ORIGINAL RESEARCH PAPER
Volume - 10 | Issue - 07 | July - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

# WRIST GANGLION TREATMENT: A COMPARISON OF ASPIRATION WITH INTRALESIONAL STEROID INJECTION, LOOP SUTURE, AND SURGICAL EXCISION

**Orthopaedics**

**Dr. Jitendra Kumar Aloria*** MBBS, MS (ortho) Senior resident, Govt. Medical college Kota, Rajasthan. *Corresponding Author

**Dr. Dinesh Kumar Bairwa** MBBS, MS (ortho) Assistant professor, Govt. Medical college Kota, Rajasthan.

**Dr. Vishnu prasad** MBBS, MS (ortho) Assistant professor, Jhalawar medical college, Jhalawar.

**Dr. Rajesh Goel** MBBS, MS (ortho) Senior professor & EX-HOD, Govt. Medical college Kota, Rajasthan .

## ABSTRACT

**Introduction:** Ganglions contain transilluminant growths that seem to be tight, smooth, and cystic. They are by far the most frequent soft tissue swelling of the hand, with the dorsum of the wrist being the most prevalent location. Ganglion management options currently include aspiration, loop suture, and surgery. Some supported aspiration combined with steroid injection and loop suture method into the cyst to improve therapeutic outcomes.

**Objectives:** To assess discomfort alleviation, visual results, and recurrence rate in ganglion therapy utilizing aspiration, intralesional steroids (triamcinolone acetate) administration, loop suture approach, versus surgical resection.

**Material and Methods:** -In this prospective and observational study, 50 participants were categorized into 3 groups and managed at GMC Kota during March 2019 and December 2020. Aspiration followed by intralesional steroid (triamcinolone acetate) injection was given to Group A (89 participants), loop suture method was given to Group B (55 patients), and surgical excision was given to Group C (16 patients). Patients were monitored on for up to a year after therapy at one, three, and six months.

**Results:** Out of 89 patients in group A, 88 (98.76%) had pain alleviation, no scars, and just four (4.49%) had recurrence, which was handled by repeating the treatment. Out of 55 patients in group B, 52 (94.55 percent) experienced pain reduction, while three (5.45%) experienced recurrence. In group C, out of 16 patients, 14 (87.5%) experienced pain reduction, while 16 (100%) experienced linear scarring with recurrence (6.25 percent). Patients in group A experienced recurrence, which was treated with intralesional steroid.

## KEYWORDS

Loop suture, Intralesional steroid, Dorsal wrist ganglion, Triamcinolone acetate, Excision

### INTRODUCTION: -

Ganglions are soft, mobile, tense, cystic, fluctuant transilluminant swelling arise from tendon sheath or joint capsule [1,2]. more common in female in age 20-40 year. Ganglions are non-malignant or benign swelling present most common site dorsal aspect of wrist joint overlying scapholunate articulation 60% followed by volar aspect of wrist joint 20% also present at knee, ankle and interchanges joint, ganglions do not have true epithelial lining so called as pseudocysts, filled with jelly like mucinous material gelatinous fluid rich in hyaluronic acid and some amounts of glucosamine, globulins, and albumen [2]. Clinical presentation of ganglions is painless swelling, painful swelling, restriction of wrist movement, sometime paraesthesia and inflammation. No. of patients increase in OPD basis day by day because of afraid of malignancy or cosmetic reason. Pathogenesis of ganglions still unclear but some patients give history of trivial trauma, sequelae of synovial herniation, myxomatous degeneration of the synovial sheath of joint, joint capsule or bursae and tendon [3]. Diagnosis of ganglions made by clinical examination, MRI help in diagnosis of Occult ganglion, sometime x ray is helpful sometime but still Sonography is gold standard for diagnosis.

Main aim of treatment is to reduce the production of jelly like gelatinous product of cyst, there are various method to treat ganglions e.g., Reassurance of patients with wait and watch, massage, pressure bandage, bible method, aspiration of the cyst, aspiration with steroid, hyaluronidase, sclerosant agent, cyst wall puncture with a percutaneous needle, percutaneous incision, tans fixation with various suture, Arthroscopic or open excision of cyst with debridement of joint capsule.

Biggest disadvantage of recurrences of cyst even after treatment. The aim of my study comparison of functional outcome ganglions treated with surgical excision, aspiration with steroid (triamcinolone acetate) injection and loop method with suture parliament silk no 2.

### MATERIAL AND METHODS: -

This study was carried out at Govt. medical college & Attached group of hospitals in Department of orthopaedics out door basis, study was prospective and observational type, study done from march 2019 to Dec 2020.

### INCLUSION CRITERION: -

all patients with wrist ganglion, age 18 to 60 year, previously not taken treatment for same, ganglia size >5mm.

### EXCLUSION CRITERION: -

Infected ganglion, Compound palmer ganglion, ganglion involve radial artery, arthritic changes in wrist, immunocompromised and diabetics patients, skin disorder egg, eczema, fungal infection.

### procedure

In this study we were included 160 patients. We also explained to patient's nature, purpose, merits and demerits of study, patients free to choose their treatment and put into group accordingly. We began the surgery after receiving informed written consent and underwent haematological testing. In Procedure materials are required. Sterile cut down tray, disposable 16G needle, polyester 2-0, dressing tray, sterile drape, surgical knife, pressure bandage, cotton Local infiltration was performed under strict aseptic conditions around the cyst. For aspiration and intralesional steroid (triamcinolone acetate), a 16 G needle was inserted into the cyst and gently massaged to aspirate all of the cyst's contents. The steroid was then given through the same needle with a prefilled syringe. After dressing, a sterile compression bandage is applied, and the patients are given painkillers and antibiotics for three days. They are also encouraged to bend their wrists for 15 days to maximise the compression effect. For loop method: -after all aseptic precautions, local infiltration surrounding cyst, 16G needle inserted into cyst, gelatinous fluid discharged, silk 2-0 suture threaded through same needle, knot tied After dressing with betadine and a gouge piece to keep the thread in place, the patients are given a sterile compression bandage, as well as painkillers and antibiotics for three days. The patient should remove the bandage the next day and gently massage the contents out There is no need to limit your activities. Patients were instructed to roll these treads side to side 3-4 times per day, with a four-week follow-up for suture removal.

For surgical treatment: After aseptic precautions, local infiltration around cyst, incision made over cyst, expulsion of all cyst contents, debridement of joint capsule, tendon, and bursae, wound cleansed, sterile dressing placed, analgesics and antibiotics given to patients for

5 days, suture removed on post-operative day 10.

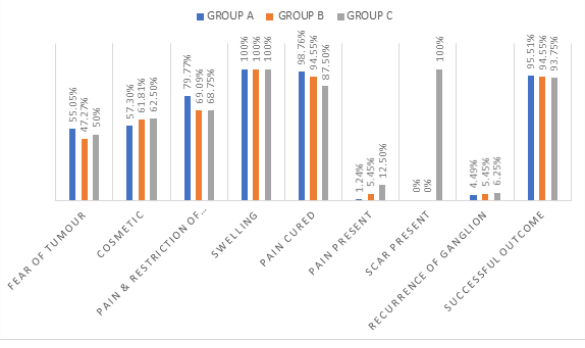
A follow-up visit was scheduled at 1, 3, and 6 months after treatment; pain alleviation and the elimination of the cyst at the last appointment indicate successful therapy; recurrence indicates treatment failure.

**RESULTS: -**

We were able to enrol 160 participants in our trial after applying inclusion and exclusion criteria. The participants' ages ranged from 18 to 60, having 96 females (60%) as well as 64 males (40%) among the 160 patients. Predicated on their willingness to receive therapy, individuals were categorized into 3 groups: group A received aspiration and intralesional steroid (triamcinolone acetate) injection, group B underwent silk 2-0 loop suture technique, and group C underwent surgical treatment.

A total of 89 patients makes up Group A. Out of 89 patients, 32 were male and 57 were female. Patients came to our door 49 (55.05%) because they were afraid of a tumour, 51 (57.30%) because they had an aesthetic problem, and 71 (79.77%) because they were in pain and couldn't move. Only two patients (2.24 percent) continue to have discomfort after therapy, and there is no scar in group A. Four patients (4.49 percent) developed swelling again after therapy. In 89 patients, a positive outcome was attained (95.51percent) A total of 55 patients make up Group B. Out of 55 patients, 26 were male and 29 were female. 26 patients (47.27 percent) came outside because they were afraid of a tumour, 34 patients (61.81 percent) arrived because they had an aesthetic problem, and 38 patients (69.09 percent) arrived because they were in pain and couldn't move. 52 patients (94.55%) experience pain reduction; however, 3 patients (5.45%) continue to have discomfort following treatment. In group A, no scars were present after treatment, and 3 patients (5.45%) developed swelling again. In 50 cases, a positive outcome was attained (94.55percent There are 16 patients in Group C. Out of 16 patients, 8 (50%) came outside for concern of a tumour, 10 (62.50%) came for cosmetic issues, and 11 (68.75%) came for pain and restriction of movement. Only two patients (12.5 percent) continue to have discomfort following therapy, scars are visible in all patients in group C after therapy, and one patient (6.25 percent) develops sweeling again. In 14 cases, a positive outcome was attained (93.75 percent)

| S. N | Characteristics | Group-A | | | Group-B | | | Group-c | | | 5 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | M | F | Total | M | F | total | M | F | Total | M | F | Total |
| 1 | sex | 32 | 57 | 89 | 26 | 29 | 55 | 6 | 10 | 16 | 64 | 96 | 160 |
| 2 | Age | 18-60 year | | | | | | | | | | | |
| 3 | Fear of tumour | 18 | 31 | 49 | 10 | 16 | 26 | 3 | 5 | 8 | 30 | 48 | 78(48.75%) |
| | | 55.05% | | | 47.27% | | | 50% | | | | | |
| 4 | Cosmetic | 18 | 33 | 51 | 13 | 21 | 34 | 4 | 6 | 10 | 35 | 60 | 95(59.37%) |
| | | 57.30% | | | 61.81% | | | 62.50% | | | | | |
| 5 | Pain & restriction of movement | 31 | 40 | 71 | 15 | 23 | 38 | 4 | 7 | 11 | 50 | 70 | 120(75%) |
| | | 79.77% | | | 69.09% | | | 68.75% | | | | | |
| 6 | Swelling | 32 | 57 | 89 | 26 | 29 | 55 | 6 | 10 | 16 | 64 | 96 | 160(100%) |
| 7 | Pain cured | 32 | 56 | 88 | 24 | 28 | 52 | 5 | 9 | 14 | 61 | 93 | |
| | | 98.76% | | | 94.55% | | | 87.5% | | | | | |
| 8 | Pain present | 0 | 1 | 2 | 1 | 2 | 3 | 1 | 1 | 2 | | | |
| | | 1.24% | | | 5.45% | | | 12.5% | | | | | |
| 9 | Scar present | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 10 | 16 | | | |
| | | 0% | | | 0% | | | 100% | | | | | |
| 10 | Recurrence of ganglion | 2 | 2 | 4 | 1 | 2 | 3 | 0 | 1 | 1 | 3 | 5 | 8(5%) |
| | | 4.49% | | | 5.45% | | | 6.25% | | | | | |
| 11 | Successful outcome | 31 | 55 | 86 | 24 | 26 | 50 | 5 | 9 | 14 | 60 | 90 | 150(93.75) |
| | | 95.51% | | | 94.55% | | | 93.75% | | | | | |




**DISCUSSION: -**

The ganglion is perhaps the most frequently diagnosed or non-malignant tumour that patients notice around the wrist joint. The number of patients is afraid of cancer as well as for cosmetic reasons, and that is why the number of patients in the OPD is increased. Small ganglions are recognized by clinical examination, have a soft consistency and are smaller, and typically occur on the dorsal side of the wrist joint, whereas compound ganglions have a hard consistency and are more common on the volar side. Synovial growth, a giant cell tumour of the tendon sheath, and a collapsed ganglion all were diagnosed using sonography. [4] Because of the lack of real epithelium, ganglions are known as pseudocysts.

They link to the joint capsule or tendon sheath and are filled with a jelly-like viscous fluid rich in mucopolysaccharides. Heister treated ganglion in 1743 by massaging the swelling with fasting saliva in the morning and binding a plate over the swelling. There are different methods to cure ganglion, for example. Aspiration, aspiration with steroid injection, aspiration with sclerotherapy, loop technique with various sutures, and surgical excision are some of the proceduresavailable. Rk Gang, S Maktilouf in their data analysis, individuals discovered which less than 10mm of ganglions on the dorsal wrist joint resolve spontaneously in 53% of case scenarios.[5] Nevertheless, the most common consequence is recurrence. In their research, Humail SM, Abidi AR, Naeem Ul Haq S et al discovered that surgical excision has a recurrence rate of 24%, while aspiration and intralesional steroid injection have a recurrence rate of 43%.[6] Becker recommended treating ganglions with steroid injection after aspiration in 1953, and Derbyshire discovered an 86 percent chance of getting on 22 patients with aspiration and steroid injection in 1966[7] Paramhans D, Nayak D, Mathur RK et al. found recurrence rates of 8.4 percent with intralesional steroid (triamcinolone acetate) aspiration and 21.5 percent with surgical removal of wrist ganglions. Researchers found that aspiration with intralesional steroid (triamcinolone acetate) resulted in a 96.62 percent success rate with a 4.49 percent recurrence rate, as well as an 87.5 percent intended outcome with a 6.25 percent ganglion recurrence in surgical procedure Gang and Maktlouf, who devised the loop suture procedure in 1998, found that silk 2-0 suture had a 95% success rate.[8]

Suture generates lowgrade inflammation, which produces cyst wall thinking. With regular massage and frequent movement of thread over ganglions cysts, the material of the cyst is expelled, and cyst fibrosis leads to better function. On 102 individuals [9] in Kapoor et al's study, the recurrence rate was 4% and the cure rate was 96 percent. In our investigation, we discovered an 87.5 percent success rate with a 6.25 percent recurrence rate.

**CONCLUSION**

The popularity of ganglia and the wide spectrum of treatments which have been devised are also most likely the result of its frequent presentation to physicians and the lack of a totally suitable treatment option. Triamcinolone is a new serotherapeutic drug that is used

intralesionally to treat wrist ganglion. It has a low recurrence rate and little negative effects. With others, the findings of this single loop strategy are ambiguous. cost-effective, time saving, minimally invasive, and associated with a low likelihood of recurrence because to the favourable outcome attained with this treatment and few consequences such as infectionWe believe that as an ambulatory procedure, this single loop suture approach for wrist ganglion should be the therapy of choice. Patients who were treated surgically were terrified of surgery, and complications such as scar formation, hypertrophic scarring, and superficial infection occurred. Aspiration and intralesional injection of triamcinolone acetate may thus be regarded a straightforward, safe, easy, cost effective, and less invasive alternative to surgical excision for ganglion treatment.

## REFERENCES


1. Nelson CL, Sawmiller S, Phalen GS. Ganglions of the wrist and hand. JBJS 1972; 54(7):1459-64.
2. Plate AM, Lee SJ, Steiner G, Posner MA. Tumorlike lesions and benign tumors of the hand and wrist. JAAOS 2003; 11(2):129-41.
3. Warren G. Ganglion cyst of the wrist: pathophysiology, clinical picture and management. Musculoskelet Med. 2008; 1:205-211
4. 4. Sharlene A Teefay, Nirvikar Dahiya, Willian D Middleton. Ganglion of the hand and wrist: A sonographic analysis. American Journal of Roentgenology. 2008; 191: 716-720
5. Gang Rk, Maktilouf S. Treatment of the ganglion by thread technique. J hand surg(Br) 1988;13:184-186
6. Humail SM, Abidi AR, Naeem Ul Haq S et al. Comparative study of two methods for treatment of dorsal wrist ganglion. J Pak Orthop Assoc 2010; 22(1):53-7.
7. Varley GW, Neidoff M, Davis TRC, Clay NR. Conservative management of wrist ganglia: aspiration versus steroid infiltration. J Hand Surg. 1997;22(5):636–7.
8. Gang Rk, Maktilouf S. Treatment of the ganglion by thread technique. J hand surg(Br) 1988;13:184-186
9. Kapoor H, Arora J, Jain P, Sharma AK, Sharma VK. Trans-fixation of ganglion. Indian J Orthop 2004;:264-6.