Original Communications.

SELECTIONS FROM LECTURES ON OPHTHALMIC SURGERY.

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PROTRUSION OF THE EYEBALL.

I STILL proceed with protrusion of the eyeball from causes within the orbit.

Tumours. Under this I class the several varieties of encysted, osseous, and encephaloid tumours. In the great majority of instances, the protruded eye is forced out by the one or the other of them; indeed, any other cause may be called quite exceptional. It is of the utmost importance to a patient that there should be a correct diagnosis of these several tumours; and it is seldom that an experienced surgeon is deceived, if he will but take a little trouble, and has the chance of watching the disease.

Of the *Encysted Tumour* I will speak first. It is what is called the sense of fluctuation that must be relied on here above all other symptoms to determine the character; and, therefore, the discrimination will be more easy and certain in a later than in an earlier stage.

It should be a rule to get rid of, by destruction or removal, all cysts that are growing, or are injurious. But this is not so easy as might be supposed; and in the attempt there is risk of local and constitutional disturbance. After a large experience in these cases, my present plan is not to attempt in the first instance to dissect out the cyst, except it be small and superficial; but to open it by a free incision, and wait for the result. This will be favourable, or not, according to the nature of the tumour, the state of its walls, and the character of its contents. The common termination of those that are thin-walled is the destruction of the secreting membrane by supuration. A delicate cyst will break down rapidly; and it is said that the cyst-walls may adhere. I do not, in the first instance, attempt to produce suppuration by the introduction of lint and other substances, or the application of an escharotic; I rather trust to a natural process, lest the consecutive inflammation prove very severe. At the same time, I do not hesitate, when I think it necessary to prevent premature closure, to insert in the opening, for a day or two, a few shreds of lint. This is a safe and cautious mode of proceeding; and, if it does not effect all that is needed, a better knowledge of the nature of the disease is obtained. We cannot be too careful and cautious in operating on the orbit. Death has been caused by what would be called simple operations; and I have over and over again seen patients placed in a state of great danger, followed by tedious recovery, when I had no reason to expect such a course.

I should next resort to the use of an injection; and I have not been able to prove, of the many drugs which may be called to our aid, any superior advantage of the one over the other. Different men prefer different ones. One is perhaps taken up by mere chance or fashion, and then spoken of as the wonderful agent. I usually employ alum.

Although I will not say that a surgeon ought not to undertake to remove a cyst that he may find

superficial, rather than inject it, any more than will pretend to lay down any surgical rule that is not to be departed from—I feel no hesitation in expressing myself to the effect that the deeply seated ones had better never be attempted to be dissected out; for never saw one that passed to the apex of the orbit ever entirely removed. In every case, the operator has been disappointed. But, besides the depth, the relations of a tumour may render the detachment impossible, without taking away some of the contents of the orbit, not even excepting the globe of the eye. My opinion is, too, the more fortified by the fact that, during the last thirteen years, I have had several of these cysts, of very various depths, directions, and capacities; and not in an instance have I failed to effect a cure by injections. In some the eye was enormously protruded, and vision more or less impaired from the pressure on the eyeball sometimes almost extinct. It must not be expected that a single injection will effect a cure always. Sometimes it will, and a most remarkable example of this is to be found in a paper of mine in the *Medico-Chirurgical Transactions*; but the treatment, including also nice manipulating, the keeping of the orifice sufficiently open, perhaps compresses, etc., may extend over weeks and months.

Under this head of encysted tumours, I include hydatids, accephalocysts, and echinococci. Their nature can never be determined till a puncture or an incision is made; for they present symptoms the same as those arising out of any kind of fluid tumour. When they are thus detected, the free use of hot water with a strong syringe will wash out much of the contents. The cyst readily suppurates.

Fatty Tumours are not common in the orbit—that is, at all deeply seated; but I have met with some small ones about the margin. Their removal is imperative, because of the almost certain increase. When it is possible, they should be removed within the eyelids, to prevent deformity.

There can be no doubt that the eyeball may be thrust out by a simple growing or increase of the orbital fat, without the formation of a distinct tumour within a capsule—I mean a true fatty tumour—as does sometimes happen in other parts of the body, whereby a swelling or tumour is formed, and relief may be afforded by reducing the redundant mass.

Exostosis of the Orbit is rare. All parts of the orbit are alike liable to it; and, as with exostoses in other situations, it varies in size and other physical properties, in the mode of attachment, having a narrow or a broad connexion with the skull, and in density; whence the division into varieties, according as it is ivory-like, made up of bone and cartilage, or of bone and fibrous tissue. When an exostosis in the orbit is hidden from the touch, there is no point of diagnosis by which it can be distinguished from any other tumour that protrudes the eyeball. It may be painless, or very painful; this being due to its position, whether pressing on a nerve, or not. The slowness of growth is the only circumstance that may cause a suspicion of its nature. Neither can it be always determined whether an exostosis will admit of being removed, till a portion of it has been exposed, and the nature and extent of its attachment ascertained. In what may be called the simple form of exostosis—that which is mere bony texture growing at the extremity by a plate of cartilage—division at the neck suffices. In that composed of fibro-cartilaginous structure within the expanded bone, either the bone to which it is attached must be removed, or the tumour completely extirpated.

No very precise rules can be laid down for the manner of operating; but this may be said, that more may be done with the bone-forceps, especially

f the base of the tumour be small, than with any other instrument; and the forceps should have short and narrow blades, and long handles. It is judicious to be prepared with two pairs, the one straight, the other convex or angular. In addition to these, there should be provided a variety of small saws and gouges, of different shapes and sizes; in short, all the modern instruments that are used for operations on diseased bones. The upper wall of the orbit, and the inner, require the greatest care in operating; but, as elsewhere, the surface throwing out an exostosis is generally thickened.

Encephaloid Tumour. This comprises an extensive subject, and therefore, in a short lecture, I can do no more than allude to certain points, those which it most concerns the surgeon to know, and which bear directly on practice.

All the forms of cancer do not occur in or around the eye with equal frequency. Colloid cancer has never yet been found in the eye or orbit. Scirrhus is exceedingly rare as an affection either of the eyeball or of its appendages. Epithelial cancer attacks only the eyelids or conjunctiva. Recurrent fibroid disease has been met with as intraorbital tumour in one instance only that has come to my knowledge. Medullary cancer, in the form of encephaloid or melanosis, may attack either eye or orbit; and it is the one or the other variety, more particularly the former, which is present in the great majority of cases.

As soft cancer is a common cause of ocular protrusion, so, perhaps, is it the most difficult to be diagnosed in the early stage, especially by the inexperienced. But, before I proceed further, I will go into a question that has perhaps occurred to many of those who hear me. Does the position of the eyeball in any way determine the nature and situation of the cause of the protrusion? In obscure cases, where there is not any indication to be gathered from the state of the eyelids, the direction of the protrusion might somewhat assist in diagnosing the nature of the case, by localising it more certainly. But such evidence may be wanting; and in no instance can it be solely relied on, because of the irregularity in form and unequal development of morbid growths. In estimating the value of doubtful physical signs, the dissimilar axes of the eyeballs, and of the orbits, demand attention; while the manner in which the globe is tied by the oblique muscles, and the anatomical relations of the optic nerve, will influence the direction it will assume from pressure posteriorly. Displacement inwards is more readily effected than in any other direction. When, from the commencement, the displacement is lateral to the axes of the eyeball, it is reasonable to presume that the force also is lateral. Direct protrusion will in general prove the most embarrassing; for with bony and other growths at the side of the orbit, within certain limits of size, and situated rather posteriorly, the eyeball may be pushed forwards without any lateral displacement. This, I presume, must be attributed to the mechanical properties of the fat in the orbit. Yet, if the only symptom be direct protrusion, until further evidence to the contrary, the cause must be considered to be seated at the back of the orbit; I will not say the apex, for that is indeed a very rare position. Certainly, in soft cancer, the direction of the protrusion does not in the least assist in diagnosis.

Malignant tumours originating deeply in the orbit exhibit no peculiarity in the physical changes which they produce in the orbit or orbital appendages of the eye, by which they can be at first distinguished from simple tumours.

In some instances, however, the rate of progress, or other peculiarities in any given case, may pro-

duce the suspicion of malignancy at an early period.

It is necessary to say something about the seat of malignant growth. It may be in any part of the cellular or adipose tissue, or even to spring from the optic nerve while the eyeball is yet sound. Then the cancer may originate in the frontal cells or from the antrum of Highmore, and make its first appearance in the orbit. When, however, the disease advances and protrudes laterally, or at least can be felt tolerably, the true nature can generally be made out by the peculiarity of fixedness and immobility. It seems as if it grew from the side of the orbit, and from a large base. Of course, any constitutional effects of the malady, and any development of blood-vessels, assist to a right conclusion; but these appear only late. The rapid growth, then, the immobility, and the youth of the patient, are the signs to be relied on. I have very rarely seen an example after forty years of age, and the majority have occurred to me between the ages of fourteen and thirty.

It is a momentous question respecting what is to be done. Most certainly, my experience is against operating, as a rule. If an operation will only relieve pain, or if it will arrest bleeding, and for a time prolong life, or if the pressure of the morbid growth on the brain is productive of any ill consequences, I should operate. As soft cancer is merely the local evidence of a poison at work with the system, any idea of curing the disease by operation can be only attended by disappointment.

Periostitis. Inflammation of the periosteum of the orbit, which must, I presume, be always more or less combined with inflammation of the bones, may protrude the eyeball; and, although such disease may follow traumatic injury, constitutional causes, such as struma, and syphilis in particular, generally produce it; but, whichever it may be, the diagnosis is seldom obscure, if proper investigations be instituted.

Disease of the Optic Nerve has been a cause of protrusion. A tumour of the size and shape of an olive, just a little behind the sclerotica, and consisting principally of thickened neurilemma, the nerve-tubes being unaltered, had displaced the eyeball upwards and outwards. The discovery was made in a dissecting-room.

ON A NEURO-MNEMONIC TRIANGLE AT THE BASE OF THE SKULL.

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THE Neural Triangle, to which the purport of this communication, written for mnemonic purposes a few years ago, is the invitation of the young dissector's attention for a moment, includes a small portion of the anterior, middle, and posterior fossæ, at the base of the skull, corresponding, respectively, to the encephalic lobes. Along its boundary-lines, as in the subject before me, are seen the whole of the cerebral (intracranial) nerves of each side, at situations that are internal to the dura mater, and at which we usually find them to be divided with the scalpel, on removing the brain from the cavity of the cranium. It is to this fact that the triangle owes its mnemonic-anatomical significance; and the practical application of it by the inexperienced student of anatomy will, I apprehend, remove one of the many causes of his early dissecting-room perplexities, and will enable him to remember with certainty no inconsiderable item of cranio-neural anatomy, more expressly with reference to the relation of parts.