matic, and probably nearly as often having concomitant cardiac lesion. It is not allowed that chorea is peculiarly of cerebral origin, as some assert; for the arguments in support of such hypothesis are faulty; and experience certainly indicates a not uncommon spinal origin of the disease. To this latter source is attributable a considerable proportion of the fourth group of cases—the reflex, which are best illustrated by the chorea of pregnancy.

In the matter of treatment, experience shows that, in most simple cases, any special treatment by drugs may be dispensed with; and that the chief matter to attend to is the general health and nutrition of the patients, which may be sufficiently dealt with by good diet, the withdrawal from causes of excitement and annoyance, and by discipline and sensible management. Not but that various drugs may prove valuable auxiliaries: as, for instance, the salts of iron when there is anæmia, and in all cases the writer uses the cold douche to the spine, or the shower-bath. In the rheumatic group of cases, much the same course of tonic treatment is generally applicable; any special cardiac symptoms calling for appropriate remedies. In the reflex group, the rule of action is to remove the cause of reflex irritation.

Cases with high temperature and a febrile condition indicate the presence of collateral disease, only indirectly associated with choreic movements, and call for treatment directed to the removal of the organic mischief. In several cases of very severe chorea, tartar-emetica has been found of great service; and in many, of moderate severity, bromide of potassium was apparently useful.

CLINICAL REMARKS ON TUMOURS OF THE ORBIT: WITH CASES.*

By CHARLES HIGGENS, F.R.C.S.E.,

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As is well known, almost any kind of new growth may be found affecting the structures within and immediately around the orbit. The tumours most commonly met with belong to the class of sarcomata. These, as a rule, commence within the eyeball, affecting primarily the choroid; they subsequently filter through—if such an expression may be used—or burst open the sclerotic, and involve the soft tissues of the orbit. Instances of other tumours, as exostoses, sarcomata commencing in other structures than those of the eyeball, simple and hydatid cysts, all occasionally occur. The last named, however, is of such rarity that, so far as I know, only three cases have been placed on record.

The following cases, examples of all the above mentioned varieties of tumours, have occurred in my practice at Guy's Hospital during the last four years.

CASE I. *Cyst in Orbit Tapped; Disappeared, but subsequently Re-filled.*—R. G., aged 19, a lighterman, was admitted January 22nd, 1875. Four months previously, a finger was thrust into the left orbit between the globe and eyebrow. Considerable swelling of the lids quickly followed. The next day, he could not open the eye on account of the swelling; there was no bruising, but the swelling was of the same colour as the surrounding skin. He was blistered; and in about a week, the swelling subsided a good deal, but never entirely disappeared.

On admission, there was partial ptosis, with paresis of the superior rectus. An ill-defined tumour could be felt in the position of the lacrymal gland (enlargement of gland?). He was ordered 5 grains of iodide of potassium and 15 minims of tincture of cinchona, in water three times a day; and ammonia liniment to be rubbed into the temple at night.

April 1st. There was now a distinctly fluctuating swelling situated below the outer extremity of the upper margin of the left orbit (connected with the lacrymal gland?). The ptosis had disappeared; the eyeball was somewhat displaced downwards; its movements were, however, unimpaired; there was no diplopia. The ophthalmoscope showed engorgement of the retinal veins and hyperæmia of the optic disc; no pulsation of the retinal vessels. No pulsation could be detected in or about the tumour.

April 5th. The tumour was punctured with a small trocar; two drachms of semi-transparent straw-coloured albuminous fluid were drawn off. The tumour disappeared, and the eyeball regained nearly its natural position. In three days, the engorgement of the retinal vessels and disc had subsided. Three weeks later, the tumour was as large as

ever, and its entire removal was advised; the patient, however, did not attend again.

CASE II. *Cysticercus in Right Orbit: Removal.*—Alice T., aged 14, was admitted February 1st, 1876. She had always been delicate; she had scars of abscesses in the neck, some of which dated back five years. A month before admission, she began to suffer some pain in the right eyeball; and the globe had since begun to protrude.

On admission, the right eyeball was pushed downwards and somewhat protruded; movement upwards was entirely wanting; other movements were perfect. She had diplopia when looking upwards only. The right eye read Snellen x. The ophthalmoscope showed the optic disc to be red and greatly swollen, so as to bulge considerably into the vitreous chamber. The retinal veins were engorged and tortuous; the arteries were of normal calibre. There was no pulsation of the retinal vessels; no pulsation in or about the orbit; no pain. A growth, situated between the globe and superior rectus, extending backwards and pressing on the optic nerve, was diagnosed. The case was advised to be watched, and no treatment adopted.

February 14th. Two days previously, the right eye became suddenly inflamed and painful; there was no shivering. There was much swelling of the upper lid, together with oedema of the conjunctiva, and increased impairment of mobility of the eyeball; no constitutional disturbance. It was thought probable that suppuration had occurred within the orbit. An incision was made through the conjunctiva beneath the upper lid. A director passed into the orbit came into contact with a firm resisting substance. A narrow knife was passed along the groove of the director, and an incision made in the tumour; only blood escaped.

February 28th. The protrusion of the eyeball having increased, it was decided to cut down on the tumour, and, if possible, remove it. An anæsthetic having been administered, an incision was made through the soft parts from near the inner angle of the orbit to beyond the outer angle. The lacrymal gland, pushed forward, was exposed and removed; next came a firm resisting growth, which was separated from its attachments, partly by the knife and partly by tearing away with the finger and the handle of the scalpel. The tumour appeared to be intimately connected with one of the ocular muscles, apparently the superior rectus; the muscle required division. On making a rather strong effort to detach the tumour, it collapsed, but no escape of fluid was noticed; there was, however, free hæmorrhage going on at the time. The collapsed remains of the growth were removed by carefully separating it from the parts around with the finger-nails; it was found to extend quite back to the apex of the orbit, and was closely in contact with the optic nerve. After removal, the growth was found to be an extremely thick walled cyst, which had ruptured at a point wounded by the knife. The wound in the soft parts was closed by a few fine sutures, and the margin of the lids pared and united by sutures, so as to preserve the eyeball (which had escaped uninjured) from any subsequent damage consequent on exposure.

February 29th. The lids were a good deal swollen; the incision was healing by primary union; a suture was removed from near its outer extremity. Some blood and pus escaped. There was a good deal of constitutional disturbance. The wound was poulticed.

March 6th. The incision had firmly healed, except at the outer extremity. The eyeball could be seen through a gap in the union of the lids at the inner canthus; it appeared to be quite sound. She could count fingers.

August 4th. The union between the lids was divided; the upper lid drooped; there appeared to be no power of raising it. When the lids were held open, the eye read Snellen 1½. The ophthalmoscope showed the fundus to be quite healthy, the swelling and engorgement of the optic disc having quite subsided. The eye deviated downwards and slightly outwards.

October 2nd. A portion of skin of the orbicularis muscle was removed from the upper lid, and the inferior rectus was divided.

October 16th. The lid could be raised so as to expose the greater part of the cornea; the eye still squinted downwards and outwards. A further examination of the tumour, shortly after its removal, showed it to be made up of an external extremely thick cyst-ball, composed of inflammatory tissue. A portion of muscle adhered intimately to the cyst, and appeared to be incorporated with it. Within the external envelope was a thin pellucid cyst, which separated easily, and, like the outer wall, had been ruptured during removal. This cyst was found to be formed of a membrane, composed of the peculiar serrated fibres which are said to be characteristic of hydatids; there were no hooklets. The whole cyst was nearly as large as the eyeball, but, owing to the thickness of its external envelope, its cavity was extremely small.

CASE III. *Melanotic Sarcoma: Removal; Return; Subsequent Removal and Return.*—Mary S., aged 41, was admitted July 19th, 1875.

* Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Manchester, August 1877.

Her left eye was lost nine years previously from inflammation, which came on without apparent cause. She had been quite blind with that eye ever since. The globe had lately begun to enlarge.

On admission, the cornea of the left eye was staphylomatous; the tension of the globe was increased (T + 2); the lens was opaque; the cornea and iris were in contact; there were large veins on the surface of the sclerotic; the eyeball was somewhat protruded, and all its movements were greatly impaired. The eyeball was excised. A large tumour was found projecting from the back of the globe, in the removal of which it was cut through, a large mass being left in the orbit. The remains of the tumour were carefully removed, with a considerable amount of the surrounding soft tissues. The growth proved to be a large melanotic sarcoma which had filled the eyeball, burst the sclerotic near the optic nerve, and filled up the back of the orbit. The mass subsequently removed was rather larger than the eyeball itself. The patient made a good recovery, and left the hospital in a fortnight.

On October 10th, 1875, the patient was re-admitted. The growth had returned, and was growing rapidly. It had already formed a considerable mass within the orbit. The frontal nerve appeared to be implicated, as there was loss of sensation on the left side of the forehead.

November 22nd. The greater part of the contents of the orbit were removed with scissors; the walls of the cavity were lined with strips of lint spread with a paste of equal parts of chloride of zinc and starch.

December 13th. The whole of the contents of the orbit had sloughed out, leaving the bone exposed and dead; the eyelids were quite destroyed.

January 3rd, 1876. Several pieces of bone had come away; a vascular mass projected from the floor of the orbit, the roof and walls of which were covered with granulations.

March 14th. A large mass of growth filled the upper part of the orbit and pressed forwards beneath the skin of the brow. Large dilated veins were seen coursing over the forehead. The mass at the floor of the orbit had greatly increased. There was a considerable ulcerated surface near the outer margin of the orbit, which bled easily and discharged profusely. The growth was increasing rapidly. There was no glandular enlargement. The patient's general health had suffered considerably. No further operation was deemed advisable. The patient left the hospital, and did not attend again.

CASE IV. Melanotic Sarcoma of Eyeball: Removed; No Local Recurrence; Four months later, Symptoms of Visceral Disease.—John W., aged 45, was admitted October 3rd, 1876. His right eye began to lose sight a little more than two years previously. He had been quite blind for the last two years. The eye gave no trouble till the beginning of July 1876, when he thought he caught cold in it. It became blood-shot and painful; and there was a good deal of pain in the forehead. A fortnight later, he noticed that the eye had become unusually prominent. The eyeball continued to protrude more and more for six weeks, when, he said, it began to recede somewhat. Five weeks ago, the eye began to protrude afresh; the protrusion had gone on increasing up to the time when he was admitted.

On admission, the right eyeball was protruded, but not to such an extent as to prevent the closure of the lids over it. The vessels on the exterior of the globe were much congested; the lens was opaque; the cornea and iris lay in contact. The direction of the protrusion was downwards and inwards. The lacrymal gland could be felt; and behind it a firm nodulated growth extended up to the margin of the orbit near its outer angle. The eyeball was almost immovably fixed. There was no perception of light.

October 23rd. The eyeball, together with a large tumour behind it, was removed. The growth proved to be a large melanotic sarcoma, which had commenced in the choroid, filled the eyeball, and grown through the sclerotic at its posterior part, and filled the greater part of the orbit. The patient made a good recovery, and left the hospital in a month.

February 1877. There was no return of the tumour in the orbit, but the patient's general health had begun to suffer greatly; he had lost his appetite, complained of sickness, looked very ill, and had grown extremely thin. Probably he had some visceral disease. He was advised to consult a physician, and did not attend again.

CASE V. Sarcoma of Choroid, just commencing to invade the Orbit; Excision; no sign of Return twenty-one months later.—William D., aged 48, was admitted October 25th, 1875. Ten months previously, he first noticed that the sight of the left eye was failing. Vision became worse and worse until seven months later; he then had a severe attack of pain in the eye, and sight was entirely extinguished. The pain lasted three days; he then came to the hospital, and was

admitted; and sclerotomy was performed by Mr. Bader. The pain was relieved for a time; but no vision was restored.

On admission, the left eye was quite blind, hard (T + 2), and painful. The lens was opaque, and the iris pushed forward nearly in contact with the cornea. There was a bulge marking the position of the sclerotic incision. The movements of the globe were but little impaired. It was looked upon as a blind glaucomatous eye, and no suspicion of tumour was entertained. The eyeball was excised. After removal, the globe was found to be greatly elongated by a bulge from its posterior part, external to the optic nerve. It was looked upon as a case of large posterior staphyloma; but on making a section of the eyeball, the bulge was found to be formed by a firm growth, which had apparently commenced in the choroid, grown for some distance into the vitreous chamber, causing complete displacement of the retina, which was adherent only at the optic nerve and ciliary processes, the space between it and the growth being filled with brown fluid. The growth had also extended through the sclerotic, not by rupture but by spreading out its structure and growing through the interstices. It formed a considerable tumour on the exterior of the globe. The portion of growth within the eyeball appeared to be much more dense than that on its exterior. Sections of the tumour after hardening in Müller's fluid showed a multitude of small nucleated cells, stuffed thickly in the interstices of the tissues it had invaded.

June 1877. There was no sign of return of the growth. The patient wore an artificial eye, and was quite comfortable.

CASE VI. Ivory Exostosis of Orbit: Removal of greater part.—Alfred C., aged 17, was admitted December 30th, 1875. Two years before, his father noticed that the patient's right eye was becoming rather more prominent than the left. Shortly afterwards, he found that he saw double, but only at times, and that after reading for some considerable period. Three months later, he himself noticed protrusion of the eyeball. A year before admission, he first noticed a hard lump projecting at the inner angle of the orbit; this gradually increased, and the eyeball became displaced outwards and more and more prominent; the tears were constantly running over the cheek. He suffered no pain, and had no cerebral symptoms.

On admission, the right eyeball was displaced outwards and protruded by a large hard mass which projected from the inner angle of the orbit. The mass appeared to spring from the nasal process of the superior maxilla and the lacrymal bone; it was quite immovable, but seemed to be attached by a pedicle; it did not encroach upon the nasal fossa. The eyelids were stretched by the protruding globe; the tear puncta were displaced; and there was constant epiphora. The movements of the globe were unimpaired, and there was no diplopia except after reading for some time. The sight was fairly good ($V = \frac{2}{3}$ right, $\frac{3}{8}$ left). The ophthalmoscope showed no change. The deficiency of vision of the right eye had probably always existed, or might have come on during the growth of the tumour from non-use of the organ. An anæsthetic having been administered, an incision was made through the skin and other soft parts, extending from the inner canthus to about the middle of the upper margin of the orbit, and the growth thoroughly exposed. It proved to be extremely dense bone, and, instead of growing from a pedicle, was found to be attached along the inner wall and roof of the orbit nearly back to its apex. After an hour and a half of patient work with the chisel and mallet, the greater part of the growth was removed, and the eyeball returned to nearly its natural position. The bone of which the tumour was composed was many times harder than any bone existing naturally in the body. The margins of the eyelids were pared and united with sutures. The wound (in the inner angle of which a strip of oiled lint was placed) was closed, and covered with a small pad of wet lint. The weight of the bone removed was two drachms and a half; there was one large piece, besides a quantity of chips.

January 3rd. There was a good deal of œdema of the upper eyelid, with loss of sensation in the parts supplied by the supraorbital nerve. The wound was healed, except at the inner angle, where a strip of lint was introduced. The eyeball, as far as could be made out through the closed lids, appeared normal. He had no pain, and slept well. The wound was syringed out with warm water; the sutures were removed.

January 17th. There was some slight sensation in the parts supplied by the supraorbital nerve. There was a discharge of pus from the opening at the inner extremity of the incision. The movements of the eyeball, excepting upwards, appeared to be nearly perfect. He could see through a small opening between the lids near the inner canthus.

February 25th. The union between the lids was divided; the eyeball had regained nearly its proper position. He could raise the upper lid to the full extent. The movement of the eyeball upwards was im-

paired; the opening near the inner angle of the orbit was discharging; a quantity of bare bone could be felt with a probe.

March 2nd. The eye read Snellen $6\frac{1}{2}$ at eighteen inches and Snellen 50 at twenty feet. The ophthalmoscope showed nothing to account for the impaired vision. The movement of the globe upwards was much improved. Sensation was quite restored in the parts supplied by the supraorbital nerve.

October 12th. All movements of the eyeball were perfect; the globe was pushed somewhat downwards and outwards, but not protruded. There was a sinus at the inner angle of the orbit discharging pus; two small pieces of bone had come away; there was now a small piece, loose, some distance within the sinus. A quantity of bare bone could be felt upon the inner wall and roof of the orbit. Vision was the same. This patient attends occasionally. At his last visit in June, the condition was the same as at last report.

CASE VII. *Tumour of Lower Eyelid, resembling Epithelioma: Removal: no Return after Eleven Months.*—James F., aged 70, was admitted July 7th, 1876. Five years previously, he first noticed a small pimple upon the skin of the right lower eyelid, close to the inner canthus; the pimple gradually increased in size, and began to ulcerate; it was never painful.

On admission, there was a hard nodulated growth, extending outwards from the right inner canthus, involving the inner two-thirds of the lower eyelid. The growth affected principally the skin, but implicated the conjunctivæ close to the inner canthus. Ulceration had occurred in some part of the cutaneous surface of the growth. The edges of the ulcer were thick and everted. The affected conjunctiva had a warty appearance. The growth was freely movable with the eyelid, but appeared somewhat fixed down at the inner canthus.

July 10th. The growth was excised, together with the greater portion of the eyelid. The gap was filled with skin from the cheek; the margin of the upper lid was pared and united to the flap of skin taken from the cheek; the wound in the cheek was closed with hare-lip pins and sutures.

July 13th. The wounds had healed by primary union.

July 31st. Firm union had taken place between the upper lid and the flap of skin replacing the lower lid. The growth, after hardening in Müller's fluid, was found to be made up chiefly of gland-tissue. It contained many spaces filled with cylindrical epithelium, and others in which the epithelium had broken down. It did not infiltrate the skin or deeper tissues, but was intimately connected with the former around the margin of the ulcerated area.

October 19th. The union between the lids was divided. There was some dragging upon the lower one, which had a tendency to become everted.

June 1st, 1877. There was no return of the growth.

REMARKS.—Case I was probably a simple serous cyst, formed by degeneration of a blood-clot. It quickly refilled after simple tapping, but would no doubt have been easily cured by removal of a portion of the cyst-wall, or even by a free incision. The case is interesting as explaining the cause of congestion of the optic disc: "choked disc or ischemia of the disc", as it is called. The condition was here evidently due to obstruction of the venous circulation by pressure, upon removing which the ischæmia disappeared.

Case II is an example of a very rare form of orbital tumour. It is published in the present volume of the *Transactions of the Clinical Society*. There were no points in the history or progress of the case which could in any way lead to a correct diagnosis. The symptoms seemed to point to some deposit in the orbit, which became inflamed, and eventually suppurated. Puncture of the tumour gave only negative evidence, that it was not an abscess. Its nature could hardly have been ascertained until it was removed.

Cases III and IV are instances of a not uncommon form of orbital tumour, which, however, almost invariably commences in the eyeball. It has been said that the sarcomata often affect eyes which have been lost for some time. It would appear, however, that in many cases the growth causes the loss of sight; it commences in the choroid, grows slowly, presently causes detachment of the retina, and with it total loss of sight. As time goes on, the eyeball becomes more or less filled with the growth; at length the tumour bursts, or grows through the sclerotic; it immediately begins to increase rapidly, infiltrating the tissues of the orbit, and causing rapid protrusion and impairment of mobility of the eyeball.

Case V has been introduced to show how sight may be destroyed by a sarcomatous tumour without the presence of any such growth being suspected. This case was looked upon as one of lost, glaucomatous, and painful eyeball; and an operation was accordingly performed, in order to reduce the tension and relieve the pain. Had it succeeded in

its objects, the tumour would have continued to grow until its existence became evident, and it might have then been said to be an instance of sarcoma affecting an old lost eyeball. But as it was, the operation was unsuccessful; the eyeball was excised, and it was found to have been blinded by a tumour the existence of which was not suspected.

Case VI presents no features of peculiar interest. It is an instance of what is known as ivory exostosis, and shows the difficulty to be encountered in the removal of such a tumour, especially if it exist in the orbit. The great danger to be feared was that, on account of the extensive connection of the growth to the roof of the orbit, fracture might occur during its removal. Such an accident would be followed by no untoward results, should it occur in the walls or floor of the orbit; but, in its roof, would very probably lead to most disastrous consequences.

Case VII is an example of follicular sarcoma. It is chiefly interesting on account of its resemblance to epithelioma. Such growths are said to spring from the lacrymal sac; in the case reported, there was a deep attachment in the position of the sac.

MALPOSITION OF TESTIS.*

By A. W. STOCKS, M.R.C.S.Eng., Salford.

THIS interesting case is brought forward rather on account of its rarity than for its being of any great or special practical value. The subject of the peculiarity is a young man aged 24, a policeman, the father of three children. He always fancied that he had only one testicle, and it was only some months ago, when he received an injury to the abdomen in the execution of his duty, and became troubled with symptoms of hernia, that the true nature of his condition was discovered.

The left testicle, which is fully developed, occupies the whole of the normal scrotum, the raphe being placed exactly in the middle line of the testicle, as if it were the natural condition that it (the scrotum) should be occupied by a single testicle only, whereas the raphe usually occupies a position midway between the two testicles. The right testicle, which is only partially developed, occupies (as is shown in the photographs which I have the honour to pass around) a pouch or additional scrotum, separate and distinct from the scrotum proper, situated between the scrotum and the right thigh, and lies upon the descending ramus of the right pubes. The right spermatic cord leaves the abdomen by the usual route through the external abdominal ring, and can be traced down to the abortive gland. A hernia, at the time of the injury above referred to, was protruded from the abdomen and followed the course of the misplaced spermatic cord. This is completely relieved by the application of a truss.

Four cases of irregularity in the progress of the testicle have lately come under my observation.

In the *first*, no testicle ever descended into the scrotum of a youth, aged 19, who died of a large lympho-sarcomatous tumour in the abdomen. Both testicles, which were only partially developed, were found after death resting on the brim of the true pelvis near the bifurcation of the common iliac artery. In this case, both inguinal canals were pervious throughout the whole course.

In the *second* and *third* cases, the testicles, one on the right and one on the left side, were retained within the abdomen, and in both instances a hernia had descended through the patent canal.

The *fourth* case is the one before us.

It would appear, from a consideration of these abnormalities, that the changes which occur during the development of the body have a distinct relation to, and a mutual dependence upon, each other, even where there seems to be little, if any, connection, vascular or otherwise, in the parts implicated in those processes. Thus, in the second and third instances mentioned, the closure of the inguinal canals seems to have been interfered with by the non-transmission of the testes through them.

In the present case, the remarkable irregularity in the course which the testis took in its endeavour to reach its proper destination seems to have depended upon the arrest in the development of the testis itself, and, in the other instances, the patency of both inguinal canals does not seem to have a more rational explanation than that it depended upon the non-descent of the testicles into the scrotum, and their retention in the abdomen was influenced by the non-development of the glands themselves.

* Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Manchester, August 1877.