

RESULTS OF CLOSED REDUCTION OF CONGENITAL DISLOCATION OF THE HIP

BY
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In recent years it has been realised that the results obtained with *Lorenz's* method for reduction of dislocation of the hip are not as good as formerly thought, and surgeons in various countries have therefore been experimenting with modifications of the treatment, especially in the form of very early reduction, by preference already during the first year of the child's life. That the results must be characterised as not altogether satisfactory may be due to disturbances in the functioning of the joint in the form of fatigue, pain, limping, restricted mobility, etc.; but what follow-up examinations in recent years have made clear is that the hip may function excellently and yet be the seat of greater or lesser deviations from the normal, which show themselves in defective development of the acetabulum, in subluxation, and in deformation of the head and neck of the femur.

Hip joints of this type, which, as said, do not necessarily cause discomfort in childhood and early youth, may nevertheless sooner or later become the seat of arthrosis (*Calot, Murk Jansen, Morville, Wiberg* et al.) with pain, limping, etc.

That changes may take place in the hip even after successful reduction has long been known (*Ludloff, Redard, Kochler*), but formerly it was believed that such cases were comparatively rare. The more modern forms of follow-up examination with systematic roentgen control have shown, however, that they are, on the contrary, very frequent, and that good functioning of the joint does not by any means prove that the anatomic conditions there are normal.

In spite of the very much that has been written about the results of reduction of congenital dislocation of the hip, the subject still gives rise to lively discussion; and the interest that is taken in it may be judged from the fact that it was to have been dealt with at the International Congress of Orthopedics planned to be held in Berlin in September 1939, but since called off owing to the world situation.

That the opinions differ so greatly is due to a number of causes. In the first place, the subjective factor will always play a great rôle in the estimation, when it, as here, is a question of results that can not be expressed in absolute figures or measurements. Besides, the requirements of the different examiners in the matter of observation period have varied considerably,—from two years and upwards. *Lange*, in his collected statistics, from 1929, works with an observation time of three years and over. According to *Schede*, the processes directly connected with the reduction should be completed after five years, so that after that length of time it would be possible to form a definite judgment; but at the same time he points out that at the age of puberty there comes a critical period, during which changes may occur in the hip which to a greater or lesser extent compromise what was apparently a good result of the treatment. Several authors (*Lindemann*; *Gieckler* and *Meurer*) have reported on the results of follow-up examinations of patients who all were past the age of puberty. Finally, there is some disagreement as to what constitutes a perfectly good result. *Lorenz* merely required that the femoral head should be lodged well within the acetabulum and be supported by the latter, and that the musculature should be normal; while *Lange*, *Gaugele* and most other authors now require that there shall be no visible difference between the reduced hip and the normal joint.

A very great difficulty in estimating the lasting result of the reduction is due to the fact that our knowledge of the etiology and pathogenesis of the congenital dislocations in spite of the enormous literature on the subject is still very incomplete. Whereas the problem was formerly considered chiefly as one of mechanical statics, it has in recent years been viewed

very largely also from what might be called a heredo-biological standpoint. As we know, there are two principal theories about the origin of the condition: the mechanical, according to which the deformity is due to purely exogeneous factors (strained position of the fetus within the uterus), and the other, according to which it is due to a hereditary error of development. Though

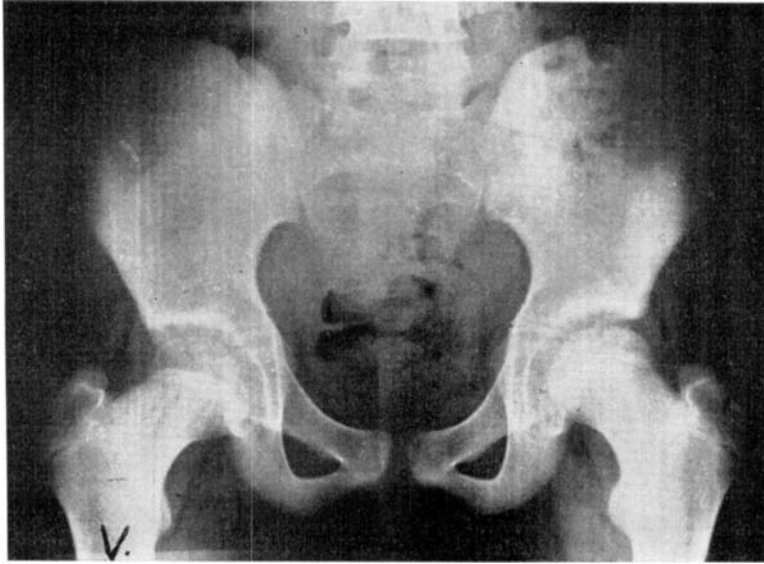


Fig. 1.

X-ray-result I. *Luxatio sin.* ♀ 13 years.

the first of these theories still has its staunch supporters, the last named seems to-day to have the most adherents.

The line of hereditary descent is not yet precisely known, but considerable advance has nevertheless been made after it has been shown that congenital dislocation of the hip is only one manifestation of a much larger group of congenital deformities of the joint, which *Hilgenreiner* comprises under the collective name of congenital *dysplasia*. In this connexion must be specially mentioned a paper by *Faber*, in which the author relates his observations in regard to the families of 19 patients with con-

genital dislocation of the hip. On roentgen inspection of the hips of these families he found numerous instances of congenital dysplasia in the form of shallow acetabulum, subluxation, arthroses and changes resembling those seen in cases of Calvé-Perthes's disease.

It is not only as etiologic factor, however, that the hered-

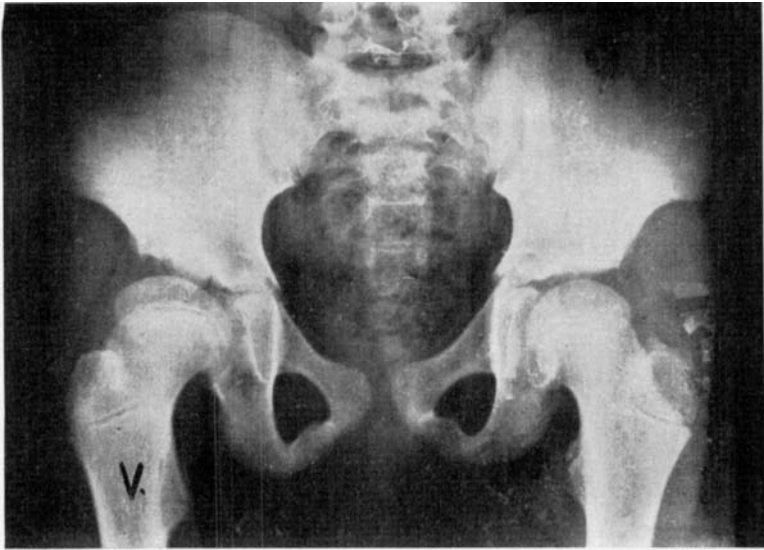


Fig. 2.

X-ray-result II. Luxatio sin. ♀ 10 years.

itary disposition is of importance. It has a bearing also on the subsequent development of the condition in the hip, irrespective of whether reduction has been performed or not; and this must be taken into account when it is a question of evaluating the result of the treatment. *Beck, Hackenbrock, Lindemann* and *Gickler & Meurer* think that the original error in development sets a limit to what in the individual case may be obtained by the reduction, and they base this opinion on the relatively poor results which they found on follow-up examinations after long periods of observation. They are contradicted, though, by *Schede*, who maintains that the results obtained by the authors just

named cannot be compared with those that may be obtained by the more modern therapy with its early reduction and more rational after-treatment. That secondary changes may occur in the joint also after early reduction is shown, however, by *Hilgenreiner*, *Faber* and others.

For that matter, the two standpoints are not necessarily con-



Fig. 3.

X-ray-result III. Luxatio dextr. ♀ 16 years.

tradictory; for the result of the treatment must, of course, depend both on the hereditary disposition of the subject and the therapy employed. But it will not be possible to say exactly how great importance should be attached to each of these two factors until the time when a considerable number of patients treated according to the modern principles shall have been examined after observation for similar lengths of time as those employed by *Lindemann*, *Beck* and others.

Another factor which must be taken into account in estimating the results of the treatment is that congenital dislocation of the hip is often combined with other congenital malformations

(*Lorenz, Engelmann, Harrenstein, Korvin* and others). It is the experience that the prognosis in these cases is particularly bad, and many authors are inclined to think that etiologically they occupy a place apart.

It will be clear from what has been said above that a direct comparison of the statistics respecting the results of the treat-

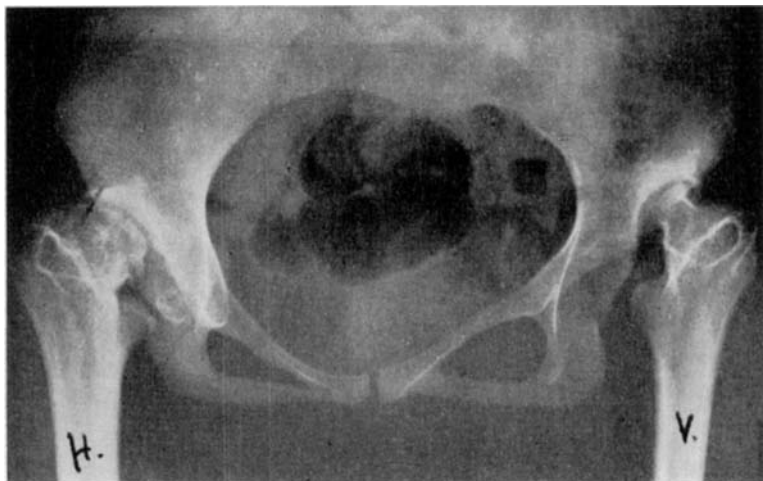


Fig. 4.

X-ray-result IV. Luxatio sin. ♀ 12 years.

NB.: See even the "sound" right hip.

ment of congenital dislocation of the hip is very difficult; the more so because information about details of vital importance is often lacking. Instead of a detailed review of the earlier literature I therefore give here only some examples showing the views on the subject to which a number of authors have come on the basis of their results.

A brief Danish report, by *E. E. Andersen* (1922), records the follow-up examination of 10 patients with an observation time of 10 years. In none of them were the hips found entirely normal, roentgenologically; but 7 were characterised as anatomically good, and the function of most of the others, with which this was not the case, was excellent, nevertheless.

At the French Congress of Orthopedics in 1921, *Froelich* reported the follow-up examination of a small number of patients who had had their congenitally dislocated hips reduced more than 10 years before. Only in one-third of them was the result anatomically good, while the number of those in which the functional result was satisfactory was much larger.

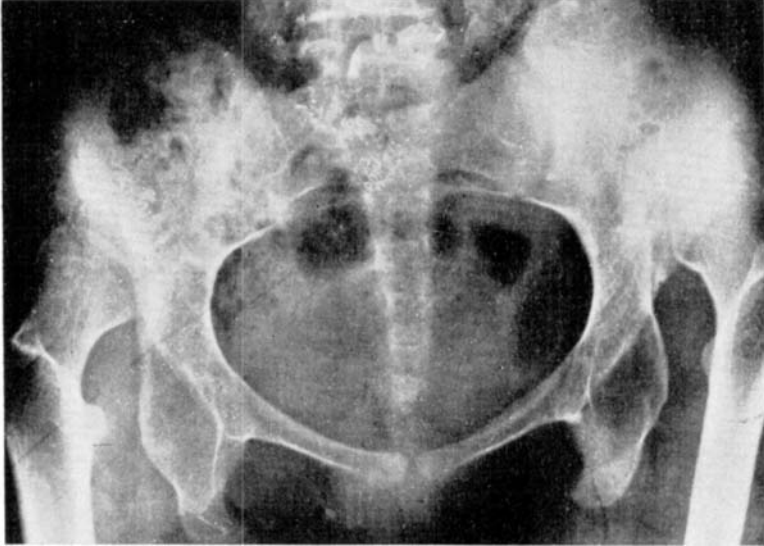


Fig. 5.

X-ray-result V. Lux. dupl. ♀ 15 years.

NB.: Defectus ossis pubis duplex.

At the meeting of the German Orthopedic Association, in 1929, *Lange* presented a very large statistical work comprising close to 1500 cases collected from various hospitals. The principal material, 1127 patients from three hospitals, with a minimum observation time of three years, showed 63.7 per cent of anatomically and functionally normal cases. On the other hand, a smaller material, of 72 cases reduced during the period 1904—14, did not show a single instance in which the hips were, roentgenologically, completely normal; but 22 per cent were “almost normal”. At the same meeting, *Bade* reported 174 cases of unilat-

eral, and 79 of bilateral, luxation in which the results of the treatment were still better; for the unilateral, the percentage of anatomically and functionally perfect results was even as high as seventy-five.

These results are, however, by many considered as based on a rather too optimistic judgment. *Hilgenreiner* found perfect anatomical reduction only in 40 per cent of cases treated before the age of two years; *Faber's* percentage is about the same, and *Lindemann* found, on re-examination of 34 adults, only 10 whose hips were almost normal. *Becker* found, among 26 joints reduced more than twenty years previously, only 5 that were anatomically correct, and the same number among 28 others that were re-examined five years after treatment. *Gickler* and *Meurer*, finally, did not, among a material of 85 cases, all past the age of puberty, find a single instance in which the reduced hip was entirely normal; while in 66 of the cases there was either redislocation, subluxation or positive Trendelenburg sign.

Some idea of the modern judgment upon the value of closed reduction of the congenitally dislocated hip may be gained by studying the four opening papers on this subject that were to have been read at the since postponed International Congress of Orthopedics (September 1939). *Gill* thinks that with children under the age of five years the reduction succeeds in 85 per cent of cases, but lasts for over two years only in 60—65 per cent of these, and after five years only in 25—30 per cent. *Scaglietti* presents a material of 4990 cases, 73 per cent of which were treated by the Paci-Lorenz method with 50 per cent of anatomically and functionally good results. According to *Leveuf's* estimate a critical review of the results some years after the reduction hardly gives more than 25 per cent of anatomically and functionally perfect hips. *Schede*, whose views have already been mentioned, thinks that the most recent studies of the subject warrant the conclusion that primary cure in anatomical position may be counted on in about 50 per cent of cases, and that chances for such hips are good, also during the critical period of puberty; because, as he asserts, he has never seen a case in which a primarily perfect anatomic result did not prove absolutely lasting.

The results of a follow-up examination with the longest observation time hitherto has recently been reported by *Deutschlaender*. It comprises 28 patients, whose congenitally dislocated hips had been reduced thirty to forty-five years previously with good primary anatomical result; but in them all there were now greater or lesser deviations from the normal.

The latest work on the subject is a monograph by *Severin*, published in 1941. In this, the author records what is undoubtedly the most thoroughly conducted follow-up, so far, of the late results of closed reduction. His material comprises 330 patients with a total of 454 dislocations of the hip joint, all reduced in the Orthopedic Clinic in Stockholm during the period 1913—32. The observation time is from 5 to 27 years, and all the patients with exception of 4 were after-examined. In spite of functionally good results in 65 per cent of the cases, *Severin* found only 4.24 per cent of the hips that could be considered as well developed and 7.14 per cent with only moderate deviations from the normal.

AUTHOR'S MATERIAL

Also at the Orthopedic Hospital in Copenhagen it had gradually come to be realised that the results of the reduction treatment of the congenitally dislocated hip did not in the long run fulfill the expectations with which the method was hailed in the beginning. But at the same time it was felt that a thorough study of a larger, well recorded material should be made, and a longer observation time allowed, before any radical change in the methods employed was attempted. It is the results of this study that are presented in the following.

For practical reasons I have chosen to deal with the period from 1923 to 1931, both years included. As the investigation was begun in the fall of 1936, the observation time has thus been, in all instances, five years or more. The material comprises all the cases of congenital dislocation that during the period named were treated by *Lorenz's* method of closed reduction, with exception of two which were eliminated beforehand. One of these was

a patient with spasms, in the other the reduction had to be repeated already the year after, in another hospital. After this elimination there remained 261 patients, — 233 girls and 28 boys. This gives a sex ratio of 8.4 to 1, whereas the ratio is generally reckoned to be 6 to 1; but the total figures are so small that no importance can be attached to this circumstance.

One hundred and sixty of the cases were unilateral (74 right hips, 86 left), 101 bilateral. This division is in accordance with the diagnoses on the basis of which the patients in question were treated. Whether it is justified will be discussed in the following.

The subject of familial disposition has not been specially inquired into in connexion with the present investigation. My only source of information on the point has therefore been the case records of the patients. According to these, congenital dislocation of the hip was present in members of the families of 25 patients, as follows:

Mother	5
Father	3
Sister	9
Brother	2
Grandparents	1
Uncles, aunts	4
Other blood relations.....	4

In 20 of the patients, the congenital dislocation of the hips was associated with other deformities, namely:

Varus foot	2
Valgus foot	1
Planovalgus foot	6
Knee valgus	1
Defect of pubic bone	2
Cleft palate and defect of index finger	1
Torticollis	1
Inguinal hernia	4
Cryptorchism	1
Imbecility	1

The cases of planovalgus foot may perhaps be somewhat doubtful in the present connexion, because they may have been

acquired. On the other hand, the two curious cases of defective pubic bone should be specially noticed. They are practically alike. In both there is symmetrical absence of the inferior ramus of the pubic bone and the greater part of the inferior ramus of the ischium. In one of these cases the dislocation was bilateral; in the other only the right hip was dislocated, but also in the left the acetabulum was shallow and there was a slight subluxation. Both patients were girls, but apparently not related (Case records no. 1905/23—Fig. 5—and no. 1078/30).

In the main, the methods by which the patients were treated were the same during the whole period covered by the investigation. As soon as the child had ceased to soil itself the reduction was made under ether narcosis and a spica cast applied, extending all the way out over the foot in Lorenz's primary position. After three months the bandage was removed and it was made sure that the position was satisfactory, whereupon a second bandage was applied for another three-month period. During these two periods in bandage the child remained at home. If an after-treatment was deemed necessary, it was then transferred to the hospital. In the last year of the period with which we are dealing (1931), an abduction bicycle was used for the after-treatment. This was the routine; though, of course, with modifications, when necessary, in the application of the bandages, the time they were left on, etc.

The ages of the patients at the time of the reduction were as follows:

1—2 years	21
2—3 "	131
3—4 "	60
4—5 "	26
over 5 years old	23

All those in the first group were close on 2 years old, and most of those in the second just above that age, when the reduction was done. A very large part of the material is therefore very uniform in this respect.

In 23 of the 261 cases treated, the reduction and bandaging was attended with complications, as follows:

Fracture of shaft of the femur	1
Ankylosis of the hip	2
Contracture of the hip (Tenotomy)	6
" " " " (Redression)	9
" " " " (Extension, etc.).....	3
Paresis of the foot (temporary; ? ischemic)	1
Deep pressure trace	1

In 9 cases the reduction had to be given up; in three of them already at the first attempt, in the six others after two attempts and bandaging. The ages of these patients were:

8 years	1
6 "	2
5 "	1
4 "	3
2 "	2

Besides these cases there were 32 in which the reduction had to be done twice, and 3 in which it had to be done as many as three times; and in 2 cases, in which the first attempt at reduction had not succeeded, the parents demanded that treatment should be discontinued.

THE FOLLOW-UP EXAMINATION

Of the 261 patients, I succeeded in tracing and getting examined 215. Under the present conditions, attempts to get in touch with the remaining 46 had to be given up if the investigation were not to be kept dragging on for an indefinite time. Of these forty-six, 2 are at present in foreign countries, 7 cannot be traced, and in regard to 37 no replies have yet been received.

With many reports on follow-up examinations it is a fault that it is not clearly stated where and by whom the examinations were made; which makes it difficult for others to place a judgment on their value. As regards the present material I therefore wish to set down that as regards the functional results of the reduction the information was obtained from the following sources:

Orthopedic Hospital, Copenhagen	162
Orthopedic Hospital, Aarhus	14
Other hospitals	4
Practicing physicians	12
Parents of the patient	23

Total: 215

while the examination of *all* the roentgenographs was done by the author.

As already said, the minimum observation time was set to five years from the end of treatment, because we consider, with *Schede*, that within that length of time the processes *directly* related to the reduction and the bandaging will have run their course. The full observation time for the different cases has been as follows:

17 years	1
16 „	2
15 „	10
14 „	16
13 „	15
12 „	10
11 „	28
10 „	18
9 „	22
8 „	22
7 „	22
6 „	19
5 „	9
less than 5 years	21

Total 215

The 21 cases for which the observation time is given as less than five years are such in which all thought of reduction had to be given up beforehand or in which redislocation occurred before the end of that time, so that it already then was possible to judge on the result of the treatment.

ANATOMIC RESULTS

The anatomic results, as evidenced by the roentgenographs, are shown in Table I. As regards the classification of the cases, "normal" means that there is no visible difference between the reduced hip and the sound hip of a child of the same age. In the assignment of the cases to the different groups, the amount of support furnished by the hip has been an important consideration, as this must be said to be of primary importance for the patient in later life.

As regards the bilateral cases, the patient has been assigned to the group corresponding to the poorest hip. Division of the material according to the condition of each hip seems irrational, as the patient has to use both in walking. In the present material there were only few cases, anyhow, in which there was any considerable difference between the two hips of the same patient.

TABLE I
Anatomic Results.

	Unilateral	Bilateral
A I — Normal, or practically normal	5	0
A II — Good support, shortening not over 3—4 mm.; slight deformity	13	5
A III — Doubtful support; some deformity and subluxation	43	14
A IV — No support; strong deformity and subluxation	41	37
A V — Redislocation; destruction of femoral head	25	27
A VI — Reduction miscarried, or ankylosis	3	2
Totals:	130	85

FUNCTIONAL RESULTS

The functional results, shown in Table II, have been judged chiefly from the subjective signs, while less importance has been attached to slight restrictions of movements, slight limping, slight Trendelenburg sign, etc. In the first group (F I) are placed the patients who are entirely free from discomfort; in

the second (F II) those who may get a little tired or feel some slight pain when standing or walking for any considerable length of time, who are excused from gymnastic classes in school, or who on account of their affection have chosen occupations demanding little physical exertion, and cases similar to these. The third group (F III) comprises those who are actual invalids requiring special treatment, osteotomies and so forth. It is to be noted, though, that *Lance's* operation has been performed also on some of the patients classed under group F II. As it appears from the case records there seems to have been an increasing tendency to use this operation prophylactically.

In this material, as in all others, we see that the functional results are much better than the anatomic. Thus, about 80 per cent of the patients with unilateral, and about 70 per cent of those with bilateral dislocations are practically free from discomfort from their affection.

TABLE II
Functional Results.

	Unilateral	Bilateral
F I — No discomfort, normal gait and mobility	46	33
F II — Slight discomfort, slight limp, slightly reduced mobility	59	27
F III — Pain, fatigue, limp, osteotomy, etc.	21	18
F IV — No precise information	4	7
Totals:	130	85

The following table (Table III) shows the anatomic results compared with the functional. The figures are too small to allow of any reliable calculation of percentages, but the totals of the respective columns enable one to form an idea of the relative proportions.

It is immediately seen that a good anatomic reduction always gives a correspondingly good functional result, and that also the function of the anatomically poor hips in many cases is excellent. It is among the latter category, though, that we find the cases

in which the dislocation continues to be a source of discomfort to the patient.

TABLE III
Comparison of the anatomic and functional Results.

Unilateral:

	A I.	A II.	A III.	A IV.	A V.	A VI.	
F I	5	8	18	11	4	0	46
F II	0	5	23	21	10	0	59
F III	0	0	2	8	10	1	21
Uncertain	0	0	0	2	1	1	4
	5	13	43	42	15	2	130

Bilateral:

	A I.	A II.	A III.	A IV.	A V.	A VI.	
F I	0	4	10	14	5	0	33
F II	0	1	3	12	11	0	27
F III	0	0	2	7	8	1	18
Uncertain	0	0	0	4	3	0	7
	0	5	13	37	27	1	85

I now turn to some other problems which I examined on the basis of the present material.

We have seen how the condition developed in the reduced hips of the 130 patients treated for unilateral dislocation; we will now see how the "sound" hip developed, as shown in Table IV.

TABLE IV
The Development of the "sound" Hip.

A. — Normal	19	(= about 15 per cent)
B. — Some incongruence, no actual shortening	59	
C. — Flat acetabulum, slight shortening, perhaps slight deformation	39	} (= about 30 per cent)
D. — Considerable subluxation	1	
Uncertain, or not noted	11	

130

In the above table, B and C correspond most nearly to what as regards the reduced hips was called A II, and D to A III (see

Table I). As regards 11 cases the anatomic condition of the sound hip, as it appeared in the films borrowed from other hospitals, was not noted. It is seen that only in 15 per cent of the cases was the hip on the "sound" side with certainty normal, while in 30 per cent the character of the joint was such that it might be expected to give trouble sooner or later (arthrosis).

In the review of the literature I mentioned that, according to some authors, the hereditary factor sets a limit to what in cases of congenital dislocation may be accomplished by our therapeutic methods. It may therefore be of interest to compare the development of the reduced and the sound hip in the same patient, as shown in the following table (Table V.—A, B, etc. as in Table IV; A I, A II, etc. as Table II).

TABLE V
Development of the reduced and the "sound" Hip.

<i>Reduced:</i>	<i>Sound:</i>	A	B	C	D	U
A I	5	0	0	0	0	5
A II	2	11	1	0	0	14
A III	4	25	11	0	4	44
A IV	4	18	14	1	1	38
A V	4	5	13	0	4	26
A VI	0	0	0	0	3	3
	19	59	39	1	12	130

Though the figures are so small that the element of chance can not be excluded, it nevertheless seems that the cases in which the reduction gives the best result are those in which there is a tendency to spontaneous formation of a well formed hip-joint, while the cases in which the treatment gives a less satisfactory result are those in which the hips are by nature less disposed to develop normally. *This supports the theory of the significance of the hereditary factor for the result of the treatment.*

As expression for an estimate respecting the development of the acetabulum and the stability of the hip at the time of the reduction, notes have been made in the case records of the phenomena of reduction and of redislocation over the upper and posterior edge. These are designated by 0, +, ++ and +++.

TABLE VI
The Significance of the Reduction Phenomena.

The Phenomena of Reposition and Redislocation	A I	A II	A III	A IV	A V	A VI	
0	3	2	5	1	3	0	14
+	1	1	8	4	8	0	22
++	1	3	10	4	0	0	18
+++	0	1	0	4	1	0	6
Not noted ...	0	0	2	1	0	0	3
	5	7	25	14	12	0	63

On the basis of the cases of unilateral dislocation with at least 10 years' observation time in the present material, 63 in all, I have examined (Table VI) whether these estimates are borne out by the final results. This does not seem to be the case. As the table shows, the distribution of the results is entirely irregular, with no relation to the respective phenomena of reduction or redislocation. I would therefore be best to refrain from this test, as it can hardly be said to be quite without risk for the hip. It is true that we do not with certainty know what causes the deformities of the femoral head and neck seen after reduction; but most authors are inclined to consider the trauma inflicted by the reduction as the principal factor in the occurrence of these changes. And if the redislocation is performed twice, it means, of course, a corresponding increase of this injury.

DISCUSSION

The results here presented, and especially the anatomical ones as disclosed by the roentgenographs, are not particularly satisfactory; but on the whole they accord fairly well with a number of recent investigations by other authors, especially with those that are based on a fairly long period of observation. Other authors again show results which are so good that it is evident that the criteria on which their estimates are based must be different. The differences in the technic of reduction and after-treatment used in the different places do not seem to justify a difference

in the number of anatomically normal results from a few per cent to 70 or 80 per cent. A study of some of the reproductions of roentgenographs which in several works of this kind are presented as examples of hips that after treatment have become entirely normal (and it can hardly be supposed that it is the more doubtful ones that have been selected for this purpose!) will show that in several cases the designation of them as such will not stand the test of criticism. At the same time, it must be pointed out, however, that the material with which I have been dealing does not contain any case of very early reduction already in the first year of life, and that this may possibly explain our comparatively poorer results.

As regards the functioning of the reduced hips, my investigation confirms that in the great majority of cases it becomes in every way satisfactory, even if the joint roentgenologically deviated considerably from the normal. That no certain case of arthrosis has been demonstrated is perhaps because only a few of the patients were past the age of puberty when the after-examination was made. But neither was there, on the other hand, any certain indication that the discomfort from the condition of the hip was greater in the older age group than in the younger.

If we, in conclusion, consider the possibilities of improving the results of the bloodless reduction of congenital dislocations of the hip, the greatest interest centers about the reports of *Putti*, *Hilgenreiner*, *Gaugele*, *Schede* and others about treatment in early infancy. It seems, both on theoretical grounds and according to the practical experience of these authors, that considerably better results can be obtained by performing the operation very early than by waiting till the child is two years old or more. It is true that this early reduction does not guarantee against the possibility of secondary changes in the reduced hip later (*Hilgenreiner*), but at any rate they are rarer. Here the hereditary disposition plays a rôle, as shown in Table V.

In cases of unilateral dislocation, the development of the "sound" hip is, as already said, very seldom normal. It should therefore undoubtedly be made the rule always to treat both

sides. And perhaps greater importance than hitherto should also, as maintained by *Schede*, be attached to individualising the after-treatment. Finally, the after-test of the stability of the acetabulum, by redislocation of the already reduced femoral head, should be absolutely abandoned.

The improvements of the therapy, along the lines here briefly indicated is, however, a matter which concerns not only the orthopaedists and the surgeons. They require to a great extent the collaboration of the practicing physician; and their introduction will therefore demand some considerable work of enlightenment and propaganda, which has, indeed, already been started.

SUMMARY

To show the considerable disagreement that exists about the results obtained by closed reduction of congenital dislocations of the hip, the author cites a number of reports from various sources, of follow-up examinations of patients treated by this method. He finds the causes of this disagreement especially in the different requirements for a perfect result, in the different length of observation time in the published reports, and in our ignorance of what influence the hereditary disposition may have on the development, in spite of the treatment. He presents a material from the Orthopedic Hospital in Copenhagen, of 261 cases, 160 unilateral and 101 bilateral, 215 of which (130 + 85) were followed up with an observation time of from five to seventeen years. The reductions had all been done by Lorenz's method, and the patients kept in plaster spica for two successive periods of three months. At the follow-up examination, only 5 cases, all unilateral, showed an according to the roentgenographic evidence perfect anatomic result, while the function of the hip was excellent in over three-fourths of the cases.

In patients with unilateral, congenital dislocation the other, not treated hip is often found to deviate considerably from the normal, and it seems as if this is most markedly the case where the result of the reduction has been poor. The author sees in this an expression for the influence of the same hereditary fac-

tor. He suggests certain modifications in the treatment, specially earlier reduction, by preference already in earliest infancy.

ZUSAMMENFASSUNG

Um die beträchtlichen Meinungsverschiedenheiten aufzuzeigen, die bezüglich der Ergebnisse bei unblutiger Reposition kongenitaler Hüftgelenksluxationen herrschen, zitiert Verf. eine Reihe von Berichten aus verschiedenen Quellen, von Nachuntersuchungen mit dieser Methode behandelter Patienten. Er findet die Ursachen dieser mangelnden Uebereinstimmung besonders in den Meinungsverschiedenheiten darüber, welche Forderungen erfüllt sein müssen, damit das Ergebnis als perfekt angesehen werden kann, in der verschiedenen Länge der Observationszeit, welche die veröffentlichten Berichte aufweisen, und in unserer Unkenntnis der Bedeutung, die der hereditären Disposition im Laufe der Entwicklung zukommt, unabhängig von der Behandlung. Verf. legt ein Material aus dem Orthopädischen Krankenhaus in Kopenhagen vor, das aus 261 Fällen besteht, 160 einseitigen und 101 doppelseitigen, von denen 215 (130 + 85) durch eine Observationszeit von 5—17 Jahren hindurch weiterverfolgt waren. Die Reposition war in allen Fällen mit der Lorenz'schen Methode vorgenommen worden, und die Patienten haben in zwei aufeinanderfolgenden Perioden von drei Monaten in einer Pflaster-Spica gelegen. Bei der Nachuntersuchung zeigten nur 5 Fälle, alle einseitig, eine nach röntgenologischen Gesichtspunkten vollständige anatomische Heilung, während die Funktion der Hüfte in über Dreiviertel der Fälle ausgezeichnet war.

Bei Patienten mit einseitiger, kongenitaler Luxation zeigte sich, dass die andere, nicht behandelte Hüfte oft wesentlich vom normalen Zustand abweicht, und es scheint, als ob diese Abweichung dort am auffallendsten ist, wo das Ergebnis der Reposition dürftig war. Verf. sieht hierin einen Ausdruck für den Einfluss desselben hereditären Faktors. Er schlägt gewisse Modifikationen der Behandlung vor, insbesondere eine frühzeitigere Reposition, vorzugsweise bereits in der frühesten Kindheit.

RÉSUMÉ

Afin de montrer les divergences considérables qui existent quant aux résultats obtenus par la réduction des dislocations congénitales de la hanche, l'auteur cite une série de rapports émanant de différentes sources et portant sur les examens suivis de malades traités par cette méthode. Il découvre que la cause de ces divergences d'opinion réside essentiellement dans les exigences que l'on pose pour pouvoir considérer le résultat obtenu comme parfait, dans la durée de la période d'observation des rapports publiés et dans le fait que nous ignorons la signification que peut avoir, en dépit du traitement, la prédisposition héréditaire sur le cours du développement. Il présente un matériel d'observation de l'Hôpital Orthopédique de Copenhague, comprenant 261 cas, 160 de caractère unilatéral et 101 bilatéral, dont 215 (130 + 85) ont été suivis sur une période d'observation variant entre cinq et dix-sept ans. Les réductions ont toutes été effectuées d'après la méthode de Lorenz et les malades gardés dans un bandage de plâtre Spica pour deux périodes successives de trois mois. Aux examens ultérieurs, 5 cas seulement, tous de dislocation unilatérale, montrèrent, sur la base de l'évidence radiographique, un résultat anatomique parfait, tandis que la fonction de la hanche était excellente dans plus de trois quarts des cas.

Chez les malades présentant une dislocation congénitale unilatérale, on a souvent constaté que l'autre hanche dévie fortement de la normale et il semble que ce fait soit plus prononcé dans les cas où le résultat de la réduction a été piètre. L'auteur voit dans ce fait l'expression de l'influence du facteur héréditaire. Il suggère que certaines modifications du traitement soient préconisées, notamment que l'on procède à une réduction plus tôt, de préférence déjà en bas âge.

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