

## Prospective Observational Study Comparing the Outcome of Surgical Excision of Ganglion Cyst with That of Aspiration plus Intralesional Triamcinolone Injection

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### Abstract

### Original Research Article

Ganglion is the most common benign cystic swelling of the hand. It constitutes about 60-70% of soft tissue tumours of the hand. The treatment options are surgical excision, aspiration only, aspiration plus intralesional steroid injection, seton insertion with or without aspiration. The objective of our study was to compare the results of surgical excision with those of aspiration plus intralesional triamcinolone injection in the treatment of ganglion. A total of 60 patients coming to our outdoor in the study period from November, 2017 to October, 2018 were included. Depending upon their choice of treatment, patients were allocated into two groups, the first consisting of those opting for aspiration plus triamcinolone injection whereas the second opting for surgical excision. The success rate of aspiration plus triamcinolone injection was 71.87% while that of surgical excision was 89.29%. We conclude that surgery is more successful form of treatment for ganglion than aspiration plus steroid injection.

**Keywords:** Excision, aspiration, intralesional, triamcinolone, injection.

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## INTRODUCTION

Ganglion is a cystic swelling formed of synovium responsible for production of lubricating fluid in joints or tendons. It contains thick jelly like fluid within its sac. They are formed following local trauma to the tendon or joint and may be of unknown reasons [1]. They can be found around any joint but mostly wrists and ankles. Most common site is dorsum of hand which comprises of 60-70% of cases [2]. They are frequently seen adjacent to joints and tendons but may be intra-tendinous or intra-osseous also [3]. Although benign in nature these patients usually present with pain, swelling, fear of malignancy and cosmetic problems. There are several treatment options with varying success rates. These include observation only, surgical excision, aspiration, aspiration with injections like triamcinolone acetonide, sodium tetracycl sulphate, methyl prednisolone, hyaluronidase [4]. Some surgeons practice seton insertion with or without aspiration [5]. The indications of aggressive treatment include pain, interference with activity, nerve compression [6]. Unfortunately all treatment modalities have significantly high recurrence rates due to presence of remnant tissue. The recurrence rate following puncture and aspiration is greater than 50% for cysts of most sites but lesser in the flexor tendon sheath. Surgical excision is useful having a recurrence rate of

only 5% if the stalk is completely excised along with a portion of the joint capsule [7].

The aim of the study was to compare the outcome of treatment between aspiration and triamcinolone injection and surgical excision of ganglia.

## MATERIALS AND METHODS

A prospective observational study was conducted on 60 patients with ganglion of different sites who presented to the surgical outdoor of our institute from November 2017 to October 2018. Approval was taken from the ethical committee of the institute. Patients with co morbidities like diabetes mellitus, immunocompromised status, local eczema, malignancy, bleeding diathesis and recurrent cases were excluded from the study. All the patients were offered treatment options of aspiration and intralesional triamcinolone injection or surgical excision. The study population was divided into two groups: group I included those who opted for aspiration and steroid injection while group II opted for surgical treatment. We have used chi square test and fisher's exact test for comparison between the two groups.

In group I patients, under all aseptic conditions 10 ml syringe with 18G needle was inserted at the centre of ganglion and the content was aspirated (fig.1).

The syringe was then detached leaving the needle and 1 ml of 2% lignocaine and 10mg of triamcinolone acetonide was injected with a 2ml syringe (fig.2) and a compression gauze bandage applied which was removed after 3 days.

In group II patients, under all aseptic precautions surgical excision of ganglion was done (fig.3) after infiltrating with 5 ml of 1% lignocaine around the swelling. The skin was closed with 2-0 ethilon after achieving haemostatis and compression dressing was applied.

The patients were followed up in the OPD at 2 weeks, 6 weeks and 6 months of treatment. Persistence of the swelling at 6 months was declared as recurrence.

## RESULTS

A total of 60 patients with age ranging from 15 to 60 years were enrolled for the study. Majority (80%) of the patients were younger than 30 years of age and rest of them were above that age group. None of the patients were below 15 years of age. Among the 60 patients of the study, 29 (48.33%) were male and 31 (51.67%) were female. Most of the patients (80%) were having ganglion in the wrist or near the wrist joint and rest of them were near the ankle joint. In the group I patients (aspiration + triamcinolone injection), 71.87% had a successful outcome and rest of them recurred during the follow up, while in the group II patients (surgical excision), 89.29% were having a successful outcome and the recurrence rate was 10.71%. Although percentage wise the success rate was more in group II patients compared to group I but it was not statistically significant as the p value came out as 0.17 ( $>0.05$ ).



**Fig-1: Showing aspiration of ganglion**



**Fig-2: showing instillation of triamcinolone injection**



**Fig-3: Showing excision of ganglion**



**Fig-4: Showing follow up after 6 weeks of excision**



**Fig-5: Showing disappearance after 6 weeks of injection**

**Table-1: Distribution of patients according to age**

Age (years)	Male (%age)	Female (%age)
15-29	23 (79.31)	25 (80.64)
30-44	4 (13.79)	5 (16.13)
45-60	2 (6.89)	1 (3.23)

a) Group I (aspiration plus triamcinolone injection):

**Table-2: Distribution of patients according to sex and site in group I**

Sex	Frequency	%age	Site	Frequency	%age
Male	17	53.12	Wrist	25	78.12
Female	15	46.88	Ankle	7	21.88

b) Group II (surgical excision):

**Table-3: Distribution of patients according to sex and site in group II**

Sex	Frequency	%age	Site	Frequency	%age
Male	12	42.86	wrist	23	82.14
Female	16	57.14	ankle	5	17.86

**Table-4: Post treatment outcome**

group	Success (%age)	Recurrence (%age)
Group I(aspiration +injection)	23 (71.87)	9 (28.13)
Group II(surgical excision)	25 (89.29)	3 (10.71)

## DISCUSSION

Ganglia are most common benign soft tissue swelling around the wrist. They are more common on the dorsal aspect than the palmar aspect and may cause pain, discomfort or stiffness of joint. There are different treatment options for ganglia with varying degrees of

success. Treatment is usually indicated in patients with symptomatic ganglia.

Intralesional steroids are commonly used for treating ganglia following aspiration. A number of steroids have been used for this purpose in different studies like OKT432, aspiration with injection of

triamcinolone acetonide, sodium tetradecyl sulfate, methyl prednisolone, methyl prednisolone plus hyaluronidase. We used triamcinolone (kenacort) injection because it was inexpensive and easily available.

The outcome of different treatment options reported in the literature is variable. In the present study, after 6 months of follow up the success rate was 89.29% in the surgical excision group and the same was 71.87% in the aspiration plus steroid injection group. The results of surgical excision were comparable with studies of Clay (8) and Varley [9] showing success rates of 97% and 73-99% respectively in their reports. Our results of aspiration plus steroid injection were comparable to the study by Humail SM *et al.* [10] who showed a success rate of 57% for the same.

## CONCLUSION

Although aspiration and triamcinolone injection is one of the alternative options of treatment of ganglia, surgical excision is more successful as far as the treatment outcome is concerned. In view of the higher recurrence rate, aspiration plus intralesional injection should be considered with proper counseling in patients not willing for surgery. Our study on comparison between two treatment outcomes was not statistically significant probably due to the small sample size.

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