Acta Orthop. Belg., 2011, **77**, 258-259

TECHNICAL NOTE

Another string.... but no bow

Connor GREEN, Diarmuid MOLONY, James CASHMAN, Tom BURKE, Eric MASTERSON

From Croom Orthopaedic Hospital, Co. Limerick, Ireland

Based on a positive personal experience, the authors advocate the use of a wound protector/retractor such as the Alexis system in total hip arthroplasty, to avoid intra-operative bacterial contamination from the skin, while avoiding damage to the skin and other soft tissues.

Keywords : wound protector/retractor; total hip arthroplasty.

INTRODUCTION

Safe tissue retraction and exclusion of skin edges from the operative field remains a fundamental step in total hip arthroplasty regardless of the surgical approach. A number of techniques have been advocated to achieve each of these goals.

Charnley recognised the importance of contamination in joint replacement surgery, maintaining that the main source of infection was in the theatre (*2*). One of the main sources of intraoperative bacterial contamination in arthroplasty is the skin of the patient (*3,5*). To exclude the skin after preparation, surgical incise drapes with iodine or antibiotic impregnation are in common use. These devices are designed to provide a sterile surface all the way to the wound edge and therefore keep microbes from the wound. However, despite best efforts these drapes are inevitably reflected from the wound edges intraoperatively exposing the potentially infective skin edges.

Retraction of the skin edges and fascia lata is ideally assistant-free with devices like the Charnley bow retractor. However, these devices are not without problems and can cause damage to the skin edges, fascia, muscles and nerves with incorrect placement or overzealous traction (*1*).

Wound protectors/retractors such as the Alexis system have been shown in other surgical specialties to reduce wound trauma and infection rates (*4*). There has been no previous description in the literature of the use of such devices in orthopaedics. In our unit we have been using a wound protector/retractor for total hip arthroplasty.

This retractor is constructed of an inner and an outer malleable plastic rings interconnected by a plastic drape. It functions as an assistant-free retractor of skin, subcutaneous tissues and fascia lata but also has the advantage of completely excluding these layers from the operative field. It has no sharp edges, as is the case with traditional retractors and so cannot cause the tissue and neurological damage associated with malposition of such retractors (*1*).

SURGICAL TECHNIQUE

In our institution our standard draping routine encompasses placement of a antimicrobial surgical

■ Connor Green, MB BCH BAO MRCSI MCh MSc, Specialist Registrar.
■ Diarmuid Molony, FRCSI MCh, Specialist Registrar.
■ Tom Burke, FRCSI, Consultant Surgeon.
■ Eric Masterson, FRCSI, Professor of Orthopaedics.
Department of Trauma and Orthopaedics, Croom Orthopaedic Hospital,Co. Limerick, Ireland
Correspondence : Mr. Connor Green, Department of Trauma and Orthopaedics, Croom Orthopaedic Hospital, Co. Limerick, Ireland. E-mail : connorjgreen@gmail.com

No benefits or funds were received in support of this study

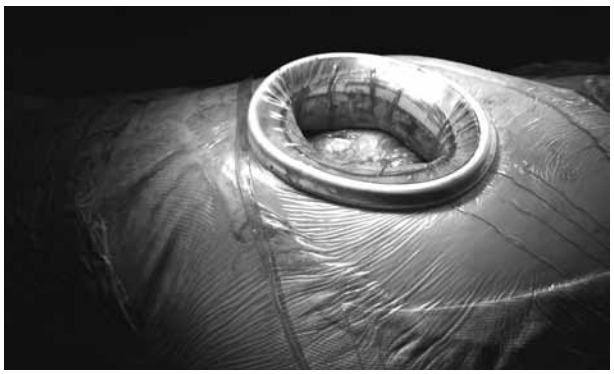

Fig. 1. — Retractor *in situ* during anterolateral approach

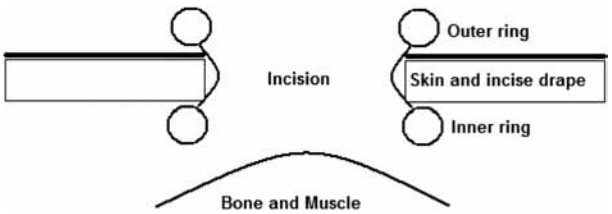

Fig. 2. — Diagrammatic representation of retractor arrangement.

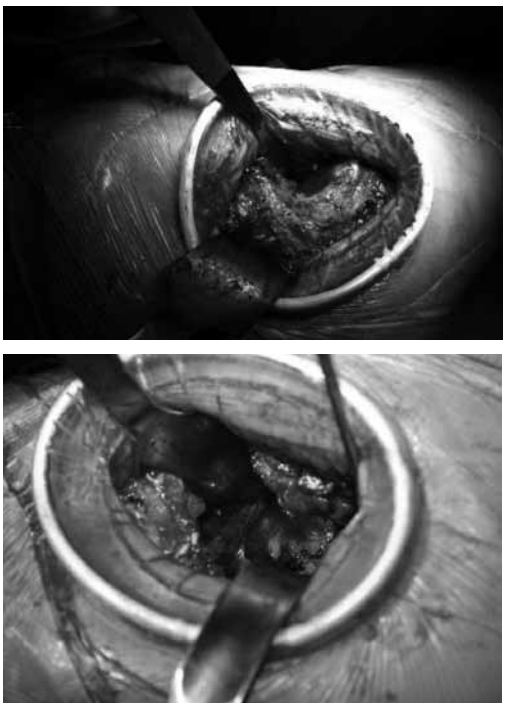

Fig. 3. — Exposure for femoral and acetabular preparation

incise drape over the operative site. We make our standard surgical incision depending on surgical approach to be used and divide the fascia lata in the appropriate plane. We next abduct the leg to reduce tension on the fascia lata and place the inner ring deep to it. The leg is now adducted by placing it back on the operating table thus applying tension to fascia lata, fitting the inner ring snugly deep to it. The outer ring is now held by surgeon and assistant and rolled, tightening the intervening plastic drape which retracts the wound edges and secures the device in place (Fig. 1). The free skin edge is now completely excluded, trapping it between the surgical incise drape and retractor (Fig. 2). This position of the outer ring also prevents reflection of the surgical incise drape which can often occur as it looses its adhesive properties interoperatively as saline and blood infiltrate it.

Deep surgical dissection can now proceed in a standard fashion through an exposure equal to that achieved with traditional retraction methods (Fig. 3). We use a broad Homann's to protect the retractor while rasping the femur but no other adjustments to the surgical technique were required. Care must also be taken with the electrocautery to avoid inadvertent thermal damage to the retractor.

We have found this a useful technique that fulfils the fundamental requirements of tissue retraction and exclusion of skin edges in an assistant-free manner. This should help to reduce retractor mediated tissue damage and nerve injury further and enhance asepsis by keeping the skin edges excluded.

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