

Clinical Protocol for Radiotherapy for Plantar Fasciitis and Achilles Tendonitis

UK

1. Introduction and Purpose

To provide clear instructions on the clinical assessment, referral and radiotherapy treatment of patients with Plantar Fasciitis and Achilles Tendonitis.

2. Terms and Definitions

PF – Plantar Fasciitis

AT – Achilles Tendonitis

MLC – Multi-leaf collimator

OMS – Oncology management system

ClinOnc – Clinical Oncologist

2.1. Plantar fasciitis (PF) and Achilles Tendonitis (AT)

Plantar Fasciopathy, also known as PF, is a benign inflammatory and degenerative condition of the plantar fascia that causes heel pain. Achilles tendonitis (AT) refers to the tendon connecting the heel to the calf.

The main cause is mechanical overload of the plantar fascia or the achilles tendon, which may be caused by obesity, prolonged standing and walking, intense exercise, and biomechanical disturbance of the foot.

With conservative treatment, including resting, icing, stretching and better footwear, 80% of patients have complete resolution of pain within 6 - 12 months. However, those whose pain does not resolve may need further treatment.

3. Policy – Treatment Considerations

In those who have "resistant" PF/AT i.e. those who have failed conservative treatment for at least 6 months, two randomised trials have shown a significant

benefit of radiotherapy over either sham (very low dose) radiotherapy or steroid injection.

Treatments for resistant PF/AT include:

- Extracorporeal Shockwave Therapy – This is widely used and funded, and can be very helpful for some patients, although the evidence is equivocal, and it may be painful.
- Steroid injections – May provide short-term relief from pain but risks plantar fascial rupture.
- Surgery – Case series but no randomised evidence and may be associated with complications.

4. Patient Selection

4.1. Inclusion criteria

a. Pre-consultation

The patient is sent a pre-consultation questionnaire, asking for demographics, insurance, previous treatment etc. prior imaging and report when available should be brought to the consultation.

b. Initial consultation

The patient is seen in clinic by the oncologist. A full history is taken, including the presenting complaint and prior treatment for plantar fasciitis or Achilles tendonitis, past medical history, whether they have had prior radiotherapy, or have pacemaker

The patient is examined to see if their pain is compatible with plantar fasciitis or Achilles tendonitis. If there is a site of particular tenderness then this is drawn, photographed, and documented.

c. Diagnostic imaging

- a. If they have not already had diagnostic imaging, then most patients will undergo a diagnostic ultrasound by the Clinical Oncologist
- b. Some may need further radiological investigation e.g. X-ray, MRI
- c. If a diagnosis of plantar fasciitis is confirmed, then treatment options are discussed. Treatments options will include radiotherapy
- d. Repeating radiotherapy

For patients who have tolerated the first course of radiotherapy a repeat course may be considered

4.2. Radiotherapy Dataset

Essential:

1. Radiotherapy Referral detailing site and laterality.
2. Either - Pre-consultation questionnaire returned from patient stating site and laterality, or – clinic annotation from consultant stating site and laterality.

Desirable:

1. Any previous imaging reports relevant to diagnosis, this will usually be ultrasound.
2. Referral letter from referring specialist to Clinical Oncology where available.

4.3. Consent

As per GenesisCare Consent form for Dupuytren's disease, Ledderhose disease, Plantar Fasciitis (RT-TEM-207).

4.4. Scheduling of Patients

A next-day planning/ treatment pathway is available at GenesisCare UK.

Cases may start any weekday – preferably not Friday.

5. Patient Positioning and Localisation

Site	Immobilisation Device	Set-up	CT planning scan	Localisation	Reference mark location
Plantar Fasciitis/ Achilles Tendonitis	Vacbag to be made prior at CT Affected limb to be stabilised in vacbag on top of indexed kneefix & 2 risers	Pt supine Feet towards gantry Pt indexed & off -set using localisation bar Unaffected limb to bent at knee to avoid concomitant dose. *Clearance to be checked*	Scan limits: Superiorly up to mid-calf. Inferiorly to clear the entire foot by 3cm. Wire area of pain at CT Protocol: 'AbdoPelvis' with manual adjustment of sup/inf border as above.	As marked by Clinical Oncology	Landmark reference line as appropriate e.g. mid separation heel-junction of 1st toe-> 2 nd toe Define proximal/distal and/or edge



6. Definition of Target

6.1. Target Volumes PF & AT

PF

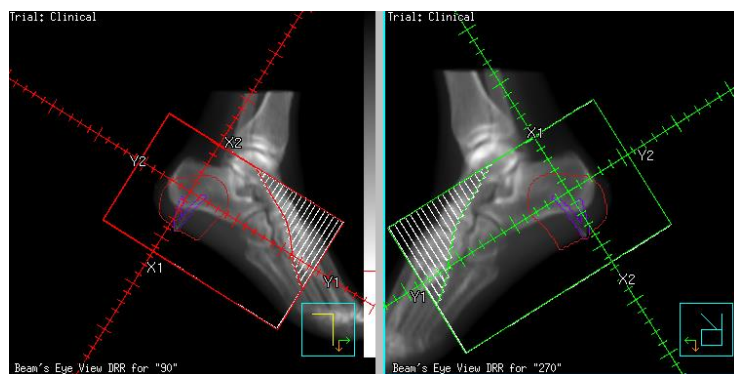
Fields cover site of pain plus 2cm all around entire heel and, calcaneus and cuboid and partial coverage of most distal metatarsal and soft tissue on underside of foot, MLC to shield other metatarsals and navicular and talus.

AT

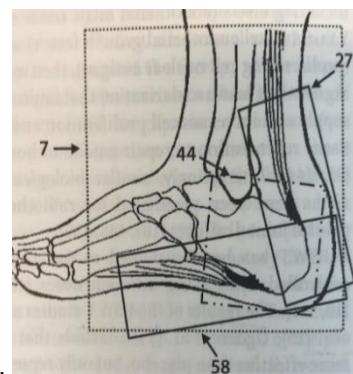
Fields cover site pain plus 2cm margin include insertion and lower portion of Achilles tendon

Modality; 6MV photons with parallel opposed lateral fields

PF



AT



6.2. Organs at Risk

- not applicable

6.3. Prescription Dose

- Standard dose = 6Gy in 6 fractions over 3 weeks i.e. 2 fractions per week
- Dose may be given over 2 weeks i.e. 3 fractions per week
- Dose may be lowered to 3Gy in 6 fractions if pain of short duration

6.4. Plan approval

- Prescription and V-sim sign off as plan approval

7. Pre-treatment Quality Assurance

- Not applicable

8. Pre-treatment Verification/ Checks

Treatment verification is to be undertaken day 1 prior to treatment using 2D imaging.

9. IGRT

- 2D MV imaging daily, prior to treatment delivery, using pre-port.

10. Image Review

- Follow process in iView Image Verification Work Instruction (RT-WI-415)

11. Treatment Delivery

- Radiotherapy Treatment Policy (RT-POL-014)
- Weekly patient review documented in OMS

12. Other Considerations

Follow up appointments:

- At 3 months after the end of treatment
- Follow up then yearly for 4 years

13. References

1. Niewald M, et al. Randomized, multicenter trial on the effect of radiation therapy on plantar fasciitis (painful heel spur) comparing a standard dose with a very low dose: Mature results after 12 months' follow-up. *Int J Radiat Oncol Biol Phys* 2012; 84: e455-62.
2. Canyilmaz et al. Prospective Randomized Comparison of the Effectiveness of Radiation Therapy and Local Steroid Injection for the Treatment of Plantar Fasciitis. *Int J Radiation Oncol Biol Phys*, Vol. 92, No. 3, pp. 659e666, 2015.
3. Heyd et al. Radiation Therapy for Painful Heel Spurs. Results of a Prospective Randomized Study. *Strahlenther Onkol* 2007;183:3-9.
4. A review of the use of radiotherapy in the UK for the treatment of benign clinical conditions and benign tumours. London: The Royal College of Radiologists, 2015
5. Dupuytren's radiotherapy consent form (RT-TEM-207)
6. Radiotherapy Treatment Policy (RT-POL-014)

14. Appendix

No appendices applicable for this document.

RT-PRO-296

Document Owner: Head of Radiotherapy
Document Authoriser: Radiation Oncology
Committee
Version Number: 3.1

First Issued: March 2019
Date Next Review: September 2023
Date Last Review: September 2021



Revision History

Version	Date Created	Created By	Description of change
1.0	March 2019	Portfolio Lead Radiotherapy	New Protocol
2.0	May 2019	Portfolio Lead Radiotherapy	Document reviewed and updated
3.0	July 2020	Rory Walford – Skin & Benign Specialist Radiographer	Document update
3.1	September 2021	Mark Bowler, Head of Radiotherapy	Annual review