

**LOW FRICTION ARTHROPLASTY:  
A COMPARISON BETWEEN THE TRANSTROCHANTERIC,  
LIVERPOOL AND HARDINGE APPROACHES**

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Total hip replacement is one of the most successful and rewarding operations ever developed. Vast numbers of patients have enjoyed the enormous benefits of an artificial hip joint. This surgery has undergone considerable evolution during the past 20 years; not only have a large number of prosthesis designs been developed but a large number of surgical techniques and approaches have been described.

The transtrochanteric approach provides an excellent exposure of the acetabulum and a better placement of prosthesis. However, union of the osteotomised fragment does not always occur: the rate of non-union has been variously reported to be between 5% and 32%. Alternatives to the transtrochanteric approach have been suggested. In order to evaluate the relative merit of different approaches, I compared the results of the lateral approaches, namely: Transtrochanteric, Liverpool and Hardinge approaches.

The present study aims to observe the effect of lateral approaches on the clinical and radiological results.

Of the 354 LFA's performed at the Clatterbridge Hospital between 1987 and 1989, 264 were selected for this study: 82 - Hardinge (HA), 94 - transtrochanteric (TT) and 88 - Liverpool approaches (LA). To maintain the groups comparable, I have considered only Primary LFA performed for osteoarthritis and excluded the groups: rheumatoid arthritis, secondary osteoarthritis, previous hip operations, LFA followed by deep infection.

**RESULTS**

1. Clinical Results:

- a) There was no difference in respect of pain relief, improvement in walking ability and gain in movement at the hip joint among these three approaches.
- b) Abduction function (Trendelenburg test) was unaffected by the type of approach.

2. Radiological Results:

- a) Prosthetic Alignment: The stem alignment was better in transtrochanteric compared to the other two approaches.

Cups were more superficial in the Liverpool approach. In all other parameters there was no significant

difference between the approaches.

- b) Cement distribution: Insufficient cementation was encountered more frequently in the acetabulum (Hardinge approach).
- c) Evidence of loosening:  
Stem: None of the cases showed radiological failure.  
Cup: Significant socket demarcation (DeLee Type III) was twice as common in the Liverpool approach than in the other two.
- d) Trochanteric healing: Bony union was seen in 87% in the Transtrochanteric group and 83% in the Liverpool group. The greater the trochanteric displacement, the more likelihood there is of an unsatisfactory lurching gait.
- e) There was no statistical difference in the incidence of Infection, Thromboembolism, Haematoma and Dislocation.
- f) Ectopic bone was seen in 42% in this series. More extensive bone formation (Brooker Grade III and IV) was seen five times more in the Liverpool approach than the other two approaches.

#### CONCLUSION

Trochanteric approach provides an excellent access to the acetabulum. Trochanteric fixation is an unsolved problem. Trochanteric detachment with a malalignment of the component is associated with a high risk of dislocation.

Good exposure is possible in the Liverpool and Hardinge approach. Radiological results can be improved with better surgical techniques. High incidence of ectopic bone formation in the Liverpool approach cannot be related to the duration of the surgery.