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# Implementation of modified manual lymphoedema treatment — complex physical therapy (MLT-CPT) in terminally ill patient

## Abstract

Lymphoedema is a common symptom of advanced cancer, which may significantly decrease the patient's quality of life. The aim of lymphoedema treatment is to reduce swelling, prevent recurrent pooling of fluid and make the patient feel more comfortable. Lymphoedema is managed using a combination of physiotherapeutic strategies including skin care, exercise, manual lymphatic drainage, massage and support or compression therapy.

In this article we present a case of advanced cervical cancer patient, whose painful tension of the skin due to lymphoedema was successfully reduced by multi-layer bandaging and limbs elevation.

**Key words:** lymphoedema, palliative care

## Introduction

Lymphoedema is a chronic swelling arising from the accumulation of extracellular fluid and other tissue elements that would otherwise be drained via the lymphatic system. It can be an extremely disfiguring condition, usually affecting a limb, which often causes discomfort and pain and sometimes is complicated by recurrent infections [1]. It may be primarily due to an inherent or congenitally determined defective lymphatic system, or secondary associated with obliteration or obstruction of lymph channels from extrinsic factors such as infection, surgery or radiation [2]. Secondary lymphoedema is much more common than the primary one. There is a growing number of lymphoedema cases in the course of neoplastic disease, either due to direct

lymphatic invasion or as the complication of oncological treatment [3]. In cancer, lymphoedema is caused by damage to the lymphatic system as a result of surgery, radiotherapy or progression of the neoplastic disease. However, in advanced cancer several concurrent factors usually contribute to the formation of oedema. Hypoproteinaemia and anaemia may promote swelling of legs as a result of a "high output failure" of lymph drainage. Other factors exacerbating lymphoedema, thus making the treatment difficult, are: chronic renal failure, deep vein thrombosis (DVT) and immobility [4]. Therefore, in advanced cancer the lymphoedema management remains to be a challenge for health care professionals. It really reflects the principles of palliative care focusing on the palliation of physical symptoms and maintenance of independence for as long

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as possible [5]. The main aim of lymphoedema treatment in the palliative care setting is to improve the patient's quality of life. In 2003, International Society of Lymphology (ISL) published its recommendations for lymphoedema therapy [6]. They are accepted in many countries around the world [7].

Physiotherapy recommended by ISL, called a manual lymphoedema treatment — complex physical therapy (MLT-CPT), consists of manual lymphatic drainage, compressive bandaging, decongestive exercises and meticulous skin care [6, 7]. MLT-CPT is often modified in advanced cancer patients to achieve symptom management without decreasing their quality of life. Brennan reports that pain and discomfort associated with lymphoedema are common [8]. Patients with lymphoedema and active cancer are more likely to experience pain (67%) and tightness (43%) in affected limb than those with inactive [4].

Most of the pain presented as a deep ache with or without tightness is related to the increased tissue pressure. Therefore pain and discomfort related to lymphoedema should be managed primarily by controlling the lymphoedema [9, 10].

In this article we present the case of advanced cervical cancer patient, whose painful skin tension, associated with lymphoedema was successfully reduced by multi-layer bandaging and limbs elevation.

## Case report

A 51 year old woman was admitted to Palliative Care Unit from Urology Department in a poor general condition, suffering from ascites, lower limbs lymphoedema and abdominal pain with nausea and chyme vomiting. She also complained of limb skin and subcutaneous tissue pressure pain due to lymphoedema.

In July 2005 she was diagnosed with cervical cancer with local infiltration and peritoneal cavity metastases. She was admitted to Urology Department because of the aggravation of chronic renal failure by the development of left hydronephrosis. During hospitalization the patient underwent left nephrostomy which caused the increase of diuresis (up to 1300 ml a day) and the decrease of creatinine concentration in blood. Afterwards the patient was transferred to Palliative Care Unit for further symptom management.

Abdominal pain, nausea and vomiting were successfully treated with subcutaneous morphine (20 mg a day) and metoclopramide (30 mg a day). However the pain associated with lymphoedema was

not satisfactorily controlled and required implementing physiotherapy. Initially the physiotherapist assessed the patient's functional condition and tissue swelling. The aim of therapy was to decrease skin and subcutaneous tissue pressure pain and as a result to improve the patient's quality of life. Due to the poor general condition, the patient's active participation in the treatment was expected to be minimal. She suffered from large pitting lymphoedema with positive Stemmer's sign. Oedema did not change its size during the day or at night. The skin was dry without hyperkeratosis. Detailed limbs measurement was not carried out because of patient's unsatisfactory condition. The measurement was taken only on four levels: C<sub>0</sub> — circumference above ankles, C<sub>1</sub> — circumference below the knee, C<sub>2</sub> — circumference above the knee and C<sub>3</sub> — circumference below the buttock fold.

The therapy started with left limb multi-layer compression bandaging, elevation and skin care (white soft paraffin was applied).

Multi-layer compression bandaging consists of four stages. The first stage — bandaging the toes using 5 cm retention bandages. The second — applying a layer of tubular retention bandage. The third — reshaping and protecting the limb using appropriate padding (extra layers were used in the popliteal fossa, along the tibial crest and the dorsum of the foot). The last stage — applying low stretch bandages. Due to the risk of ascites aggravation, initially only the left limb was bandaged.

Next day, the oedema was assessed to reduce by about 20%. The abdomen circumference did not change and diuresis increased. Therefore the physiotherapist decided to use multi-layer bandaging with the right limb as well. The following day left limb oedema reduced by about 30% and the right one by about 20%. Moreover, the patient claimed that the tissue pressure pain lessened. During the following days the oedema reduction reached 35% in both limbs.

Later, the bandaging type was changed (from compression to supportive one). The patient was very satisfied with the effects of physiotherapy as skin pressure diminished. Multi-layer bandaging was continued until the patient's death two weeks after her admission to Palliative Care Unit.

## Discussion

Lower limb lymphoedema in patients with advanced cancer significantly decreases their quality of life. It causes discomfort, decreases physical activity and increases dependence on others [11]. The

effectiveness of MLT-CPT has been confirmed by numerous studies carried out among breast cancer patients. Fewer trials have been undertaken to investigate secondary lymphoedema phenomenon caused by gynaecological cancers. Even smaller number of studies referred to lymphoedema in end-stage terminally ill patients. The aim of lymphoedema therapy in these patients is to make them feel more comfortable. Therefore regular reassessment is needed so that the treatment can be adjusted as their condition progresses [2].

In the case presented above the physiotherapist decided not to use either manual lymphatic drainage or decongestive exercises due to the patient's poor general condition (low physical function, difficulties with keeping the correct position needed for manual drainage). The treatment led to both positive subjective (better pain control and quality of life improvement) and objective results (reducing lower limbs volumes).

Several authors have shown the impact of lymphoedema treatment on pain reduction [12, 13]. However only a few studies on lymphoedema in advanced cancer have been published [5]. There is a great need of exchanging experiences among health care professionals dealing with lymphoedema in a palliative care setting, as the treatment is different from typical MLT-CPT. Physiotherapists often have to simplify the management strategy and resign from some elements of typical MLT-CPT due to the patients' condition. Supportive bandaging is used much more frequently than the compression. The effectiveness evaluation is based on the assessment of pain and the quality of life. In palliative care there are a lot of factors making lymphoedema treatment difficult e.g. hypoproteinaemia, late stage chronic renal failure or deep vein thrombosis (DVT). However, it should not be neglected because lymphoedema treatment is extremely important as it allows to

avoid complications such as: lymphorrhoea, neurological deficit and inflammation.

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