Original Communications.

SELECTIONS FROM LECTURES ON OPHTHALMIC SURGERY.

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Protrusion of the Eyeball. (*Concluded.*)

Protrusion from Causes without the Orbit.

Protrusion arising from pressure external to the orbit is apt to be overlooked, unless the surgeon be aware of the probability of the occurrence, and the sources whence the pressure may arise. The position of the orbit exposes it to encroachment on all sides. Diseases of each of the cavities and sinuses around, may reduce its capacity and protrude the eye.

Morbid Changes in the Cranium. The most common example from a cerebral origin is to be found in chronic hydrocephalus; the roof of the orbit is pressed down, and the depth of the cavity much lessened. The cause is here at once palpable, and so are most of the disturbing cranial influences. Cerebral tumours may protrude the eye; other changes in the cranium may displace it.

When the physical causes, although cerebral, are less marked, and their seat is not perceptible, headache, loss of memory, fits, partial paralysis, or other indication of lesion in the great nervous mass, with the previous history of the case, will generally determine them.

Frontal Sinus. I have met with an example of suppuration in the frontal sinus producing protrusion. Distension, with elasticity of the bone over the abscess declared its seat; and evacuation of the pus remedied all disturbance.

Writers speak of hydatid and encysted tumours, and polypi, being found in the above sinus; but such occurrences are remarkably rare.

Zygomatic Fossa. I have seen an exostosis, that appeared to have its origin in some part of the temporal or zygomatic fossa, throw the eye forwards. This is the only instance I know of disturbance from this quarter.

Maxillary Sinus. The maxillary sinus, or antrum of Highmore, is the seat of the most frequent cause of displacement, for it is frequently diseased; and a tumour of any magnitude having its seat here, can scarcely fail to throw up the orbital floor sufficiently to affect the eye; and such a cause could rarely be occult. Distension in some other direction, and some collateral symptom, would co-exist and determine it; and it matters not what may be the nature of the tumour—whether aneurism by anastomosis; polypus, or other soft growths of a mild or of a cancerous nature; simple exostosis, or malignant affections of the bones. All these have been met with. Suppuration, however, may greatly enlarge the maxillary sinus, which, in the natural state, is very small, without throwing up the orbital boundary. I have met with several examples of this.

Simple accumulation of mucus has been known to distend the antrum and to displace the eye.

Nasal Fossa. Nasal tumours—and I allude especially to polypi—could not advance and injure the orbit without detection. A careful examination of the nose would always render the cause apparent. Obstruction of the lacrymal duct, too, would surely usher in such intrusion.

Sphenoidal Sinus. Notwithstanding that I cannot advance any instance of protrusion of the eyeball from a distended sphenoidal sinus, I would wish to impress the possibility of the occurrence; for the anatomical arrangement of the parts, I should say, would seem readily to admit it.

I have shown that the direction which the displaced eyeball may take, affords little or no clue of the exact position of the cause of the protrusion.

It has been supposed that attention to the focal range may assist in ascertaining the position of pressure on the globe of the eye; the theory being that, if behind, the antero-posterior diameter will be lessened, and the range be shortened; if at the side, it will, on the contrary, be lengthened. I question the practical application of this; the imperfection of sight has, in all the cases that I have seen, resulted from decided loss of power in the retina.

With the greatest degree of protrusion, the pupil may be natural; but it may be dilated and moveable, dilated and fixed, or of its natural size and motionless. I am not aware that any practical indication can be gathered from any of its assumed states.

It is a well ascertained fact, that the eyeball may become dislocated by accident, being thrown forwards and firmly fixed in that position. Such an occurrence requires that the force be applied within the orbit, and against the eyeball—a person falling against a hook, for instance. In the case of this kind from which I get my knowledge, the dislocation was reduced. The margin of the upper eyelid, which was invisible, was elevated; and the eyeball pressed back to its place, which it entered with a distinct snap. Pains in the head and in the eye ensued, for which he was cupped and purged. Six days after the accident, all symptoms had disappeared, and vision was quite restored. Dr. Jacob suggests the following solution of the accident: that some persons possess very large eyes and shallow orbits; and often, while examining such eyes, he found that, by pressing the eyelids above and below, he could with ease get a back view of the eye. It was not that he merely saw one-half of the eyeball; but, by a little manipulation, he could obtain a view of the posterior part. Now if, by means of violence, the lids were tucked in, they would grip the back of the eyeball, and produce a protrusion of the organ from the orbit. He could not conceive any other way in which the accident could have happened; because neither the muscles sustained injury, nor was the optic nerve ruptured. Another speaker considered that the snap produced by the reduction of the dislocation proved the fact of the muscles being uninjured.

Some years ago, I was extracting an osseous cataract from a disorganised eye. I made the upper section, and had just got out the cataract with the curette, when, before the eyelids were released, the eyeball was forced out, actually dislocated, and, as it appeared to me, by the action of the orbicularis muscle. The protrusion was evidently increasing; and I quickly put the spoon of the curette under the edge of the upper eyelid, and lifted it forwards, while I pressed the eyeball back and restored it to its place. The whole occurrence could not have occupied twenty seconds. Vitreous humour did not escape.

There are important vascular diseases connected with protrusion of the eyeball that must not be passed over; aneurism by anastomis, aneurism in the orbit, and intracranial aneurism of the carotid artery. But as these are peculiar, and require a great deal of consideration, I shall devote a lecture to them.