

Hand Injuries in Gaelic Games

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Introduction

GAELIC Football, Hurling, Camogie and Handball are organised under the auspices of the Gaelic Athletic Association. These games are extremely popular and in the Cork area alone it is estimated that there are 20,000 players. These games have ancient origins and hurling has been recorded in the folklore tales of Cuchullain and Finn Mac Cool.

Football and hurling are contact sports and in hurling a curved stick is used. Injury has always been a part of these games and reference has been made to this in the Brehon laws of Celtic Ireland.

O'Donoghue's paper in 1979 highlighted the facial injuries in hurling while in the same year Flanagan documented 100 injuries in hurling^{1,2}. Concern over head injuries in hurling has led to the introduction of helmets. A number of severe hand injuries led us to conduct a prospective survey to establish the pattern of injury, the mechanism of injury and the effect these injuries had on work.

Clinical Material

Between 15/6/1986 and 30/9/1986 a total of 120 consecutive hand injuries due to Gaelic Games were seen in the Accident Department of the Cork Regional Hospital. Data was collected from the patients, casualty notes, follow-up questionnaires and telephone calls. The summer period was chosen as this is the peak time for Gaelic Games.

Information was sought on the site and extent of the injury and on the procedures that followed. The mechanism of injury was sought by asking the player about the incident that led to the injury. The patient was also asked about occupation and time lost from work. The player's position in the field was looked at to ascertain the more vulnerable players.

A total of 120 patients with hand injuries were reviewed. 108 were male and 12 were female. Two players were less than 10 years, 68 were between 10 and 19 years, 40 were between 20 and 29 years. Eight were between 30 and 39

years and only one player was over 40 years. The youngest was 8 years while the oldest was 44 years.

Hurling was played by 69 of the injured. Gaelic football accounted for 11 injuries. The right hand was injured in 72 cases while the left hand was injured in 48 cases. 14 players were injured in training while 71 players were playing in an organised game at the time of injury. No information on this aspect is available in 35 players. (Figure 1).

SPORT PLAYED	
Hurling	69
Football	40
Camogie	8
Handball	3

Fig. 1 - Distribution of games played by those patients reviewed.

Mechanism of Injury

Information on the mechanism of injury was available in 95 players (80%). 25 were due to direct contact with the ball. A typical injury is the high dropping ball which lands on the outstretched finger. Player or stick contact accounted for 65 injuries while a fall to the ground accounted for only 5 injuries. One player could not recall how the injury happened (Figure 2).

MECHANISM OF INJURY	
Fall to ground	5
Ball contact	25
Player contact	64
Don't know	1

Fig. 2

Injuries Sustained

A total of 70 fractures were sustained by 65 players. 6 dislocations were treated in the series while 49 of the injuries were of soft tissue nature.

Fractures

A total of 70 fractures occurred in 65 players. Five players suffered two fractures to the hand. Two fractures were compound, the rest were closed. One of the compound fractures involved the

distal phalanx of the thumb while the other was a fracture dislocation of the proximal interphalangeal joint of the left little finger. Twenty-two fractures were intra-articular. The most common intra-articular fracture was the Mallet injury which occurred in ten cases, while six players suffered Bennetts fracture of the thumb metacarpal. Four players had volar plate injuries of the proximal interphalangeal joint with avulsion of a fragment of bone from the proximal phalanx. One player had an intra-articular fracture with splitting of the condyles of the proximal phalanx while another player had a combined fracture of the head of the fifth metacarpal.

Forty-six closed fractures not involving the joints were seen in this series. The vast majority were stable injuries with four unstable fractures which subsequently required intervention. The most common fracture involved the neck of the fifth metacarpal which occurred in ten cases. There was only one carpal injury, a fracture of the waist of the scaphoid. The distribution of the fractures in the hand are seen in Figure 3.

Soft Tissue Injuries

This category of injury includes all the soft tissues of the hand. There were a total of 49 soft tissue injuries. The majority of these were minor with bruising or soft tissue swelling on the dorsum of the hand. The most common site was over the dorsum of the index and thumb metacarpals due to direct blows from hurling.

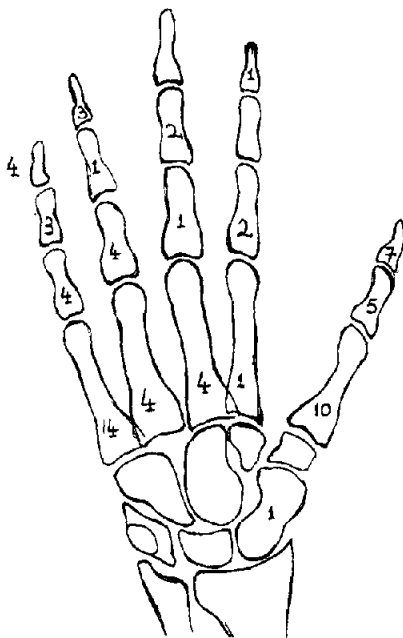
The most serious soft tissue injuries were volar plate injuries of the proximal interphalangeal joints of the finger. There was only one tendon injury in this series with a closed rupture of the central slip of the extensor tendon to the ring finger which was treated conservatively.

Position on the Field

Information on the players in the field was approximate as some players responded using broad terms such as midfield. Information on position when playing was available in 85 players. Seventy-one were playing in or-

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FRACTURES



TOTAL = 70

Fig. 3 - This diagram illustrates the distribution of fractures by the 65 players in the series.

ganised games while 16 were injured while involved in training or casual play. In an attempt to assess the risk in each position, we developed an index. This would assess the risk injury for a player in a given position over the period of the survey.

Formula :

$$\text{Risk per player per position} = \frac{\text{No. injured in that position}}{\text{Total players}} \times 100$$

Using this index, the positions were divided into high risk (> 10%), medium risk (5-10%) and low risk (< 5%). Midfield, the back and forward positions are the most dangerous positions using this index. Players in the left back and left half-back positions were at moderate risk, while all the other positions in the field were at low risk (Table I).

Time Out of Work

Information on occupations is available in 106 players. Sixty were school-boys or students at the time of survey. Five farmers suffered injury while ten were unemployed. Thirty-six players were employed in a wide range of occupations ranging from labouring to Army

TABLE I

Position of Player	No. injured	Risk(%)
Goal	3	4.23
Left Back	7	9.86
Centre Back	11	15.54
Right Back	0	0
Left Half Back	6	8.4
Centre Half Back	5	7.035
Right Half Back	1	1.41
Left Midfield	3	4.23
Midfield	13	18.3
Right Midfield	1	1.41
Left Half forward	3	4.23
Centre Half Forward	2	2.82
Right Half Forward	0	0
Left Full forward	2	2.82
Centre Forward	10	14.2
Right Full Forward	3	4.23

Officer. Nineteen of the group were out of work due to their injury. The loss of work ranged from one day to two months. The averaged time lost at work was 8.5

Discussion

The hand is one of the most important parts of the body and is in constant interaction with the surrounding environment. An injury to the hand results in severe loss of one's ability to carry out normal activities of daily life or to work productively. Sports injuries are growing in our society which is now so orientated towards leisure and sporting activities. Prevention of these injuries is important to the individual and society as a whole.

Prior to this paper, the authors could find no information regarding the incidence or severity of hand injuries in Gaelic games. Flanagan in 1979 conducted a survey of 100 Hurling and Camogie players presenting to hospital, and noted 44 upper limb injuries including five fractures of the phalanges and seven fractures of the metacarpals¹.

This hospital-based survey shows that these injuries were both frequent and serious. These players sustained injury on average at a rate of ten per week during the period of the survey. Thirty-five of the 120 hand injuries required skilled orthopaedic management including 21 of which required admission to hospital for manipulation or fixation of fractures. Of those admitted to hospital, 19 subsequently had open reduction or

closed K-wiring of the fracture. The loss of work by 19 players does not at first appear to be a large number, however this represented 52% of those working and playing Gaelic games.

Direct contact with a player or a ball was the most common mechanism of injury. The Mallet injury was typically sustained by the high dropping ball landing on the extended finger. The acute hyperflexion against the tensed extensor tendon resulted in the typical injury. The volar plate injury was a result of hyper-extension at the proximal interphalangeal joint by the ball landing on the tip of the finger. This caused avulsion of the proximal insertion of the volar plate. Hurling injuries were typically direct blows onto the hand resulting in closed fractures. This resulted in injury to the thumb in the form of a Bennetts fracture or a fracture of the neck of the fifth metacarpal of the little finger, i.e., the exposed parts of the hand were the most vulnerable.

A total of 70 fractures were seen in this series of which 2 were compound and 22 were intra-articular. These intra-articular fractures presented a difficult problem and if not treated adequately could result in permanent stiffness of the joint and subsequent disability.

Along with the pain, suffering and subsequent disability, the economic cost must be considered, this included the cost of hospitalisation and time lost at work.

The problem of injuries in Gaelic games has recently received much prominence including a recent decision by the Medical Committee of the G.A.A. to recommend helmets for all players under the age of 18 years. Other than this, little or no effort has been put into preventing injuries in Gaelic games.

This survey shows that the parts of the hand at greatest risk are the peripheral and most exposed parts, i.e., thumb, little finger and the distal phalanges of the fingers. The distal phalangeal injuries are most often Mallet injuries to the high dropping ball. In our opinion these rules would be difficult to eliminate without altering the basic rules of the game. However, the injuries of the thumb, little finger and ring finger are frequently due to a direct blow to the hand due to a hurley or a boot. Protection should be possible for these inju-

ries. A light weight glove with reinforced backing could make these injuries less frequent. To assess the value of this type of protection a trial using large numbers of players would be necessary. This point may be drawn from Teitz' article who reported on the use of pre-

ventive knee bracing in American football³. That study showed that not only did the brace not prevent injury, but in fact increased the rate of injuries.

It would be wise in view of the data to conduct a trial in the use of a protective glove before a general release.

References

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