Clinical audit of compliance with local and BAHT guidelines for extensor tendon repairs in zone V and IV

Amanda Kyle, Occupational Therapist, Welsh Centre for Burns and Plastic Surgery, Swansea Bay University Health Board, Morriston Hospital, Swansea, UK

Introduction:

Local guidelines for zone V and VI extensor tendon repairs undertaken by the Plastic Surgery Service at Swansea Bay University Health Board (SBUHB), require patients to be immobilised within the post-operative volar Plaster of Paris (POP) slab for three weeks. Followed by full mobilisation by a Hand Therapist. The British Association of Hand Therapists (BAHT) Trauma Standards of Practice[1] published in 2022 recommend that Hand Therapy is commenced before seven days post-operatively, and that a controlled protective active mobilisation regime is implemented.

Objectives:

This audit aimed to examine the compliance of SBUHB Hand Therapy service against local guidelines of commencing Hand Therapy input at three weeks post repair and the BAHT standard of commencing Hand Therapy input within seven days. The number of appointments attended by patients, number of weeks to discharge and the discharge destination was also reviewed. This project aimed to provide baseline information of current service provision and Hand Therapy resource allocation to inform future recommendations for clinical practice.

Methods:

A retrospective audit of the post-operative Hand Therapy for patients following zone V and VI extensor tendon repairs was completed through review of clinic record sheets, electronic records and the electronic clinic appointment system. The timing of the first Hand Therapy appointment was examined against the local guideline and BAHT standard. The number of appointments attended by patients, number of weeks from surgery to discharge from Hand Therapy, the discharge destination and the need for secondary surgery were also assessed.

Results:

34 patients had repair of extensor tendons in zone V and VI at SBUHB between May and October 2022. 30 patients were male and four female, with age ranging from 16 to 78 years (mean 45.8). 29 injuries were to a single digit, two injuries required extensor tendon repair to two digits, three digits were involved in one case, and two patients had extensor tendon repairs to all four fingers. There were 17 injuries to the index finger, 12 to the middle, nine to the ring and six injuries to the little finger extensor tendon. Five patients had underlying bony injuries to the metacarpals, two of which required internal fixation and three of which were treated conservatively.

Compliance with the local guideline was achieved with 27 patients (79%) who commenced hand therapy three weeks post surgery (+/- 3 days) (see Chart 1). Compliance with the BAHT Standard was achieved with one patient (3%) who commenced hand therapy within seven days (see Chart 2). Patients had an average length of follow up of 13 weeks as shown in Chart 3 (range 3 - 29 weeks) attending an average of 3 appointments (range 1 - 5) (see Chart 4).

Chart 1 - First appointment in 3 weeks +/- 3 days

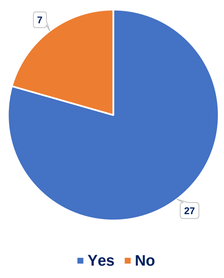


Chart 2 - First appointment within 7 days of surgery

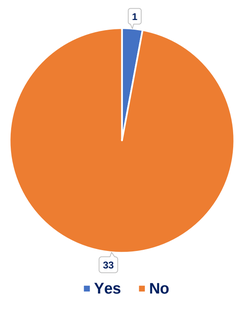


Chart 3 - Time to discharge (weeks)

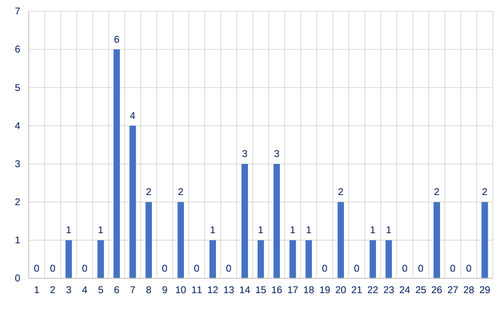
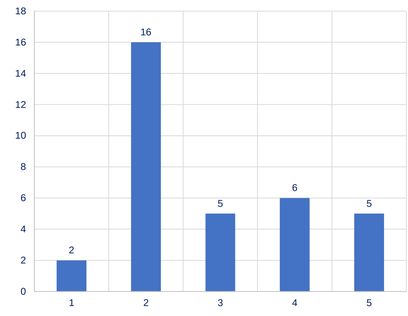


Chart 4 - Number of appointments



21 patients (62%) did not attend (DNA) Hand Therapy appointments and where subsequently discharged, a further three patients (9%) contacted the department stating they could not attend (CNA) Hand Therapy follow up as it was no longer required (see Chart 5). Of the remaining 10 patients, eight (23%) were discharged by a Hand Therapist directly back to General Practitioner care with no further follow up required. No surgical referrals were required due to tendon rupture, with two patients (6%) being referred to a Hand Surgeon for consideration of possible tenolysis procedure (see Chart 6). Both of whom had an associated underlying bony injury, with one patient proceeding with secondary surgery.

Chart 5 – Discharge outcome from Hand Therapy

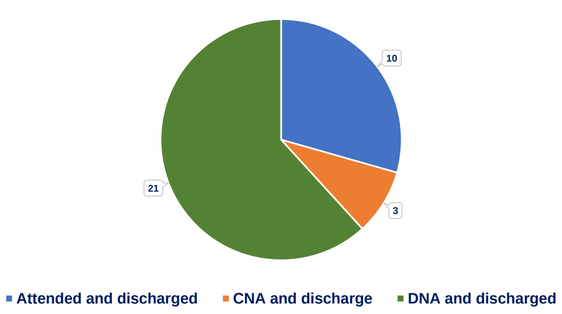
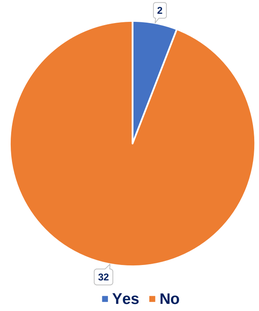


Chart 6 - Referred back to Hand Surgeon



Discussion:

This retrospective audit of clinical activity and discharge outcomes demonstrates that SBUHB Hand Therapy service is not in compliance with the BAHT Standard for zone V and VI extensor tendon repairs. This was an expected finding, due to the BAHT Standard not being adopted within SBUHB. However, compliance with the local guideline was also found to be limited at 79%. This can be attributed to inadequate clinical capacity, with a small number of designated Hand Therapists within the service resulting in limited capacity for provision of clinical cover during periods of annual leave, sickness and bank holidays.

It is recognised that there are significant limitations to the applicability of these findings in the clinical setting as no functional outcome data was available. The high number of patients lost to follow up make this a challenging area to collect and analyse outcomes to provide robust clinical recommendations. Clinical studies suggest that range of movement and return to work may be regained earlier with early active movement regimes[2,3,4,5]. However, no significant differences in long term outcomes have been demonstrated between immobilisation and early active mobilisation regimes[2]. In addition, the SBUHB immobilisation regime commences full active range of movement and light functional use of the hand at three weeks post repair, with regimes documented in the literature often requiring longer periods of protective splinting ranging from four to seven weeks[3].

Complex injuries requiring multiple tendon repairs, and those with underlying bony injuries were not excluded from this audit. Despite this, the average number of Hand Therapy appointments required remained three, with an average follow up time of 13 weeks. In addition, only two patients required a specialist Hand Surgeon referral. With no reported tendon ruptures, and only one patient proceeding to surgical intervention for scar adhesion release.

A significant increase in Hand Therapy resource would be required to enable compliance with the BAHT Standard. Limited clinical capacity currently impacts on the ability of the service to comply with the existing local guideline of commencing Hand Therapy at three weeks post repair. As a regional service, the geographical area covered by the Plastic Surgery Service at SBUHB also has an impact on patients' ability to attend for Hand Therapy due to the significant amount of time and the financial implications of travelling to appointments.

Conclusions:

Compliance with local guideline for the management of zone V and VI extensor tendon repairs was lower than expected at 79%. Improvements in compliance are expected through improved staffing levels and clinical capacity. However, significant investment in Hand Therapy resources would be required to enable compliance with the BAHT standard for this patient group with the need for earlier intervention, fabrication of protective splints and monitoring of more complex early active movement regimes.

Despite the lack of functional outcomes and low attendance rates of follow up appointments, the data collected from this audit suggests low complication rates with only six percent of patients requiring surgical review. With consideration of the Hand Therapy resource currently available and the findings of this audit, SBUHB have not currently adopted the BAHT standard (2022) and will continue with the local clinical guideline of immobilisation for three weeks post-operatively. Further data collection including objective measurements, functional and patient reported outcomes, and return to work timescales is recommended to further inform best practice and ensure the provision of value based health care for this patient group.

References:

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Un Bae Ar y Cyd
One Bay Way

Amanda.kyle@wales.nhs.uk

@MandyKyle8