IMPACTION GRAFTING FOR ACETABULAR DEFICIENCY IN TOTAL HIP ARTHROPLASTY FOR DEVELOPMENTAL HIP DYSPLASIA

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The pathological anatomy in neglected developmental dysplasia of the hip often demands some sort of reconstructive surgery to augment the acetabular bone stock during total hip arthroplasty. We have reviewed 11 hips in 10 patients with osteoarthritis secondary to developmental hip dysplasia who underwent cemented total hip arthroplasty using impaction grafting of the acetabulum with a morselized femoral head autograft, to bring the socket down to the anatomical hip center. The mean age at the index procedure was 43.4 years (ranging from 29 to 60 years) and the mean follow-up period was 3.8 years (ranging from 2 to 7 years). Postoperative functional evaluation according to the Merle d'Aubigné and Postel score modified by Charnley revealed very satisfactory results. Radiographic review showed incorporation of all grafts. One socket is radiographically loose. No major complications have been encountered. There have been no reoperations. We believe that acetabular impaction grafting is a valuable alternative in dealing with osteoarthritic hips secondary to developmental hip dysplasia.

Keywords : developmental dysplastic hip ; total hip arthroplasty ; osteoarthritis ; impaction grafting ; autograft.
Mots-clés : hanche dysplasique ; prothèse totale de hanche ; arthrose ; greffe.

osteoarthritic patient, indications widened to younger patients with more difficult pathologies.

Treatment of DDH with THA remains a challenge. The aim is to obtain not only a pain-free and functional joint, but furthermore, a durable and revisable arthroplasty with improved bone stock. The difficulties in treating DDH with THA arise from the distorted anatomy both in the acetabulum and in the femur, the limb length inequality, the soft tissue contractures and the muscle atrophy (7).

The technique of impaction grafting with autograft and allograft both in primary and in revision THA has been described with follow-up results of several series that all showed consistently very satisfactory ingrowth and remodeling of the graft material (3, 38). To our knowledge, the use of this technique has not been described in DDH, which is a distinct pathology in terms of deformity, bony deficiency and young age.

We present our experience of our first 11 osteoarthritic hips secondary to DDH, which were treated with THA after reconstruction of the acetabulum in the normal anatomical position using the impaction grafting technique, and with a minimum follow-up of 2 years.

INTRODUCTION

Historically, the armamentarium for the treatment of developmental dysplastic hips (DDH) consisted of excision arthroplasty, arthrodesis, Chiari or shelf procedures. With the clinical success of total hip arthroplasty (THA) in the elderly
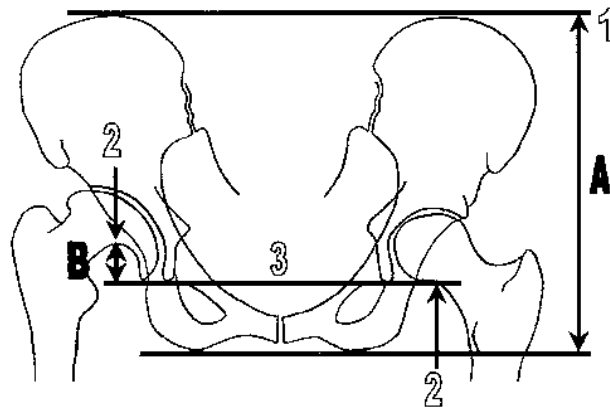
Fig. 1. — Method of Crowe's classification

The amount of subluxation is determined from the anteroposterior view of the pelvis by noting 3 easy landmarks : (1) the highest point on the iliac crest, (2) the head-neck junction (→) and (3) the inferior margin of the teardrops (teardrop line).
The ratio of a normal femoral head to the height of the pelvis is about 1/5 (20%).

$$\frac{\text{distance between the head-neck junction and the teardrop line (B)} \times 5}{\text{height of the pelvis (A)}} \times 100 = \% \text{ head luxation}$$

PATIENTS AND METHODS

Patients

Eleven osteoarthritic hips secondary to unreduced DDH in 10 patients were treated with morselized impaction grafting and THA, and are included in a short-term follow-up study of 2 to 7 years (mean 3.8 years). All patients were female. Two were Charnley category A patients, seven category B and one category C. Only one bilateral case was included, since other reconstructive procedures (structural grafts) were used in the contralateral side in the other cases. Two patients had one previous hip operation (1 femoral osteotomy and 1 shelf procedure), and one had two previous operations on the affected hip (a shelf procedure and a proximal femoral osteotomy) ; another three patients had other forms of previous treatment (plaster cast immobilization after closed reduction, contralateral distal femoral epiphysiodesis). The duration of the symptoms was 3 to 14 years. Eight hips were left and 3 were right. The average age at operation was 43.4 years (range 29 to 60). The average weight at surgery was 65 kg (range 52 to 74).

Classification

The degree of the subluxation/dislocation was measured according to Crowe's classification, using the pelvic height, the inferior margin of the teardrop and the femoral head-neck junction as reference values and

landmarks (8) (fig. 1). In Crowe type I, the femoral head is located in the true acetabulum with a subluxation of less than 50%. In Crowe type II, the acetabular roof is deficient, and the head is subluxed between 50 and 75%. Crowe type III means further subluxation of the femoral head from 75 to 100%, with an absent acetabular roof, while a Crowe type IV is a complete dislocation with an absent rim but with a more intact roof. In this series, 1 case is classified as Crowe type I, 4 cases are classified as Crowe type II, 1 as Crowe type III and 5 as Crowe type IV (fig. 2).
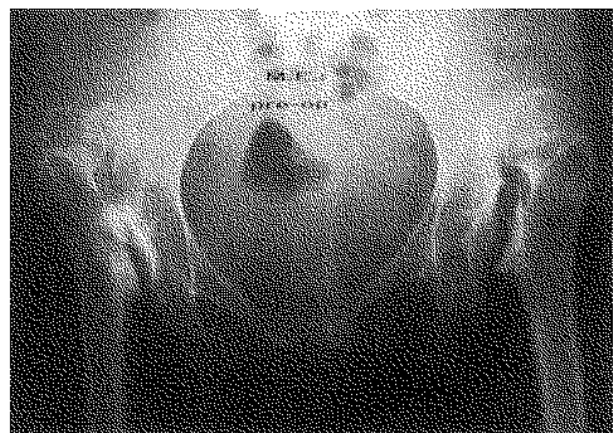

Fig. 2. — Bilateral developmental hip dysplasia, Crowe type IV.

Assessment

Preoperative clinical assessment was made according to the Merle d'Aubigné and Postel score modified by Charnley (6, 26). The score averaged 2.3 for pain, 2.8 for function and 3.2 for range of motion.

Operative procedure

All but one operations were performed by one of the consultant surgeons (G.A.G.). The mean duration of the operative procedure was 184 minutes (range 120 to 240) and included an extensive bony procedure to the femur (derotation and shortening) in 6 of the 11 cases. The cover of the acetabular component by host bone ranged from 50 to 90% (mean 74%). The coverage was estimated by comparing the outer surface of the chosen trial cup with the inner surface of the created recess before grafting, and by measuring the uncovered part of the cup when brought into the desired position. Instrumentation for containment of the morselized graft was necessary in 8 out of the 11 cases and consisted of a wire mesh, a pelvic reconstruction plate or a small fragment buttress plate. In 9 cases a small Exeter CDH stem with an offset of 35 mm was used, and in 2 cases a large Exeter CDH stem with an offset of 37.5 mm. The cup size varied from 40 to 52 mm, with a median of 44 mm. The mean blood loss was 850 ml (range 500 to 1800 ml).

Description of technique

The patient is placed in the lateral decubitus position, stabilized on the table with a pelvic support. Through a Southern approach, the sciatic nerve is identified and protected. Release of the gluteus maximus insertion and the psoas tendon, and an anterior capsulotomy permits wide exposure. The high-riding hip joint is dislocated and the true acetabulum is found through identification of the transverse ligament and the teardrop. An anterior retractor is placed over the anterior wall of the socket, and an inferior retractor is inserted under the transverse ligament in the obturator foramen. With Capener Ling gauges and hemispherical reamers an acetabular recess is created in the true acetabular location. Ischial and pubic anchor holes are made with an 8-mm punch. The sclerotic bone in the dome is reamed away until a bleeding cancellous bed is reached. After decortication, the retrieved femoral head is morselized with a bone mill. These bone chips of 5 to 10 mm in length, are used as graft material together with the acetabular reamings. The deficient superolateral part of the recess is then augmented with this morselized autogenic bone graft with or without containment by a small buttress plate, a pelvic reconstruction plate or wire mesh, fixed with small fragment screws. The graft is firmly impacted with special hemispherical impactors of different sizes, starting with the smaller size, and building up the impactor size with the addition of bone graft until the appropriate cup size impactor is reached. The need for instrumented containment of the graft depends on the coverage by host bone and is performed when there is less than 90% of host bone coverage of the graft. The amount of host bone coverage of the graft is estimated by comparing the uncovered outer surface of the newly formed rim to the inner surface of the newly formed socket. After achieving a solid impacted hemispherical recess, the nongrafted host bone at the new acetabulum is thoroughly washed with saline, and the whole socket is dried with peroxide. Cement is pressurized with the Exeter/Howmedica® pressurizer, and the cup is introduced as the cement viscosity is rising, in a position of 40 to 45° of abduction and 15° of anteversion.

Antibiotic prophylaxis consists of cefuroxime and metronidazole during the first 24 hours. Heterotopic ossification is prevented by indomethacin 25 mg three times a day the first five postoperative days, and DVT prophylaxis is achieved with foot pumps, TED-stockings and early mobilization.

Postoperative rehabilitation consists of early mobilization, with touch weight bearing for up to 12 weeks, and then partial to full weight bearing.

RESULTS

Postoperatively, there was a transient femoral nerve palsy in one case and an unrecognized adductor contracture in another one. This last complication was resolved with an adductor tenotomy the third postoperative day. No deep venous thromboses were diagnosed clinically, and there were no wound infections, no dislocations, and no sciatic nerve palsies. In 9 cases there was no significant leg length discrepancy (mean 0 mm, range -5 to +10 mm). In one case there is a residual shortening of 60 mm due to a femoral shortening osteotomy, and in another one there is a lengthening of 25 mm because of a subsequent contralateral femoral varisation osteotomy. The mean hospital stay was 16.1 days (range 8 to 38).

Follow-up averaged 3.8 years, ranging from 2 to 7. The clinical result at follow-up, again assessed by the Merle d'Aubigné and Postel score modified by Charnley, averaged 5.4 for pain, 4.5 for function and 5.5 for range of motion (table I).

Table I. — Mean preoperative and postoperative Merle d'Aubigné and Postel score modified by Charnley.

PAIN   FUNCTION   ROM

■ PREOP □ POSTOP
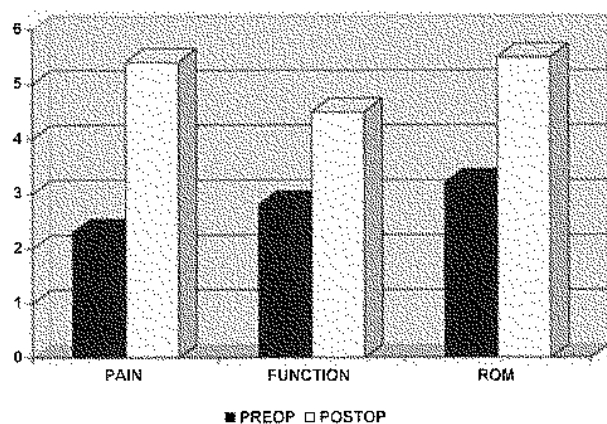
Radiographic assessment showed no significant heterotopic ossification and incorporation of all graft without any resorption in the weightbearing areas (fig. 3). There was no collapse of any graft, no cement mantle failure and no cup migration on observation of anteroposterior pelvis and lateral hip radiographs. Radiolucent lines were graded according to Ranawat et al. (33). Grade 1 refers to a radiolucent line of less than 1 mm in width, grade 2 to a line with a width between 1 and 2 mm and grade 3 to a width of more than 2 mm. This gradation is described according to the Charnley zones (9). Six cases did not show any radiolucent lines. Four cases showed a grade 1 radiolucent line, 2 in zone III, 1 in zone II, and 1 in zone III extending in zone II, all nonprogressive. One case showed a complete demarcation with a grade II radiolucent line in zone III and a grade I in zones I and II. In this particular case, the first postoperative film showed the same radiolucency (fig. 4). Reviewing the operation notes revealed an unsatisfactory pressurization of the cement at the acetabular level.

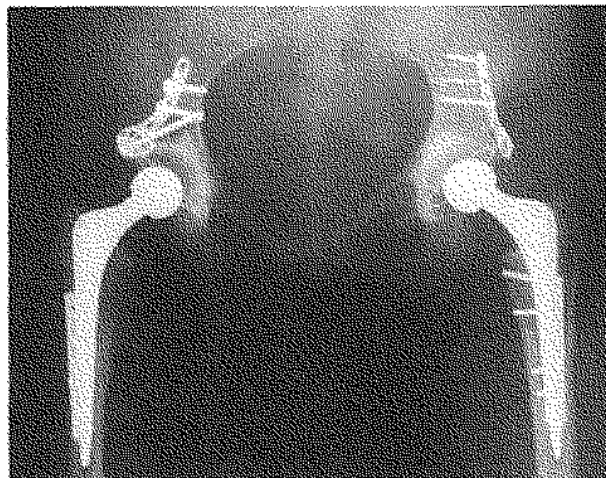As yet, no revisions have been performed. The one case with the grade II radiolucent line does not

Fig. 3. — Postoperative radiograph (same patient as fig. 2) with good incorporation of bone graft and without radiolucencies (5 years postoperative).

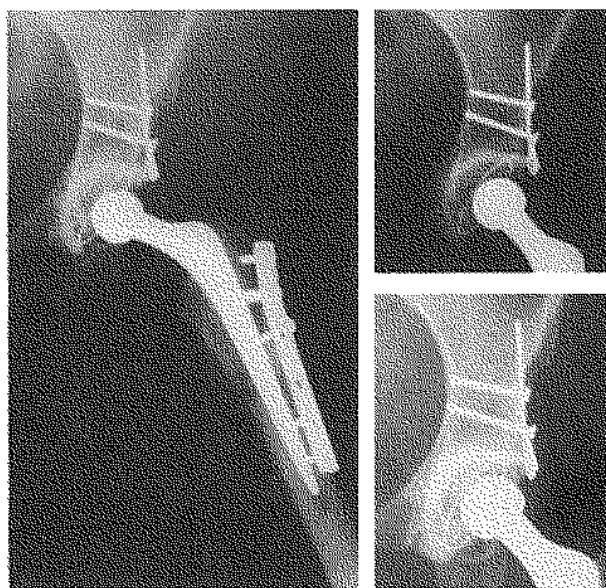Fig. 4. — Postoperative radiographs of the one case with demarcation of the socket : (a) 3 days, (b) 14 months and (c) 4 years 3 months postoperative films : the socket is radiographically loose, although there is no progression of the radiolucency.

seem to be progressive in its radiographic appearance, and has an average clinical result (5 for pain, 4 for function and 6 for range of motion) at 51 months follow-up.

DISCUSSION

Treatment options for the acetabular deficiency are either acceptance of the false acetabular recess or restoration of the center of rotation with either graft or cement. Advantages of restoring the center of rotation include the mechanical benefits of a more medial orientation of the load transfer, the improvement of abductor function, and the resulting limb lengthening (30,31). Conversely, increased loosening with placement of the cup in the false acetabulum and difficulties with achieving a stable fixation in a shallow acetabular recess is well documented (12,18). Furthermore, Charnley cautioned against an increased risk of dislocation with such a nonanatomical position of the acetabular component (5). Moreover, restoring the center of rotation with our technique implies restoring bone stock, which is important in view of revision surgery.

In previous long-term follow-up studies, the results of THA in DDH are, regardless the type of reconstruction, worse than the results reported for other primary pathologies such as rheumatoid arthritis (RA) and primary osteoarthritis (OA) in the same age groups. Sochart et al. presented long-term results of THA in DDH, RA and OA in patients under 40 years of age at the time of operation (39). They reported significantly higher rates of aseptic loosening, migration and revision of the acetabular component in the DDH group. A significantly higher rate of polyethylene (PE) wear in the revised acetabular components was also noted. They concluded that the major factors limiting the longevity of cemented THA were the loosening and the wear of the acetabular component. In the series of Joshi et al., the DDH group again scored worse than the RA group in terms of acetabular component survival (20). Socket failure is well described in young patients in general, and is attributed mainly to the level of activity and the weight (4, 41). This emphasizes the importance of anticipating a revision procedure.

The multitude of surgical solutions for the acetabular reconstruction reflects the lack of a definite treatment of choice (table II). The main options consist of 1) the use of a bulk graft, of different size and of different origin, 2) the protrusio socket or cotyloplasty technique, 3) the use of cement to restore the center of rotation, 4) accepting a superior placement, and 5) an uncemented socket.

The use of the resected femoral head as a bulk graft was described by Dunn and Hess in 1976 (10) and by Harris et al. in 1977 (13). The graft is screwed or bolted to the ilium at the site of the false acetabulum as a superolateral support for a cemented acetabular component, in a recess as close as possible to the true acetabulum. Although it appeared initially a very attractive solution to deal with acetabular deficiencies (13), an intermediate follow-up study (mean 7.1 years) of 47 hips revealed 4 revised cups, 6 acetabular cement mantle fractures and 4 cups with probable radiographic loosening (combined 29% failure) (12). Follow-up of this same series at 11.8 years showed failure of the acetabular component in 46% with a revision rate of 20% (27). The main concern in this study appeared to be the poor viability of the bulk graft, as histological review of one case revealed only 10% revascularization of the graft. A long-term follow-up study (mean 16.5 years) which included these same patients showed a combined failure rate of 62%, with a revision rate of 36% (37). Other studies using this technique however have been published with better results than the original Harris series (11, 17, 21, 34, 35, 44). Rodriguez et al. report only a 10% revision rate at 11 years in their series of 29 hips, with 2 of the 3 revisions being posttraumatic rather than caused by aseptic loosening (35). On the basis of radiographic appearance of radiolucent lines at the bone-cement interface, there was a 38% loosening rate. These radiolucent lines developed 2 to 5 years postoperatively. They attributed their far better clinical results to the restriction of the coverage of the acetabular component by graft to a maximum of 40%, and the support of the graft by the host bone and not solely by bolts. Wolfgang however reported on 42 hips using this technique, 8 of which had 50% cup coverage by graft (43). After a mean follow-up of 5.7 years only two cups were considered loose. Raut et al. published their experience with the bulk femoral head autograft in a series of

Table II. — Overview of methods and published results.

	n	FU	% revision of socket	% combined failure	(% R.L.)
1) Bulk graft					
Raut (1994)	40	4	0	5	(40)
Wolfgang (1990)	42	5.7	4.8	7.1	
Gerber (1986)	47	7.1	10	29	
Inao (1994)	20	8.4	5	15	(15)
Anwar (1993)	34	9.4	11.8	23.5	
Marti (1994)	63	10.1	8	14.3	(30)
Lee (1997)	58	10.2	18	–	
Rodriguez(1995)	29	11	10	38	
Mulroy (1990)	46	11.8	20	46	
Iida (2000)	133	12.3	5.3	20.3	
Shinar (1997)	70	16.5	36	62	
2) Cotyloplasty – Protrusio socket					
Hess (1978)	17	3.1	0	–	
Hartofilakidis (1988)	38	5.5	2.6	–	
Hartofilakidis (1996)	86	7	2.3	4.6	(14)
Symeonides (1997)	74	7.2	5.4	–	
3) Cement					
McQueary (1988)	66	8.5	3	12	
Linde (1988)	78	9	6	13	
Numair (1997)	182	9.9	10	16	
Okamoto (1997)	59	12.4	0	18.6	
MacKenzie (1996)	59	16	10	42	
4) Accept high center					
Linde (1988)	45	9	20	42	
Pagnano (1996)	145	14	12.4	59.3	
Stans (1998)	18	16.6	–	83.3	
5) Uncemented socket					
Schutzer (1994)	5	3.3	0	–	
Jasty (1995)	10	6.5	0	–	

n = patients ; FU = follow-up (in years) ; combined failure = socket revisions + radiographically loose components ; R.L. = radiolucent lines (without demarcation).

40 hips at a mean of 4 years follow-up (34). The cup coverage by graft was 10 to 42%. Radiolucency of 1 mm or less was seen in 40% but was asymptomatic. No cups showed signs of definite loosening. Two cups showed possible loosening with a continuous radiolucent line of 1 mm. The projected improved long-term outcome compared to the original Harris series was thought to result from an increased femoral offset which would decrease socket load and the more open placement of the

acetabular components which decreases the support of the socket by graft and diminishes the necessary graft size. In Anwar et al.'s series of 34 bulk-grafted THA's, the same conclusions as in Rodriguez' series could be drawn, as the loosening of 23.5% after 9.4 years appeared to be related to the initial amount of acetabular deficiency and thereby to the amount of bulk graft (2). Marti et al. described a technique in which they use two or three smaller bulk autografts of the retrieved

femoral head, fixed with lag screws to the roughened iliac bone above the acetabulum (24). The amount of cup coverage by graft exceeded 40% in 18% of the cases. The purpose of fragmentation of the graft is to facilitate the revascularization. In their series of heterogeneous pathology, both primary and revision THA, 84 hips were reviewed at a mean follow-up of 10.1 years with a minimum of 5 years. The DDH group consisted of 53 hips and was not separated in the results. Of the 63 primary hips, 5 acetabular components were revised (8%). Radiolucent lines of less than 2 mm in one or two zones were seen in 19 of the primary hips (30%). Migration of the socket was seen in 2 primary cases. Incorporation of the bone graft occurred in all but one case within three months of the operation. In conclusion, the success of a bulk graft seems to be related to the extent of the cup covered by the graft (27, 37), the amount of support of the bulk graft by host bone (35), the decreased graft size to improve vascular ingrowth (24) and the decreased socket load by increasing the femoral offset (34).

Inao *et al.* described a technique of restoring the acetabular bone stock with a structural autograft, consisting of the femoral neck (18). The advantages of their technique were the use of healthier bone instead of the sclerotic head and the position of the cup at 45° to obtain more coverage of the cup by host bone. They presented a series of 20 hips with a mean follow-up of 8.4 years. Union and remodeling of the graft were always achieved. There were radiographic signs of loosening of the acetabular component in only 15%.

Hess and Umber described the protrusio socket technique (16). In this procedure the bone socket is developed by fracturing the floor of the true acetabulum posteriorly and inferiorly, trying to keep the medial periosteum intact. This controlled comminuted fracture deepens the true acetabulum, creating a larger acetabular roof to provide superolateral support. Extreme care has to be taken leaving an intact periphery consisting of ilium, ischium and pubis. The fractured floor is augmented by a small amount of bone graft. The cup is supplemented with a wire mesh to reinforce the cement and to prevent intrapelvic protrusion of cement. In their

series of 17 hips, no cup failures were seen after 37 months. The so-called cotyloplasty as described by Hartofilakidis *et al.* is a similar procedure (14). They reported on the results of 38 hips after 5.5 years. There were few complications and excellent results, without any radiolucencies at the acetabular side of the THA, no migration and complete incorporation of the graft. Another series of 86 hips with a mean follow-up of 7 years revealed only 2 revisions (2.3%) (15). Cup migration occurred in 2 cases, and radiolucent lines of more than 1 mm occurred in 14% with progression in 2.3%. Eighty-one percent had radiographic signs of graft remodeling and 13% showed partial resorption of the graft. Symeonides *et al.* used this cotyloplasty technique in 74 hips (42). In 8 cases, the cotyloplasty was insufficient to provide cover, and an additional bulk graft had to be used. In this series, they report 3 revisions (4%) because of cup loosening in a follow-up study of 7.2 years. In conclusion, all series using the protrusio socket or cotyloplasty technique present very good results. The main disadvantages however seem to be the difficulty in assessing the amount of medial displacement during the operative procedure and the risk of fracturing more than only the floor of the acetabulum, since the dysplastic acetabulum is also deficient in the anteroposterior direction. These excellent results are somewhat overshadowed by the apparent technical difficulty of the procedure, and the extreme protective postoperative management (14, 15). The significance of the graft resorption in the weight bearing area is unclear.

The third option, restoration of the center of rotation with cement, has been described by several authors (22, 23, 25, 28, 29). MacKenzie *et al.* presented a series of 59 hips with a follow-up of 16 years (23). Eight revisions were performed, four for acetabular component loosening. Of the unrevised hips, there were radiographic signs of loosening in 32%. No relationship could be established, however, between the residual displacement of the cup at the index procedure and the rate of loosening. They did describe a correlation between the loosening and the amount of bulk cement. This same series was reviewed earlier by McQueary *et al.* at 8.5 years' follow-up (25). At that time there

was a 10% radiographic loosening, which was thought to correlate with the amount of horizontal displacement. Linde *et al.* reported a 13% radiographic loosening at 9 years with this technique (22). The main correlation that could be made was between age at surgery and radiographic loosening or revision. In MacKenzie *et al.*'s study there is a 35% radiographic loosening and 20% revision rate in the group under 50 years (23). Even worse, Sullivan *et al.* described a 50% revision or radiographic loosening rate in a series of 84 hips after a follow-up of 18 years in a population under 50 years at the index procedure (41). The main concern in these studies seems to be the age rather than the acetabular deficiencies. Numair *et al.* reported on 182 DDH hips treated with a cemented THA without the use of a bulk graft at a mean of 9.9 years (28). In all but 3 hips they were able to position the cup in the true acetabulum. They divided the hips into a subluxation group and a dislocation group and reported a mean 10% revision rate of the acetabular component with 15% in the dislocation group and 9% in the subluxation group. Overall, the percentage of definite or possible loosening of the acetabular component was 16%, with 26% in the dislocating group and 13% in the subluxing group. Loosening clearly depended on the amount of osseous coverage obtained at the time of operation. Okamoto *et al.* restored the center of rotation with cement in moderate DDH (29). The criterion for 'moderate' was an expected superolateral acetabular defect of less than 20 mm, which means that 78% were Crowe type I, 18.6% Crowe type II and only 3.3% Crowe type III. In their series of 59 hips at 12.4 years' mean follow-up, there were radiologic signs of loosening in 18.6% and no revisions because of aseptic loosening. With differentiation of the population to cementing technique (first versus second generation) and improved acetabular preparation, they achieved a significantly better result with the second generation technique : 27% radiographic loosening in the first group at an average 13 years' follow-up versus only 4.5% in the second group with the newer technique at a mean 10.5 years' follow-up. In conclusion, the success of using only cement in a deficient acetabulum seems to depend on the initial amount

of deficiency, the cement technique, and the age at the index procedure. However, there will be insufficient bone stock for revision surgery.

Pagnano *et al.* presented a series of DDH, Crowe type II patients, who were treated without restoring the center of rotation (32). Consequently, the acetabular components were in a superior position with subsequent high rates of loosening, as described by Linde *et al.* who reported a 42% combined revision and radiographic loosening rate at 9 years' follow-up (22) and by Stans *et al.* who found an 83.3% combined failure rate at 16.6 years (40). This failure depends on the increased shear stress as compared to compressive stress, and subsequent polymethylmethacrylate failure and PE wear. Furthermore, Yoder *et al.* also reported the risk of femoral component loosening with this nonanatomical positioning of the acetabular component (44).

Finally, uncemented acetabular components are used in DDH (1, 19, 31, 36). Jasty *et al.* used a hemispherical titanium-mesh porous-coated acetabular component fixed with screws into the host bone in 10 DDH cases (19). No structural bone graft was used ; only nonstructural graft chips were placed when the cup was uncovered up to 30%. In Crowe type I and type II the acetabular component could be placed easily in the true acetabular recess, and for Crowe type III and IV they accepted a superior position in the false acetabulum to avoid the need for structural bone grafting. They recommend that if a coverage of the cup by host bone of more than 70% is not feasible, the better solution is a cemented component in a structural bone graft. They did not find any signs of loosening of the acetabular component at a mean of 6.5 years follow-up. Schutzer and Harris reported on uncemented porous-coated acetabular components at a high hip center without lateralization (36). They preferred this approach to avoid major bulk grafting. Five primary THA's for DDH were included in a short-term follow-up series. No revisions were performed and no acetabular component migration was seen at a mean follow-up of 40 months.

Impaction grafting of the acetabulum in THA seems to have several theoretical advantages over the current techniques. First of all, the center of

rotation is restored with the biomechanical advantages as outlined above. Second, the abduction angle of the acetabular component is within the safe range with subsequent low dislocation rates. Third, as the acetabular recess is restored to a sufficiently large size, a satisfactory PE thickness is always achievable. Finally, by restoring the bone stock, further revision surgery in these often young patients is not compromised.

CONCLUSION

We present a small series of 11 THA's for OA secondary to DDH, in which the impaction grafting technique was used to deal with the acetabular deficiencies. Although the follow-up is short, the preliminary results are promising. As the impaction grafting technique has been proven reliable in revision THA, we believe that it should be added as a valuable alternative in dealing with osteoarthritic hips secondary to DDH. Longer follow-up studies will be necessary to confirm these favorable results.

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SAMENVATTING

B. BERGHS, N. WENDOVER, A. J. TIMPERLEY, G. A. GIE. Geïmpacteerde botgreffen voor acetabulaire deficiëntie bij totale heup arthroplastie voor congenitale heupdysplasie.

De pathologische anatomie in dysplastische heupen vergt vaak een reconstructieve procedure om het acetabulum te augmenteren bij een totale heuparthroplastie. Elf heupen in 10 patiënten met osteoarthrose tengevolge van congenitale heupdysplasie die een totale heuparthroplastie met geïmpacteerde botgreffen hebben ondergaan, werden retrospectief geanalyseerd. De acetabulaire component kon steeds in het anatomisch heup-centrum worden gebracht. De gemiddelde leeftijd was 43.4 jaar (29 tot 60) en de gemiddelde follow-up bedroeg 3.8 jaar (2 tot 7). De postoperatieve functionele evaluatie met de Charnley modified Merle d'Aubigné en Postel score is zeer bevredigend. Radiografisch nazicht toont incorporatie van alle greffen. Eén acetabulaire component is radiografisch los. Er waren geen majeure complicaties. Tot op heden zijn geen revisies uitgevoerd. We stellen dat geïmpacteerde botgreffen een waardevolle optie vormen in de behandeling van coxarthrose secundair aan congenitale heupdysplasie.

RÉSUMÉ

B. BERGHS, N. WENDOVER, A. J. TIMPERLEY, G. A. GIE. Greffe par impaction pour déficience acétabulaire dans l'arthroplastie par prothèse totale dans la maladie luxante de la hanche.

En cas de luxation congénitale négligée de la hanche, l'anatomie pathologique impose souvent une chirurgie reconstructrice, afin d'augmenter le capital osseux du cotyle lors de la mise en place d'une prothèse totale de hanche. Une étude rétrospective a été effectuée sur 11 hanches chez 10 patients ayant présenté une arthrose secondaire à une dysplasie congénitale de la hanche. Toutes avaient bénéficié de la mise en place d'une prothèse totale de la hanche utilisant la greffe par impaction du cotyle au moyen de la tête fémorale autologue morcelée. L'âge moyen lors de l'opération était de 43,4 ans (extrêmes : 29 et 60 ans) et le suivi moyen a été de 3,8 ans (extrêmes : 2 et 7 ans).

L'évaluation fonctionnelle pré- et post-opératoire a été effectuée en utilisant le score de Merle d'Aubigné et Postel modifié par Charnley. Elle a montré des résultats très satisfaisants. Le suivi radiographique a révélé une bonne incorporation de tous les greffons. Un cas d'échec au niveau de la cupule prothétique a été noté. Aucune complication importante n'a été rencontrée et aucune reprise n'a été effectuée.