of the arch of the aorta, of the innominate, with involvement also of the roots of the right carotid and subclavian. Though the *pressure*

signs are in her very slight comparatively, one exists—a new one to diagnosis—I must just touch upon. If you examine her eyes, you will find the right pupil is, *ceteris paribus*, always more contracted than the left one. This fact I should certainly have passed over had I not lately met with some remarks upon the point by Dr. Banks, in a recent number of the *Dublin Hospital Gazette*. You will there find some details upon the matter highly interesting; suffice it now to say, this contracted state of the pupil is shown to be a result of pressure by the aneurismal tumour on some of the cervical nerves. "According to Valentin," says Dr. Banks, "the iris is furnished with nerves from two sources. The section of the sympathetic trunk in the neck paralyses the nerves which act on the radiating fibres of the iris from the spinal system *through the sympathetic*, and resigns the pupil to the exclusive influence of the circular fibres, or those which contract the pupil, and which are supplied from the inferior branch of the *motor oculi* nerve, and thus the pupil is kept permanently contracted." I took a hint from Dr. Banks, and got Mr. Beck, our house-surgeon, to drop a solution of atropine in the eye, the pupil became dilated, and remained so for several days; it then returned to its contracted state, and remains so.

At the beginning of the Session, some of you may recollect a man named Robert M—, in the small clinical ward. He had, we believed, aneurism of the ascending and transverse portions of the aorta. Now, in his case, some other signs existed not present in the other two examples, and he also wanted some signs they had. He had no dysphagia, no alteration of voice or breathing, no dyspnoea, and no vibratile thrill; but he had great congestion of the facial capillaries, decided cyanosis, and, as the report of his case states, "some general protuberance of both sides of his chest, at the upper sternal region, is present, but so demarcated and locally increased on the right side as to form a decided but slight conical bulging between the second and fourth ribs. Over this, it is quite dull on percussion, and a distinct systolic sound, and a *doubtful* diastolic one, can be heard, easily traceable down to the lower sternal angle of the præcordial region. Over right side and top of sternum a slight diffused jar is felt, and some think a distinct *intrinsic* pulsation can be felt by pressing the finger gently on the intercostal space upwards and inwards. This others could not experience."

These three cases, which most of you, I believe, examined, offer us, in different combinations and intensities, the chief signs and symptoms of thoracic aneurism. In the first, you see mainly exemplified the *signs of pressure*; in the second, those of *aneurismal pulsation and thrill*; in the third, of *tumour, bulging, or expansion*. Upon these you will find the diagnosis of aneurism of the thoracic aorta chiefly depends. This diagnosis is sometimes very easy, from the perfection of the symptoms, and their typical combination; at other times difficult, from the negation of some signs, and the peculiar combination of others; and impossible, in a few cases, from no such symptoms ever having existed sufficient to attract attention to the certain and melancholy fate impending over the sufferer from aneurismal dilatation of the great vessels within the chest.

## ON THE PRACTICABILITY AND FEASIBILITY OF PERFORMING THE OPERATION OF EXTRACTION

IN CERTAIN CASES OF ARTIFICIAL PUPIL AND CLOSED PUPIL,  
COMPLICATED WITH OPACITY OF THE LENS OR ITS  
CAPSULE, OR OF BOTH.

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I PROPOSE, in the present paper, to bring before the notice of the profession some cases of ophthalmic disease that afford types of certain conditions that have hitherto been peculiarly embarrassing and unsuccessful in their treatment, and that are by no means uncommon, and to found upon these cases suggestions for a method of operating that is at variance with the rules that have hitherto been laid down by the best authorities on diseases of the eye.

There are two morbid conditions to which I desire especially

to draw attention. The first is where an artificial pupil has been made, and the lens or its capsule, or both, are found to be opaque at the time of the operation, or to have become so at a subsequent period. The second is where, in consequence of some form of iritis, the pupil is small, irregular, and more or less adherent, and the small portion of the capsule that is visible presents a white opacity, with a fringe of uveal deposit, the amount of both varying much in different cases. In the first of these conditions, one of two complications exists: if it be a case of penetrating ulcer or wound of the cornea, with a dense opacity of a portion of the cornea, in which an artificial pupil has been made opposite to the most transparent part of the cornea, under these circumstances, the anterior chamber is small and shallow, and the amount of aqueous humour is of necessity very limited, and far below the normal average; if, again, it has been a case in which the disease has been in the iris and lens, there will be a morbid condition of the aqueous chamber, and a proneness to the lighting up of a slow form of inflammation of the deeper textures of the eye. In the second of these conditions, in which the pupil is small, irregular, and adherent to an opaque lens, the sight is often seriously damaged, and it is difficult to determine how far this is due to visible changes in the lens and its capsule and the iris, and how far to changes in the deeper textures consequent upon the former iritis. The previous history, and the appearance of the eye, are our only guides in determining this.

In both classes of cases, where an artificial pupil has been made, and the lens is found to be opaque, or has become so at a subsequent period, it is a most important point to determine what is the safest and most successful method of getting the cataract out of the field of vision. The best and more recent authorities seem to be very meagre and unsatisfactory upon this point. In the last edition of Mackenzie's work, I have not found any allusion to the complication of cataract with artificial pupil. He merely states generally, that extraction should never be attempted where any adhesion exists between the iris and the capsule of the lens. Mr. Haynes Walton writes as follows: "When the pupil is adherent to a capsulolenticular cataract, and the cornea is sufficiently clear in the centre to allow it to be seen, the cataract must be first attended to. This has been fully dwelt on under the head of 'Drilling.'" "When the opacity of the cornea precludes the application of instruments to the centre of the iris, or when adhesion of the iris to the cornea renders it impossible that the cataract can be operated upon without transfixing the iris, the pupil should first be made, and the opaque lens be disposed of afterwards—that is, by a subsequent operation for *solution* or *displacement*." Mr. Dixon does not, as far as I can perceive, lay down any rules upon this point in the body of his work on the Eye, but in the appendix he mentions a case which is so applicable to this subject that I beg to quote it.

"John R—, aged sixty-seven, presented himself, in June, 1852, in the following condition:—Both pupils were very small and irregular, and closed by a whitish membrane, evidently the product of old iritis. I made an artificial pupil. I was sorry to find the lens opaque, and presenting the ordinary appearance of a firm senile cataract. To extract or to depress this seemed equally out of the question, on account of its firm adhesion to the iris—to say nothing of the objections which, to my mind, always exist against 'depression' as an unscientific and destructive operation. I had therefore no alternative but to get rid of the lens by solution. The needle was first used about the beginning of August, again at the end of September, and again early in December. Early in March, the edge of the cataract opposite to the artificial pupil was absorbed, the bulk remaining unacted upon. With a convex glass, the patient could read large type."

The above quotations from these modern authors tend to show that but little attention has been given to this point, and the few hints that are thrown out suggest the operation of solution or of depression as the only alternatives. *A priori* reasoning would lead to the conclusion that these two operations offer but faint prospects of success. Solution is not a very prosperous operation even in a normal condition, unless the cataract is soft; but when the anterior chamber is diminished in size, and the aqueous humour is lessened in quantity, the very conditions upon which absorption depends are very materially curtailed, the space in which the fragments of the broken lens lodge is too small, and the old disease to which the change in the eye has owed its existence, is prone to be aroused. These form serious objections to this operation under such circumstances; and, I may add, that the unfavourable results which have seemed theoretically probable, I have found, in several instances, practically true. It was the occurrence

of an unsuccessful case, in which, after making an artificial pupil, and carefully breaking up the cataract, destructive inflammation ensued, that led me to the conclusion that it is an unsuitable and dangerous operation. As regards "depression," I quite agree with Mr. Dixon, that it is always an unscientific operation, and, under the conditions I am now considering, peculiarly so. If the cataract be soft, it is impracticable; and, if hard, the adhesions very much increase the probability of its rising again into the axis of vision, and the previously diseased state of the eye renders the presence of a cataract floating in the vitreous humour a most undesirable and dangerous complication.

These very serious, and even fatal, objections to these two modes of operating in cases of artificial pupil, complicated with cataract, led me carefully to reconsider the whole subject, and to examine into the force and validity of the objections to extraction through an artificial pupil. They may be stated as follows:—First, The adhesions that exist between the capsule and the iris. Secondly, The unyielding character of the artificial pupil preventing the escape of the cataract. Thirdly, The risk that in cases where an opacity of the cornea already exists, the flap that is made for the removal of the cataract may not unite, or, if it does unite, may lose its transparency.

The more I reflected on this subject, the more I felt inclined to doubt the validity of these objections. The adhesions, which are always considered by ophthalmic surgeons as entirely prohibiting extraction, only exist between the capsule of the lens and the iris. The cataract itself lies as loose as ever within its capsule, and will as readily escape when the capsule is freely opened; so that this, which has always been regarded as the principal objection, is quite fallacious and unsubstantial.

The other two objections have not been found of any weight when put to the test of experiment. I am, therefore, of opinion, that in all cases where opacity of the lens coexists with an artificial pupil, the opaque lens should be extracted through the artificial pupil. If it occur in a young person, and the cataract is soft, it may be removed through a small opening, just sufficient to admit the spoon of the curette, with which it may be gradually but effectually removed. When the cataract is firm, and of the usual size, a section must be made close to the junction of the cornea with the sclerotic, and in such a position that the flap corresponds with the artificial pupil; the capsule must be opened in the usual way, and the cataract may be gradually pressed out just as readily as in an ordinary case of cataract. One inconvenience that frequently attends the operation of extraction in a normal eye—I mean prolapse of the iris—never can occur in consequence of the artificial pupil. I have had several cases illustrative of these points, out of which I propose to select the following:—

CASE 1.—Mary Anne A—, aged twenty-eight, came under my care at the London Hospital early last June. About a year previously she had entirely lost the right eye, the globe of which was shrunk. In the left eye there had been a penetrating ulcer, with complete adhesion of the pupillary margin of the iris to the corneal cicatrix; the anterior chamber was consequently diminished both in depth and circumference; about half the cornea retained its transparency; the iris also appeared healthy, with its fibres tightly drawn towards the cicatrix, to which it was firmly adherent. The patient could just distinguish light from dark; and had been in that condition about nine months when she first came under my care. The first step towards the restoration of sight was the formation of an artificial pupil, which was made in the following manner:—A small opening was made in the cornea, close to its junction with the sclerotic; the canular forceps were introduced, and a strip of iris was drawn away from its attachments to the scar in the cornea, and having been brought through the opening, was cut off. A well-defined narrow, oblong pupil was thus formed obliquely upwards and outwards, opposite the largest clear surface of the cornea. It was then found that the lens was opaque. About three weeks after the first operation, I made a small section in the cornea, about a line and a half in extent; and after opening the capsule with a needle, with the aid of the spoon of the curette, the cataract, which was soft, was gradually and completely removed, good union took place, and the patient recovered her sight so far as to be able to read with a suitable lens.

CASE 2.—James B—, aged fifty-four, first applied to me at the Ophthalmic Hospital about eight years ago in the following condition:—The left globe was shrunk, and had been destroyed some years previously from inflammation. In the right eye the lower half of the cornea was densely opaque, and the pupil was partially adherent, and drawn down behind the opacity so

that there was no useful vision. I succeeded with Tyrrell's blunt hook in making a well-defined oblong pupil directly upwards opposite the transparent part of the cornea; the lens was not injured. For above seven years he enjoyed useful vision, and earned his living. At the end of that time his sight began gradually to fail, and when he again applied to me, being about eight years after the first operation, he was once more nearly blind. On examination, I found a dense amber cataract occupying the pupil. After much deliberation, I determined to attempt extraction. I had never tried such an operation, nor had I ever heard of its being done, and I could not help fearing that a hard fully-formed cataract might refuse to pass through an artificial pupil, and even if that difficulty were overcome, that the flap might become opaque. I was, however, agreeably surprised to find that the operation was as easy and as successful as an ordinary case of extraction. I made the upper section close to the sclerotic, and very nearly of the usual size. Everything progressed favourably, and in a few weeks after the operation my patient was able, with a suitable lens, to see as well as after the first operation.

CASE 3.—Wm. L—, aged thirty-one, came under the care of my colleague, Mr. Wordsworth, in January last. The left eye was irretrievably lost; in the right eye there was a faint perception of objects; the pupil was small, irregular, and adherent to the capsule of the lens, which was opaque. Mr. Wordsworth made the man an artificial pupil downwards and outwards with a pair of canular forceps, so as not to injure the lens or its capsule—a method that was, I believe, suggested and first executed by my friend, Mr. White Cooper. Soon after this the man came under my care. Very little improvement of sight followed this operation. On examination, an opaque lens, with its defined sharp edge, could be plainly seen through the artificial pupil. I extracted this very readily through a moderate-sized section; good union took place, and the artificial pupil closed again. A few weeks after, I opened this with two needles in such a way that I once more succeeded in getting a small and nearly central pupil, through which he has now very useful vision. These cases, at least, prove the possibility of extracting a cataract, even when hard and fully formed, through an artificial pupil of average size, and the fair prospect of success with which such an operation may be undertaken. It is one which I should always perform in future, and I feel assured that as contrasted with former methods, it enormously increases the patient's prospect of recovering sight. There is another class of cases equally important and more numerous, to which I have applied the same principle. I allude to cases, the result of old and neglected iritis of a chronic character, in which the pupil is small, irregular, and adherent, and the capsule of the lens, and sometimes the lens itself, are opaque, and in which, as a consequence, there is no useful vision, and to which I propose to direct your attention in another paper.

#### ON THE DETECTION OF STRYCHNIA IN SOLUTION WITH POTASSIO-TARTRATE OF ANTIMONY.

By JOHN W. OGLE, M.D., F.R.S.,

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A LETTER appeared in yesterday's impression of *The Times* newspaper stating that the now well-known and so-called "colour" test for strychnia—i.e., the sulphuric acid and the bichromate of potash (which I believe Otto originally proposed)—was destroyed by the presence of the potassio-tartrate of antimony. I beg leave to say, that on the same day (yesterday) I made some experiments with reference to this point, in conjunction with Mr. W. Ogle, of Corpus Christi College, Oxford, but we found that the presence of antimony had no influence whatever in hindering the ordinary effect of the reagents. On taking  $\frac{1}{240}$  part of a grain, and using the requisite care, so that an equal amount of the tests should be added to both solutions, we found the same colour to be produced in that solution to which the potassio-tartrate of antimony was added as in that from which we excluded it.

In some experiments which I have been performing since

the subject of strychnia has been so much considered, I have detected  $\frac{1}{144000}$  part of a grain (easily recognisable in a crystalline form by the microscope), in a clear solution, by the colour-test, first evaporating it to dryness. And I may remark that I have detected very faint traces of strychnia in the urine of a patient (six gallons concentrated to a syrup) who had been for some time taking the extract of the nux vomica. This I did some weeks ago. I would suggest that in this way the examination of urine might possibly be of service, should any other unfortunate case take place, such as the one at this time present in the minds of us all.

Upper Brook-street, Grosvenor-square, June 11th, 1856.

#### REPORT OF CASES OF GUN-SHOT WOUNDS OF THE HEAD AND CHEST.

By T. K. BIRNIE, Esq.,

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FROM the list of our wounded during the siege of Sebastopol I have selected the two following cases, which appeared to me interesting, not merely on account of the serious nature of the injuries, but from the satisfactory result of the treatment adopted.

CASE 1.—*Gun-shot Fracture of the Cranium.*—Private John Sullivan, aged twenty, was wounded early on the morning of August 23rd, in the advanced trench, by a fragment of a shell, which struck him on the upper and back part of the head, rather towards the left side. On examination of the lacerated wound, which was about two inches long, a depressed fracture of the cranium was found to exist.

When Dr. Gordon (in charge of the 2nd Division) arrived at our hospital, he determined to open up the wound, as he suspected it to be a case of punctured fracture. On making an incision at right angles to the wound, securing two or three branches of the occipital artery, and reflecting the flaps, the fracture was found not only to be depressed, but of the "stellated" kind. The trephine was now employed; a circle of bone taken away, and, with the aid of simple dressing-forceps, five or six pieces of the vitreous table lying loose on the dura mater were also removed, and the depressed portion raised by the elevator. The dura mater was uninjured. The flaps were then brought together by suture, and iced water applied continuously to the wound and shaved scalp. A saline laxative was given, and the head raised. The same evening tartar emetic was given, in doses of one-eighth of a grain, every ten or fifteen minutes, so as to have an antiphlogistic effect, and keep up slight nausea.

Aug. 24th.—Complained early of intense pain in the forehead, when venesection was employed to the extent of twenty-four ounces. This relieved the patient; he was easy during the day; bowels free. Antimonial mixture, and cold applications to the head continued.

25th.—Recurrence of intense pain in the head, accompanied by quick, hard pulse, and flushed countenance. Bled again to about twenty ounces, when the violence of the pain abated; no other change in the treatment.

26th.—Pulse rising again, and pain in the head complained of; bowels not well opened yesterday. Two drops of croton oil ordered, also a purgative enema; tartar emetic, one-eighth of a grain, every ten minutes, and continuous cold to the head as before; sutures removed this morning.

27th.—Bowels only once opened by enema yesterday; some pain in the head again complained of to-day. Other two drops of croton oil were ordered, which acted freely after two hours, the headache then completely abating; rest of treatment unchanged.

28th.—Slight pain in the head this morning, relieved by purgative enema; tartar emetic now given every half hour. Got extras, (arrowroot,) in addition to spoon diet, for the first time to-day.

From this period he progressed favourably without further active treatment, the antimony also being discontinued a few days afterwards, and nothing further employed but the antiphlogistic regimen, and the continuous application of cold to the wound, along with occasional laxatives. The movements of the dura mater, synchronous with the action of the heart, were observed for about three weeks after the operation, but gradually became less distinct. He was transferred to the