Worcestershire Acute Hospitals NHS Trust

Extensor Tendon Mallet Injuries (Zone I & II) Conservative treatment

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

Introduction

This guideline covers the conservative treatment of closed mallet deformities with or without fracture; referred to the hand therapy department in Worcestershire Acute Hospital Trust. It is important the injury is supported by the appropriate splint. An ill-fitting splint will impact on the healing process and therefore result in substandard outcomes for the patient. It is therefore recommended the patient journey is monitored to ensure good support throughout the healing process, to guide the patient whilst weaning off splinting and returning to normal activities to prevent relapse.

This guideline is for use by the following staff groups:

- Therapists who have undertaken a period of supervised practice in this field within the previous two years.
- Junior therapists and occupational therapy technicians who have undertaken basic training in hand therapy should be supervised by an experienced therapist who has held a caseload in this area within the previous 2 years.

Lead Clinician(s)

An Van Hyfte	Clinical specialist Occupational Therapist
Approved by Clinical Governance for Hand Therapy	18th June 2025
Review Date: This is the most current document and should be used until a revised version is in place	18th June 2028

Key amendments to this guideline

Date	Amendment	Approved by:
June 2025	Document was reviewed and compared to latest research/ No alterations required.	An Van Hyfte

Worcestershire Acute Hospitals NHS Trust

Extensor Tendon Mallet Injuries (Zone I & II)
Conservative treatment

Introduction

A mallet deformity is a flexion deformity due to the inefficiency or disruption of the continuity of the dorsal extensor apparatus over the Distal Inter-Phalangeal joint (DIPj). The patient is unable to actively extend the DIPj. The injury may be open or closed; and with or without a fracture/fracture dislocation. Closed injuries are commonly managed conservatively. Open injuries, large fracture dislocations and chronic injuries may require surgical intervention.
The mechanism of Injury in closed injuries is a sudden flexion force of the extended fingertip. Hyperextension or crush injuries can cause articular fractures. Open injuries are usually caused by high energy trauma or direct laceration. Lateral bands are usually damaged during twisting injuries or direct laceration.
There is consistent evidence in literature that closed injuries are successfully managed conservatively. This guideline covers the conservative management for closed soft tissue mallets and mallets with an avulsion fracture.

Details of Guideline

Treatment

Immobilisation phase: Bony mallets 6 weeks Soft tissue mallets 8 weeks	**Intervention**
Education	• Explain anatomy and function • Explain healing timescales and risks of failed outcome • Educate about signs of infection and skin care • Explain oedema management/ Encourage elevation • Safely donning/doffing splint & routine splint/skin care advice
Splint	Patient to be fitted with stack splint in order to keep DIP-joint in neutral position. Splint to be worn continuously and to be removed only for skin care. A custom-made splint should be provided if the off-the-shelf stack splint does not fit or if the PIP joint is blocked Splint to be worn for 6 weeks for bony mallets, 8 weeks for soft tissue mallets. If patients present with hyper extension of the PIP, then an oval-8 splint should also be fitted to correct the hyper-extension in the PIP joint. Patients will have to wear this in combination with the stack splint for 6-8 weeks.
Exercise	Patient to mobilise MCP and PIP joints.
Function	• Light hand function only with splint in situ. • May return to office work depending on tasks that the patient is required to perform.
1-2 weeks post splint fitting	Consider review to check splint, pain, oedema, skin integrity and compliance.

Mobilisation Phase Bony mallets 6 weeks- Soft tissue mallets 8 weeks of full time splinting	Intervention
Education	• Explain extension lag –causes, reporting, prevention • Importance of slow progression • If lag develops, return to the previous phase and stop exercises • If skin on dorsal DIP joint is tight or inflamed due to internal scar tissue, advice scar management techniques. Refer to patient information leaflet for scar management.
Splint	If acceptable/no lag, discontinue daytime splinting, continue with night-time splinting and splinting in vulnerable situations for a further 2 to 4 weeks. If an extension lag persists or increases with exercise, consider delaying the mobilisation phase and recommend continuous splinting for a further 2 weeks.
Exercises:	Active DIP, PIP flexion and extension, full fist formation and hook. Emphasise DIP extension during exercise.
Function	Continue light activities only.
12 weeks post injury	• Discontinue night splinting. • Introduce passive flexion if required. • Patient to return full activities and manual labour. Contact sport and climbing should be avoided for 4-6 months.

Monitoring

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the Policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: *(Responsible for also ensuring actions are developed to address any areas of non-compliance)*	Frequency of reporting:
	WHAT?	**HOW?**	**WHEN?**	**WHO?**	**WHERE?**	**WHEN?**
	• Time frame of treatment • General adherence of guideline • Outcome • Any deviation clarified	Audit	Yearly as part of the notes audit	Senior therapists	Results to be discussed in the clinical governance group for hand therapy	Yearly

References

- Cook S., Daniels N. and Woodbridge S. (2017) 'How do Hand therapist conservatively manage acute closed mallet finger? A survey of members of the British Association of Hand Therapists', *Hand Therapy,* 22 (1) 13-25
- Norfolk and Norwich University hospitals, Hand therapy guidelines, 'Adult Extensor Tendon Mallet Injuries (Zone I & II) Conservative treatment' (2017)
- Pike J, Mulpuri K, Metger M, Wells N and Goetz T. (2010), 'Blinded, Prospective, Randomized Clinical Trial Comparing Volar, Dorsal, and Custom Thermoplastic Splinting in Treatment of Acute Mallet Finger' 35(4), 580-588.
- Valdes K, Naughton N and Algar L. (2015), 'Conservative Treatment of a mallet finger: a systematic review', *Journal of hand therapy,* 28, 237-246.
- Wang J, Guo Q and Li B. (2012) 'Tendon Biomechanics and Mechanobiology—A Minireview of Basic Concepts and Recent Advancements', *J of Hand Therapy,* 25, 133-141.
- British Association of Hand Therapist – Trauma standards 2022, https://www.hand-therapy.co.uk

Contribution List

Contribution List

This key document has been circulated to the following individuals for consultation;

Designation	
Mr Simon	Orthopaedic consultant Worcestershire Acute Trust
Miss Henning	Orthopaedic consultant Worcestershire Acute Trust
Mr Weston	Orthopaedic consultant Worcestershire Acute Trust
Mr Knox	Orthopaedic consultant Worcestershire Acute Trust
Mr McKenna	Orthopaedic consultant Worcestershire Acute Trust
Mr Craig	Orthopaedic consultant Worcestershire Acute Trust
Mr Mehra	Orthopaedic consultant Worcestershire Acute Trust
Mr Munjal	Orthopaedic consultant Worcestershire Acute Trust
Mr Luscombe	Orthopaedic consultant Worcestershire Acute Trust
Mr Docker	Orthopaedic consultant Worcestershire Acute Trust
Mr Shahid	Orthopaedic consultant Worcestershire Acute Trust
Mr Aslam	Orthopaedic consultant Worcestershire Acute Trust
Mr Issac	Orthopaedic consultant Worcestershire Acute Trust
Mr Mahmood	Orthopaedic consultant Worcestershire Acute Trust
Mr Malik	Orthopaedic consultant Worcestershire Acute Trust
Mr Pearse	Orthopaedic consultant Worcestershire Acute Trust

This key document has been circulated to the chair(s) of the following committee's / groups for comments;

Committee
Clinical Governance group Hand Therapy
Clinical Governance for Occupational Therapy

Supporting Document 1 - Equality Impact Assessment Tool

To be completed by the key document author and included as an appendix to key document when submitted to the appropriate committee for consideration and approval.

Herefordshire & Worcestershire STP - Equality Impact Assessment (EIA) Form
Please read EIA guidelines when completing this form

Section 1 - Name of Organisation (please tick)

Herefordshire & Worcestershire STP		Herefordshire Council		Herefordshire CCG	
Worcestershire Acute Hospitals NHS Trust	V	Worcestershire County Council		Worcestershire CCGs	
Worcestershire Health and Care NHS Trust		Wye Valley NHS Trust		Other (please state)	

Name of Lead for Activity	**An Van Hyfte**

Details of individuals completing this assessment	**Name**	**Job title**	**e-mail contact**
	An Van Hyfte	**Clinical specialist Occupational Therapy**	**a.vanhyfte@nhs.net**
Date assessment completed	**18/06/2025**		

Section 2

Activity being assessed (e.g. policy/procedure, document, service redesign, policy, strategy etc.)	**Title:** Extensor Tendon Mallet Injuries (Zone I & II) Conservative treatment
What is the aim, purpose and/or intended outcomes of this Activity?	This is an evidence based guideline for the treatment and rehabilitation of patients who have had zone I-II extensor tendon injury in the hand.

Who will be affected by the development & implementation of this activity?	❑ V ❑ ❑	Service User Patient Carers Visitors	❑ ❑ ❑ ❑	Staff Communities Other _____
Is this:	❑ Review of an existing activity ❑ New activity ❑ Planning to withdraw or reduce a service, activity or presence?			
What information and evidence have you reviewed to help inform this assessment? (Please name sources, eg demographic information for patients / services / staff groups affected, complaints etc.	We have compared our guideline with the practice of specialist hand therapy units in Queen Elisabeth Birmingham, UHCW, Pulvertaft centre Derbyshire and have researched literature available on the British Association of Hand Therapists (BAHT) website and have conducted a literature search via Athens.			
Summary of engagement or consultation undertaken (e.g. who and how have you engaged with, or why do you believe this is not required)	Discussed with the main consultants and reviewed in the clinical governance meeting for hand therapy and occupational therapy			
Summary of relevant findings	Guideline written in accordance with best practice found in literature and specialist hand therapy units.			

Section 3

Please consider the potential impact of this activity (during development & implementation) on each of the equality groups outlined below. **Please tick one or more impact box below for each Equality Group and explain your rationale**. Please note it is possible for the potential impact to be both positive and negative within the same equality group and this should be recorded. Remember to consider the impact on e.g. staff, public, patients, carers etc. in these equality groups.

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Age	V			
Disability	V			
Gender Reassignment	V			
Marriage & Civil Partnerships	V			
Pregnancy & Maternity	V			
Race including Traveling Communities	V			
Religion & Belief	V			

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Sex	V			
Sexual Orientation	V			
Other Vulnerable and Disadvantaged Groups (e.g. carers; care leavers; homeless; Social/Economic deprivation, travelling communities etc.)	V			
Health Inequalities (any preventable, unfair & unjust differences in health status between groups, populations or individuals that arise from the unequal distribution of social, environmental & economic conditions within societies)	V			

Section 4

What actions will you take to mitigate any potential negative impacts?	Risk identified	Actions required to reduce / eliminate negative impact	Who will lead on the action?	Timeframe
	N/A	.		
How will you monitor these actions?	**By regular audit of notes, observed practice (please see monitoring section of the document)**			
When will you review this EIA? (e.g in a service redesign, this EIA should be revisited regularly throughout the design & implementation)	**June 2028**			

Section 5 - Please read and agree to the following Equality Statement

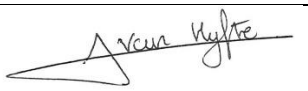
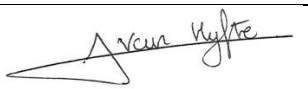
1. Equality Statement

1.1. All public bodies have a statutory duty under the Equality Act 2010 to set out arrangements to assess and consult on how their policies and functions impact on the 9

protected characteristics: Age; Disability; Gender Reassignment; Marriage & Civil Partnership; Pregnancy & Maternity; Race; Religion & Belief; Sex; Sexual Orientation

1.2. Our Organisations will challenge discrimination, promote equality, respect human rights, and aims to design and implement services, policies and measures that meet the diverse needs of our service, and population, ensuring that none are placed at a disadvantage over others.

1.3. All staff are expected to deliver services and provide services and care in a manner which respects the individuality of service users, patients, carer's etc, and as such treat them and members of the workforce respectfully, paying due regard to the 9 protected characteristics.

Signature of person completing EIA	
Date signed	18/06/2025
Comments:	
Signature of person the Leader Person for this activity	
Date signed	18/06/2025
Comments:	

Supporting Document 2 – Financial Impact Assessment

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources	No
2.	Does the implementation of this document require additional revenue	No
3.	Does the implementation of this document require additional manpower	No
4.	Does the implementation of this document release any manpower costs through a change in practice	No
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	No
	Other comments:	

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval.