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High complication rate in the early experience of minimally invasive total hip arthroplasty by the direct anterior approach

Sir—There are several advantages with the direct anterior approach for total hip arthroplasty. However, it is technically demanding with its own unique set of complications which implies a substantial learning period (Masonis et al. 2008, Barton and Kim 2009, Bhandari et al. 2009, Goytia et al. 2012).

A recent report in the *Acta Orthopaedica*, titled “High complication rate in the early experience of minimally invasive total hip arthroplasty by the direct anterior approach” (Spaans et al. 2012) presents the early results of the direct anterior approach, which showed no improvement in functional outcome and a higher early complication rate compared with the posterolateral approach. The authors found no learning effect regarding operating time, blood loss and hospital stay after 46 cases.

Several studies have shown that the learning curve of the anterior approach requires more than 46 patients. During this learning curve, the complication rate is higher because of the technical difficulties. The complication rate, operating time and blood loss diminish after the surgeon has gained more experience (Masonis et al. 2008, Berend et al. 2009, Bhandari et al. 2009, Seng et al. 2009, Goytia et al. 2012).

Spaans et al. report the use of a minimal invasive technique. In fact the anterior approach itself is not a minimal invasive technique and the incision sometimes needs to be enlarged to obtain a good view of the operative field. When a surgeon starts with the direct anterior approach, we would always advise to not to use the minimal invasive technique.

Readers may interpret the Spaans et al. article as showing the direct anterior approach for total hip arthroplasty gives a higher complication rate than the posterolateral approach. However the high complication rate in their study seems to be due to the effect of the learning curve and the use of a minimal invasive approach, instead of the use of the direct anterior approach. The learning curve is not unique for the direct anterior approach (Salai et al. 1997). Also the posterior approach is a technical demanding procedure with its own set of complications and indeed its own learning curve. Moreover, the learning curve is longer when using a minimal invasive technique (Swanson 2007).

Y.M. den Hartog and S.B.W. Vehmeijer

Department of Orthopedics, Reinier de Graaf Hospital, Delft, the Netherlands

Correspondence: yvondenhartog@hotmail.com

Sir—As Hartog and Vehmeijer write, the direct anterior approach for total hip arthroplasty has a major disadvantage; it is technically demanding. As we tried to explain in our article (Spaans et al. 2012), the learning curve of the direct anterior approach is long. Every new operation technique is associated with a learning curve. The question raises how many patients a surgeon would like to expose to this learning curve. Especially when he masters another surgical approach, with good results and a low complication rate.

How long is the learning curve for performing the direct anterior approach for total hip arthroplasty? According to Woolson et al. (2009) and D’Arrigo et al. (2009) the learning curve comprises 20–30 patients, but it in our hands it apparently exceeded 46 patients with still long operation time and increased blood loss. This has also been reported by other authors: Goytia et al. (2012) found their learning curve to be around 60 patients, Bhandari et al. (2009) described a decreased complication rate first after more than 100 cases.

Even when an experienced orthopedic surgeon changes an approach, a learning curve is present. We found it unacceptable to subject more than our 46 patients to a new technique with more complications than we observed in patients operated through our regular posterolateral approach. That was the reason we finished the direct anterior approach. Any surgeon who considers to change the approach for hip arthroplasty should be aware that this very likely will result in a longer operation time and higher complication rate in not a small number of patients. The message of our study was that surgeons, even with a lot of experience and good results with one approach for total hip arthroplasty, should really consider the value of changing their standard approach to a new and technically difficult operation, especially when the potential advantage of the new technique has not yet been proven which is the

case with the direct anterior approach. It may be unethical to subject patients to a long learning curve when there is a good alternative operation available. Further studies should reveal the true value of direct anterior approach for hip arthroplasty and we would encourage all orthopedic surgeons to share their clinical results with this technique, especially in comparison to a posterior approach.

A.J. Spaans, J.A.A.M. van den Hout, S.B.T. Bolder

Department of Orthopaedic Surgery, Amphia Hospital Breda

Correspondence: annespaans@gmail.com

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