

# Outcomes of Radiotherapy for Ledderhose disease (Plantar Fibromatosis) of the feet

Richard Shaffer<sup>1,2</sup>, Immanuel Jeevarathnam<sup>1</sup>, Chelsea Freeland<sup>2</sup>, Louise Pardon<sup>2</sup>

1. Royal Surrey County Hospital, Guildford, Surrey, United Kingdom 2. GenesisCare UK

## Aim

Plantar Fibromatosis (Ledderhose disease, LD) is a benign hyperproliferative condition of the fascia of the sole of the foot, histologically identical to Dupuytren's disease of the hand. It manifests as lumps on the sole of the foot and can cause significant functional impairment due to pain and large lumps. Surgical excision and plantar fasciectomy have high recurrence rates, and fasciectomy is very morbid.

Radiotherapy (RT) was found to be the highest rated treatment in a survey of more than 1000 patients [1]. We carried out an audit to assess the effectiveness of radiotherapy for Ledderhose disease in our institution for patients treated from 2011 to 2016.

## Methods

Each patient was seen by the oncologist, and the presenting history, comorbidities (including associated conditions), family history, and environmental causes for Ledderhose disease were elicited. Each patient was examined to establish the diagnosis. Some patients were imaged with MRI or ultrasound, particularly those with unilateral disease and no associated conditions.

Radiotherapy was given in two phases of 15 Gy in 5 fractions over 1 week, with approximately a 3 month gap between the phases (total dose 30Gy in 10 fractions). A direct field of electrons (generally 6MeV with 5mm bolus) or 140kV photons were used, defined as palpable disease + 1.5cm (for kV) or 2cm (for electrons). A personalised shield was used for each patient.

Structured questionnaires were sent at 3 months, then every year. The questions covered side-effects (including radiation-induced carcinoma), disease status, and functional status.

## Results

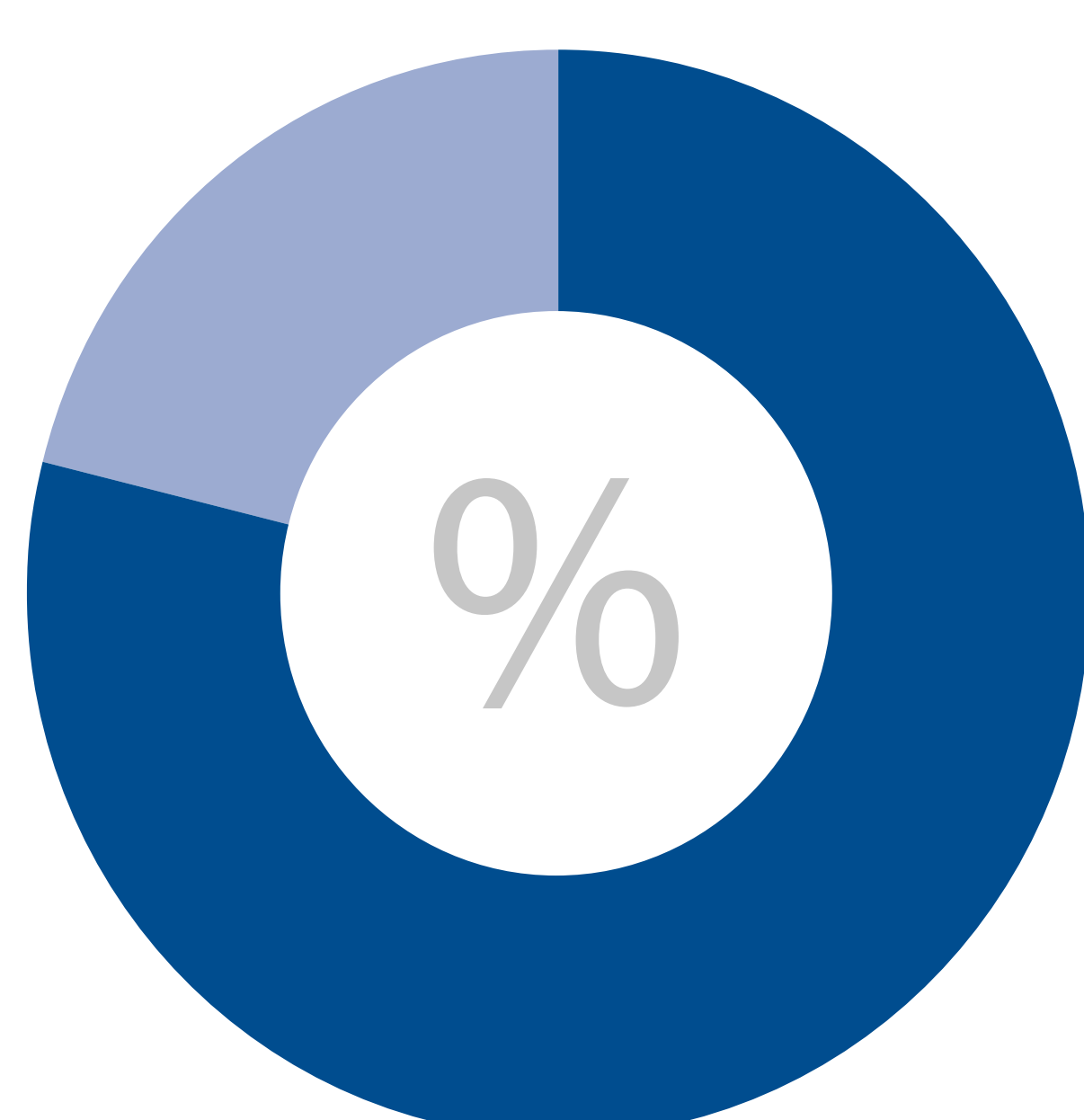
Fifty-two patients were treated with RT for LD between 2011 and 2016, 24 of whom returned at least one questionnaire. Their average age was 52 years (range 23 – 74 years), 6 male and 18 female, average follow-up 2.2 years (range 1-5).

Indications for treatment (often multiple) were; pain in 19/24, reduced mobility in 8/24, large or growing nodules in 23/24. One foot was treated in 16/24, and both feet were treated in 8/24. 10/24 were treated with 140kV photons, 13/24 with 6MeV electrons (with 0.5 cm bolus), and 1/24 with 6MV photons due to very extensive disease.

Side effects were seen in 6/24 (25%) patients; dry skin in 5/6 and pain in 1/6 patients. All were CTC grade 1. There were no reports of radiation-induced carcinoma.

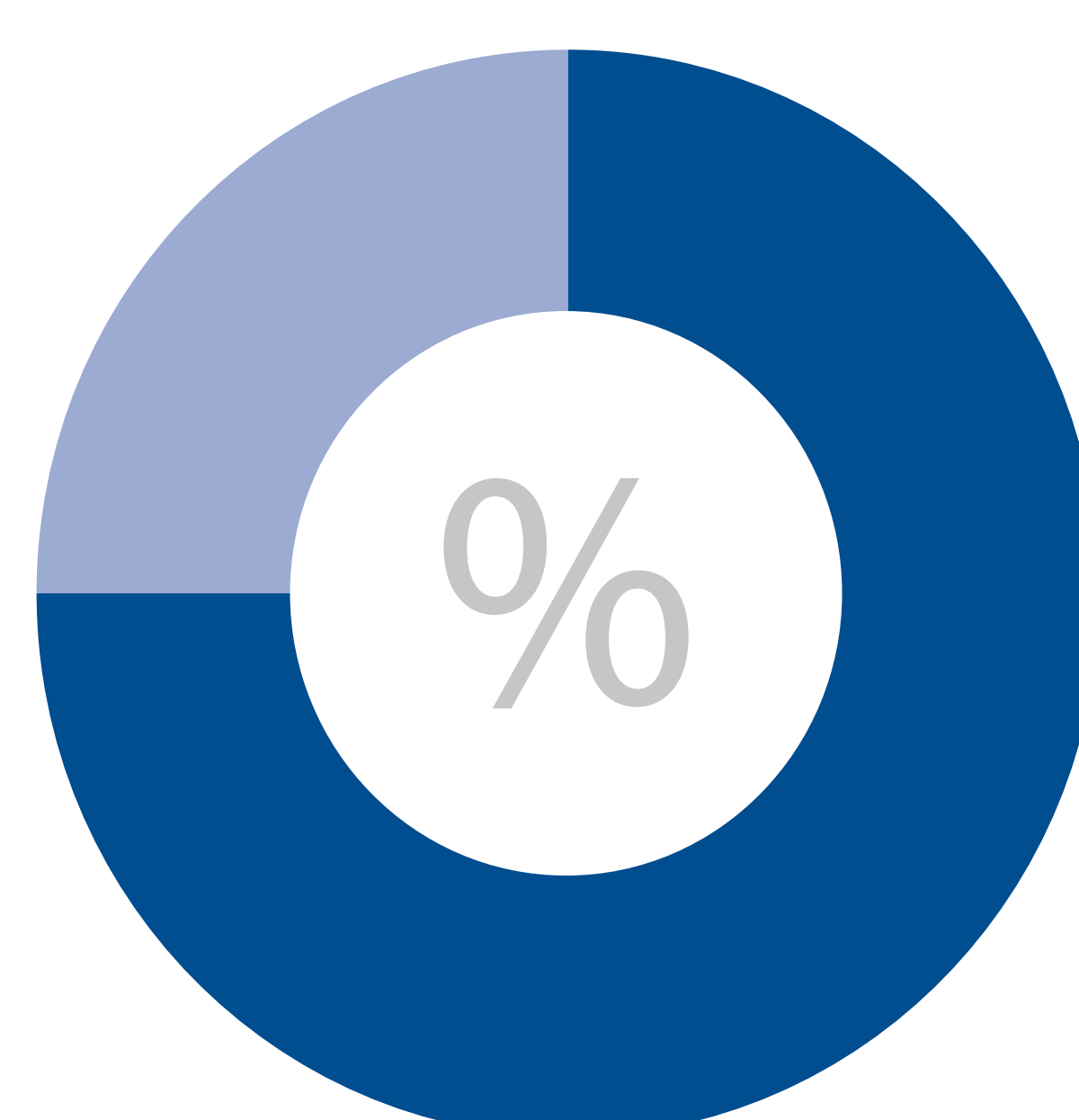
Patients described their feet as being overall improved in 19/24 (79%) cases at latest follow up, with improvement in functionality in 18/24 (75%), improvement in nodules in 20/24 (83%), and reduction of pain in 17/24 (71%). None reported worsening disease or symptoms.

### Overall Improvement



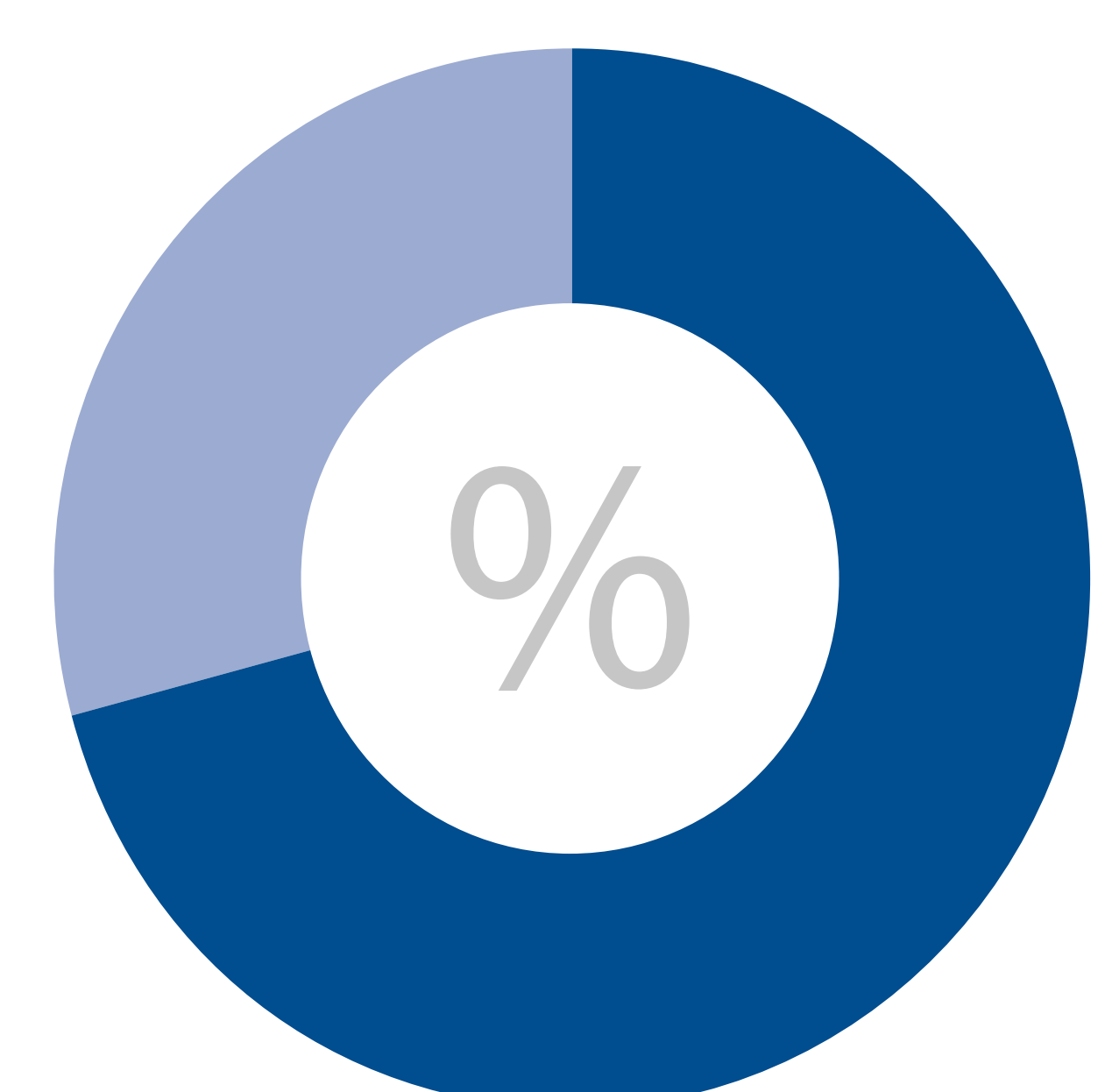
■ Yes - 79% ■ No - 21%

### Functional Improvement



■ Yes - 75% ■ No - 25%

### Reduction of Pain



■ Yes - 71% ■ No - 29%

## Conclusion

Radiotherapy is an effective treatment for Ledderhose disease, and causes minimal side-effects.

## References

[1] Schurer et al. International Patient Survey (Part 2: Ledderhose Disease). In: Werker et al. Dupuytren Disease and Related Diseases – The Cutting Edge. Springer 2017. Page 371-379.

Genesis Care is a trading name of Genesis Cancer Care UK Limited. Registered Office: Wilson House, Waterberry Drive, Waterlooville, Hampshire PO7 7XX. Company registration number: 05796994. Registered in England & Wales.

