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RETROSPECTIVE STUDY ON WRIST INJURIES

Dr. Ankita Dabshede[1*], Kanchan Bhandure[2], Dr. Tushar Palekar[3], Dr. Roma Raykar[4], Dr. Joanna Baptist[5]

[1]Assistant Professor, Cardiopulmonary Department of Physiotherapy, Dr. D.Y. Patil Vidyapeeth, Pune, India.

[2]Final Year BPT Student, Dr. D.Y. Patil College of Physiotherapy, Dr. D.Y. Patil Vidyapeeth, Pune, India.

[3]Principal and Professor, Dr. D.Y. Patil College of Physiotherapy, Dr. D.Y. Patil Vidyapeeth, Pune, India

[4]Assistant Professor, Neurosciences Department of Physiotherapy, Dr. D.Y. Patil Vidyapeeth, Pune, India.

[5]Assistant Professor, Community Based Rehabilitation of Physiotherapy, Dr. D.Y. Patil Vidyapeeth, Pune, India.

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***Corresponding Author**
Dr. Ankita Dabshede
Assistant Professor, Cardiopulmonary Department of Physiotherapy, Dr. D.Y. Patil Vidyapeeth, Pune, India.

ABSTRACT

Background: The wrist complex consists of two compound joints radiocarpal and the midcarpal joints, refered to collectively as the wrist complex. Incidence of wrist injuries is 33.2 injuries per 100000 person years. Highest incidence occurred in 20-29 years of age. Male had higher incidence than females.[2] Hand and wrist injuries are common in all sports. **Objective:** To find out number of wrist cases in last 5 years from August 2012 to August 2017 and to compare the casesd according to their age group, gender and most common wrist conditions. **Materials and Methodology:** A retrospective study comprising of a sample size 418 patients of past 5 years collected, analyzed and presented. **Results and conclusion** The majority of the wrist pain cases were in the year 2015-2016, most commonly Colle's fracture in age group 41-50, females more affected.

KEYWORDS: Colle's fracture, Carpel tunnel syndrome, triangular fibrocartilage complex injuries, wrist pain, wrist sprain.

INTRODUCTION

The wrist complex consists of two compound joints radiocarpal and the midcarpal joints, refered to collectively as the wrist complex. The wrist, unlike the more proximal joints, surveys placement of the hand in space to only minor degree. The major contribution of the wrist complex is to control length tension relationship in the multiarticular hand muscles and to allow fine adjustment of the grip. The wrist muscle appears to be designed for balance and control rather than for maximizing torque production. The wrist complex as a whole is considered to carry out motions of extension /flexion, radial and ulnar deviation.

[1]Any traumatic injury to hand and wrist are commonly encountered in emergency department. Incidence of wrist injuries is 33.2 injuries per 100000 person years. Highest incidence occurred in 20-29 years of age. Male had higher incidence than females. The occupation of work related injuries accounted for 24.9% of wrist injuries.[2] Hand and wrist injuries are common in all sports. The types of injuries range from traumatic fractures, which are most often seen in contact sports, such as football and hockey, to stress and overuse injuries seen in gymnastics, racquet sports, and golf.[3]

Most common wrist injuries are:-

- Carpal tunnel syndrome
- Triangular Fibrocartilage Complex Tear
- Fractures of distal end radius
- Sprain of wrist ligament(scapholunate)

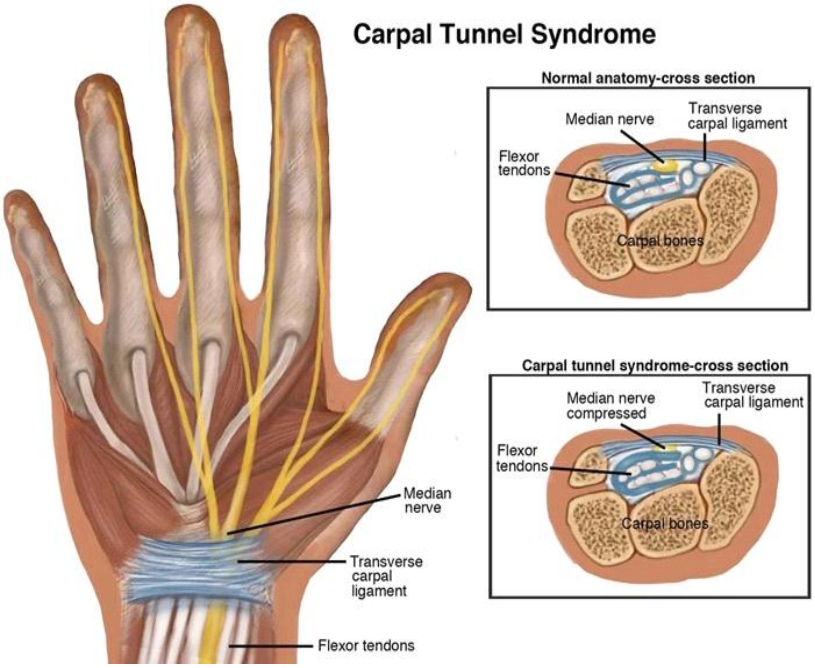
CARPAL TUNNEL SYNDROME

Carpel tunnel syndrome is characterized by the sensory loss and motor weakness that occur when the median nerve is compromised in the tunnel. Etiology is multifactorial, inculding repetative or sustained wrist flexion, extension or gripping activities. Systemic factors such as pregnancy, RA or diabetes.[5]

Clinical features

- Pain in hand with repetitive use.
- Progressive weakness or atrophy in the thenar muscles and lumbricals.
- Irritability or sensory loss.
- Tightness and decreased ROM of wrist as well as cervical.[5]

In conservative management the wrist may be have to be splinted to provide rest and to protect the nerve. Then modify activity and patient education. Gradually mobilize the restricted joint, tissue and muscles which will improve the muscle performance. Then lastly progress functional independence.[5]



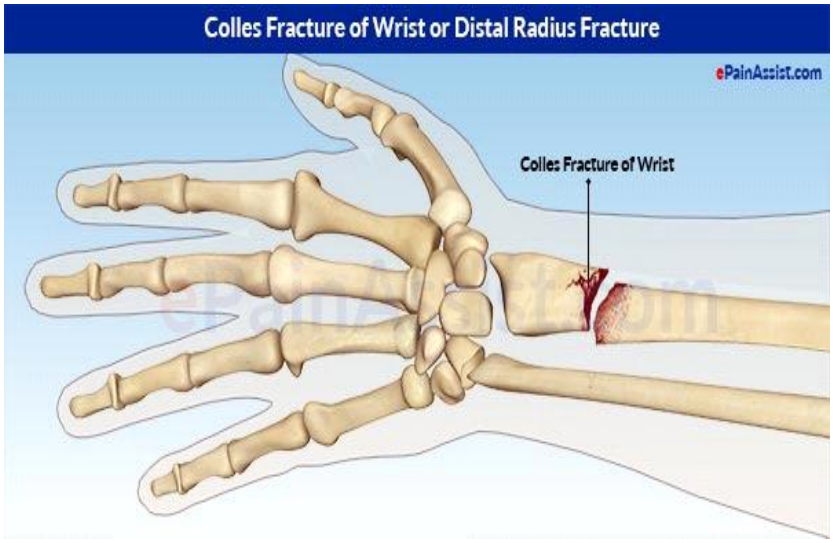
FRACTURE

The most common fracture of wrist seen is COLLE'S FRACTURE. It is not just a fracture of the lower end of the radius but a fracture dislocation of the inferior radioulnar joint. The fracture occurs about 2.5 CM above the carpal extremity of the radius Common mode of injury is fall on outstretched hands with dorsiflexion ranging from 40 to 90 degrees[6]

Clinical features

- Pain, swelling
- Dinner fork deformity
- Restricted RROM[6]

In conservative treatment joint is immobilized by giving below elbow cast called as colle's cast. Operative methods include closed reduction and percutaneous fixation with K wire.[6]



WRIST SPRAIN

Wrist sprain is a common injury. There are many ligaments in the wrist that can be stretched or torn, resulting in a sprain. This occurs when the wrist is bent forcefully, such as in a fall onto an outstretched hand. Injuries to the scapholunate ligament are common, especially among young active individuals.[6] Wrist sprains are most often caused by a fall onto an outstretched hand. This might happen during everyday activities, but frequently occurs during sports and outdoor recreation.[7]

Clinical features

- Swelling in the wrist
- Pain at the time of the injury
- Persistent pain when you move your wrist
- Bruising or discoloration of the skin around the wrist
- Tenderness at the injury site
- A feeling of popping or tearing inside the wrist
- A warm or feverish feeling to the skin around the wrist.[7]

In conservative treatment moderate sprains may need to be immobilized with a wrist splint for 1 or more weeks. Severe sprains may require.

TRIANGULAR FIBROCARTILAGE COMPLEX TEAR

Injuries to the TFCC present as ulnar-side wrist pain, frequently with clicking. Torn TFCCs constitute 35% of intra-articular fractures and 53% of extra-articular fractures. There is no correlation between ulnar styloid fractures and TFCC injuries.[8]

Mechanism of injury

- Falls onto pronated hyperextended wrist.
- Power-drill injuries in which the drill binds and rotates the wrist instead of the bit
- Distraction force applied to the volar forearm or wrist
- Distal radius fractures.[8]

Clinical features

- Painful grinding or clicking with wrist range of motion (ROM) Weakness
- Ulnar deviation of the wrist
- Piano key sign, which is a prominent and ballottable distal ulna with full pronation of the forearm
- Ulnar carpal sag
- Lunotriquetral (LT) interval tenderness.[8]

MATERIALS AND METHODOLOGY

Study was commenced after necessary approvals from the college authorities. Case records of wrist injuries of patients of physiotherapy OPD of Dr. D.Y. Patil College of physiotherapy from August 210 to August 2018 are collected. In this study inclusion criteria were colle's fracture, carpal tunnel syndrome, wrist sprain, triangular fibrocartilage complex.

Data collected based on demographic data of age, gender, wrist condition. The data collected was analyzed using graphs and tables and presented in a tabular format.

RESULTS: The data obtained was analysed and presented in tables and graphs.

Graph 1: Gender wise distribution.

Gender	No of Patients
Male	200
Female	218

INTERPRETATION

- Pie diagram shows that females are more affected than males for the wrist conditions.

Graph 2: Age wise distribution.

Age group	No of patients	Percentage
BELOW 10	7	1.67
11-20	13	3.11
21-30	90	21.53
31-40	77	18.42
41-50	92	22
51-60	68	16.26
61-70	43	10.28
ABOVE 71	28	6.69

INTERPRETATION

- It shows that the individuals from the age group 41-50 are affected more compared to the other group.

Graph 3: Diagnosis wise distribution.

Diagnosis	No of Patients	Percentage
CTS	42	10
COLLES FRACTURE	141	34
TFCC TEAR	17	4
WRIST SPRAIN	70	16
WRIST FRACTURE	35	8
WRIST PAIN	113	28

INTERPRETATION

- According to the above pie diagram, number of cases of colle's fracture is more compared to the other wrist conditions like carpal tunnel, Triangular fibrocartilage complex tear, wrist sprain, wrist Sprain, wrist pain and wrist Fracture

Graph 4: Yearly Distribution.

Year	No of Patients	Percentage
2012-2013	49	11.72
2013-2014	95	22.72
2014-2015	84	20.09
2015-2016	101	24.16
2016-2017	62	14.83
2017 till august	27	6.45
	418	99.97

INTERPRETATION

- According to above graph patients with wrist conditions are highest in year 2015 to 2016.

DISCUSSION

The results of data obtained on patients who had come to Dr. D. Y. Patil College of Physiotherapy OPD in the year 2012 to year 2017 has been analysed. It is seen that the females were more affected than the males. Also, it was seen that the most common diagnosed condition was the Colles Fracture, followed by wrist pain and wrist sprain

This study shows that the number of cases of wrist pain and wrist sprain condition was reduced in the year 2017 as compared to the year 2015-2016, this could include increased awareness along with preventive measures and affective management of the cases of wrist pain and wrist conditions which may have reduced the number of cases

This study showed that the incidence of Wrist pain has increased especially for women hence colles fracture is one of the most frequent fracture. Females are more prone to this type of fracture. The incidence of fracture increased progressively with age from the perimenopausal period that is 40 and above. Menopause is the most common cause of osteoporosis due to the effect of estrogen deficiency. Early menopause (below age of 45 years) is particularly important risk factors. In osteoporosis osteoclasts exceeds the osteoblast hence there is more bone absorbtion then bone production.[10]

Second most visited patients to D Y Patil physiotherapy OPD are wrist pain, these condition may include many condition like de quervains syndrome; tennis elbow[11] etc. People visiting to D Y Patil OPD with condition TFCC are the least. Wrist fracture CTS comes after the TFCC respectively. Wrist fracture includes scaphoid fractures etc as Colle's fracture is the commonest fracture seen, hence these fractures are rare

Some of the ergonomic advices and self adopted management stratergies for wrist conditions for non specific wrist pain were sufficient rest, work modifications. Exercise programme can be taught to the patients as to continue the exercise at home.

To avoid wrist injuries preventive measures such as ergonomic advises can be given to the patients.

ERGONOMICS

- Take time to exercise
- Consider wearing a wrist guard when doing activities
- Prevent osteoporosis

- Check vitamin D intake
- Check calcium intake
- Take care of the hand posture
- Watch out for the sudden flexion or extension of the hand or fingers
- Avoid extreme ulnar deviation and radial deviation
- Avoid operations that require more than 90 degrees wrist rotation
- Keep forces low during rotation or flexionof the wrist

CONCLUSION

Out of the total number of wrist condition cases in the year 2012 to 2017,majority of the colles fracture and wrist pain cases that is 141 and 113 respectively.

In last 5 years females were affected more than males. The individuals from the age group 41-50 are affected more than other groups. Cases of colle's fracture were most common.

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