

# COMPARISON OF PAIN RELIEF AMONG PATIENTS OF DE QUERVIAN'S DISEASE WITH STEROID INJECTION VERSUS SURGICAL DECOMPRESSION

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## ABSTRACT

**Background:** De Quervian's disease, which is painful inflammation of first dorsal compartment of wrist, and surgical, non surgical treatment modalities are being used for its management. **Objective:** To compare the frequency of pain among patients of de Quervian's disease managed by surgical decompression and steroid injection methods. **Patients and Methods:** This was an experimental study, conducted at Orthopedic Complex in Bahawal Victoria Hospital, Bahawalpur for six months from October 2009 to March 2010. We inducted 66 patients fulfilling the inclusion criteria. The patients were randomly divided into two groups. Group A patients were managed by surgical decompression and group B patients by steroid injection. After 4 weeks pain relief was assessed on the basis of Finkelstein's test result and visual analogue scale was used to describe the level of pain by patients. **Results:** The mean age of the patients in group A was  $42 \pm 9$  years and in group B was  $42.2 \pm 10.7$  years. The Male to female ratio was 1:6 in both groups. In distribution of pain relief, in group A there were 26(78.7%) patients who got complete relief of pain, 4(12.1%) patients who had mild pain, 2(6%) patients who had moderate pain and 1 (3%) patients who had severe pain. While in group B there were 22 (66.6%) patients who got complete relief of pain, 6 (18%) patients who had mild pain, 3 (9%) patients who had moderate pain and 2(6%) patients who had severe pain. **Conclusion:** Our study suggests that surgical decompression is a better treatment option than steroid injection because it has more chances of complete pain relief and permanent cure from the disease.

**Key Words:** De Quervain tenosynovitis, Finkelstein test, surgical decompression, steroid injection.

## INTRODUCTION

The De Quervain's disease is a painful inflammation of tendons of the first dorsal compartment at wrist. Two tendons concerned are tendons of the extensor pollicis brevis and abductor pollicis longus muscles.<sup>1</sup> Swollen tendons and their coverings rub against their narrow tunnel. The result is pain at base of thumb. It had been named after the Swiss surgeon Fritz de Quervain who first identified it in 1895.<sup>2</sup> It occurs typically in adults 30 to 50 years old. Women are affected 6 to 10 times more frequently than men. Pregnant women and people with diabetes or rheumatoid arthritis are more likely to get the disease.<sup>3</sup> This disorder usually occurs after repetitive use of the wrist such as wringing out wet clothes, hammering, knitting and lifting heavy objects. The main symptom is aching pain at base of affected thumb, worse with its movement. Its diagnosis is made by Finkelstein test.<sup>4</sup>

The treatment goal is to relieve pain and swelling

restoring normal function of wrist and thumb. Multiple treatment modalities, non operative and operative for its management are available. Non-operative methods include splint immobilization, anti-inflammatory medication (NSAIDs) and steroids injection into the tendon sheath. Operative methods include surgical release of tight coverings of the tendons.<sup>5</sup>

The purpose of this study was to determine the effective therapeutic approach for pain relief among patients of de Quervian's disease after surgical decompression and steroid injection into the tendon sheath so that the better option could be advocated in future for this disease.

## PATIENTS AND METHODS

This study was conducted on 66 patients of either sex ranging from 20 to 60 years having positive Finkelstein test. The informed written consent was obtained from all the patients. These patients were divided into two groups (A and B) i.e 33 patients in each group. 33 patients of group A were manipulated by surgical decompression (operative release of tight coverings of tendons of first dorsal compartment at wrist under local anesthesia). Every patient was assessed by Finkelstein test for assessing pain at the end of 4<sup>th</sup> week. Pain level was determined by visual analogue scale. Similarly 33 patients of group B were given steroid injection therapy. One milliliter of a 1%

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lidocaine solution and one milliliter of suspension containing 40mg methyl prednisolone acetate was injected into tendon sheath of 1<sup>st</sup> dorsal compartment. Surgical release of de Quervain tenosynovitis was performed under local anesthesia. These procedures were done in outpatient department. We used a tourniquet to minimize intraoperative bleeding. A 3-cm oblique incision was placed over the prominent thickening of the first dorsal compartment. Skin was incised and blunt dissection done, the first dorsal compartment was exposed. It was opened longitudinally for 2cm. The skin was sutured. A circumferential wrist dressing was applied for a week. After 4 weeks pain relief was assessed on the basis of Finkelstein's test result.

## RESULTS

The Mean age of the patients in group A was 42± 9 years and in group B was 42.2 ± 10.7 years. The majority of patients in both groups were in the age of range of 31-50 years. (Table-I).

**Table I: Distribution of patient by age groups**

Age (years)	Group A (n=33)		Group B (n=33)	
	No.	Percentage	No.	Percentage
20-30	5	15.1%	5	15.1%
31-40	13	39.3%	13	39.3%
41-50	9	27.2%	9	27.2%
51-60	6	18.1%	6	18.1%
Mean ± S.D	42 ± 9		42 + 10.7	

There is Female predominance in the disease. The male to female ratio was 1:6 in both the groups. (Table-II). In the distribution of postoperative pain relief, twenty six (78.7%) patients of group "A" and twenty two (66.6%) patients of group "B" got full pain relief (zero score according to VAS) which was noted on 4<sup>th</sup> week by Finkelstein test. (Table-III).

**Table II: Distribution of Patients by Sex**

Sex	Group A (n=33)		Group B (n=33)	
	No	(%)	No	(%)
Male	6	(18.1%)	7	(21.2%)
Female	27	(81.9%)	26	(78.8%)

Four (12.1%) patients of group 'A' had mild pain (1-3 score according to VAS). They were treated by NSAIDs. In case of group B, six (18%) patients had mild pain. They were treated by another

steroid injection into tendon sheath. (Table-III). Two (6%) patients of group A and three (9%) patients of group B had moderate pain (4-7 score according to VAS). They were treated conservatively with oral NSAIDs. Two patient of group B required second shot of steroid injection into tendon sheath. One (3%) patients of group A and two (6%) patients of group B had severe pain (8-10 score according to VAS). Patient of group A was treated conservatively while both patients of group B were given second steroid injection. (Table-III)

**Table III: Comparison of pain according to visual analogue scale after 4 weeks of treatment between two groups.**

Groups	No pain (0 score)	Mild pain (1-3 score)	Moderate pain (4-7 score)	Severe pain (8-10 score)	Total
Group A (n=33)	26 (78.7%)	4 (12.1%)	2 (6%)	1 (3%)	33 (100%)
Group B (n=33)	22 (66.6%)	6 (18%)	3 (9%)	2 (6%)	33 (100%)
Total	48	10	5	3	66

P- value= 0.7339

## DISCUSSION

Although many approaches are described to treat de Quervain's tenosynovitis, but no definite consensus emerges in the literature. The management of De Quervain's disease is determined more by convention than scientific data. From the original description of the illness in 1895 until the first description of corticosteroid injection by Christie<sup>6</sup> in 1955, it appears that the only treatment offered was surgery. The results of our study are comparable with this study as success rate after surgical decompression was about 78.7% in our study.

McKenzie (1972)<sup>7</sup> who suggested that corticosteroid injection was the first line of treatment and surgery should be reserved for unsuccessful injections. However, data regarding the efficacy of corticosteroid injection is sparse and uncontrolled and it is not clear that there is a benefit over the natural history of the illness. Our study has suggested that steroid injection therapy has 66.6% success rate and patient may need a second injection or surgery.

A study was conducted by Sawaizumi and colleagues<sup>8</sup> in 2007 about the efficacy of intrasheath steroid injection. They noted a success rate of steroid injection of only 58% and many of those patients took 12 to 18 months until symptom resolution.

While they described the failure of corticosteroid injection due to anatomical variations in 20% of cases. The results of our study also showed that surgical decompression of the de quervian's tenosynovitis was more reliable in complete relief of pain in 78.7% of cases.

The data of Lane and colleagues<sup>9</sup> indicated that non-operative treatment was successful only in mild cases and in many patients the decision for surgery was done after failure of non-operative treatment. Only 8% patients got temporary recovery with conservative treatment and 92% patients needed interventional therapy either in the form of steroid injection or surgery. In our study it was also concluded that surgery (78.7% success rate) was a valid option for complete relief of pain in de Quervian's tenosynovitis and steroid injections ( 66.6% success rate ) were also effective but not as successful as surgery.

Surgical decompression is documented to provide relief in most patients. The success rate of surgical decompression was 88% in study of Scheller<sup>10</sup> which is comparable with our study (78.7% success rate with surgery)

In 2001 a study was conducted by Pascarelli<sup>11</sup> that described that duration of steroid injection treatment depends on the severity of the symptoms and the response to treatment. But in 45% of the cases patient may experience persistent pain after steroid injection therapy and may need second injection or surgery. Our study also showed that surgery might be beneficial in terms of complete and permanent relief from the pain and early rehabilitation.

A study by Witt<sup>12</sup> described that the combination of injection and splinting actually resulted in a greater percentage of treatment failure (39%) than injection alone (17%). In our study steroid injection was used without any splintage and results were 66.6%.

A study by Zingas and Van Holsbeeck<sup>13</sup> concluded that injecting the steroid injection into the 1<sup>st</sup> dorsal compartment provided complete relief of symptoms. In 30% of the cases the symptoms persisted after injection and these cases required reinjection after one year. In 15% of patients 2-3 injections over a 3-5 week period failed to give relief, then surgical management became appropriate in these patients. Our study also recommends surgery as a good alternative of

the steroid injections in terms of complete recovery from disease.

The surgical procedure was successful 90% of the time according to the study of Ta KT, Eidelman D, Thomson JG<sup>14</sup> which strongly favors our study results (78.7% success rate of surgery).

Harvey et al<sup>15</sup> reported 63 wrists initially treated with injections of steroids and local anesthetic into the tendon sheath. These authors documented following results; Complete pain; relief after 1 injection was noted in 45 (71.4%) of patients, complete pain relief after 2 injections was noted in 7 (11.1%) of the patients , whereas 11 (17.4%) required operative management.

Our study described that steroid injection success rate was 66.6% but at same time surgery was more beneficial in terms of complete relief of pain as injection therapy may result in temporary relief and patients may need two or three times injections treatment or may eventually need surgery.

## CONCLUSION

It is concluded that surgical decompression is better therapeutic approach to de Quervain's tenosynovitis than steroid injection therapy. Surgical decompression gives complete relief and permanent cure to the patients. By using the steroid injection, a considerable number of the patients still need a second injection or may eventually need surgery. In majority of cases, surgery is likely to be definitive.

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#### Corrigendum-I

Bashir Ahmad Junjua, Khadija, Samina, Aftab. Morphological study of anatomical variations in the branching pattern of human axillary arterial system. *JSZMC*, 2011; Vol. 2, No.3, P. 200.

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#### Corrigendum-II

Muhammad Saleem, Mubarak Ali, Jamal Anwer, Masood Iqbal Babar, Mazhar Rafi, Rashid Mahmood, Ashiq Hussain, Qasim Mahmood. Clinical audit of neonatal admissions in a tertiary care hospital, *JSZMC*, 2011; Vol. 2, No.4, P. 231.

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