Letter to the Editor


This excellent article suggests that, in non-ambulatory patients with cerebral palsy, total hip replacement (THR) is an attractive solution which can improve the situation of these severely disabled adults. For patients still able to walk, total hip replacement is not controversial in case of painful or unstable hip; but proximal femoral resection (PFR) is too often considered the only solution for hip pain in non-ambulatory neurologic patients, whether the etiology is cerebral palsy, post-traumatic paraplegia or other.

From reading the article, we have a number of comments to make, concerning: (1) the respective risk/benefit ratios of PFR and THR; (2) the operative technique, on both the femoral and the acetabular sides; and (3) surgical decision-making.

1. Risk/benefit ratio

The authors’ hypothesis is that THR is “more effective than PFR in relieving pain, without aggravating disability”. Methodologically, their level-IV study is unable to test such a hypothesis; that would have needed either a level-II prospective comparative study of THR versus PFR, or at least a level-III retrospective case–control study with reference to the literature, which provides important points of comparison to Morin et al.’s series.

Concerning the analgesic impact of the procedure, for Wright et al. [1] PFR abolished pain in only 12 out of 19 cases, with 5 revisions surgeries being required. For Morin et al., 37 out of 40 cases were pain-free postoperatively, and it can be concluded that THR is more effective against pain than PFR.

We feel that the complications rate, of 15/40 with 8/40 requiring revision, deserves more attention, notably in the Abstract and/or Discussion, where it is dealt with summarily. In this indication, THR, while more attractive than PFR, is associated with a complications rate that argues for caution: we would suggest that the procedure requires a multidisciplinary team experienced in this treatment.

Concerning the risk of postoperative complications, the article by Kolman et al. [2] was probably too recent for the authors to be able to use, but provides a systematic review of hip treatment options in patients with cerebral pathology, comparing PFR, valgus osteotomy, THR, femoral resurfacing with humeral implant, and fusion. Their Table 1 collates complications in non-ambulatory patients, with 75 complications in 313 PFRs (24%), 42 in 126 valgus osteotomies (33%), 6 in 17 THRs (35%), 4 in 14 femoral resurfacing plasty with humeral implant (28.5%) and 16 in 17 fusions (94%). It is noteworthy that, with 14 complications in 40 THRs (35%), Morin et al. have exactly the same rate as in Kolman et al.’s review [2]. For comparison between THR and PFR to be complete, it would have been useful to point out that the complications rate after PFR (24%) is slightly lower than after THR (35%) in this population.

Moreover, the authors give no explanation for the fact that verticalization was lost in 5 out of 10 patients: have the figures been inverted in Table 1? The reader might have expected some comment on this in paragraph 2 of the Discussion...

2. Surgical technique

The surgical technique is fairly well described, but a few details are lacking.

It should be stressed that 3-dimension muscle balance around the hip needs to be optimized for the patient to enjoy maximum benefit and to limit the risk of implant dislocation, which always exists even with dual-mobility models, especially in patients who are often unable to comply with instructions for due carefulness and are sometimes epileptic. This requires surgery on retracted soft tissue: the hip adductor and flexor muscles, which need lengthening. This seems not to have been necessary in Morin et al.’s series, thanks to shortening of the proximal femoral shaft.

We consider that acetabular preparation should respect the lateral cortical wall of the acetalbar fossa, where penetration can lead to medial migration of the cup, as may be feared looking at Fig. 6 (although the incidences are not the same in Fig. 6a and b), more than persistent muscle imbalance (“the muscle relaxation provided by shortening can reduce the risk of intrapelvic implant migration”).

THR as a revision procedure following PFR with residual pain is always more difficult technically; the prosthetic femoral head may be difficult to lower into the acetabular cup, and there is a greater risk than in primary THR of stretching the sciatic or common peroneal nerve in so doing. Here, the authors mention femoral shortening during implantation as a solution to both problems, although it seems more a solution for lowering the head than for exposing the acetabulum, which can always be achieved posteriorly in case of significant acetabular anteversion.

The authors also raise the technical problem of the sizes of currently available implants for these patients with very small acetalbula and femurs; preoperative CT assessment of the acetabular transverse curvature radius, anterolateral acetabular coverage and the femoral canal is indispensable to avoid an intraoperative impasse.

3. Surgical decision-making

Morin et al.’s series showed pain alleviation without significant functional gain. The authors therefore recommend the procedure, which we also use in our own center, only after a decision in the
neuro-orthopedic disability multidisciplinary team meeting in all cases. We feel that surgery should be discussed on a case-by-case basis with the patient and a family member or a member of the care staff in daily contact with the patient, in a meeting with all those involved: at the very least, the orthopedic surgeon and physiotherapist, plus a neurologist and psychologist if possible.

Disclosure of interest

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The other authors declare that they have no competing interest.

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