



Functional outcome and results of Ganglion Treatment by Transfixation Technique

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ABSTRACT

Objective: To assess functional outcome & results of transfixation technique in treatment of Ganglion.

Design: Prospective clinical study with 6 months of follow-up.

Methods: Clinically proven Sixty patients of Ganglion participating in study included according to inclusion and exclusion criteria on OPD basis after getting written and informed consent, treated by Transfixation technique by single author, evaluation of functional outcome and results done at baseline, 1 month and 6 months interval.*

Results: Sixty patients participated in study and 58 were completely cured giving a success rate of 96.6 percent, recurrence was seen in one patient and one patient lost follow up during study period. The functional outcome and results of Transfixation technique in treatment of ganglion is statistically significant.

Conclusions: Treatment of ganglion by transfixation technique is cost-effective, less time consuming, minimally invasive associated with low rate of recurrence and can be carried out on opd basis also this is an easy-to-learn & expertise technique.

KEYWORDS : Ganglion, Recurrence, Transfixation

INTRODUCTION

Ganglion is one of the commonest lesions encountered in day to day surgical practice. Ganglions are derived from coalescence of mucus that is produced at synovium-capsular interface which then dissects through joint capsule and ligament forming the ducts seen on HPE. Ganglion in hand and wrist occur in order of frequency as follows-dorsal wrist ganglion, volar wrist ganglion, flexor tendon sheath ganglion, others like carpal tunnel, Guytons (ulnar) tunnel and interosseous ganglion.

The various treatment modalities for ganglion include reassurance of the patient without any intervention, simple aspiration, aspiration and injection with or without hyaluronidase & steroid, injection with a sclerosant, transfixation with a silk suture, cyst wall puncture with a percutaneous needle, percutaneous incision with a tenotome, radical excision, either open or endoscopic. Major problem in the treatment is recurrence no matter whichever modality of treatment is used.

This study determines the results of treatment of ganglion by using the transfixation technique.

MATERIALS AND METHODS-

After approval from institutional ethical committee (IEC), clinically diagnosed sixty adult patients of both sexes of ganglion size more than 5 mm without prior history of intervention included in study and patients having Compound palmer ganglion, Ganglion in the vicinity of radial artery, Ganglion less than 5 mm in size, Infected ganglion, Previous treatment taken in any form, Ganglion associated with arthritic disorder, ganglion in patient with history of diabetes or other immuno-compromised conditions and bleeding disorders excluded from study. All the patients were explained about the study and a written and informed consent was obtained. Only those providing consent to participate in the study were enrolled in the study.

Materials needed for procedure were Xylocaine 2% without adrenaline, Sterile cut down tray, Disposable 16G needle, Silk 1-0.

The procedure was done on out-patient basis. Under all aseptic precautions, area surrounding the lesion was infiltrated with xylocaine 2%. A sterile silk suture (1-0) was passed through the cyst and taken

out from the opposite side. The thread gets a glistening appearance as it comes out because of the mucin content, which confirms its passage through the cyst [Figure-3]. Similarly another thread is passed at right angles to the previous thread. With a 16G disposable needle the content of the cyst were aspirated. The thread was then tied over the cyst over a sterile gauze piece firm enough to hold it in place. Care is taken not to cause puckering of the skin. Sterile compression bandage is given. The patient is sent home with analgesics and an antibiotic. No restriction of activity was required. Patients were advised to move these threads side to side 6-7 times at a time six hourly and follow-up done after four weeks for suture removal.

Recurrences were considered in those who had a reappearance of the cyst of 1 cm or more at the end of six months.

STATISTICAL ANALYSIS-

The statistical analysis was done using SPSS (Statistical Package for Social Sciences) Version 15.0 statistical Analysis Software. The values were represented in Number (%) and Mean±SD.

RESULTS-

Baseline data-

Demography Male/Female	23/37	Total 60
Age of patients Mean±SD	29.4±8.4 yrs, Range 16-68 yrs	
Prior Treatment	0	
Cured patient	58/60 (96.6%)	
Superficial Infection	2/60 (3.3%)	

Demography

Out of 60 enrolled patients 23 were male (38.3%) and 37 were females (61.6%) and mean age of participants was 29.4±8.4 years, age of participants ranged from 16 to 68 years. None of the participants received prior treatment; minimum size of ganglion was 5 mm.

Out of the 60 cases included in this study, 59 were completely cured of the symptoms, while one lost follow up thus giving a success rate of 96.6%. Out of the total 60 patients, 32 (53.3%) patients came to seek treatment for cosmetic purpose, while 22 (36.6%) came for pain with cosmetic disfigurement and only 6 (10%) patients came

with sole complaint of pain irrespective of the non-cosmetic appearance. Maximum follow-up period was 18 months. Fifty-eight (96.6%) patients were satisfied with the results. Out of the total, 28 patients complaining of pain all were completely relieved of pain. Although there was a recurrence of ganglion in one case, in which pain was relieved and swelling was less than initial swelling. None of the case had complaint of the restriction of function.

Complications were encountered in two cases in form of superficial infection at the site of entry point of threads at ten days of follow-up, which was treated with antibiotics. The final result was equally good.

DISCUSSION-

The ganglion is also known as pseudocyst because its walls are formed by fibrous tissue which is non-secretory and appears as a well-defined firm nodule with a gelatinous viscous substance (mucin) and is always in contact with a capsule or articular synovial sheath. Numerous treatment modalities available for treatment of ganglion like aspiration with or without injection of steroid and hyaluronidase¹, injection of sclerosing agent², transfixation with silk suture^{3,4}, puncture of cyst wall by needle, surgical excision¹, arthroscopic excision⁵ or simply reassurance to the patient. Success rate of these methods varies considerably. Literature reports high rates of recurrence following various methods of treatment of the ganglion ranging from 2–60%^{1,6}. Patients treated with aspiration & injection steroid have cure rates of 57–64%. The advantages of injection therapy are relatively low recurrence rate (18%), simple out-patient treatment without any major complications or scar formation. Success of Surgical excision ranges from 84–94%¹ with a recurrence rate of 4–11%^{1,7}. The low recurrence rate they observed was because of proper procedure of excision; they have followed and removed the ganglion from the base⁷. Surgical management of ganglion involves risk of nerve injury, keloid formation, post-operative stiffness, scapho-lunate instability, and recurrence⁸.

In the present study of transfixation method, silk thread passing through the wall of ganglion leads to low-grade inflammation and thickening the cyst wall and hence its spontaneous regression. Aspiration of the contents of ganglion and its regular massage prolongs the contact with thread and hence causes more fibrosis and yields better success rate. In our study of 60 cases treated by transfixation technique, we observed a cure rate of 96.6% (58) and recurrence rate of 1.6% (only one recurrence) and one lost follow up, while in similar study carried out by Kapoor et al., of the 108 cases, 102 cases were followed recurrence rate was 4% and cure rate 96%. In another study carried out by Gang and Makhloof of the 70 cases treated, 62 were followed, 95% were cured and 5% had recurrence. While comparing our results for the recurrence with these studies we observed comparative low recurrence rate, this yielded a successful method of treatment as none of our cases required surgical excision of the ganglion. As per the literature in various studies for conservative and operative management of ganglion the recurrence rate is variable from 2–60%^{1,6}. With advances in technology, arthroscopic resection has been reported to very low recurrence rate of 0–5%⁵, But the expertise needed and the long learning curve is the major limitation with this method.

Our method of transfixation for the treatment of ganglion is cost effective, less time consuming, minimally invasive, low rate of recurrence, can be carried out under local anesthesia, and does not require any special instrument. This procedure can be done as an outdoor procedure in the minor operation theatre. There are no complications as compared with the surgical excision. Patient acceptance and compliance to the treatment is excellent & this is also an easy-to learn technique.

CONCLUSION-

Treatment of ganglion by transfixation technique is cost-effective, less time consuming, minimally invasive associated with low rate of recurrence and can be carried out on opd basis also this is an easy-to-learn & expertise technique.



Figure-1



Figure-2



Figure-3



Figure-4



Figure-5

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