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Mr Stokes' Contributions to Practical Surgery

CONTRIBUTIONS

TO

PRACTICAL SURGERY.

BY

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1868.

CONTRIBUTIONS

TO

PRACTICAL SURGERY.

On a Remarkable Case of Gunshot Injury of the Orbit resulting from the Bursting of a Fowling-piece, in consequence of which the Screw and Portion of the Breech striking in the first instance the Right Superciliary Ridge, and taking a direction Downwards and Inwards, completely destroying the Eye, and passing through the Floor of the Orbit, were eventually lodged in the Cavity of the Right Nasal Fossa. Plastic Operation successfully Performed.

THERE is no class of wounds of the eye or orbit which are of greater interest and importance, and therefore better entitled to careful consideration on the part of the surgeon, than those resulting from gunshot injuries; and the particulars of the case, which we shall presently discuss, affords another remarkable example of the great frequency with which the eye and its appendages are injured when only a single shot strikes a person. This singular liability of the eye being so frequently the seat of these injuries has been noticed by Mr. Cooper and other writers on injuries of the eye. Of these, that which is produced by the bursting of a gun and the lodgment of a portion of it in or in the immediate vicinity of the orbit, is obviously the most formidable accident; and, in truth, the fact of the gunshot injury in the case we are about to discuss not having terminated fatally, is in itself a matter of no small surgical interest. Records of a few similar cases are to be found. One in which the result was, like mine, favourable, is mentioned by Mr. William Cooper in his admirable work on *Injuries of the Eye*. The particulars of the case are quoted from Beck's *Medical Juris-*

prudence. The case was one of a man who had his eye blown out by the bursting of a gun. "The surgeon dressed it, and on the second dressing he perceived something hard among the injured substance of the eye. He found this to be metallic, and, getting hold of it with his forceps, pulled it out, when, to his surprise, he found it was the breech of the gun which had been forced backwards by the recoil and been jammed into the orbit. Notwithstanding this extensive injury, which annihilated the eye, the man made a perfect recovery."

Dr. Keith, the deservedly eminent surgeon of Aberdeen, has also recorded a remarkable case of this sort, in which the breech of a gun was lodged for four months below the right eye and across the nose.[a] The patient, James S., aged nineteen, stated that while shooting on the morning of the 19th February, 1857, on the sea cliff near Aberdeen, his fowling piece burst. "He stood stunned for a minute and then fell to the ground quite insensible, and so continued for about half an hour. When consciousness returned he found himself in a farm house, and then in the course of another half hour was seen by a surgeon. He had bled very freely all this time from a large and deep wound in his face between his eyebrows and just below that level into the very root of his nose. The wound extended from below the right eye, across the root of the nose, and into the left orbit, lacerating the lower eyelid and utterly destroying the left eyeball. The bones of the jaw proper seem to have been so far separated from the os frontis, that the patient is positive the surgeon applied one hand under his chin and the other on the crown of his head, and pressed them forcibly together."

On June 25, four months after the accident, the foreign body was successfully extracted by Dr. Keith. Before doing so the nasal bones had to be widely separated, and the piece of metal, which formed the breech of a fowling piece, weighing two ounces and five drachms, and measuring two inches and a half in length, was extracted. The thick or screw-bolt end entered first, and penetrated so far as to allow the very tip of the screw-plate to be covered in by the skin of the nose. There was no profuse hemorrhage during the operation. The case ultimately did very well, and an artificial eye having been adjusted, it was "difficult to discover that anything very serious had ever befallen him."

A somewhat similar case is detailed in the *Edinburgh Monthly*

[a] Medical Times and Gazette, Oct. 23, 1858.

Journal for September, 1856, by Dr. James Fraser, of St. John's, Newfoundland. In this case the foreign body, which was a large coarse breeching of a common musket, was lodged in the right superior maxilla, and after remaining there for a period of eight years, was removed by Dr. Fraser, and the case ultimately did well.

A case in which this accident occurred was under observation in the Richmond Surgical Hospital many years ago, under the care of the late Dr. Hutton. The case terminated fatally, as might well be expected from the extensive nature of the injury, and the preparation of the fractured bones of the face and head, as well as the missile, are carefully preserved in the magnificent pathological museum which is attached to the hospital. The injury was caused by the bursting of a gun two hours previous to the patient's admission into hospital. A portion of the breech of the gun struck him on the superciliary margin of the left eye, producing a compound comminuted fracture of the skull. Several splinters of bone and portions of the stock of the gun were driven into the brain. We learn from the description of the preparation in the catalogue of the museum that when he was admitted into hospital the patient had rigors, the surface of the body was cold, pulse slow and weak, the respirations were sixteen per minute and unaccompanied by stertor; he answered questions rationally, but in monosyllables. A profuse hemorrhage followed the removal of some of the splinters of bone and wood from the brain. Symptoms of delirium set in shortly after the patient was admitted, and he was obliged to be forcibly restrained. Seven hours after admission his pulse was 70 per minute and respiration without stertor. Upon the morning after the occurrence of the accident he had delirium ferox; his pulse was 120 and feeble; he screamed so as to be heard in all parts of the hospital; his pulse rose to 150, and he died in thirty-six hours after the receipt of the injury. The pupils were never unnatural throughout, and he had no convulsions. The left nostril was insensible to the most pungent odour.

As this case is one of such interest I feel that no apology is necessary for giving so many of its details. The full particulars of the case are graphically described in the catalogue of the Richmond Hospital Museum by my distinguished colleague Professor R. W. Smith.

Any record, however brief, of this class of injuries would be obviously incomplete without reference to the celebrated case of Lieutenant Fritz, to which reference has been made by several

writers, and the full particulars of which are given at length by Sir James Simpson in his work on acupressure, as a case strikingly illustrative of the tolerance of living structures for the presence of metallic bodies. Sir J. Emerson Tennent in his work on Ceylon thus describes this classical case:—

"Among extraordinary recoveries from desperate wounds I venture to record here an instance which occurred in Ceylon to a gentleman while engaged in the chase of elephants, and which, I apprehend, has few parallels in pathological experience. Lieutenant Gerard Fritz, of the Ceylon Rifle Regiment, whilst shooting at an elephant in the vicinity of Fort Macdonald, in Oorah, was wounded in the face by the bursting of his fowling-piece on the 22nd January, 1828. He was then about thirty-two years of age. On raising him it was found that part of the breech of the gun and about two inches of the barrel had been driven through the frontal sinus, at the junction of the nose and forehead. It had sunk almost perpendicularly, till the iron plate called the tail-pin, by which the barrel is made fast to the stock by a screw, had descended through the palate, carrying with it the screw, one extremity of which had forced itself into the right nostril, where it was discernible externally, whilst the beaded end lay in contact with his tongue. To extract the jagged mass of iron thus sunk in the ethmoidal and sphenoidal cells was found hopelessly impracticable; but, strange to tell, after the inflammation had subsided, Mr. Fritz recovered rapidly, his general health was unimpaired, and he returned to his regiment with this singular appendage firmly imbedded behind the bones of his face. He took his turn of duty as usual, attained the command of his company, participated in all the enjoyments of the mess room, and died *eight years afterwards*, on the 1st of April, 1836, not from any consequences of this fearful wound, but from fever and inflammation brought on by other causes. So little was he apparently inconvenienced by the presence of the strange body in his palate, that he was accustomed with his finger partially to undo the screw, which, but for its extreme length, he might altogether have withdrawn. To enable this to be done, and possibly to assist by this means the extraction of the breech itself through the original orifice (which never entirely closed), an attempt was made in 1835 to take off a portion of the screw with a file, but after having cut it three parts through, the operation was interrupted, chiefly owing to the carelessness and indifference of Captain Fritz, whose death occurred

before the attempt could be resumed. The piece of iron, on being removed after his decease, was found to measure $2\frac{3}{4}$ inches in length, and weighed two scruples more than two ounces and three quarters. A cast of the breech and screw now forms No. 2,790 among the deposits in the medical museum of Chatham."

This remarkable case is also alluded to in Mr. Guthrie's *Commentaries on the Surgery of the War*, and the full particulars of it were detailed to the Surgical Society of Ireland, on January 18th, 1845, by Dr. O'Callaghan, then Surgeon to the Eleventh Hussars. In the discussion on this case, the late Sir Philip Crampton, who presided, alluded to another case, detailed by Mr. Rogers in one of the earliest numbers of the *Medico-Chirurgical Transactions*, in which the breech of a gun penetrated the cranium, about the centre of the os frontis, lodged and continued to remain in the substance of the brain, yet no one had an idea that any extraneous substance existed there, until after six weeks, when a black hard body appeared in the wound, which, when extracted, proved to be the breech of a gun, and which weighed several ounces. The man recovered perfectly without any loss of his faculties.

Mr. R. Hughes, surgeon to the Stafford Infirmary, also has detailed a case[a] where a portion of the breech of a musket, which burst, was driven through the roof of the orbit so as to bed itself in the brain, and after it had remained there for a period of fourteen months, the patient only occasionally complained of a "sensation of weight in the head, especially on stooping. Neither his sight nor smell were interfered with."

The following case, which came under my observation, adds another to the list of these grave injuries, which, fortunately, are so rarely met with. In this case it appears most likely that the patient's life was saved in consequence of the alteration in the direction the breech of the gun took, for, as the outer portion of the superciliary ridge is deeply indented, it would appear as if the foreign body just struck the bone in this situation, and then, instead of passing upwards, or directly backwards, and penetrating the substance of the brain, its direction was altered, and it took a course downwards and inwards, and passing through the floor of the orbit, was finally lodged in the right nasal fossa. The patient was thus saved from the disastrous consequences which would in all probability have supervened and proved fatal. as occurred in Dr. Hutton's case, had the brain been penetrated.

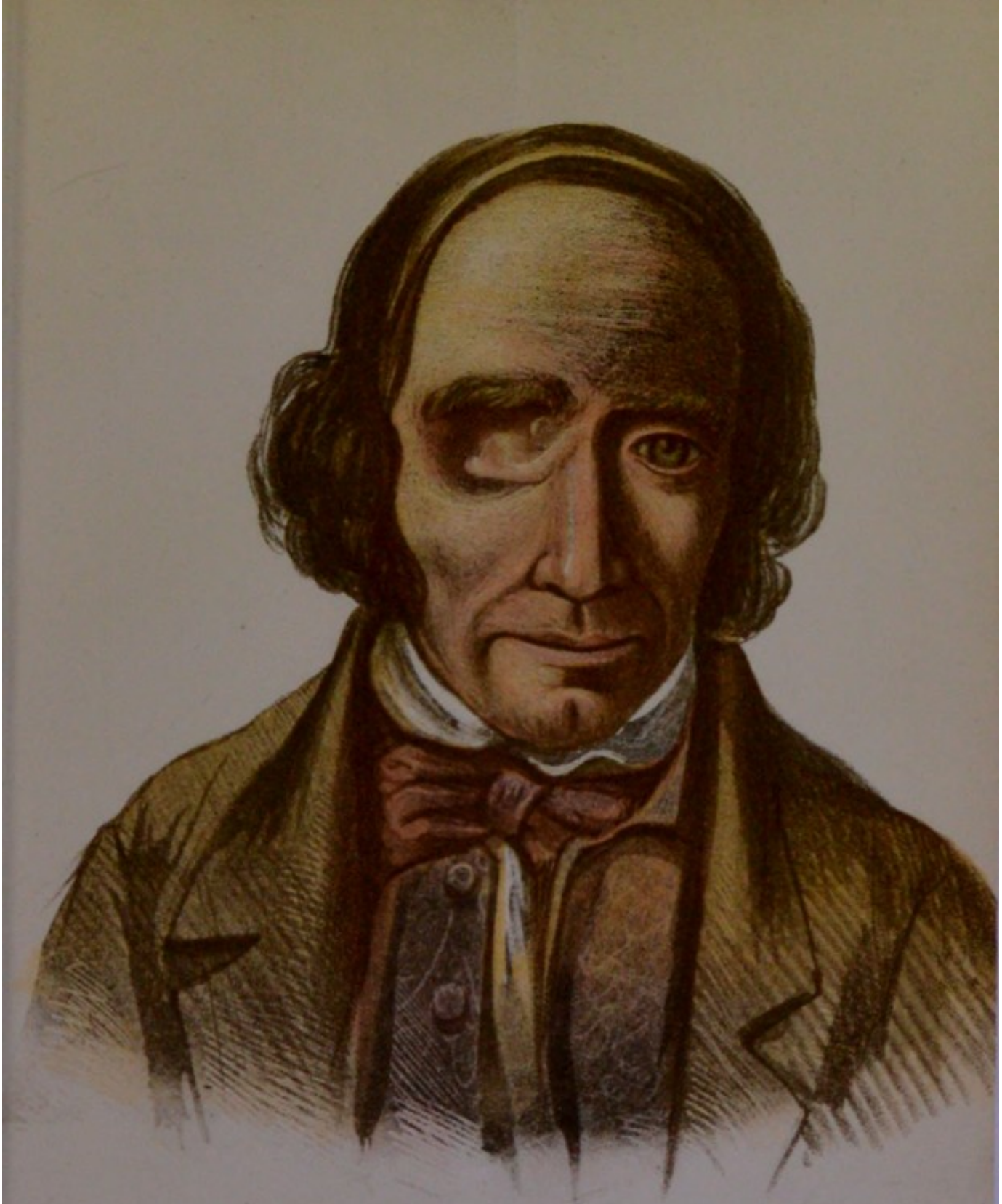
[a] The Lancet, September 18th, 1858.

The screw and breech of the gun, which are accurately delineated in their full size, in the accompanying drawing, were extracted without much difficulty, about a week after the accident.

Neil Ruddy, aged forty-seven, was admitted into the Meath Hospital on the 20th January, 1865, having been recommended to me by my friend, Mr. Henry Wilson. A glance at the annexed chromo-lithograph from a drawing executed by the late Mr. Conolly, gives an excellent idea of the deformity which the patient suffered from on his admission into hospital. No trace could be found of the eyeball which had been completely destroyed, and at the lower and inner portion of the floor of the orbit there was a large, somewhat circular or tubular passage about an inch and a quarter in length, extending downwards to the floor of the right nasal fossa. There was no evidence of any diseased bone. The patient's health was very good, but he was greatly distressed by the continual draught of cold air passing through the passage leading from the orbit to the nasal fossa, and which rendered him very liable to influenza. The patient's great desire naturally was, therefore, to have some operation performed, which would have for its object the permanent closure of the passage, and consequent exclusion of the air. Considering that a plastic operation would have the desired effect, and my colleagues also fully concurring in this opinion, I recommended it to the patient, and he willingly acceded. The operation was accordingly performed on January 22nd. I commenced by vivifying the edges of the eyelid, the upper portion of which was found drawn back and, to a great extent, adherent to the roof of the orbit, with Langenbeck's small two-edged bistoury, an instrument specially adapted for vivifying the edges of cleft palates in staphyloraphy and uranoplastic operations. This being done I proceeded to transplant a piece of integument from the forehead in order to cover in the defect. A portion of integument somewhat oval in shape, and about two inches in length, was brought from above and to the inner side of the eyebrow, down covering the defect, and made adherent to the vivified edges of the eyelids by numerous points of interrupted iron sutures.

The operation, although it can thus be described in very few words, was an extremely tedious one, as those who are familiar with the practical details of plastic operations can, I am sure, well understand.

Jan. 23rd.—Patient had a bad night; great headache; occasional



Mr Stokes' Contributions to Practical Surgery.

bleeding from the nose; temperature of the flap four degrees below that of the surrounding parts.

Jan. 24th.—No return of the hemorrhage or headache; temperature of flap five degrees below that of surrounding parts; slept well.

Jan. 26th.—Only three degrees difference in temperature between flap and adjacent structures; appetite good; slept well. Removed several of the points of iron suture.

Jan. 29th.—Eighth day. All the sutures removed; all going on well; wound in the forehead rapidly healing.

Three weeks after the operation the flap having become firmly united, and the wound in the forehead having completely healed, the patient left hospital and returned to the country. The drawing, of which a chromo-lithograph is annexed, showing the result of this plastic operation, was taken by Mr. Burnside, twelve months after the operation.

I think the preceding case, the notes of which have been furnished to me by my apprentice, Mr. James Brady, is well worthy of record in a two-fold point of view; in the first place as affording an example of what is a very rare surgical injury, and also from its showing the good results which may be obtained in such cases by plastic surgery.