Nailbed repair and patient satisfaction in children

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ABSTRACT

INTRODUCTION We performed an audit to assess frequency of injury to the nail bed and outcomes after repair in a busy paediatric hand trauma clinic.

SUBJECTS AND METHODS This retrospective study examines 46 consecutive nail bed repairs over a 6-month period. All notes were reviewed for patient demographics, details of the injury including the operation and aftercare. Telephone interviews were used to assess patient/parent satisfaction and complications.

RESULTS The commonest mechanism of injury was trapping a finger in a door. The accident usually occurred indoors and most frequently affected the middle finger. The majority of repairs were carried out under general anaesthetic, by registrars, using absorbable synthetic sutures, within 24 h of the injury as a day-case. Outcome data with a minimum of 15 months follow-up, showed a high satisfaction rate (8.9/10) and low complication rate (7%), none of which required further surgery. There was a high failure rate of attendance in the follow-up clinic whilst the outcomes of those attending were good.

CONCLUSIONS Outcomes and patient satisfaction were good with a low complication rate resulting in a change of practice in our unit to an 'opt-in' system for follow-up.

KEYWORDS

Nailbed – Injury – Satisfaction – Deformity

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The fingernail provides counter-support for the finger pulp, enhances tactile sensation, helps pinch grip and contributes to cosmesis.

Nail bed injuries are common.¹ Several authors^{2–4} have looked at conservative management and all have shown the high incidence of post-traumatic nail deformity and poor results of secondary repair. Timely surgical intervention with a knowledge of nail bed anatomy and physiology is important to minimise deformity and morbidity.^{5,6}

The purpose of this study was to assess the treatment and outcomes in a paediatric group of patients, under 16 years old, collate the number of do-not-attends and consider whether they need routine follow-up by a doctor.

Subjects and Methods

This retrospective study examined 46 consecutive nail bed injuries over a 6-month period, May–September 2005 using OPCS 10 codes for nailbed repair, S66.2. The nailbed lacerations were repaired with simple interrupted sutures using the surgeons' suture of choice to minimise scarring and nail deformity.

We included all patients up to 16 years old with isolated nailbed injuries and excluded patients with additional

injuries to the fingers or hand or those that did not attend a clinic for final outcome assessment or telephone consultation.

Case notes were reviewed, recording patient demographics, details of the injury and treatment. There was a minimum follow-up of 15 months (range, 15–21 months) to allow for full nail growth and return to usual activities with the finger. A telephone questionnaire was also used to assess long-term satisfaction. In a telephone interview, patients/parents were asked to grade the outcome which was measured using an arbitrary scale of 0–10 for overall pain, stiffness, sensation, appearance, satisfaction (where 10 was the worst pain, stiffest finger, *etc.*) and complications were also recorded.

Results

A total of 74 patients who had nailbed repairs were identified. Of these, four were over 16 years old and a further 24 cases were excluded, so 46 nailbed repairs in 46 patients were included in the study.

The mean age of the patients was 4 years (range, 9 months to 13 years; [Fig. 1]), 61% were male (28) and the middle finger was most commonly injured digit (37%) followed by the thumb (22%) and ring finger (15%) as shown

Figure 1 Age distribution.

in Figure 2. The dominant hand (65%) was injured more than the non-dominant hand when this was recorded, although over half the cases had no dominance stated or the child was too young to have developed one.

The majority of injuries occurred indoors (78%) and the mechanism was usually a door (74%). An underlying fracture was seen in 43% of cases, although none needed stabilisation. The type of injury was divided into three categories:⁵ simple laceration (91%), stellate lacerations (7%), and crush (2%).

Figure 2 Frequency of finger affected.

Despite 59% of the caseload originating from other hospitals, 94% were operated on within 24 h of injury and only one case (2%) required an overnight admission.

All but two cases received general anaesthetic because the majority were younger children and almost all cases were operated on by registrars (93%). Three-quarters of surgeons used Vicryl-Rapide® (Ethicon, 6-0 or 7-0) for the matrix repair and the remainder used 7-0 PDS® (Ethicon).

Over two-thirds of cases had the nail replaced as a splint and only a quarter used an analogue: 2% did not use a splint and 4% were not recorded.

Almost all cases (98%) were recommended for follow-up in the postoperative instructions, but only 72% had an appointment for the hand clinic and a third of those did not attend. Those who did attend were usually seen by the consultant (91%) whilst the remainder were seen by the registrar.

Pain was experienced in one case only (the patient complained of an aching pain in the affected digit when pressed firmly against a surface), but no patient had residual stiffness and all achieved a normal level of sensation in the finger. The mean scores for overall patient satisfaction was 8.9/10, and appearance of the finger achieved a mean score of 9.2/10. The only complications noted were three (7%) patients who had nailbed deformities (two with a dull streak and one partially adherent nail), but none requested further surgery.

Discussion

The majority of injuries in this group of children arose from accidents indoors, when a finger was caught in a door, which is consistent with the findings of Macgregor and Hiscox.⁸ The middle finger was the most frequently injured

because it is the longest digit, followed by the thumb because it is used to grip the edge of an object or door.

The time recorded from injury to surgery indicated that most cases were operated on within 24 h of injury despite the lack of paediatric trauma lists in this hospital, with only one case of a delayed presentation when a referral was made 2 weeks after the injury.

The hospital has a dedicated general plastics trauma list on certain days and children are usually operated on this list; after hours, there is a single CEPOD list for all specialities and nailbeds are seldom seen as a priority. There has been no paediatric trauma list to date; however, due to increasing numbers of injuries in this group requiring surgery, this is now a high priority.

At operation, the majority of cases were performed under general anaesthesia because of their age and almost all were day-cases; only one patient (2%) stayed overnight, because the operation was performed late in the evening.

At present, there is no written protocol for the suture material and size used for nailbed repairs, although Zook⁷ stated a preference for catgut, which is no longer available in the UK. There is no evidence-based literature to support the use of any particular suture material. The majority of surgeons in this study used Vicryl-Rapide as a substitute for catgut and only one surgeon used PDS.

The relative seniority of surgeon performing the procedure and seeing the patient in clinic can be explained by local policies. Most children were operated on the trauma list led by a registrar and the follow-up hand trauma clinic was consultant-led. Although simple nailbed injuries could be repaired by the SHO grade, there is an increasing service commitment, and with the change to partial or full

shifts, this grade is seldom available to operate when the trauma list is running. This type of surgery could otherwise be used as part of training at this grade and assessed for their portfolio.

Patient/parent satisfaction scores were high with a mean score of 8.9 out of 10 which correlated with good appearance scores and low complication rates. Three patients had residual deformities of the nail, but none required further surgery and this did not have a significant impact on the overall satisfaction of this group.

Most patients attended the dressings clinic but a third did not attend the doctor's follow-up clinic.

Conclusions

The good outcomes and high satisfaction rates, has led to a change in practice in our unit where follow-up is now offered on an SOS basis only (*i.e.* 'opt-in') if there is concern from nursing staff in the dressing clinic.

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