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CORR Insights®: Does Surgeon Experience Impact the Risk of Complications After Bernese Periacetabular Osteotomy?

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Where Are We Now?

Osteotomy to improve a dysplastic hip with undamaged cartilage can prolong the lifespan of the patient's native hip. However, osteotomy of the hip, particularly the Bernese periacetabular osteotomy (PAO) [1], is technically demanding. Recently, I had the opportunity to attend a lecture by Prof. Kjeld Søballe, who presented a mini-

mally invasive Bernese PAO approach [3] and its results. At 5 years followup [4], the hip joint survival rates were 97% in 165 patients in the minimally invasive group and 93% in 98 patients in the ilioinguinal group. There were no moderate or major short-term complications in the minimally invasive group and 3% in the ilioinguinal group [4].

The Bernese PAO requires an experienced surgeon because the nerves and vessels are in close proximity, and the osteotomy itself must be created and positioned with great precision. More than many procedures, this one calls for skill, dedication, and poise on the part of the surgeon.

Although the results of the current study cannot be generalized in a straightforward manner, it reports that two young surgeons performed the

Bernese PAO with a similar frequency of major complications compared to more experienced surgeons (6% with no residual disability 1 year after the operation). The young surgeons required less time for the operation as they increased their number of operations performed, suggesting that experience indeed improved their efficiency.

Where Do We Need To Go?

The aim of osteotomy in the treatment of hip dysplasia is to change the existing geometry that causes unfavorable stress distribution. Hypothetically, the augmentation of an acetabular roof would redistribute load on the hip joint to a larger load-bearing area and relieve the cartilage. However, to validate this, the effect of the changed geometry should be quantitatively analyzed in relation to long-term clinical outcome. Retrospective biomechanical studies using standard anteroposterior radiograms from archive and mathematical models would be appropriate for this purpose.

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Some evidence on the favorable effect of the Bernese PAO on the peak hip stress has already been reported [2], but in order to get a more-decisive answer regarding how best to achieve the desired postoperative geometry, future studies should involve larger populations and explore additional biomechanical parameters. Researchers should continue to develop mathematical models so we can use their predictive value in preoperative planning. Such analyses should help the surgeon to better understand the mechanisms relevant to postoperative remodeling and loading of the hip.

How Do We Get There?

Treating the dysplastic hip by Bernese PAO requires a highly-skilled and dedicated surgeon with a thorough knowledge of anatomy, biomechanics, and the natu-

ral history of the condition being treated. The surgeon should be supported by equally dedicated scientists. The growth of the population, however, will likely require more such individuals, and it remains to be seen whether it will be possible to meet that demand.

As we try to meet that demand, inevitably some of the surgery will be done by younger and less-experienced surgeons. For this reason, the results of the current study are so important; we need to know more about the skill and training needed to successfully perform Bernese PAO. It will be important to track the results over the longer run of procedures performed earlier on surgeons' learning curves. Future studies should examine the long term follow up on the rate of cartilage degeneration, patients' reports of pain and physical activity, and the usage of further operative treatment, especially among those patients whose proce-

dures were performed by surgeons earlier in their careers.

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