

GOLDTHWAIT (J.E.) & PAINTER (C.F.)

SUBTROCHANTERIC OSTEOTOMY FOR THE CORRECTION  
OF DEFORMITIES RESULTING FROM HIP DISEASE;

*REPORT OF CASES.*

BY

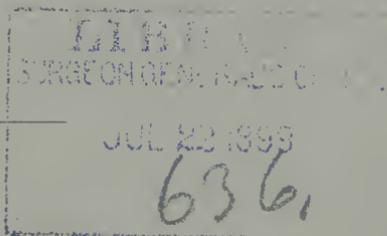
JOEL E. GOLDTHWAIT, M.D.,

ORTHOPEDIC SURGEON TO THE CARNEY HOSPITAL; VISITING SURGEON TO THE GOOD SAMARITAN  
HOSPITAL; ASSISTANT-SURGEON TO THE BOSTON CHILDREN'S HOSPITAL, BOSTON.

AND

C. F. PAINTER, M.D.,

BOSTON.



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BY JOEL E. GOLDTHWAIT, M.D.,  
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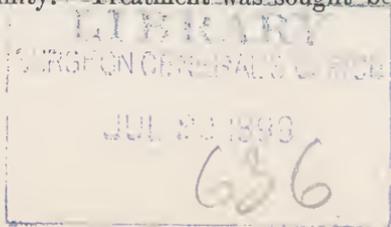
AND

C. F. PAINTER, M.D.,  
BOSTON.

THE following cases are reported in order to put on record a series of ten consecutive osteotomies of the femur performed in adults for the correction of the deformities resulting from hip disease, and also to call attention to certain conditions which have resulted from these deformities and which have been strikingly relieved by the operation. The cases are of interest partly because of the degree of the deformity which existed and the immediate results of the operation ; also, because of the effect which these deformities have upon the general health and in producing symptoms in other parts of the body. The relief of such symptoms and the immediate improvement in the general condition have been most striking, while the improvement in the mental condition, partly due to this and partly due to correction of the unsightly deformity, has been equally gratifying.

In all ten cases are reported. Of these eight were men and two were women. All were of an age and position in which self-support was necessary, and in each instance it was because of this, directly or indirectly, that treatment was sought, either from the awkwardness or unsightliness of the deformity, or because of pain or symptoms due to strain upon other parts of the body.

CASE I. X., male, twenty-six years of age, clerk by occupation. He had hip disease when two years of age, which resulted in the present deformity. Treatment was sought because of pain



in the back, due to the muscular strain attendant upon the following deformity: Right thigh flexed to 45 degrees, adducted 35 degrees, with extreme atrophy. There were three inches of actual shortening and eight inches practical shortening. The hip was firmly anchylosed. The operation was performed in January, 1896, and the patient was kept in bed for seven weeks with weight and pulley extension and with the leg both flexed and abducted 15 degrees. At the end of the seven weeks all apparatus was removed and the patient allowed to move about in bed for another week, at the end of which time he was up, returning to work three months after the operation.

*Result.* He now stands erect with one inch practical shortening. His spine is now straight; he has had no pain in his back since the operation; has added two inches to his height and twenty-eight pounds to his weight. There is, of course, no motion in the joint. He is at work all the time and on his feet a great deal, and has been able to indulge in mountain climbing the past summer, and goes up and down stairs readily. Since the operation he has not lost a day from work, whereas before that for a number of years he had lost on the average three months in each year because of the pain in his back, undoubtedly due to muscular strain. Before the operation he could get around with the aid of a crutch or two canes, and he is now able to go without either.

CASE II. Mr. W., thirty-one years of age, a drug clerk by occupation, had hip disease since childhood, from which he had recovered with a flexion and adduction deformity, for which he had an osteotomy performed twelve years ago. This left him at the time of his second operation, in April, 1896, with flexion and abduction both of 45 degrees. He sought relief for pain in his back and difficulty in walking. There were seven or eight inches of practical shortening and the hip was anchylosed. After the operation he was in bed with traction and a long outside T-splint for seven and one-half weeks and one week after the removal of the apparatus.

*Result.* He has now 15 degrees of flexion and 10 degrees of abduction, with three-quarters of an inch real and one-quarter of an inch apparent shortening. The hip is, of course, still anchy-

losed, but he is at work without pain and is on his feet most of the time. Before the operation he went about with the aid of two canes, while at present no support whatever is necessary.

CASE III. Mary D., eighteen years of age, had hip disease when five years old. She was a domestic by occupation. When first seen there were several old healed sinuses about the right hip, in which there was no motion and which was flexed 60 degrees and adducted 25 degrees, with one and one-quarter inch actual and four inches apparent shortening of the leg. She was operated upon January 31, 1896, and the leg put up with 15 degrees of flexion. The bed treatment was continued for seven weeks.

*Result.* There is real shortening of three and three-quarters inches with apparent shortening of one and one-half inches. She walks very well and can sit down easily. At the time of operation, after the chisel was removed in the manipulation, the ankylosis at the hip was broken up, and as a result there now remain about 60 degrees of motion in the joint.

CASE IV. This patient (B. F.) was a girl, fifteen years of age, whose hip disease was active in childhood. Her deformity consisted of two and one-half inches real and five and one-quarter inches apparent shortening. The hip was ankylosed and flexed to 50 degrees, adducted to 20 degrees, with three inches thigh atrophy and one and one-quarter inches atrophy of the calf. Operation July 8, 1896. The after-treatment consisted of a T-splint with eight pounds extension and 10 degrees flexion. Seven weeks later there was a good union. On August 26th she was up, and the apparent shortening was reduced so that a two-inch-high sole was sufficient to overcome it. Fig. 1 illustrates the amount of flexion before operation; Fig. 2 illustrates the spinal deformity in walking, due to the shortened and flexed leg; Fig. 3 illustrates the result.

CASE V. The fifth case is that of a boy (G. S.), nineteen years of age, who had suffered from hip disease five and one-half years. The hip was ankylosed in 70 degrees of flexion with 30 degrees of adduction. He was operated upon at the Carney Hospital on June 3, 1896. As a result of the operation he now has 15 degrees flexion and one-half inch apparent and two and one-half inches real



FIG. 3.



CASE IV.  
FIG. 2.



FIG. 1.



FIG. 6



CASE V.  
FIG. 5.



FIG. 4.

Case V.

FIG. 7.

FIG. 8.



shortening. The bed treatment continued seven weeks with weight and pulley, and one week longer in bed without apparatus. A cane was needed before but not after operation. Figs. 4, 5, and 6 illustrate the condition before operation, and Figs. 7 and 8 after operation.

CASE VI. This case (J. B.) was one of combined hip and spine disease, with great deformity. The patient was a youth, eighteen years of age. At two years of age he had Pott's disease, and four years later hip disease. He had treatment with apparatus for a time. Unable to do any work. Left hip dislocated on the dorsum; a few degrees of motion; adducted and very marked shortening, amounting to eight inches. Operated May 29, 1896.

## Case VI.

FIG. 9.



FIG. 10.



Union was delayed in this case on account of the osteotomy being done too far away from the trochanter. In the early part of September, three months later, however, union was firm, and he used a Thomas knee-splint for a time. A two-inch high sole accommodates the present shortening. Crutches were used before operation, and now he can get along with one cane. Fig. 9 illustrates condition before operation, and Fig. 10 the condition after operation.

CASE VII. This patient (M. K.) was a man, twenty-five years of age; another case of hip and Pott's disease with tremendous deformity. Disease began in childhood. He has never had treatment. At two and one-half years of age the disease began in the hip and spine simultaneously; there were numerous abscesses about

FIG. 13.



CASE VII.  
FIG. 12.



FIG. 11.



## Case VIII.

FIG. 14.



FIG. 15.



the hip, which healed at least twenty years ago. He had never done any work and had been dependent upon the city for support. He goes about now as he chooses, and is supporting himself at a trade which he has learned since his operation. The photographs show his condition very well: Figs. 11 and 12 illustrate position before operation, and Fig. 13 the position after operation.

CASE VIII. The next case (W. P.) was that of a young man, eighteen years of age, who had hip disease some years ago. Left leg adducted and flexed with very prominent trochanter. Thirty degrees of motion in flexion; one-half inch real and four and one-half inches apparent shortening. Curvature of the spine and slight discharge from one of several old sinuses on hip. He was operated upon February 25, 1897, and was discharged from the hospital nine weeks later. The femur was dislocated dorsally, and

in the operation the adhesions in the new acetabulum were broken up. He, however, recovered very well with a few degrees of motion in flexion and one and one-quarter inch apparent shortening. During the first few weeks after his discharge from the hospital adduction seemed to be returning, so that on May 29, 1897, there were two and one-half inches apparent shortening; after that date there was no increase, and he now has 30 degrees of motion in flexion. No trouble arose from the discharging sinus, and it subsequently healed. Since this was written the old sinus opened and a superficial abscess formed below the trochanter. Fig. 14 illustrates adduction and shortening before operation, and Fig. 15 the position after operation.

CASE IX. The next case (J. McG.) was that of a boy, sixteen years of age. He was an old Children's Hospital case, entering the Out-patient Department in April, 1887; he was in the house from January to April, 1888, for a hip abscess. Had been treated with Thomas fixation-splint. He was provided with a traction and fixation-splint and discharged in April, 1888, only to return on two other occasions on account of the abscesses. His last record at the hospital, which was made in 1891, describes him as having 40 degrees permanent flexion, two inches actual shortening and one and one-half inches apparent shortening. This was in 1891. He is at present under treatment. It was impossible to maintain the corrected position with weight and extension, so a plaster spica was put on. He had a few degrees of motion left in the hip, so the thigh was put up abducted but not much flexed. At the present writing he is going about without crutch or cane and without flexion deformity and wears a patten.

CASE X. Boy, fourteen years of age (F. K.), operated on June 19, 1895. Hip disease since childhood. Recovered with 60 degrees of flexion and 25 degrees of adduction.

*Result.* Three and one-half inches real and one and one-half inches apparent shortening.

In such a series of cases the photographs tell most of the story better than any description could do, as far as the purely physical

defect is concerned. The influence, however, of deformities of this nature upon the general health and mental condition, and the effects produced by the straightening, cannot be shown in any such way, nor even fully appreciated except by those who have come in contact with the patients. It certainly was not the least good that was accomplished for two of these men that they were enabled to get about and participate in affairs they never had dared hope for, and the effect in widening out the mental horizon for these poor creatures has been very marked.

It is instructive to note also how marked has been the improvement in the general physical condition of all of these patients. The importance of the operation in this regard cannot be too strongly emphasized—from the extreme difficulty in locomotion, especially when the attempt is made to get along without crutches or cane, the physical condition is kept at the lowest ebb, and the resistance to either the extension of the tubercular process or to the development of some other disease is much below the normal. Another point of interest is the fact that motion which is present in the partially ankylosed cases is preserved, so that fear of losing what little has been retained in these joints is no contraindication for operation. Cases III. and VIII. illustrate this point.

All of these patients of necessity had a lordosis and marked lateral curvature of the spine as the result of the position it was necessary to take in sitting or walking, and in several the symptoms which led them to seek treatment were entirely referred to the spine.

The operation performed in these cases was that described by Gant—the linear osteotomy being done as close below the trochanter as possible. The only instruments used were the osteotome and mallet. The after-treatment consisted in keeping the patient in bed for eight weeks and the application of a long T-splint reaching up to the axilla, maintaining the thigh in a position of abduction and flexion of about 15 degrees. An amount of traction sufficient to steady the leg was used. In two cases the plaster spica had to be employed because the patients tossed about too much to maintain the position. The side splint and traction method were found the more satisfactory because of the ease with which the position could be watched and corrected, when it was necessary. At the end of

seven weeks the weights and splints were removed if union was firm, and the patients were kept in bed a week longer and then allowed to get up and go about on crutches. At the expiration of twelve weeks most of the patients have been able to use the leg without any artificial supports.

These cases add their testimony to the other reported instances of this operation, and show that great physical disability can readily be overcome with practically no risk and a comparatively short and painless convalescence; that the effect of physical deformity on intellectual development is very conspicuous, and that the benefit derived from the operation is as much along these lines in those of small mental calibre as it is in the correction of the deformity itself; that these deformities are capable of keeping down the general health to a point of slight resistance; that this is possibly more true in the more highly organized types of individual than of the lower grades; and that deformity can be corrected and motion preserved.



