jected, and very prominent; the intestine itself was considerably injected.

THE TREATMENT OF FRACTURES OF THE PATELLA.

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THERE are few fractures upon the treatment of which more ingenuity has been expended than upon fractures of the patella. Every period of surgical activity has added to the number of curative appliances at the disposal of the surgeon. Within the last few years, certain operative procedures have been devised for the treatment of this lesion that, although they have been extolled by many, have not been accepted by all, and have certainly not passed into the undisturbed territory of routine practice.

From these facts, it is to be inferred that the methods for dealing with this common injury are not yet entirely satisfactory, and that the discussion of the subject is not yet closed. There are certain cases where the fracture is transverse, and where the fibrous expansions by the side of the bone are untorn, that present so little disturbance of parts, that the mere securing of the limb upon a straight back splint is a fairly sufficient treatment. It must be owned also that, in examples of this lesion of a less uncomplicated character, satisfactory results are obtained by the various combinations of splints and strapping that are very generally in use. The employment also of Malgaigne's hooks applied to felt discs, moulded over the two fragments, has met with a certain success. Of these various measures, however, it may be said that their use requires constant care, that the results obtained in cases of apparently equal severity are not uniform, and that, in not a few instances, they prove more or less inefficient.

The operative measures recently introduced are thus thrust into notice. The first of these is that known as Lister's operation. Here the knee-joint is opened, and its contents evacuated, the broken surfaces are well bared, and the fragments united by a wire inserted through drilled holes. To ensure the success of this operation, the knee-joint must be carefully drained. One great point in its favour is that it allows the surgeon to get rid of certain real or supposed obstacles to sound union—the fibrous fragments that may find their way between the bone ends, the effusion in the joint, and the blood-clot.

The objections to the measure are these. The operation is somewhat extensive, and not without risk; an anæsthetic is required; one median suture is employed, and, where the fracture is irregular, that alone may not serve to maintain true contact. In some cases, this treatment has failed. I have employed it in one instance only. The patient was a muscular man, engaged as a mill-stone maker. All the ordinary means to secure apposition failed. With the suture (that was retained) perfect contact was brought about, and the parts healed without disturbance, and without rise of temperature. Two years have now elapsed, and the man, although engaged in very laborious work, has what is, apparently, a normal patella, and full use of the knee-joint.

In the second operation, no skin incision is made, and the joint is not drained. By means of a long curved needle in a handle, a silver wire is passed through the joint under the fragments, and is so adjusted that, when the two free ends are twisted together over a pad on the skin, the broken bones are drawn into contact. In this measure an anæsthetic has to be employed; a wire seton is carried through the articulation, the fragments are held together in one line only, and, in irregular fractures, this may not serve to maintain the most perfect position. This plan appears to have met with substantial success in the hands of several surgeons, and it would be premature to criticise it until more data are forthcoming.

The mode of treatment that I would propose, and that, I think, is the most satisfactory, is one that I have now adopted in all cases admitted into my wards at the London Hospital during the past twelve months. It consists, simply, in the employment of Malgaigne's hooks in the manner in which they were originally intended to be applied.

Theoretically, it is difficult to conceive a better means of bringing the fragments of a broken patella together. Upon simple mechanical grounds, the hooks can certainly claim an advantage over the single median wire. The points of the hooks are sufficiently wide apart to secure a good and even hold of the bones. The fragments are rigidly held, and are forced together in a horizontal plane. Any yielding on

the part of the bones or the instrument can be met, if necessary, by a daily screwing together of the hooks to an extent to compensate for that yielding. A faulty application, in the first instance, can be rectified without difficulty at any subsequent period, an advantage that the wire does not possess. Since a wider hold is obtained of the fragments, Malgaigne's hooks can be used in examples of irregular fracture, and even in certain cases of starred fracture. The hooks, when once applied, require little or no attention, and the whole apparatus is of the simplest character.

Malgaigne's instrument has met with little favour, and the use of it was practically abandoned within a short time of its introduction. Its failure depended simply upon this. The points of the hooks excited suppuration, and, as the upper pair of hooks is probably always passed through the synovial membrane, that suppuration often spread to the joint, and led to the most calamitous results. Apart from this, the inflammation excited about the punctures was an abiding source of discomfort, even if it kept beyond the limits of the joint. These causes of failure have been removed by antiseptic surgery, and with their disappearance must vanish the chief objections to this, the most perfect mechanical appliance for adjusting the fragments of a broken knee-cap.

The other advantages of this mode of treatment may be briefly stated. No anæsthetic is required; the maintenance of the apparatus causes no inconvenience, and, before the hooks are inserted, the fluid in the joint can be conveniently evacuated.

The following is the method that I adopt. The limb is secured upon an ordinary straight back-splint, so as to keep the knee fully extended. The splint has a foot-piece, which prevents any shifting, and is secured to the limb by straps and buckles. Neither in this nor in any other fracture do I use plaster for the purpose of securing splints. Straps of fine webbing hold well to the limb, and can be adjusted, tightened, or loosened, as often as required. The lavish use of plaster in some compound fractures of the lower limb has much to answer for. The knee, after being washed, is well purified by carbolic acid. The position of the patella is carefully marked out in pencil on the skin, and the sites for the points of the hooks indicated. It is important that the hooks should enter the bone at equal distances from the median line. Four punctures are now made with a sharp tenotome at the points at which the hooks are to enter. In each case, the instrument should be passed down to the bone. The two upper punctures will open the synovial cavity, and through them the fluid in the joint is very easily evacuated. The two lower punctures are without the joint. As soon as all fluid has escaped, the hooks are applied. They should be scrupulously clean, and highly polished, and should be kept in carbolic water while the punctures are being made. The two parts of the apparatus must be separated, and each portion applied by itself. It is not until the hooks have acquired a good hold of the bones that the two segments of the instrument should be screwed together. It is better to apply the lower hooks first. When well fixed, they must be kept firmly in position by an assistant. There is often difficulty in inserting the upper hooks. Finally, the two segments are screwed together, so that the fragments of the patella are brought into close contact. There is a disposition for the upper end of the apparatus to "ride" a little. This is corrected by passing a tape over the upper hooks and under the knee, and fixing it by a leaden clamp. This tape can be tightened, if necessary, from time to time.

I have always performed this little operation under the carbolic spray. In no case has an anæsthetic been administered, and no patient has complained that the pain of the proceeding was other than could be well borne. After the hooks are secured, the spray is discontinued, and the four punctures are well covered with iodoform. It is advisable to see that the screw of the apparatus is protected from the powder, and kept well oiled, so that the hooks may be readily moved if occasion should arise. The limb is now placed upon an inclined plane, to which the splint is lightly secured.

One matter remains. I think it very important that the limb—or, at least, the knee—should be kept always fully exposed to the air. In all cases of wound or ulcer of the lower extremity, and in all cases of compound fracture of that part, I make it a rule that the damaged region be kept open to the air, or, at least, never covered by the bed-clothes. It is notorious that wounds and ulcers of the lower limb do not heal so readily as do like lesions of the arm and forearm. This can hardly be explained by the condition of the circulation in the two parts. Any adverse influence in this direction can, to a great extent, be met by supporting the leg upon an inclined plane, and so giving to the venous circulation the assistance of gravitation. The real cause of the differences in the progress and character of the healing is more probably to be ascribed to the atmosphere in which the

lower extremity is kept. The limb is covered by the bed-clothes. It lies in a close, confined, and heated atmosphere. That atmosphere, moreover, is apt to become noxious from time to time, when the bed-pan is used, and under other circumstances. If there be truth in the principles that underlie antiseptic surgery, then the ill-healing of wounds of the lower extremity can be in part, at least, explained.

Since I have made a practice of keeping all open wounds of this part exposed, I have had reason to be convinced that their healing has been hastened. The non-injured part can be kept warm in the winter by cotton-wool, but I have heard of no complaint under this head.

In the case of the patella, the apparatus is always exposed to view, and the hooks are not liable to be displaced by the bed-clothes or cradle.

With regard to after-consequences, in the cases so far treated, there has been no rise of temperature, no complaint of pain, no suppuration about the punctures, no trouble in the joint. I have removed the hooks at the end of six weeks. In one case (in order to test the question of long retention of the hooks), they were maintained in position for eight weeks without any inconvenience. The union, in each instance, appeared to be firm and secure, and the interval between the fragments was not readily made out.

The treatment has not yet been adopted in a sufficiently large number of cases, or extended over a sufficiently long time, to test its ultimate value, but its immediate effects appear to justify a comparatively early notice of the matter.

SALPINGECTOMY; WOUND OF BLADDER: RECOVERY.

By JAMES MURPHY, M.A., M.D.,

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DORA W., aged 24, unmarried, was placed under chloroform at the Sunderland Infirmary, for the removal of a pyosalpinx of each side. On August 8th, 1886, no catheter was passed, as recommended by Dr. Keith; and I made the usual ovariectomy-incision through the skin and muscles, commencing an inch below the umbilicus, and terminating an inch and a half above the hair on the pubis. On reaching what appeared to be the peritoneum, I picked up a small portion of it, and nicked it through, when about fifteen ounces of clear urine escaped; and, on introducing my finger through the wound, I found I had cut into the bladder, owing to its being adherent to and reflected right in front of nearly the whole tumour. Scarcely had I done this, than the breathing, which had suddenly become stertorous, ceased altogether, and the radial pulse could not be felt. The tongue was at once forcibly drawn out by a Kœberlé's forceps, the head and shoulders lowered over the end of the table, and artificial respiration produced; but it was some minutes before natural respiration was resumed, and radial pulsation returned.

The position of affairs was not a pleasant one: a patient *in articulo mortis* from chloroform; a wound in the bladder; and, behind, two tumours, which could be felt firmly and immovably fixed in the pelvis; and I am not sure that it would have been imprudent surgery to have contented myself with closing the vesical and abdominal wounds, as I had not then opened the peritoneum. But one is loath to leave an operation unfinished; so I had ether substituted for chloroform, and at once closed the opening in the bladder by a continuous suture of fine catgut, the stitches being very close together, and the edges of the bladder slightly inverted. I then cut through the peritoneum higher up, and found two smooth and similar tumours, about the size and shape of small cocoa-nuts. On plunging the trocar into the left one, thin pus shot out through the tubing, and the tumour collapsed. The opening was quickly closed with a Nélaton's cyst-forceps, and I proceeded to enucleate the tumour, which was a matter of much difficulty; as, except for a space the size of a florin round the opening, it was adherent round its whole surface to pelvis, omentum, intestines, uterus, and bladder. No pedicle could be found; but all bleeding points were rapidly seized by Kœberlé's forceps, and afterwards secured by fine carbolised catgut. The tumour on the right side was not quite so adherent, and was removed without emptying its contents, a sort of pedicle being secured with carbolised silk. All bleeding points having been tied, the peritoneal toilet was carefully performed, and the abdominal wound closed; a drainage-tube, with India-rubber sheeting and sponge, after Keith, being used. The operation, which lasted an hour and twenty minutes, was performed with thorough Listerian precautions, including the spray playing freely over the wound.

The patient was then placed in bed, a soft red silk No. 12 catheter having been introduced, which was attached to a piece of tubing, passed underneath the patient's thigh, guarded from pressure by a firm pad of lint on each side, and of sufficient length to reach to within a couple of feet of a tray placed on the floor, and arrangements were made for a sister to watch this constantly, night and day, as long as necessary, with instructions to at once ring for the house-surgeon, should the urine cease flowing.

The patient rallied fairly well, but had widely dilated pupils, and a very anxious and jaundiced aspect, with constant vomiting for several hours. She soon complained of severe pain in the epigastric region, which was relieved by a hypodermic injection of morphine; and at 10 P.M., eleven hours after the operation, the vomiting had almost ceased, she was nearly free from pain, and had passed two ounces of urine tinged with red blood and a few small clots; her temperature was under 100°. At 2 A.M., matters were about the same. She had passed an ounce of urine, but had not slept. At 7 A.M., she looked much better, had slept a few hours; the pain and sickness were gone. The urine was more free from blood, its quantity was an ounce; temperature 100.4°. She had four injections of beef-tea during the night, each measuring an ounce, and had sipped a few teaspoonfuls of very hot water; no flatus was passed. About two ounces of red serum were removed from the drainage-tube, under the spray, which was always used when the wound was exposed. During the day, August 9th, all went on well. In the first twenty-four hours she passed eight ounces of urine, which towards evening was of natural colour and free from blood; and at night her temperature was 101.4°, and she had passed flatus freely. An ounce of serum was removed from the drainage-tube.

August 10th, morning temperature, 100°; evening temperature, 101.6°. The urine passed in twenty-four hours was ten ounces; it was clear, and straw-coloured. She vomited once. There was severe pain in the epigastric region, at noon, relieved by hypodermic injection of morphine. There was only a teaspoonful of clear serum in the drainage-tube, which was itself now removed.

All promised well up to August 18th, when, in the afternoon, while feeling remarkably well and free from pain, she told the sister something was trickling down her legs, and on my being telephoned for, I removed the dressings, and found that the portion of the wound where the drainage-tube lay had opened, and a large quantity of dark, grumous, aseptic blood, in appearance like menstrual fluid, was freely welling up through it. I removed as much as I could; but, as it continued to flow, I placed a large pad of absorbent iodoform wool over it, and secured it with a gauze bandage. There had not been, nor was there then, or subsequently, a rise in temperature or pulse, which was quiet and steady. This flow continued for three days, necessitating frequent change of dressing, and then it was followed by a small discharge of serum, which continued to a very slight amount till the following March. The small fistula then closed and remained closed.

On September 5th the catheter, which had given no trouble the whole time, was removed, and introduced frequently for the few following days, and the patient left the hospital shortly afterwards quite strong and well; she resumed her work as dressmaker, and is now in perfect health, and has never had the slightest urinary trouble. For this result I am very largely indebted to our house-surgeons, Messrs. Maitland and Maling, as also to sisters May, Carry, and Kathleen, as it would have been unattainable but for their constant and devoted care and attention in the after treatment.

ORAL INSTRUCTION OF THE DEAF AND DUMB.—The success of the system of oral instruction of the deaf and dumb, pursued under the direction of Mr. Van Praagh, at his institution in Fitzroy Square, was strikingly shown on the occasion of the annual distribution of prizes, when classes of pupils—all deaf mutes—were examined in various subjects with the greatest success. This institution consists of a school and training college for teachers; and between sixty and seventy day pupils, male and female, are now receiving instruction. The system of teaching rigidly excludes the finger-alphabet and all artificial signs, the scholars being taught to speak intelligibly, as well as to understand the spoken language of others, by means of lip-reading. This system enables them to take their place among the working members of society. The children, too, either reside at home with their parents and guardians, or are boarded out with private families selected by the director. The training of teachers has been one of the main objects of the Association, and they have been able to supply fully qualified teachers to the London School Board and other public bodies.