

## Case note

# The use of the shuttle lock system for problem trans-femoral suspension

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### Introduction

The standard suspension for the elderly trans-femoral amputee in Dundee is the Totally Elasticated Suspension (TES) belt used in conjunction with a hand wrapped ischial containment socket.

Two patients with specific suspension problems are presented in whom an ICEROSS suspension sleeve with shuttle lock mechanism was used to resolve their difficulties.

### Case 1

MG is a 61 year old arthrosclerotic amputee who, following a right popliteal by-pass graft, required a left auxiliary bifemoral by-pass. Unfortunately there was a problem with healing and the vascular graft became exposed in the left groin. The vascularity of the tissue below the transverse abdominal scar was severely compromised and on surgery, it was found there was no viable rectus muscle remaining. The abdominal skin was utilised as a trans-position flap based on the contralateral superficial inferior epigastric vessel.

The wound margin of the flap, however, underwent necrosis and further exposure at the graft and the rectus femoris muscle flap was utilised to cover the vascular implant. The wound at the right leg, however, failed to heal and amputation was required.

The result was a very tender heavily scarred abdominal wall which could not tolerate a belt of any sort (Fig. 1). Management was by way of an ICEROSS suspension sleeve with the shuttle

lock incorporated within the thigh section of the prosthesis.

The prosthesis was a hand wrapped ischial containment type thermoplastic socket attached to a Blatchford semi-automatic knee lock and multiflex foot.

The patient found this easy to apply and lock and it also gave excellent suspension and comfort resulting in no pressure on her abdomen and no pain over the grafted scarred abdominal area.



Fig. 1. Case 1 showing extensive abdominal wounds which inhibited standard waist belt suspension.

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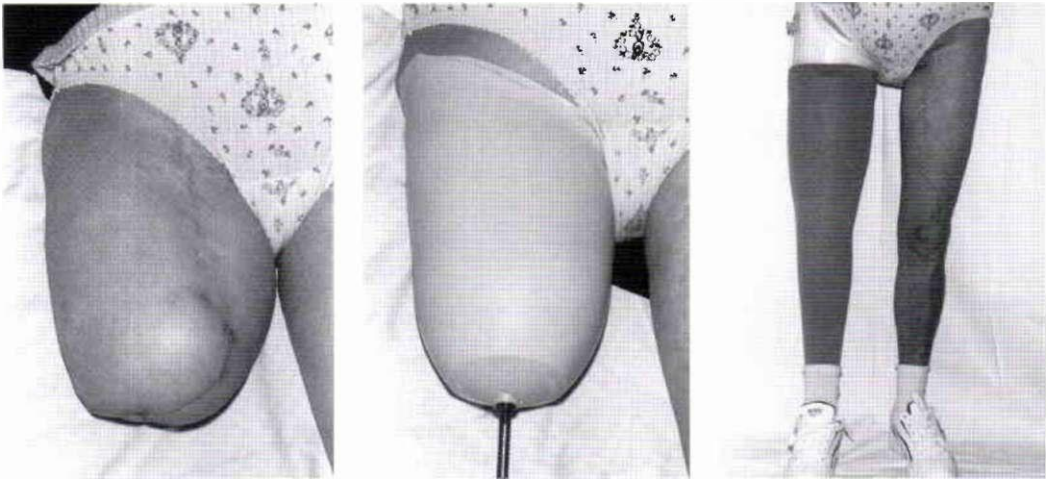


Fig. 2. Case 2: (a) stump; (b) ICEROSS fitted to the stump; (c) completed limb.

### Case 2

CL is a 70-year-old arthrosclerotic trans-femoral amputee with an extremely short conical shaped stump. Suspension and stump location was considered to be difficult for a standard prosthesis with a waist belt. An ICEROSS suspension sleeve with a shuttle lock system gave her sustainable suspension when using a combination with a similar prosthetic construction to Case 1 (Fig. 2a).

Donning was initially a little difficult due to the changing volume of the stump but with practice improved and now she is completely independent.

### Discussion

The TES elasticated sleeve has been used in Dundee for some years and has proved extremely popular in preference to the polypropylene waist band. Total suction sockets are not easy for elderly people to apply in the

primary situation with early loss of suction due to stump shrinkage. The shuttle lock system has proved extremely successful in these two cases, where despite some shrinkage taking place suspension has been retained. They are a little difficult to apply but with practice the patients demonstrated above have managed extremely well.

There are several shuttle lock systems on the market, each having their individual merits. In these two cases ICEROSS was used.

The use of a sleeve with shuttle lock system for the trans-femoral amputee is thus advocated for those to whom suspension is a problem, either because of the stump shape and size or the unsuitability of a waist belt or abdominal support as a result of scarring.

Pressure on auxiliary and femoral grafts by the waist belts may cause compression and compromise the limb circulation. In these circumstances this system is also recommended.