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Management of Finger Tip Injuries - Our Experience at Tertiary Care Institute

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Summary

Background: A fingertip injury is any soft tissue, nail or bony injury distal to the insertion of the long flexor and extensor tendons of a finger or thumb. It affects all ages; none more so than the working class adults and children. Lacerations are the major type of the injury followed by crush and avulsion injuries.

Aim and Objectives: To evaluate the management and outcome of fingertip injury

Patients and Methods: It is a retrospective study where 100 cases of fingertip injuries were analysed. Study period was between January 2021 to January 2023. Age range varied from 1 year to 55 years. Various reconstructive options were considered. The total duration of treatment varied from 2-6 weeks. Follow up ranged from 2 months to 1 year.

Observation and Results: The age range varied from 1 year to 55 years with male predominance. Various reconstructive procedures were done according to the age, site of injury, type of injury. The finger length, shape, sensation was preserved.

Conclusion: Finger tip plays an important role and fingertip injuries should not be taken lightly as they can result in significant morbidity if poorly treated.

Keywords: Avulsed finger tip; Fingertip Injury; Fingertip Laceration; Flap; Hand Trauma; Reconstruction of Fingertip

Introduction

Finger tip is the part that is the most distal part of our finger [1]. It permits fine motor activities, tactile sensation and the most important part it contributes to the aesthetics of the hand. Fingertip is the commonest part that is involved in the hand injuries [2]. Finger tip injury is defined as the injury to the part of finger distal to the insertion of flexor and extensor tendons. There are various methods for reconstruction of finger tip injuries which are considered depending on the age, site of injury, hand dominance. This study is a retrospective study to study the management and outcome of 100 cases of fingertip injuries managed over a period of two years.

Patient and Methods

Retrospective study of 100 cases of fingertip injuries treated over a period of two years was done. A detailed data was collected including patient's age, sex, occupation, mechanism of injury, type of injury, site of injury, hand dominance, any associated injuries and procedures done.

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Observation and Results

Patients were evaluated with detailed history taking in consideration of age, sex, type of injury, profession and hand dominance.

Age of the patients varied from 1 year to 55 years. (Figure 1) 28 patients were between 1 to 5 years and 3 patients were more than 50 years of age.

In our study we found that 83% of the patients were men and 17% women. (Figure 2)

Work related mishaps were the commonest mechanism of the injury (50%), followed by door crush injury (33%), and then household injuries (17%). (Figure 3)

Middle finger was the most commonly involved (28), followed by index finger (25), ring finger (18), little finger (10) and thumb (8). Multiple fingers were involved in 11 patients. (Figure 4)

Cross finger flap was the commonest flap used to cover the finger tip defect (30%). Shortening and closure was done in 20% of the patients, nail bed repair in 20% of the patients, oblique triangular flap in 12% of the patients, suturing in 4%, thenar flap in 8%, reverse cross finger in 2% and SSG in 4%. (Figures 5-9)

All flaps healed uneventfully with partial wound dehiscence in 3% , marginal necrosis in 7%, total flap loss in 7%, joint stiffness in 3% and paraesthesia in 2%.

90% of the patients were cosmetically satisfied. Cold intolerance was found in 50% of the patients. All the patients could return to their work within 4-6 weeks.

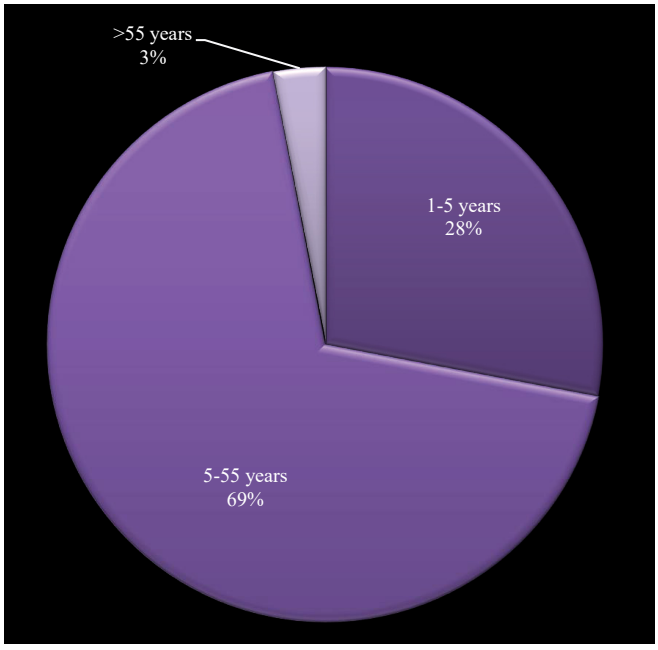

Figure 1: Age distribution among patients of fingertip injuries

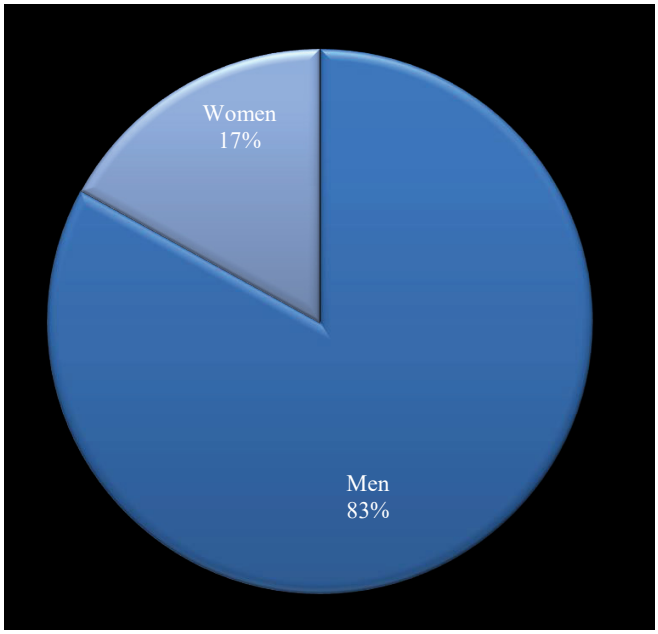

Figure 2: Pie chart showing distribution of Fingertip injuries among both sexes

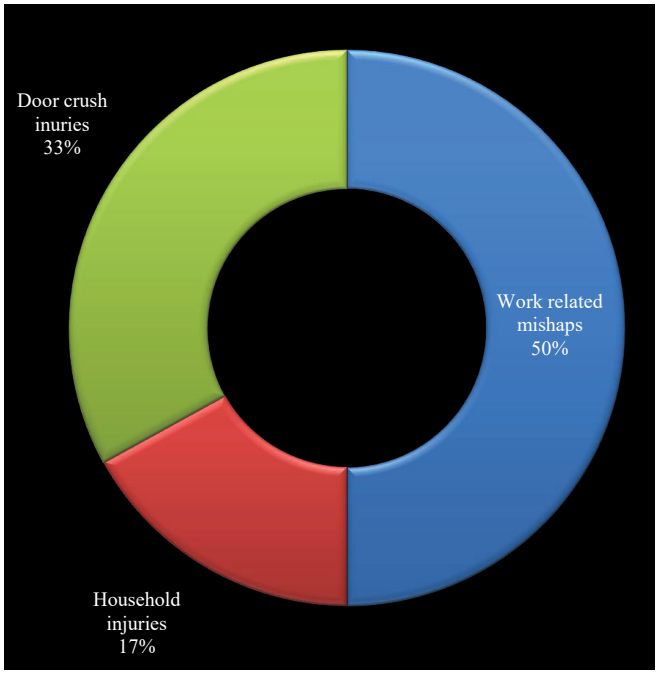

Figure 3: Different mechanisms of fingertip injuries.

Discussion

Full growth of nail takes an average of 100 days but finger tip trauma may delay growth by 20 days. The management of fingertip injuries is complex. It depends on age, sex, hand dominance, profession, finger involvement, location, depth, angle of defect, nail bed involvement and anatomy of finger tip defect. In present study, age range varied from 1 year to 55 year with 28% patients less than 5 year and 3% more than

Mittal S, et al., J Surg Res 2024
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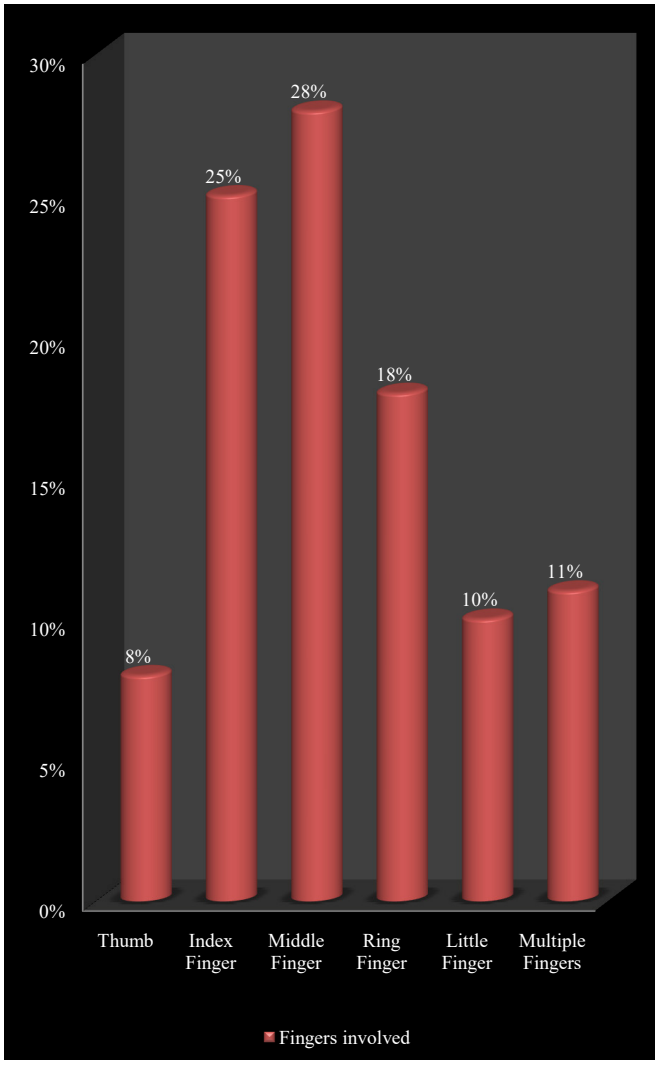
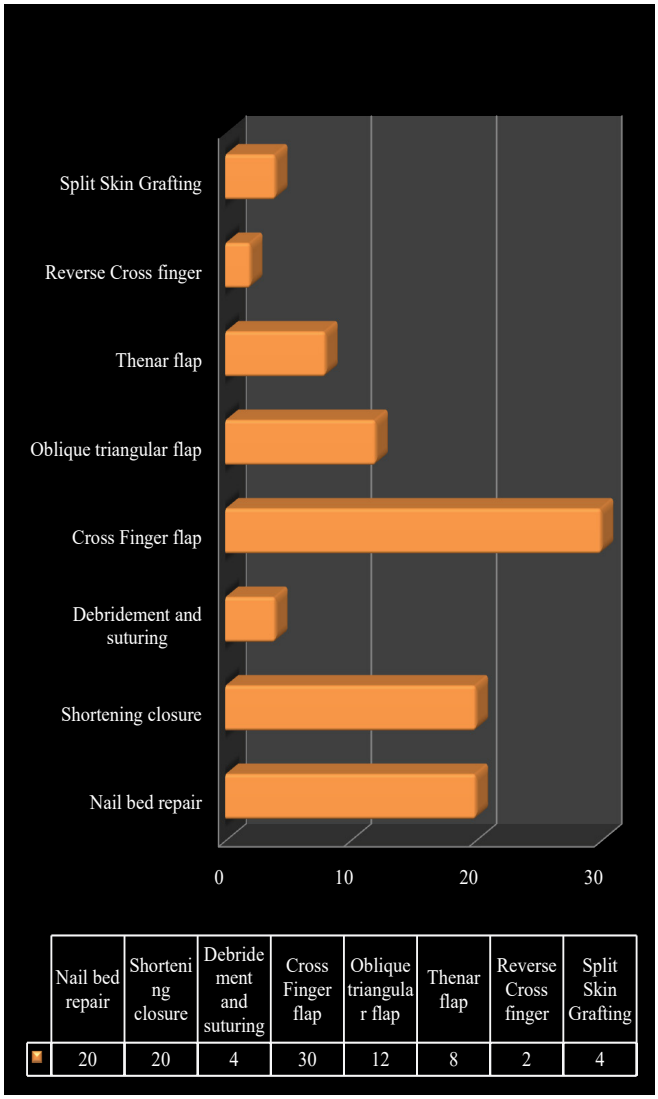


Figure 4: Percentage of involvement of different fingers in finger tip injuries.



	Nail bed repair	Shortening closure	Debridement and suturing	Cross Finger flap	Oblique triangular flap	Thenar flap	Reverse Cross finger	Split Skin Grafting
	20	20	4	30	12	8	2	4

Figure 5: Different types of procedures done in finger tip injuries.

Figure 6: Thenar Flap- index finger

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Mittal S, et al., J Surg Res 2024
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Figure 7: Cross finger flap- Thumb

Figure 8: V-Y Flap- middle finger

Figure 9: Multiple finger involvement

50 years. Similarly in a retrospective study of 268 patients by Zook EG et al, most of the patients were children or young adults [3].

We found that the affected patients were predominantly men with M:W 83:17. Men are 5 times more at risk due to increased exposure and occupational hazards. In a study conducted by Sanjay Saraf et al, there were 90% men [4].

In our study the commonest mechanism of injury was injury at work place (50% in our study) which goes with study by Sanjay Saraf et al. (60% in their study). In our study commonest finger involved was middle finger. Literature supports our observation. In our study 90% of patients with cross finger flap were satisfied with their results, 50% reported cold intolerance of the digit. In a study conducted by Nishikawa et al reviewed 54 patients who had similar results with 92% satisfied and 53% with cold intolerance [5].

We report excellent results in 95% patients where thenar flaps was done. Joint stiffness was reported in one patient only. In study conducted on 150 patients by Melone et al 98% had excellent results with joint contracture in 4% cases [6].

Work incapacity time in all patients ranged between 4-6 weeks in our study which is quite similar to 4-8 weeks in study by Sanjay Saraf. Finger tip injuries can be treated in many ways and need to be individualised. If there is no tissue loss then primary closure can be done [7,8] and if small and volarly directed with no bone exposure, healing by secondary intention can be considered [9,10]. If > 1 cm volarly directed with no exposure of bone and tendon, skin grafting is the treatment of choice but whenever there is exposure of bone and tendon, flap should be considered [11].

The type of flap which is required to cover bone and tendon depends upon the type of injury whether oblique or transverse, site of defect, whether there is tip loss or not. The various type of flaps that can be used are V-Y flap, crossfinger flap, thenar flap and island flap.

The complications encountered in post operative period were generally cold intolerance and hypersensitivity that did not require any intervention. These are generally self limiting and resolves within a period of 1 to 2 years.

Conclusion

The critical evaluation of fingertip injuries is must. All nail bed lacerations need to be meticulously repaired. Splintage of involved finger for 2-3 weeks after reconstruction surgery is must for early and safe recovery. Fingertip injuries should not be taken lightly as they can result in significant morbidity if poorly treated. Functional as well as aesthetic considerations have to be taken into account and therefore require referral to skilled plastic surgeons for optimal management.

Statements and Declaration

There is no financial interest.

References

1. Srikant AS, John O, Chandrabose VT. Fingertip Injury Epidemiology: an Indian Perspective. Journal of Plastic

Mittal S, et al., J Surg Res 2024
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Surgery and Hand Surgery 56 (2022): 224-228.

2. Faslee PR. Fingertip Injuries: Evaluation and treatment. J.Am. Acad. Orthop. Surg 4 (1996): 84.
3. Zook EG, Guy RJ Russell Rc. A Study of Nail bed Injuries: Causes, treatment and prognosis. J Hand Surg Am 9 (1984): 247-252.
4. Sanjay Saraf et al. Finger Tip Injuries. Indian J Orthop 41 (2007): 163-168.
5. Nishikawa H, Smith PJ. The Modified Cross finger flap for Finger pulp and Nail bed reconstruction. J Hand Surg 17B (1992): 102-107.
6. Melone CP, Beasley Rw. The Thenar flap: Analysis of its use in 150 cases. J Hand Surg 7 (1982): 291-297.
7. Allen MJ. Conservative Management of fingertip Injuries in Adults. Hand 12 (1980): 257-265
8. Atasoy E, Loakimidis E, Kasdan ML, et al. Reconstruction of amputated fingertip with a triangular volar flap. A new surgical procedure. J Bone Joint Surg Am 52 (1970): 921-926.
9. Venkataswami R, Subramanian N. Oblique Triangular flap: A new method of repair for Oblique amputations of the finger tip and thumb. Plast Reconstruct Surg 66 (1980): 296-300.
10. Peterson S, Peterson E, Wheatley M, Management of Fingertip Amputations. J Hand Surg Am 39 (2014): 2093-2101.
11. Weichman K, Wilson S, Samra F, Reavey P, Sharm S, Haddock N. Treatment and Outcomes of fingertip injuries at a large metropolitan public hospital. Plastic and reconstructive Surgery 31 (2013): 107-112.