CASE REPORT

Treatment of lower extremity oedema by subcutaneous drainage in a home hospice patient

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SUMMARY

Lower extremity oedema is common in patients with advanced illness and can normally be managed with oral diuretics and elevation of the involved extremities. The management of oedema can be more complicated in home hospice patients, however. They tend to be more frail and are often less able to tolerate usual interventions. We present a case of a home hospice patient with severe oedema treated by creating subcutaneous tracts in his legs to allow drainage of excess interstitial fluid. The procedure was very successful in improving the patient's quality of life.

BACKGROUND

Severe lower extremity can be an intolerable symptom at the end of life, causing discomfort and impeding mobility. The differential diagnosis of oedema is broad with the most common causes being lymphatic blockage, hypoalbuminaemia or cardiac, renal or liver disease. Oedema occurs when there is increased vascular leakage, reduced venous capillary resorption or reduced oncotic pressure because of hypoproteinaemia.

There are generally two treatments for oedema—diuresis and mechanical (elevation of the affected limbs, compression and exercise). Although generally effective in relieving symptoms, these modalities may not be appropriate in frail hospice patients who are at a greater risk of complications.

CASE PRESENTATION

A 71-year-old man was admitted to our home hospice programme with a diagnosis of multiple myeloma. He also had a history of a pathologic hip fracture, oxygen-dependent chronic obstructive pulmonary disease, obstructive sleep apnoea, severe aortic stenosis and moderate tricuspid regurgitation.

His lower extremity oedema was so severe that the skin was continually oozing fluid and he could stand for not more than short periods of time using a walker with the help of his wife. In fact, the patient reported difficulty in even lifting his feet off the bed. The oedema was refractory to his usual doses of diuretics and elevation of his legs.

We considered several treatment options, none of which were acceptable for the patient. We discussed doing more aggressive diuresis, but were loath to do so because we were afraid the patient would fall trying to get to the bathroom or commode. His caregiver was his frail wife who would not be able to safely help him toilet. In addition, he did not want a Foley catheter. We offered the patient admission to our hospice inpatient unit where we

could perform aggressive diuresis in a controlled environment, but he was adamant about not leaving his home and about not getting any more laboratory tests (we wanted to get bloodwork to evaluate his renal function prior to diuresis).

The patient was willing to try 'anything' that may help with the stipulation that he remain at home. He agreed to allow subcutaneous drainage of the fluid.

TREATMENT

Markings were made mid-thigh, 5 cm below the knee, mid-calf, ankle and dorsum of each foot (figure 1). A sterile technique was used to insert five 22-gauge butterfly needles at each site that were then allowed to drain into absorbent sterile pads (figure 2).

The needles were anchored with a tape; but, because the skin was oozing, several needles became dislodge during the first day. These needles were removed and the fluid was allowed to drain through the subcutaneous tract that was created. The other needles were removed after 3 days.

OUTCOME AND FOLLOW-UP

The procedure was successful in removing fluid (table 1). His symptoms were also improved as the

Figure 1 Needle drainage of subcutaneous fluid.

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Figure 2 Drainage of subcutaneous fluid into absorbent pads.

patient could now move from bed to chair, whereas previously he was limited to standing and pivoting with maximal assistance.

DISCUSSION

Severe lower extremity oedema can have a very detrimental impact on the quality of life. Although usual measures are often

effective in treating symptoms, they may be less effective in hospice patients who are more frail and who often want to minimise the disruptions in their daily life.

Although diuresis and mechanical interventions such as elevation and compression remain the mainstay of oedema management, clinicians have a few other options available to them. Mercadante *et al*¹ described successful diuresis with high-dose furosemide and hypertonic saline infusion in advanced cancer patients who had been refractory to diuretics. Although this option was considered, our patient's unwillingness to have blood work or a Foley catheter to be placed and his high fall risk precluded aggressive diuresis at home.

There have been a few published cases describing the use of subcutaneous drainage of lower extremity oedema in patients with cancer.^{2 3} The majority of patients had improvement in symptoms and weight loss similar to our patient. The difference between our patient and those, however, is that those patients were all admitted to the hospital for treatment. Our patient was adamant that he did not want to be admitted. By draining his oedema at home, we were able to improve his symptoms and quality of life, while respecting his desire to remain at home where he died approximately 2 weeks later.

Learning points

- ▶ The goal of hospice care is to maximise the quality of life in patients with life-limiting illness
- ▶ Severe lower extremity oedema can have deleterious effects on the patients' quality of life
- ▶ Drainage of subcutaneous oedema by the creation of subcutaneous tracts can be effective in treating the symptoms associated with refractory oedema
- ▶ This procedure can be done safely in the outpatient setting by a nurse, thereby allowing hospice patients to remain in their home

Table 1 Lower extremity fluid loss after needle drainage

	Measurement prior to procedure	Measurement three days later	Difference
Weight (kg)	120.7	117.5	−3.2
Right thigh (cm)	55.9	53.3	−2.6
Left thigh (cm)	55.9	49.5	6.4
5 cm below right knee (cm)	50.8	48.3	−2.5
5 cm below left knee (cm)	48.3	43.2	−5.1
Right calf (cm)	55.9	53.3	−2.6
Left calf (cm)	49.5	48.3	−1.2
Right ankle (cm)	40.6	40.6	–
Left ankle (cm)	37.5	34.9	−2.6
Right foot (cm)	34.9	33.7	−1.2
Left foot (cm)	34.9	33	−1.9

Competing interests None.

Patient consent Obtained.

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