EARLY SECONDARY REPAIR OF COMPLETE TEARS

BY

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There is still a general lack of agreement as to when complete tears that have broken down after immediate suture should be repaired again. In most of the textbooks the point is evaded by the statement that when a primary repair is done within 24 hours of delivery a successful result is usually obtained. While there is no doubt that this is true if the repair has been carefully done under good operating conditions, many do break down within the fortnight under the conditions of general practice. This is shown by the frequency with which patients with complete tears come up for operation months or even years after delivery. For instance, during the last five years 40 of such cases have been operated upon in the Women's Hospital, Liverpool. In each of these an immediate repair had been unsuccessful; healing by second intention had been allowed to take place and the necessary repair deferred until the patient was driven to hospital by the inconvenience of the incontinence or freed from the responsibility of the care of the baby to have time for the operation. Most of these late operations would have been avoided by the procedure here suggested.

The recommendation given by most authorities is that a secondary repair is best deferred for at least three months after delivery, until the parts are clean and involution has taken place. Against such a course there are, however, two very real objections. In the first place, the woman is left most uncomfortable at a time when she needs all her energy. In the second place, involution, though bringing certain advantages, entails the great disadvantage that both the torn muscle and the mucous surfaces retract and undergo permanent shortening, with the result that undue tension is needed to reapproximate the tissues. The reason usually given for deferring the re-suture is that the raw surfaces are granulating and infected, and union therefore is not likely to be obtained. Smellie (1758) describes one such case:

"I was called by a midwife to a woman on the fifteenth day. The Perinaeum, Vagina and Rectum were tore into one about the length of two inches which prevented the retention of the faeces. The edges of the lacerated parts were beginning to skin over. I attempted with scissors to pare the edges, as in the hair lip; but could not possibly hold the parts so as to effect this purpose. I then armed a lancet, and with the point scarified them and with great difficulty made two stitches through the Vagina and Rectum and two in the Perinaeum; but in two days this brought on a large inflammation and the stitches all tore out. The parts digested and skinned over but did not cement or join together; however they contracted in such a manner that in three months after she could retain her excrements."

There is no doubt that these cases do look at first sight most unsuitable for early repair. The raw surfaces are covered with granulations, the tissues are friable so that the sutures tend to cut through, and the whole area is heavily contaminated with faeces.

On the other hand, and despite these objections, early re-suture is a practicable procedure; in the six cases I have seen during the past two years it has been employed, and proved a success. The operative difficulties are easily offset by the advantages gained by doing the operation at once.

Four of the patients had been delivered with forceps by their own doctors in nursing homes. The other two had been delivered with forceps in hospital by residents. In every case primary repair had been undertaken at once but had broken down within a week of delivery—in five of the cases completely, and in one partially so as to leave a recto-vaginal fistula. Two of the cases were pyrexial owing to a uterine infection.

In each case a secondary repair was undertaken as soon as it could be arranged—one 7 days after delivery, one 10 days, one 13 days, one 15 days, one 3 weeks, and one 4 weeks. In the two pyrexial cases operation was delayed

until the acute uterine infection had subsided. During the few days before operation the raw surfaces were kept as clean as possible, but otherwise no special treatment was given. Five of the repairs were done personally; the sixth was done by Miss M. Mayeur, F.R.C.S., on one of the hospital cases.

Every case healed well and gave no more trouble than the usual complete-tear repair. Complete control and healing were established within two weeks of undertaking the repair. The convalescence of one of the pyrexial cases was complicated by repeated secondary haemorrhages from the uterus. Despite the patient's poor general condition and the need to treat the haemorrhage by firm vaginal packing, the perineum healed normally.

The operation calls for no special technique, although good operative conditions are essential. It is neither possible nor desirable to coapt the skin of the perineum very closely, with the result that the appearance of the perineum at the end of the operation is not artistic. No special attempt need be made to clear the granulations from the raw surfaces, but most are in fact cleared away by the manipulations employed in defining the rectal mucosal edges and the ends of the torn sphincter. Great care must be taken to free the rectal and anal mucosal flaps completely from the underlying tissues. This should be done so freely that the two edges of the mucosa fall into apposition even before the sutures are inserted. As in all these repairs, special care must be taken to close the upper end of the rectal tear. After dealing with the mucosa the perineal body is repaired and the sphincter restored in the usual way. Little or no trimming should be done, even at the expense of leaving an irregular suture line. Interrupted stitches should be used throughout—No. 2 plain catgut for the rectum and deep tissues, silkworm-gut for the perineal skin. A short split-tube rubber drain is an advantage, left in the recto-vaginal space and brought out through the centre of the perineum, and remaining in position for two or three days.

While the object of this note is to draw attention to the possibility of early re-suture, reference may properly be made to the likely causes of the failure of the initial repair. The immediate technical fault in most of these cases is certainly the failure to suture the upper end of the mucosal tear. When the repair breaks down the disruption usually takes place from above downwards; first a recto-vaginal fistula appears, and then the whole wound "gives," the skin perineum last. There is no doubt that this primary failure in technique is due to the difficulties caused by poor operating conditions, uterine haemorrhage obscuring the field, and perhaps the strain of the antecedent forceps delivery. Many, if not most, of the failures would be avoided if it were the rule to defer the primary repair of complete tears for 12 to 24 hours after delivery, until better conditions and perhaps better assistance can be obtained.

REFERENCE

Smellie, W. (1758). *Collected Cases*, 2nd ed., 3, 320, B. Wilson, London.

Medical Memoranda

A Case of Compressed-air Illness

Compressed-air illness, more commonly known as "bends," is a disease familiar to all divers, airmen, and medical officers associated with this work. The present great increase in altitude flying and underwater work has revived interest in this formerly limited industrial disease. Briefly, it has its origin in a dangerous and excessive release of pressure of air, which causes the tissues to become supersaturated with nitrogen and bubble formation to occur. These bubbles may appear in the circulating blood and cause pulmonary embolism; in the vicinity of joints or muscles, causing the most common syndrome of "diver's bends"; or in the central nervous system, causing coma, confusion, cerebral palsies, and various types of myelitis with paralysis of limbs and incontinence. Symptoms vary enormously, depending on the site of formation or lodgment of the bubble. As fat dissolves far more nitrogen than water, the occurrence of bubbles in the central nervous system is not a

surprising event. Itching of the skin, which is often encountered after decompression, is also ascribed to minute bubbles in the subcutaneous fat. Skin rashes occur, and may be due to minute emboli in the cutaneous vessels.

Ordinary "bends" are severe boring pains in the vicinity of the large joints and the small joints of the hands and feet, particularly in persons suffering from old trauma or disease. This is by far the most common form of the disease, and, although causing great pain, it in no way endangers life. These pains have been ascribed to bubble formation in the ligamentary and tendinous insertions, embolism in the vascular bed involved in infective osteomyelitis, or bubble formation in the nerve trunks or central nervous system, causing referred pain. Itching of the skin may also be due to more distant neurological events.

At present, therefore, various paralyses are known to be due to interference with the motor centres or motor path, but sensory disturbances of nervous origin, apart from blindness and deafness, are not encountered in the literature. The following case is thus of great interest.

CASE RECORD

A petty officer of the Royal Navy, aged 38, weight 174 lb., of lean athletic build, acted as attendant to an experimental subject at a pressure of 40 ft. of sea-water (18 lb.) for two hours. He was breathing air the whole time, and wore no respiratory apparatus of any kind. He "surfaced" (returned to atmospheric pressure) in one minute, no stops being necessary according to the Admiralty decompression table (after the late Prof. J. S. Haldane).

Five minutes after "surfacing" a pain developed in the top left premolar. It was a severe pain with an unusual emotional content. This was at first thought to be due to a sealed cavity under a stopping of the tooth or to an abscess cavity at the root. The subject was immediately recompressed to 18 ft. of sea-water, when instant relief of pain occurred. He was returned to atmospheric pressure in 30 minutes. After this, pain, although still present, was less severe. He then went to lunch, during which the pain increased in severity and anaesthesia of the upper left gum and teeth developed, the posterior tooth and gum being first involved, and anaesthesia spreading forward and ceasing at the midline. The pain remained localized to the premolar. It was now apparent that a bubble had formed, involving the second branch of the trigeminal nerve. Appropriate subcutaneous anaesthesia was not present.

Immediate recompression to 12 lb. was carried out, and relief was at once obtained. Decompression at the rate of 8 minutes per lb. was instituted. At 5 lb. the pain in the tooth returned, but was not severe, and decompression continued. At 3/4 lb. anaesthesia returned, followed by a most agonizing neuralgia in the whole of the distribution of the second branch of the trigeminal nerve. The patient sweated, bit on his handkerchief, and was writhing with pain. The tender points of Valleix (temporo-malar and infraorbital) were present. Immediate recompression to 13 lb. was carried out, with complete disappearance of symptoms. Decompression at a slower rate of 12 minutes per lb. was then performed, and the patient "surfaced" symptomless, and has remained so ever since. Tenderness had also completely disappeared.

COMMENT

There is no previous history of trigeminal neuralgia, ear, nose, or throat infection, or dental caries. He suffers sharp dental pain in this particular premolar if it is exposed to extremes of temperature, and there is slight enamel erosion at the base near the gum. Recent dental examination revealed no other disease.

The points of interest in this case are: (1) The occurrence of bubble formation after exposure to such shallow depth. (2) The occurrence of bubble formation in a diver who has been exposed to varying degrees of pressure several times a week over a period of a year and a half without symptoms. In this time it had been ascertained that he was apparently extremely resistant to "bends," but the long period of pressure work may well be a contributory factor to the attack described. This case is a good example of how compressed-air illness may occur when and where it is least expected. (3) The occurrence of bubble formation definitely involving a sensory nerve. (4) The attack of tic douloureux, involving the whole distribution of the second branch, suggests very strongly the involvement of the Gasserian ganglion, and adds weight to the previously tentative opinion that many cases of "bends" in joints may be due to bubble formation in the sensory ganglia. The occurrence of anaesthesia in a limited zone in association with severe neuralgia is an interesting problem for neurologists. (5) Hard work of any group of muscles, at pressure, is well known to predispose to "bends" in that region, and in this case the attendant sang loudly and uproariously for over an hour, for the supposed edification of the subject. Whether or not this explains the site of the disease is problematical, but this may be the first reported case of "operatic bends."

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Reviews

PICTORIAL AIDS TO ANATOMY

Illustrations of Regional Anatomy. By E. B. Jamieson, M.D. Fifth Edition. Section I: Central Nervous System (50 plates). Section II: Head and Neck (64 plates). Section III: Abdomen (44 plates). Section IV: Pelvis (35 plates). Section V: Thorax (32 plates). Section VI: Upper Limb (42 plates). Section VII: Lower Limb (52 plates). (Bound volume 75s. plus 10d. postage.) Edinburgh: E. and S. Livingstone. 1944.

That the fifth edition of Dr. E. B. Jamieson's *Illustrations of Regional Anatomy* should have appeared during wartime so soon after its predecessor is undoubted evidence of its popularity, and the care which has been taken both by the author and by the printers to obtain clarity and accuracy in the figures and pointer legends is manifest to anyone who has to deal with this kind of work. In these days, when it is of the utmost importance that time should not be wasted in unnecessary efforts, and that the eye-strain incurred in the identification of particular reference letters in a legend should be avoided, the gain arising from the use of clear pointer legends is obvious. Although from the standpoint of operative surgery nothing can replace the basic knowledge of anatomy gained in the dissecting and post-mortem rooms, illustrations such as those in the work we are considering are manifestly of great value to the student in a rapid revision of the whole field of anatomy just before an examination, and these clear-cut coloured figures admirably fulfil this purpose. There are, however, a few points which call for comment: thus in Plate 271 (Lower Limb) the pointer, which should indicate the groove behind the fossa for the attachment of the tendon of the popliteus muscle, is directed to the flat surface on the lateral condyle of the femur, immediately in front of the fossa, and in the illustration there is no indication of the groove itself. A note of warning is also necessary in order to counteract false impressions which may arise from a too general simplification of the picture by omission in certain cases of the shading which is required to indicate a difference in plane between the two surfaces, more especially in the representation of convex or concave surfaces and parts which, owing to the obliquity of the object depicted in relation to the surface of the paper, it is necessary to distinguish by variations in tone between a more distant and a nearer part. An example of this is seen in the postero-medial view of the ankle (Lower Limb, Plate 38), in which the more distant first metatarsal base and the medial cuneiform appear to be on the same plane as the nearer posterior surface of the calcaneus, the impression given being heightened by the sharp contrast between the unshaded dead white of the base of the first metatarsal and the black background. Apart from these purely technical considerations, however, the main purpose of the work, issued as it is in separate sections of handy size, is well fulfilled.

MEDICAL PARASITOLOGY

A Manual of Medical Parasitology. By Clay G. Huff, Professor of Parasitology in the University of Chicago. (Pp. 88; illustrated. 9s.) Chicago: University of Chicago Press; London: Cambridge University Press.

This is a laboratory guide to medical parasitology intended for use in practical classes. It describes with illustrations the life-history of the various parasites and insects involved in the production of tropical diseases. The system of classification in the three main groups under protozoology, helminthology, and entomology is dealt with in sufficient detail for the student's guidance. There is a final chapter on staining methods and other procedures to be adopted for the discovery of parasites and the diagnosis of infections. The illustrations on the whole are quite good, though one wonders why the cyst wall of *Entamoeba histolytica* and *E. coli* have such irregular outlines while that of *Iodamoeba bütschlii* (referred to as *I. williamsi*) is not visible at all. The same remark applies to the cyst wall of *E. nana*.

There is a coloured plate of malarial parasites. This is excellent, save for the Schueffner dots, which have an unfamiliar appearance. It is perhaps surprising that a plate illustrating the haemoflagellates is conspicuous by its absence. Apart from these details the book will serve a useful purpose, and will be an excellent guide to have beside one when working with the microscope in the laboratory.