Original Article

Role of Corticosteroid Injection (Methyl Prednisolone Acetate) 40 mg in Treatment of De Quervain's Disease of Wrist

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ABSTRACT

Objective: To study the outcome of corticosteroids injections in De Quervain's disease produces lateral wrist pain and can also cause acute conditions subsequently leading to disabilities .In this condition pain is caused by thumb movement and radial and ulnar deviance of the wrist.

Study Design: Descriptive study

Place and Duration of Study: This study was conducted at the Islam Medical College of Sialkot from January 2018 to January 2019.

Materials and Methods: All patients with De Quervain's disease are included in our study. This study includes 152 patient. We recorded the tenderness on first dorsal compartment and pain felt on Finkelstein test using Visual analogue scale before and after the treatment fortnightly and within 30 days. We also noted the Mean Age gender wise and recorded treatment results for statistical analysis using SPSS Version-20.

Results: In our data De Quervain's disease was found in 60 males (33% of total patients) and 92 females (67% of total patients) with a male to female ratio of 1:1.5 .The Mean age group recorded was 36.80 ± 4.462 years and a mean Vas score (mm) of 93.9 before injection and 6.38 post-injection was observed with a mean success rate of 89% and significant improvement in pain on the radial side of wrist and we observed a negative Finkelstein test post-injection.

Conclusion: Thus we find that steroid injections assist in significant improvement in De Quervain's disease and helps in reducing re-occurrence.

Key Words: Corticosteroid injections, De Quervain's disease, Finkelstein test, Visual analogue Scale

Citation of article: Asif M, Arif M, Tanveer MOF, Haider T, Anwar R, Hanan MA. Role of Corticosteroid Injection (Methyl Prednisolone Acetate) 40 mg in Treatment of De Quervain's Disease of Wrist. Med Forum 2020;31(5):44-47.

INTRODUCTION

In 1895 a Swiss Surgeon named Fritz de Quervain identified the wrist disease now called as De Quervain's tenosynovitis or gamer's thumb or mother's thumb. He described it as the illnessin which the entrapped tendon disturbs the first dorsal compartment of the wrist. In this state the tendon sheaths condense around the abductor pollicis longus and extensor pollicis brevis causing gliding of these tendons in the fibro-osseus tunnel at the radial styloid on lateral side of wrist painful by thumb movements and radial or ulnar deviation of the wrist[1,2].

The abductor pollicis longus is multistranded, large tendon and extensor pollicis brevis is small tendon. These tendons are separated by septum and helps in abducting and extending the thumb.

Inflamation of either the tendon sheaths or swelling of the tendon's called "Tendinosis" causes the pain with thumb movements or radial and ulnar deviation of the wrist.[3]

Usually the disease was most common in woman mostly ageing above forty and fifty[4,5] however it's still difficult to reason the branching source of it. In most patients it is causes due to injuries in extensor pollicislongus and abductor muscles caused due to repeat movements in wrists for instance lifting infants doing house chores or lifting grocery items or heavy objects, hammering or skiing .Other reasons include pregnancy, diabetes or rheumatoid arthritis.

In order to treat the disease the physician first take the history where usual complains involve pain in moving thumb or pinching or holding objects and then examines physically the soreness of the 1st dorsal compartment at the radial styloid and then performs the Finkelstientest.

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Received: December, 2019
Accepted: February, 2020
Printed: May, 2020

In finkelstien test the thumb is first flexed in the palm and fist is made. Then ulnar deviation is made by examiner at patient wrist which produces sharp pain in the distribution of the tendon's proximally in the fore arm and distally in the hand.

In the end the aim is to treat the patient with either non-surgical or surgical interventions which includes splints, anti-inflammatory medications and use of corticosteroid injections or surgeries. In our study we are observing outcomes of treating patients with corticosteroid injection which has been known to provide significant improvements in wrist.

MATERIALS AND METHODS

The detailed study was conducted in the Department of Orthopedic, Islam Medical College of Sialkot and 152 patients with De Querven's disease during January 2018 to January 2019 are included in this study.

1 ml Methylprednisolone acetate with 2 ml of Xyloclain in first dorsal compartment.

We used Finkelstein test to examine the patients and record the severity of tenderness of first dorsal compartment however pain was rated using the VAS (Visual analogue Scale) before and post treatment . Our team took follow-ups and clinically assessed patients for 30 days on fortnightly basis and recorded the outcomes post treatment and collected the data and outcomes were statistically analyzed using SPSS Version 20.

Exclusion Criteria:

- Patients who denied steroid injection for long term treatment
- Patients suffering from rheumatoid arthritis
- Patients suffering from malunion due to a previous distal radius fracture

Inclusion Criteria: All the patients of De Quervain's disease were included in this study who were ready to take steroid injection for long term procedure.

Procedure: The area is prepared with alcohol swab.1 ml (40mg) of methylprednisolone acetate and 2 ml of Xylocaine is mixed in 5cc syringe. Then needle of the syringe is removed and 3cc syringe needle is applied. The mix injected in first dorsal compartment of affected wrist. The needle ispointing to the styloid radially and vertically to the abductor polices longus and extensor polices brevis tendons. We noted the synovial sheath by observing the changes in volume. We also gave paracetamol for pains relief to patients.

RESULTS

One hundred and Fifty-two (152) patients comprising 60 males (33% of total patients) and 92 females (67% of total patients) were listed in the study with a male to female ratio of 1:1.5 .The Mean age group recorded was 36.80 ± 4.462 years where the maximum age documented was 47yrs and minimum was 30 year old; with most women being recent mothers. (**Table-1).**

Table No.1.Gender Distribution of Patients

Variable	Total Population n=152
Mean Age ± SD	36.8 ± 4.462
Maximum	47
Minimum	30
Male to Female	33% : 67%

We recorded 44% Females with right hand pain and 16% with left while all males i.e. 39% had pain in their left side wrist. (Figure-1)Overall we recorded mean time of 28 days in analyzing clinical symptoms of all patients.

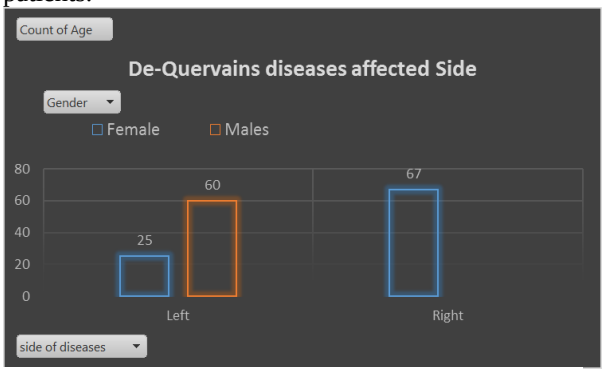

Figure No.1: De-Quervain's Patients affected Sides

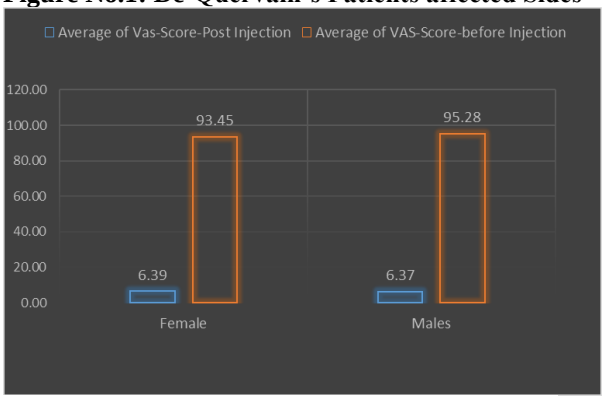

Figure No.2: Outcomes on VAS Scale before and post-treatment (mm)

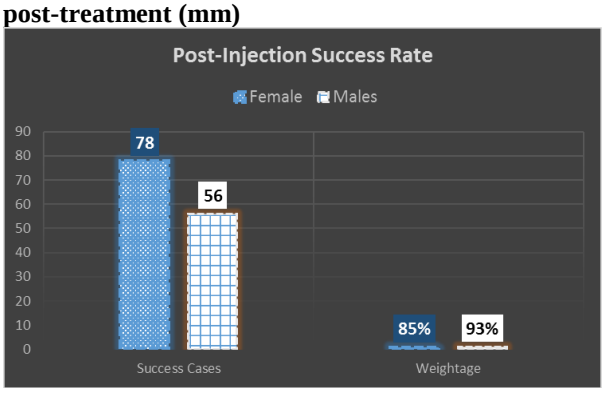

Figure No.3: Success Rate Gender wise post treatment

After the treatment of patients with w methylprednisolone acetate injection we recorded an average decline in VAS score in females from 93.45 to 6.38mm and 95.28 to 6.37mm after final two follow-ups fortnightly and at month-end. (Figure-2)

After treatment an overall average success rate of 89% is noted with 85% in Females due to some complications occurring post pregnancy while 93% were recorded in males with a negative Finkelstein test subsequent to injection. (Figure-3)

Figure No.4: Patients with complications

Amongst all only 4 patients had incidences of skin depigmentation on the site of the injection and 8 patients required second injection while 2 patients needed surgery.(Figure-4) Almost all patients shared similar side effect i.e. pain on injection point which disappeared after a day.

DISCUSSION

In order to treat the De Quervain's disease ,corticosteroid injections have become a standard procedure and is vastly used by physicians however other traditional methods to treat include non-steroidal anti-inflammatory medicines and surgeries[6]. De Quervain's divided between 0.5% of men in offices and 1.3% of women.[7] Also it's spread in pregnant or recent mothers and even post-menopausal women also suffer from it.In our study the mean age group recorded was 36.80 ± 4.462 years with 67% females and in a similar study 70% were female with mean age of 36.6 years.[8,9]. Mehdinasab, Alemohammad in their work showed 86.3% female patients, with mean age of all patients 32.6 years.[10]

In our study we used 1 ml Methylprednisolone acetate with 2 ml of Xyloclain in front dorsal compartment while other reported studies used slightly different quantities and concentrations like 0.25 ml of 40 mg/ml (10mg) Methylprednisolone[11] and two other works show used similar concentration as our study[10,12].

In our study an overall average success rate of 89% is noted with 85% in Females while 93% were recorded in males while Hadianfard et al[12] showed improvement in almost 80% patients while Madani-kivi et al showed 93% success rates[13].

Usually corticosteroid injection have side effects and in our research data only**4** patients had incidences of skin depigmentation on the site of the injection while others just felt pain which transit away in a day.[14]

CONCLUSION

Thus we conclude that corticosteroid injection are harmless and proves an operative treatment in management of De Quervain's disease of wrist and showed noteable improvement in patients.

Author's Contribution:

Concept & Design of Study:	Muhammad Asif
Drafting:	Muhammad Arif, Muhammad Omer Farooq Tanveer
Data Analysis:	Tanveer Haider, Rizwan Anwar, Mohammad Abdul Hanan
Revisiting Critically:	Muhammad Arif, Muhammad Asif
Final Approval of version:	Muhammad Arif

Conflict of Interest: The study has no conflict of interest to declare by any author.

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