

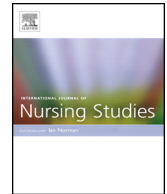


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The impact of hand reflexology on pain, anxiety and satisfaction during minimally invasive surgery under local anaesthetic: A randomised controlled trial[☆]

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ABSTRACT

Background: Elevated patient anxiety during surgery is linked to a range of suboptimal treatment outcomes. Reflexology has been reported to be effective in reducing pre and post-operative anxiety and post-operative pain.

Objectives: To explore whether the addition of hand reflexology to treatment as usual during minimally invasive varicose vein surgery under local anaesthetic impacted upon patient reported anxiety and pain during surgery, and patient satisfaction with treatment.

Design: Randomised controlled trial.

Setting: Private outpatient clinic specialising in venous conditions.

Participants: 137 participants were assessed for eligibility. One hundred patients were recruited (mean age 47.8 years, 83% female). Participants received endovenous thermal ablation and/or phlebectomy for the treatment of varicose veins. Inclusion criteria included age (between 18 and 80) and receiving endovenous thermal ablation and/or phlebectomy for the treatment of varicose veins under local anaesthetic. Exclusion criteria included the presence of leg ulcers and receiving microsclerotherapy or foam sclerotherapy treatments, being unwilling to enter into the randomisation process and arriving late at the clinic.

Methods: Participants were randomly allocated to either treatment as usual (control group) or intra-operative hand reflexology during minimally invasive varicose vein surgery under local anaesthetic. Participants in the reflexology group received a session of intra-operative hand reflexology which began in the operating theatre, prior to analgesic injections and continued until surgery was complete. It was not possible to blind the participants, researchers or theatre staff to group allocation due to the modifications required to the operating theatre for participants in the reflexology group. The researcher could not be blinded due to the role they played in the trial organisation.

Results: Of the 137 participants screened for eligibility, 7 participants declined to participate and a further 30 did not meet the inclusion criteria, giving a recruitment rate of 93%. Fifty participants were randomised to the reflexology group and fifty participants were randomised to the control group. Intra-operative anxiety was significantly lower in the reflexology group (mean score of 3.24 on an 11-point rating scale) than the control group (mean score of 5.0, $p < .001$).

[☆] This work was presented at the Spring Venous Forum, London, April 2014 as a poster presentation.

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Conclusions: Intra-operative hand reflexology is a useful adjunct to local anaesthetic varicose vein surgery, with participants in the reflexology group reporting significantly lower intra-operative anxiety and shorter pain duration than participants receiving treatment as usual.

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What is already known about the topic?

- Patients can experience anxiety before and also during minimally invasive surgery under local anaesthetic.
- Intra-operative interventions can be useful in helping to manage such anxiety.
- Reductions in anxiety during surgery can have a positive impact on patient experience.

What this paper adds

- The addition of intra-operative reflexology to treatment as usual during minimally invasive varicose vein surgery under local anaesthetic can be beneficial for the management of anxiety and pain.

1. Introduction

Advances in surgical and anaesthetic practice have led to a rise in the frequency and range of procedures now performed under local, rather than general anaesthetic (Gilmartin and Wright, 2007). Local aesthetic surgery offers advantages to patients over traditional general anaesthetic methods including lower reported post-operative pain and faster recoveries (Lurie et al., 2003; Rassmussen et al., 2011), yet for some patients the prospect of being conscious during surgery can provoke anxiety (Mitchell, 2003; Wetsch et al., 2009). Potential stressors associated with local anaesthetic surgery include worries relating to the sounds and sights of the operating theatre (Mitchell, 2008), feeling the surgeon's touch (Mitchell, 2009) and concerns regarding anaesthesia (Sirin et al., 2012).

Surgery for the treatment of varicose veins in particular has experienced a transformation over the last decade. Traditionally varicose veins were treated through surgical stripping of the great saphenous vein under general anaesthetic. This procedure involved a hospital stay and a lengthy and often painful recovery (Rautio et al., 2002). Today, varicose veins can be treated using minimally invasive techniques under local anaesthetic (Rassmussen et al., 2011). Early research into the experience of such surgeries from the patients' perspective has revealed that anxiety is common before and during surgery (Hudson et al., 2015a).

Not only is anxiety unpleasant for patients, but a consistent relationship has been observed between surgical anxieties, pain during and after surgery (Carr et al., 2005), increased analgesic requirements (Powell et al., 2012), and delayed recovery (Mavros et al., 2011). Heightened anxiety has a series of physiological and behavioural consequences including immune function

suppression (Broadbent et al., 2012), hyperactivation of the hypothalamic–pituitary–adrenal axis (Tsigos and Chroisos, 2002), and increased focus on threatening stimuli (Bar-Haim et al., 2007). Furthermore, increased anxiety has been reported to reduce pain thresholds and is implicated in elevated pain intensity estimates (Crombez and Eccelstone, 1999; Seidman et al., 2014).

Attention is increasingly being paid to non-pharmacological methods of anxiety and pain management in surgical settings. The use of interventions such as pre-operative music, (Cooke et al., 2005), intra-operative audio-visual stimuli (Man and Yap, 2003), and post-operative massage (Bagheri-Nesami et al., 2014), have been found to reduce patient reported pain and anxiety. With regards to patients undergoing varicose vein surgery under local anaesthetic, intra-operative interventions (using stress balls, watching a DVD and interacting with nurses) have been found to be effective for pain and anxiety management (Hudson et al., 2015b).

One intervention that has received little attention in research relating to conscious surgery is reflexology. Reflexology is a form of massage which can be applied to the hands or feet. The use of reflexology has been found to lead to reduced patient reports of anxiety in surgical contexts, both before and after surgery (Bagheri-Nesami et al., 2014; Brand et al., 2013; Loving, 1999; Ucuza and Kanan, 2014). In contrast, systematic reviews (Ernst, 2009; Ernst et al., 2011) suggest that the current body of evidence does not “demonstrate convincingly” reflexology's benefits. Thus, firm conclusions regarding the utility of reflexology in medical settings have not yet been reached.

The mechanisms underlying the effects of reflexology are also not clearly understood. Attentional models of pain perception attribute any pain reduction experienced in response to reflexology to the cognitive refocusing that occurs in response to distraction (Ruscheweyh et al., 2011). It could be that the increase in large nerve fibre activity experienced as a result of the tactile stimuli delivered during reflexology could activate inhibitory inter-neurons and block the projection of painful sensations to the brain (Melzack and Katz, 2004). It has also been hypothesised that reflexology may facilitate relaxation and the subsequent release of endorphins which modulate pain-impulse transmission and inhibit pain perception (Loving, 1999). Finally, it has also been suggested that any positive effects experienced in response to reflexology are due to the nature of relationships developed between patients and reflexologists, rather than specifics of the intervention themselves (Ernst, 2009; McCaffrey et al., 2007). However, this holistic approach allows patients to benefit from both pharmacological and non-pharmacological methods of pain and anxiety management.

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