

Management of Tendon Injuries of Hand—A general surgical experience

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A prospective study of 56 patients with tendon injuries of the hand was carried out at the North Surgical Ward of Mayo Hospital, Lahore. Forty-five patients had primary repair of the tendon under general anaesthesia with tourniquet. Kessler's technique was used and preoperative antibiotic was given. Fingers were mobilized early with full physiotherapy after two weeks. The complications seen were wound infection, skin necrosis, joint stiffness and tendon rupture. We recommend primary repair of tendon injuries of hand with Kessler's technique.

Key words: Tendon injury, Kessler's repair, and physiotherapy

Hand is the organ of grasp and with the help of wrist and elbows; it is the organ of skilled movements. It is also the part of human body, which suffer most of the tendon injuries as in industrial and other accidents.

In the West a tendon injury is managed by a plastic surgeon or an orthopaedic surgeon or now as the specialty is well developed the "Hand Surgeon"¹. In Pakistan general surgeons bear the brunt of trauma surgery and hence they also manage tendon injuries.

Most of the patients who present with tendon injuries have other associated injuries like fractures and injuries to vessels and nerves. Many a times a tendon injury is missed primarily especially if it is a single tendon and the person dealing with it is not experienced enough².

Keeping all these factors in mind and to look at the effectiveness or otherwise of the management of tendon injuries in our emergency setting, we planned a prospective study of 56 patients who presented with tendon injuries of the hand in the Emergency Department of Mayo Hospital, Lahore

Patients and methods

This study was carried out in the north surgical ward of Mayo Hospital, Lahore. all the patients presenting in the emergency with hand injuries was included in this study over a period of nine months (October 2000 to June 2001).

All these patients were interviewed, examined and entered on a performa. All those patients who underwent repair were operated upon by a senior surgeon under general anaesthesia and tourniquet with complete asepsis. Only those patients with clean-cut injuries were repaired. Those with crushing injuries, old injuries and infected wounds were not repaired.

All the patients were given broad spectrum antibiotics. Splintage was given to all of the patients. Early mobilization followed by physiotherapy was given to each of the patients. The patients were followed up for a period of 3 months with fortnightly visits to the outpatients department.

Results

The age incidence of the patients in this study varied from 14 years to 61 years. Highest numbers of patients were in the age group 31-40 years. Mean age of the patients was 34 years.

Table 1. Age incidence of the patients

Age	n=	%age
10-20	4	7.14
21-30	16	28.57
31-40	22	39.28
41-50	7	12.5
51-60	5	8.92
Over 60	2	3.57
Total	56	100

Most of the patients had flexor tendon injuries as compared to extensor tendon injuries.

Table 2. Injured tendons

Tendons	n=	%age
Flexor tendon	35	62.5
Extensor tendons	21	37.5

Majority of the patients had only tendon injuries but some had associated fractures and/or nervous and vascular injuries.

Table 3. Associated injuries

Injuries	n=	%age
Only tendons	39	69.64
Fracture/s	14	25
Nerve injury	3	5.35
Vascular injury	5	8.92

Percentage is more than 100% because some patients had fractures as well as other injuries.

Table 4. Mechanism of injuries

Mechanism of injury	n=	%age
Crush injuries	8	14.2
Glass injuries	33	58.92
Stab injuries	12	21.42
Firearm injuries	3	5.35

Table 5. Management strategy

Management	n=	%age
Primary repair	45	80.35
Wound management	11	19.64

Table 6. Postoperative complications after primary repair

Complications	n=	%age
Wound infection	3	5.35
Joint stiffness	7	12.5
Skin necrosis	1	1.78
Tendon rupture	1	1.78

Forty five patients out of 56 were treated with primary repair. The postoperative complications encountered were wound infection, joint surfaces, skin necrosis and tendon rupture.

Discussion

A tendon is composed of longitudinal bundles of collagen fibers, loosely bound together. When it is cut or torn, ends become frayed and longitudinal sutures tend to cut out. Tendons are relatively avascular structures and heal by the ingrowth of connective tissue from epitenon.

Extensor tendons are covered with paratenon which is a specialized form of loose fat containing elastic fibres. These tendons heal well and satisfactorily function is usually restored.

Flexor tendons enclosed in fibrous sheath especially in zone 2 injuries have usually poor outcome of repair as dense adhesions usually form between sheath and tendon³ To overcome this problem the suture material used should be buried and non reactant.

The tendon ends if ragged, are cut clearly across and the suture material should be mounted on a fine, straight needle. General or regional anaesthesia may be used and a tourniquet is usually employed. If there are associated injuries like fractures they should be fixed internally and nerves and vessels also repaired at some time. If flexor

profundus superficialis of same finger was cut only profundus is to be repaired^{4,5}.

In our study primary repair was performed in those patients who had clean cut injury which was not more than 12-1'6 hours old. General anaesthesia was used with a tourniquet. Tendons were repaired by 'Kessler's' technique using 4/0 prolene. Postoperatively splintage was provided. Fingers were mobilised earlier with proper physiotherapy started after two weeks.

The complications encountered included wound infection, skin necrosis, joint stiffness and tendon rupture.

Wound infection and skin necrosis was seen in those patients who has stab injuries. Joint stiffness was seen in patients with zone 2 injuries involving flexor sheaths. Tendon rupture occurred when the suture used was thicker and needle not very fine causing shearing of the tendon⁶.

Conclusion

Keeping in view of our experience we recommend that primary tendon repair should be performed by experienced surgeons. General anaesthesia should be used with a tourniquet. The suture used should be fine Prolene on fine straight needle. The technique should be 'Kesslers' knot burying repair splintage should be used except may be in fingers. Patient's fingers should be mobilised early after 48 hours with regular physiotherapy and full mobilisation after 2 weeks. Antibiotic cover should be provided in peri operative period.

These points would help in recovery of function thus saving hands and livelihood of many families.

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