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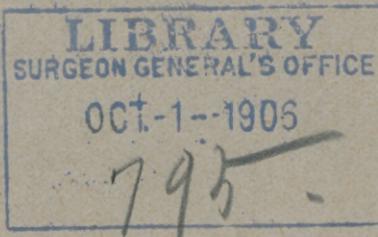
JANUARY, 1899

PERMANENT DISLOCATION OF THE PATELLA.

THE REPORT OF A CASE OF TWENTY YEARS' DURATION SUCCESSFULLY TREATED
BY TRANSPLANTATION OF THE PATELLA TENDONS, WITH
THE TUBERCLE OF THE TIBIA.

BY JOEL E. GOLDSWORTHY, M.D.,
OF BOSTON.

Orthopaedic Surgeon to Carney Hospital; Surgeon to the Good Samaritan Hospital; Assistant Surgeon to the Children's Hospital.



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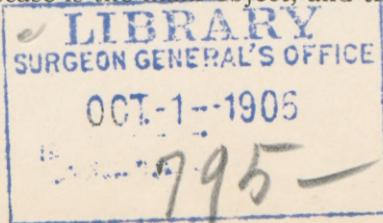
ORTHOPÆDIC SURGEON TO CARNEY HOSPITAL; SURGEON TO THE GOOD SAMARITAN HOSPITAL; ASSISTANT SURGEON TO THE CHILDREN'S HOSPITAL.

THE following case is reported because of its rarity, and because of the nature and extent of the operations which were necessary to correct the deformity.

Cases of a simple dislocation of the patella, the so-called "slipping patella," or those in which the patella slips out and in with considerable ease and frequency, are not uncommon, and the treatment of this condition is so definite that any discussion of this part of the subject would consist largely of a repetition of that which has already been written.

Cases of permanent dislocation, or those in which the deformity has been present for a considerable length of time, and in which the dislocation cannot be reduced without operation, are, however, seldom met with, and this fact, together with the treatment which was necessary, seemed to give the case interest enough for reporting.

It is very instructive, also, in studying the broader subject of joint surgery to consider the extent of the operation that is possible and still preserve a functionally good knee-joint. In the more common operations upon the knee, performed, as they are, for removal or the treatment of active disease, extirpation of the disease is the main object, and the



function of the joint, other than its use for weight-bearing, is of secondary importance. If the disease is removed or arrested and the leg straightened, even though the joint be stiff, the result is considered (and justly so) to be satisfactory. In cases, however, similar to the one to be reported, the object is not only to remedy the undesirable condition, but also to leave the joint with as near the normal amount of motion as is possible, the perfection of the result being measured very largely by the freedom of movement.

A preliminary report of the following case was made at the meeting of the American Orthopædic Association, held in Buffalo in May, 1896, but it has not been published until now, in order that a sufficient length of time might elapse so that the ultimate result could be more fairly determined:

CASE.—M. W., a woman, thirty years of age, was first seen in February, 1895, and treatment was asked because of pain in the "small of the back," which had existed for some time, but which had increased so as to interfere with her occupation. She also had some trouble with the knees, and had walked peculiarly since she was ten years old. This latter trouble, while considered by the patient to be of secondary importance, was supposed to be due to the fact that at that age (ten years) she was obliged to run a sewing machine almost constantly. She is quite sure she was well before this, and that the knees have been in the present condition ever since.

On examination, the patient walked peculiarly and stood with both knees slightly flexed and resting against each other, the thighs being rotated inward. In this position the hips were thrown back and the lumbar spine arched more than normal, producing a well-marked lordosis. No disease of the spine could be made out, and it seemed probable that the pain in the back was the result of the muscular strain due to the peculiar attitude in standing or walking. The knees were freely movable both to active and passive motion, the only thing unusual being that, when sitting, voluntary extension of the leg, without inward rotation, was impossible, as was also complete extension either to active or passive movement. This latter restriction was apparently due to some change in the shape of the articular sur-

faces of the bones. Both patellæ were dislocated, and could be felt and seen on the outer aspect of the joint over the condyle of the femur. It was because of this, and the fact that the strong anterior thigh muscles were obliged to pull around the end of the femur instead of over it, that made horizontal extension of the knee without inward rotation impossible, and which made it necessary to rotate the thighs inward and brace the knees to-

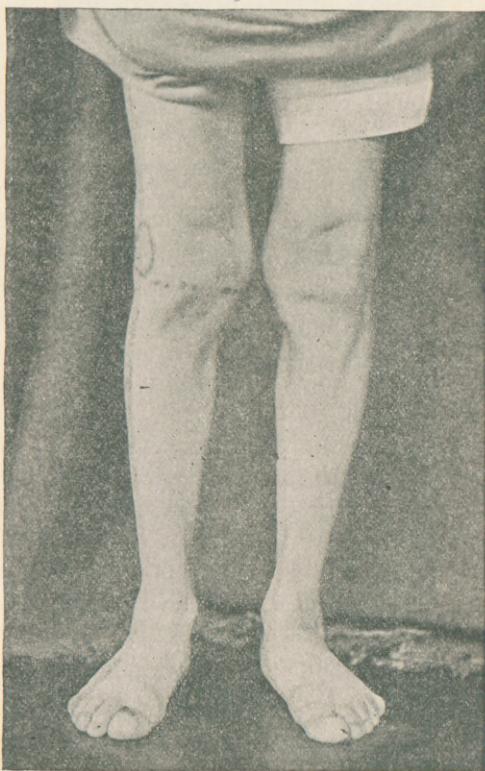


FIG. I shows the position of the bones before the operation, with the patient standing.

gether for standing. The position with the knees slightly bent, as is necessary in standing when the legs are turned in and the knees braced together, in turn produced the lordosis, and this, by putting more strain upon the spinal muscles, caused the troublesome backache.

The correction of the position of the patellæ by any manipu-

lation was impossible, and feeling that this must be accomplished before the spinal symptoms would subside, an operation was advised.

The patient entered the Carney Hospital, and in March, 1895, the right knee was operated upon as follows:

Through an eight-inch incision, beginning above the knee



FIG. 2.—Position of the bones and the appearance of the knee with the leg flexed, before operation.

on the outside and extending downward across the knee to the inside, the capsule of the joint was exposed. Even with the skin removed the patella could not be brought up into its normal position, and a longitudinal incision three inches long was made through the outer part of the capsule. After this the dislocation could be corrected without difficulty, but because of the change

which had taken place in the shape of the ends of the bones, the tubercle of the tibia was so much farther to the outside than normal that, when the joint was flexed, the patella slipped out of place again. In order to obviate this, and to have the attachment of the patella tendon in the proper place, it was cut off and sewed to the periosteum and expanded tendon of the sartorius on the inner and anterior surface of the tibia. (Because of the twist which had taken place in the whole upper part of the tibia this sartorius attachment, instead of being on the side, was well in front.) The loose capsule on the inner side of the joint was next shortened up with quilted sutures, and for fear lest the strong thigh muscles should tear away the new attachment of the patella tendon before it should become firm, about three-fourths of the quadriceps extensor was divided just above the patella. The wound was then tightly closed, the skin being depended upon to close the gap (three-quarters of an inch broad) in the outer part of the joint capsule made necessary to draw the patella forward.

The recovery was uneventful, there was very little pain, and practically no elevation of temperature. The wound was healed in one week, and motions, which were not in the least restricted, were allowed at the end of one month. A leather knee-splint, to prevent any sudden violence and the possible tearing away of the newly attached tendon, was worn during a part of the time for a few months.

As soon as the patient was able to go about, even though one patella was in place and the action of the knee improved, the difficulty in completely extending the knee remained, so that the lordosis was not lessened. To correct this an osteotomy of the femur above the condyles was performed upon both legs and the limbs straightened. The convalescence from this operation was uneventful, and eight weeks from the time of its performance the left knee was operated upon to correct the position of the patella. The operation was similar to that which was used in the other joint, except that, instead of cutting off the patella tendon and reattaching it, the whole tubercle of the tibia was chiselled off and this nailed to a depression which was made on the inner side of the bone. The reason for this change in the procedure was that while the other knee had shown no signs of weakness, nevertheless, it was my feeling that a bony attachment would probably

be more secure. With this, of course, it was not necessary to cut away so much of the attachment of the quadriceps extensor above the patella.

Instead of the primary union, as was obtained in the other knee, the tendon and the piece of transplanted bone sloughed



FIG. 3.—Showing the result with the patella in place; the skin-marks on the outer side of the leg indicate the place of the attachment of the patella-tendons before operation, while the marks on the inner side indicate the present attachment.

considerably, so that, instead of healing in one week, about three months were necessary before the wound was entirely closed. During much of this period the patient was able to be about, but the healing was not complete until then. The functional result

in this case is also not as good as in the right, and, while complete extension is possible, there is only about 70 degrees of motion in flexion.

Since the operation there has never been the slightest indication of the old pain in the back, the lordosis has been corrected, the gait is much improved, and, except for the limitation in flexion in the left knee, the patient is perfectly well, with the normal function of the joints. On walking or standing the inward rotation of the legs has disappeared, as is shown in the photograph (Fig. 3), and on sitting complete extension of the leg is easily performed entirely without the twist of the leg that developed with such movement before the operation. It is now two years since the last operation was performed, and during much of that time the patient has been at work, so that the knees have had a fair test, and with the increased use the legs have steadily grown stronger.

In reviewing this case, even though the right knee is the better of the two, the operation which was performed upon the other knee is the better, in my opinion. The detail in another case would be planned out more carefully, and in transplanting the piece of bone, instead of freeing the fragment entirely, it would be better to save the attachment of the periosteum as much as possible, and to swing the bone around without completely separating it. If this can be done, it seems probable that the sloughing need not occur.

