

ABSTRACT OF A  
Clinical Lecture

ON

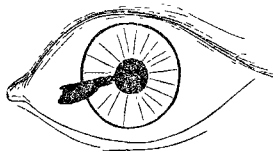
FOREIGN BODIES IN THE EYE.

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AFTER dilating upon the more common form of injuries, Mr. Jeaffreson said:—I wish to explain to you the rule of practice I adopt where there is supposed to be a forming body in the eye. Of course where there is an extensive rupture and sight is obviously and permanently destroyed, search may be made in the eye if desirable, but it can scarcely ever be necessary, as evisceration or enucleation should always be immediately performed. It is in cases where the wound is not so extensive, where there is still perception of light, that we shall have some hesitation as to how to act. Let me give you a case in point. A man was brought to the hospital with the history of having been struck with a piece of metal chipped from a tool. There

FIG. 1.



was a wound three-eighths of an inch long dividing the cornea at its junction with the sclerotic, the iris was also split, a small piece was prolapsed. (Fig. 1.) There was a good deal of blood in the anterior chamber, but still fair perception of light. The patient could count fingers at one or two feet with his

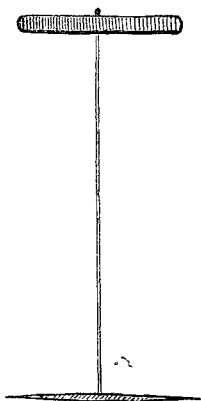
back to the light. How should we proceed in such a case? If there is a foreign body in the eye and it remains the eye is doomed to destruction. If there be none, there is a prospect of retaining the eye, which, although seriously damaged, is better than an artificial organ. In this case it is obviously of the very first importance to determine if there is a foreign body in the eye, and to leave no stone unturned which will help us in determining that point. First, we must have a minute and careful history of the case, and collect all the outside testimony which can be brought to bear upon the point. The object from which the foreign body has become detached should, if possible, be produced. In the present case the tool is a cold chisel, and the piece detached about three-eighths of an inch by two-eighths. (Fig. 2.)

FIG. 2.



It has not been found or picked up in the shop. This is a point in favour of its being lodged in the eye, though not of very great importance, as such a small object might elude search. Can we derive any information from the nature of the wound? The cornea is cut, the aqueous has escaped, the iris is incised, and the cavity of the vitreous is opened. Under these circumstances, it is exceedingly improbable the piece should

FIG. 3.



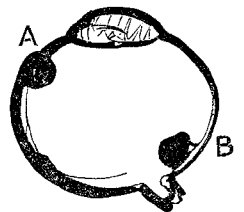
have made such a wound and fallen out again, unless it were a large piece, which we know it is not. To obtain corroborative evidence we employ the magnetic needle. The needles that I employ were manufactured for me by Messrs. Milward and Co. of Redditch. They consist of a very fine double-pointed needle about one inch in length, with a fine eye in the centre. A very delicate piece of silk is passed through the eye and knotted, and the other end is attached to a small ivory handle as seen in the sketch. The length of the silk must be such as to give the needle sufficient play to sew with, and something about twelve inches is sufficient for this. (Fig. 3.)

The patient must be now placed upon a couch so that the commissure of the eye lies north and south, and the needle gradually lowered over the organ. Opening the commissure widely,

the needle is promenaded over the globe as close as possible without touching it, and the patient is also directed to facilitate matters by moving the eye to the greatest extreme in different directions. If this be carefully and steadily done, and the needle remains perfectly steady, the inference is that there is no piece of metal (steel or iron only) in the eye. This is, however, only negative evidence; its sources of fallacy I shall allude to presently. In the event of there being distinct deflection, we have positive evidence of a piece of metal, and that probably of a considerable size. The magnetic needle may therefore be of the greatest value to us in these cases, and its employment should never be neglected. As I said before, sometimes it is uncertain in its action. This may arise from two causes—either the piece of metal is too small to influence the needle, or it may lie at too great a depth.

From experiments made upon eyes which have been enucleated and animals' eyes, I find that a piece of metal weighing two or three grains, lying immediately under the sclerotic, will very sensibly and obviously deflect the needle; a piece the same size lying at the opposite extremity of the eye will not do so, the substance of the vitreous proving an obstruction to the magnetic current. (Fig. 4.) If the piece were double the size it would do so in any position. So you see the chances of getting the reaction upon the magnetic needle depends much upon the size of the fragment and its relation to the surface. In experiments made upon eyes removed we can approximate the needle to all

FIG. 4.



parts of the surface of the globe; but when the eye is *in situ*, a comparatively small part of it can be so explored, and this introduces an element of failure. In making the test we must be careful to see that the needle does not come into contact with the lashes, and thus obtain an artificial deflection. In some cases, to facilitate matters, it may be necessary to cut the lashes short. You must not either be led astray by the adhesion of the point of the needle to the globe. If the point touches the globe by accident it will most certainly adhere, and requiring a little force to draw it away will give the impression of magnetic attraction. What we wish to see is lateral deflection or an oscillatory movement of the needle, which a few trials will make you familiar with. Well, in our illustrative case, the deflection of the needle was very obvious, and I was able to diagnose with certainty the presence of the piece of metal. The galvanic probe was cautiously introduced into the vitreous; a slight click was felt, and the probe cautiously and slowly withdrawn. When the piece of metal arrived at the internal opening of the wound it could not be drawn through, owing to its not coinciding with the position in which it originally entered the eye. This is a common occurrence, and one we should always be prepared to deal with. It is better immediately to enlarge the wound in the direction where the enlargement will cause least danger to ocular structures (generally backwards) than to let the body slip and attempt to get it attached to the probe in a more favourable position. I therefore enlarged the wound with a cataract knife, and the piece was readily extracted. The piece of prolapsing iris was now abscised and a conjunctival suture inserted close to the margin of the cornea. In this case everything pointed to the presence of the foreign body in the globe, and we had the positive evidence of the magnetic needle. Had it not been so, I think we should still have been justified in making a careful search for the foreign body. If it is carefully and gently done with a perfectly clean instrument, it can scarcely increase the mischief of the original injury. Of course what I say applies only to particles of iron and steel. With other materials which cannot be secured by means of the galvanic probe we shall scarcely be justified in searching, because if we found a foreign body we could rarely extract it without making a large opening for the introduction of the forceps. An exception to this rule must be made in the event of the foreign body being absolutely seen *in situ*. This sometimes happens when the patient is brought immediately after the accident, and the media and structures of the eye are still transparent. Under these circumstances I have occasionally been able to remove pieces of stone, copper, brass, &c.,

using, when the body was small, a pair of cannula forceps; when it was large, a pair of aural forceps. It is rare, however, that the circumstances are sufficiently favourable for us to carry out these manoeuvres; as a rule we must be content to wait till symptoms develop themselves. In the event of the foreign body being large and of an irritating nature, a panophthalmitis will rapidly develop; under the contrary circumstances the body may become encapsulated or encysted and the eye quiet down, retaining sight in various degrees, from perfect vision to the mere perception of light.

I now wish to say a few words about another class of cases which are comparatively common, and always fraught with great anxiety and responsibility for the surgeon. I allude to those cases in which a small foreign body penetrates the cornea, and becomes lodged in the iris. The shock of the accident may have been so slight as perhaps scarcely to attract the patient's notice; yet the results may be of the most serious import. I cannot do better than illustrate what I have to say by a case which has occurred to me lately.

A smith at work in his forge felt something strike his eye. It gave him comparatively little pain, and he never for a moment suspected anything serious had happened to him. In the course of the day he applied to a local doctor, who told him there was nothing in the eye, but gave him a little soothing lotion. A few days after he applied to me. The eye was injected, painful, and tender. There was some serous iritis, and on the edge of the pupil near to the margin could be seen a small nodule of lymph. This, I suspected, contained a foreign body, more especially as the traces of a minute wound could be seen in the cornea. I explained my view to the patient, and pressed upon him the necessity of allowing me to attempt its removal. This he consented to do. Being a powerful and apparently a strong-willed man, I consented to make the attempt without chloroform. An incision about four millimetres in length was made in the margin of the cornea opposite this nodule of lymph and a curette introduced. On touching the nodule the lymph crumbled away, and the glistening surface of a metallic particle was seen—a flat scale not larger than a small pin's head. I tried to coax it into the curette, but it remained immovable, so I resolved to remove it by forceps together with the piece of iris to which it was attached. No sooner had I seized it together with the piece of iris than the patient gave a sudden and uncontrollable jump, at the same time violently rotating his globe. A large piece of iris was dragged from its attachment, the anterior chamber became filled with blood, but whether the piece of metal escaped or not it was not possible to decide.

The result of this case will no doubt be unfortunate, but I can scarcely attach any blame to myself owing to want of skill, though I do for not having refused to operate without chloroform being administered. In the whole range of ophthalmic surgery there are no cases which require greater care, greater dexterity, greater patience, and greater steadiness on the part of the patient than the extraction of foreign bodies in the anterior chamber; for these reasons, therefore, unless under the most urgent circumstances, no attempt should be made to remove them unless the patient is thoroughly anaesthetised. Some years ago my own son was struck by some particles of glass from an exploded bottle; one fragment penetrated the cornea, and could be seen in the anterior chamber; another was lodged in the cornea. Not anxious to undertake the responsibility myself, I telegraphed to my friend, Sir Wm. Bowman; but, learning that he was on the Continent, and fearing delay, I resolved finally to operate. The piece lodged in the cornea was easily removed. The fragment in the anterior chamber was about the size of a hempseed, but irregular and many-angled; it was freely movable, and changed places with the position of the head. Sometimes its position was difficult to distinguish, but usually it lay in the angle at the bottom of the cornea. An incision about five millimetres in length was made in this situation in the sclero-corneal junction, with an angular broad needle, and the fragment extracted with a little manipulation. In this case chloroform was administered by my friend Dr. Nesham, and the result of the operation was most perfect. In some text-books I see that it is recommended not to interfere with foreign bodies in the eye which are unattended by active symptoms. I think cases where such advice can be safely followed must be rare indeed. Where there is a movable body in the anterior chamber it

should unquestionably be removed under any circumstances, and in my experience wherever the foreign body is situated the chance of a successful operation is always much greater when there are no symptoms than when these have actually developed. The only exception that perhaps should be made to the immediate extraction of a foreign body is when it is quite small, and is lodged in the vitreous chamber. In this situation it frequently interferes but little with vision, is much more likely to become encapsulated, and unless it is a piece of iron or steel, which can be dealt with by means of the galvanic probe, will require such a large incision for its extraction and so much manipulation that there is great risk of immediate loss of vitreous or secondary suppurative hyalitis.

No one who has not had frequently to perform these operations can imagine the difficulties that may arise. The foreign body is there, clearly visible, and it would seem a simple matter, but it is as trying to the eye, the hand, and the patience as the "pigs in clover" puzzle. As soon as the incision is made the cornea collapses and the object loses its distinctness; now a few drops of blood may exude and cloud all; the foreign body, if attached to the iris, may be difficult to detach; it may fall out of sight between the cornea and the angle of the iris; it may slip through the pupil, or if the iris has been transfixed may tumble through without any warning. I know of no more pleasant feeling of thankfulness than that which one experiences when such an operation comes to a satisfactory and successful termination. It might seem superfluous to warn you against mistaking pigment deposits in the iris for foreign bodies; yet I can assure you the warning is not by any means unnecessary. I have on more than one occasion seen this mistake made by very competent men. A clear and uniformly coloured iris with a single spot of dark-coloured pigment may (when there are a history and symptoms indicative of a foreign body in the eye) lead you astray unless you make a careful examination with oblique illumination, using at the same time a powerful magnifying glass.

Before I finish I wish to call your attention to a case which has recently passed through our hands, in which a considerable piece of metal was lodged in the lens. The subject of it was a young man who was a fitter. Whilst dressing some castings, a piece flew and struck his eye. We did not see him till a week after the accident, and at that time the eye was only slightly injected, the pupil dilated. (He had been under treatment elsewhere.) The cornea showed, a little to the nasal side of its centre, traces of a recently healed wound. The lens was cataractous, but in the centre there was a dark shadow, which suggested the possible presence of a foreign body. There being but comparatively little reaction, no excessive swelling of the lens, and no absolute certainty of the presence of a foreign body, it was resolved to watch for a few days, keeping the pupil fully dilated with atropine. About the fourth day the swelling of the lens had considerably increased, and the intraocular tension having risen, it was resolved to extract the lens. The incision having been made, there was a gush of lens matter, a considerable piece of metal (about eight grains in weight) presenting at the wound and being removed by a pair of forceps. The patient recovered with a perfectly sound movable pupil and good vision. The lens is of course frequently of necessity wounded when a foreign body penetrates the eye, but it is comparatively uncommon that a foreign body becomes lodged in it without further complications. If it is very small—such as a fine scale of metal or grain of powder—it may do but little injury, producing only a limited opacity in its own immediate vicinity, which may remain quiescent and never spread. If, however, it is large and a considerable rent has been made in the capsule, allowing free access to the aqueous humour, a general opacity of the lens will soon occur. In this case we should watch the case carefully, allowing time for the whole lens to become opaque and softened, but not allowing sufficient time for it to become perfectly diffuent, lest the weight of the particle causes it to become dislodged, and it falls into the deeper parts of the eye, when it would certainly set up acute and dangerous symptoms.

To recapitulate, then, briefly the chief points of my remarks, I should say: 1. When an eye is hopelessly and irremediably destroyed it should be at once removed. 2. When an eye does not appear to be irremediably and hopelessly destroyed every effort should be made to retain it. If there is reason to suppose it contains a foreign body a search may be made, provided always that there is reason—

able probability that the foreign body will be removed and the damage to the eye not increased in an important degree. 3. In removing foreign bodies that are attached or embedded in the iris chloroform should be freely administered. 4. Foreign bodies embedded in the lens, and not involving other structures, should not be removed too early; time should be given for the whole lens to soften and liquefy. I regret that time and space forbid me, on this occasion, from speaking concerning that interesting class of case where a foreign body of small size penetrates the globe and becomes lodged upon the retina, being visible with the ophthalmoscope, and producing no other symptoms than a small fixed scotoma. During the last twenty years several cases of this kind have occurred in my practice, and I hope to make them one day the subject of a special lecture.

## ON THE DIAGNOSIS AND TREATMENT OF SCROFULOUS GLANDS.

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I PREFER the term scrofulous glands to that of scrofulous adenitis, because it is, in the first place, a term sanctioned by long use; and, secondly, because it is less open to objection on the score of incorrectness. Scrofulous glands are not always inflamed, nor is the scrofulous or tuberculous deposit, although the result of, always attended with, inflammation.

The diagnosis of scrofulous glands is for the most part easy, and it is only in exceptional cases that any difficulty arises. The diagnosis has to be made between simple adenitis on the one hand and glandular growth, or hypertrophy of the nature of lymphadenoma, on the other. As regards simple adenitis, time soon settles the question. Simple adenitis is of short, scrofulous disease of long, duration. In simple adenitis the inflammatory exudation in the gland is resolved, or it suppurates within a reasonable time. If, on the contrary, the gland remains enlarged, say, for three months, either it is scrofulous or is in a likely condition to become so. A second point is that the gland affected by simple inflammation is, as a rule, and especially so if about to suppurate, less defined and more surrounded by hard inflammatory material than the scrofulous gland is likely to be. The gland, with its surroundings, is in simple inflammation generally more painful and tender, and especially has more surface tenderness than the scrofulous gland; the skin too is more often red and hot; in fact, the inflammation is more general and more acute. If the degree of simple adenitis is so slight as to cause merely some enlargement of the gland without induration, pain, and surrounding inflammatory exudation, the case is trifling, and the swelling will probably subside as soon as the source of irritation is removed. No doubt there is a borderland between simple adenitis and scrofulous gland disease. We may imagine, although it is perhaps difficult to demonstrate, a prescrofulous state or condition in a gland. By this I mean a gland which, inflamed and enlarged from local irritation, in a person who has some scrofulous tendencies, hangs fire when the local cause has been removed, and, without exhibiting the distinct characteristics of a scrofulous gland, hesitates and declines either to subside or to suppurate. Here I would refer, as helping the diagnosis, to what I may term the "scrofulous throat." In the throat is to be found the earliest indications of scrofula. The scrofulous throat consists of more or less enlargement of the tonsils, probably with signs of old or recent inflammation and ulceration, together with some amount of post-nasal or pharyngeal catarrh, perhaps adenoid growths and an arched palate. Probably not more than one in ten or twenty children with these throats ever suffer from scrofulous glands in the neck or elsewhere, but, on the other hand, it is exceedingly rare to find scrofulous cervical glands in a child with a perfectly healthy throat. A healthy throat should be taken to mean clean, well-defined arches of palate, pale, unthickened mucous membrane, no enlargement of tonsils, and no chronic catarrh. Thus, then, if a gland in the neck has been enlarged for two or three months, if the child has a scrofulous throat, and if there be any family history of consumption or scrofula, the case may safely be put down as scrofulous. This will be more certain

still if the child is in poor health, if the circulation is feeble, and if it has that doughy thickening of the cellular tissue which is so common in scrofula. There is also generally to guide us the solid inelastic feeling of a scrofulous gland, which is, as a rule, quite different from the diffused hardness of ordinary inflammation and the elastic semi-fluctuating sensation given by gland growth as found in lymphadenoma. This diagnostic sign is by no means constant. Lymphadenomatous glands may be hard, and scrofulous ones soft, but the converse is usually found. The diagnosis between scrofulous glands and lymphadenoma is often more difficult than that from simple adenitis; there are some cases which seem to lie between the two. Take the following. A boy, the son of a scrofulous father, has a gland swelling in the neck, very elastic, fluctuating, and free from any inflammatory symptoms. This mass is excised, and is found to consist of quickly growing gland tissue, free from inflammatory or scrofulous deposit; fresh glands grow again, and are a second time excised, presenting the same character; for the third time a gland has enlarged. This boy has had the excessive anæmia which attends lymphadenoma; the glands excised presented the appearance of lymphadenomatous glands, but there is no general infection of glands and no splenic enlargement. I look upon this as a case of lymphadenoma, or as one which was tending in this direction; at the same time, I think this boy will get well, the return each time having been slower, and he is now improving in health; the present gland is, I believe, one which was left behind at the last operation.

General infection of glands, or more than one centre of infection, generally indicates lymphadenoma, but it is not always so. I have a patient from whom I excised scrofulous glands which had undergone cheesy degeneration, and were typically scrofulous, from both groins and both sides of neck and armpits. This patient has no anæmia, and, except the distribution of his diseased glands, has never had a symptom of lymphadenoma. Then, I think, occasionally in the more chronic forms of lymphadenoma that the affected glands may undergo scrofulous degenerations. I had a man admitted into the infirmary in a hopeless condition. He was suffering from lymphadenoma in an advanced stage, and had enlarged spleen and general gland disease. He was too bad for any operation, so that I could not take out the glands to see; but I have no reasonable doubt, from their feel and appearance, that some of his glands had undergone scrofulous degeneration. In mentioning these cases I have used the term "deposit" and "scrofulous deposit," as indicating the cheesy or tuberculous-looking material which is found in scrofulous glands, and as being an expression to which we are accustomed. I do not imply that this matter has been carried and deposited in the gland; on the contrary, it is the gland itself, or a portion thereof, which has undergone this form of degeneration. I have tabulated some of the diagnostic signs which exist between scrofulous glands and simple adenitis on the one hand and lymphadenoma on the other. These signs, however, cannot be taken as absolute. Gland affections merge into one another, and although a fairly marked case of either is distinct and obvious, yet there are cases which lie in the borderland between, and present characteristics which are common to each. Especially is this the case with scrofula and lymphadenoma.

*Simple Adenitis.*—Gland enlargement is tender and painful, with surface tenderness, and perhaps redness; if acute, is hard and surrounded by inflammatory exudation of the same character. The gland is ill-defined, merged in the general inflammation, and cannot be grasped as a definite tumour. Mischief quickly subsides, either by resolution or suppuration. A distinct and recently acting cause of irritation can be found. No scarring follows.

*Scrofulous Glands* generally have the pre-existing scrofulous throat, or enlargement follows a catarrhal throat set up by one of the exanthemata. Source of irritation is not generally so recent or definite as in simple adenitis. Glands feel solid, more defined than in adenitis, less so than in lymphadenoma; can be grasped, generally pushed about, are less fixed than in adenitis, more so than in lymphadenoma. Gland less tender than adenitis, more tender than lymphadenoma. Has lasted more than two or three months. Scars follow. Patient has scrofulous appearance or history.

*Lymphadenoma.*—Patient always anæmic, generally excessively so. Pupils widely dilated. Glands feel and look quite different from scrofulous glands; they are much more