

**Research Article****Aspiration and Methyl Prednisolone Injection into the Cyst in the Treatment of Wrist Ganglia: Experience at a Rural Medical College****Pawan Tiwari<sup>1</sup>, Madhu Tiwari<sup>2</sup>, Manmohan Sharma<sup>3</sup>, Raminder Talukdar<sup>4</sup>, K.L. Garg<sup>5</sup>**<sup>1</sup>Associate Professor, Department of Surgery, Faculty of Medicine and Health Sciences, SGT University, Budhera, Gurgaon, Haryana, India<sup>2</sup>Associate Professor, Department of Anaesthesia, Faculty of Medicine and Health Sciences, SGT University, Budhera, Gurgaon, Haryana, India<sup>3</sup>Assistant Professor, Department of Orthopedics, Faculty of Medicine and Health Sciences, SGT University, Budhera, Gurgaon, Haryana, India<sup>4</sup>Assistant Professor, Department of Surgery, Faculty of Medicine and Health Sciences, SGT University, Budhera, Gurgaon, Haryana, India<sup>5</sup>Professor, Department of Anaesthesia, Faculty of Medicine and Health Sciences, SGT University, Budhera, Gurgaon, Haryana, India**\*Corresponding author**

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**Abstract:** The objective of the study was to evaluate the results of aspiration combined with injection of methyl prednisolone in the treatment of wrist ganglions. It was a prospective study from March 2010 to April 2013 that comprises twenty five patients who presented with wrist ganglion. All patients were assessed in detail clinically, and treated by aspiration with 16 gauge needle and 5cc syringe followed by injection methyl prednisolone. The average follow-up time was one year. Out of 25 patients, 21 (84%) had a dorsal carpal ganglion and 4 (16%) a volar ganglion. Eighteen (72%) cases were females and 7 (28%) males, with an age range from 17-55 years. All patients complained of a localized swelling. While 18 (72%) had pain during activity. 92% cases had a smooth recovery, while two had residual swellings requiring re-aspiration and injection of methyl prednisolone. No recurrence of the ganglion occurred in any case. In conclusion, aspiration combined with injection methyl prednisolone for treating ganglions of wrist is a simple, economic, cosmetic, uncomplicated procedure which can be done in the out-patient department. It is reliable and safe alternative to open resection for successful eradication of the wrist ganglion.**Keywords:** Aspiration, Ganglion, Methyl prednisolone, Wrist.

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**INTRODUCTION**

A ganglion is a common benign lesion arising as a diverticular swelling from synovial tissue in relation to joints and tendons containing synovial fluid [1]. The most common location for hand and wrist ganglion is the dorsum of the wrist- the dorsal wrist ganglion (60 to 70%) [2]. It arises from the scapho-lunate joint connected with dorsal scapho-lunate interosseous ligament near the area of capsular attachment. Occasionally they arise on the volar aspect near the radial artery but may also be intra-tendinous or intra-osseous.

The exact aetiology is unclear but mucoid degeneration of the connective tissue seems to be a probable cause, with breakdown product of collagen collecting in pools, which coalesce to form a large cyst [3]. Most patients present with a swelling, some with pain due to pressure on the posterior interosseous nerve

[4] and some for cosmetic reasons. The diagnosis of carpal ganglions is made after assessing the location, size, consistency, history and examination [5].

Aspiration and Ultrasonography may help to confirm the diagnosis [6]. Ganglion should be treated, if symptomatic. Treatment options include massage, aspiration, corticosteroid injections, suture fixation, surgical and arthroscopic resection [7].

**METHODOLOGY**

From March 2010 to April 2013, 25 patients presented with wrist ganglion in the out-patient department of Surgery. All were assessed clinically and treated by aspiration and methyl prednisolone injection. Parameters studied included age, sex, site, size, symptoms and complications.

**Technique**

After aseptic measures 16 gauge needle was inserted into the ganglion and a 5 ml syringe was then fitted to the needle and aspiration of jelly like transparent material was performed by squeezing the ganglion with the thumb (Fig. 1). After complete evacuation the syringe was disconnected from the needle and methyl prednisolone 1-2cc was injected into the cyst (Fig. 2). No aseptic dressing and crepe bandage was applied over the wrist. Patient was instructed to massage local area frequently. All the patients were followed up every month for initial 3 months and at 2 months interval for one year.

**RESULTS**

Amongst the 25 patients with wrist ganglion, 18 (72%) were females and 7 (28%) males, with an age range of 17-55 years. The size of ganglion varied from 1-4 cm (Fig. 3). 21 (84%) patients had a dorsal carpal ganglion (Fig. 4) while 4 (16%) patients presented with a volar ganglion (Fig. 5, 6). 5 (20%) recurrent cases were referred from elsewhere, two had surgical excision initially and three aspiration only.

All patients complained of a swelling, while 18 (72%) had associated pain causing interference with daily activities. 100% patients had a smooth recovery, no patient developed complications. Two patients developed a residual swelling on the 7<sup>th</sup> day and were re-aspirated and injection methyl prednisolone was given. There was no recurrence of the ganglion in any case in this series.

**Table 1: Clinical Data of Wrist Ganglion patient**

Female/Male	18 (72%)/7 (28%)
Age	17 to 55 yrs
Follow-up period	1 year
Side of wrist Right/Left	20 (80%)/5 (20%)
Size of Ganglion	1-4 cm
Dorsal/Volar	21 (84%)/4 (16%)
Swelling/Pain	25 (100%)/18 (72%)
Referred/ Recurrent cases	5 (20%)
Residual swelling	2 (8%)
Recurrence in present series	0



**Fig. 2: Showing inj. Methyl Prednisolone being injected**



**Fig. 3: Showing a large 4 cm diameter Ganglion**



**Fig. 4: Showing a Dorsal Ganglion**



**Fig. 1: Showing Volar Ganglion being aspirated**



**Fig. 5: Showing a Volar Ganglion**



**Fig. 6: Showing complete subsidence of Volar Ganglion**

## DISCUSSION

A ganglion is the herniation of synovial tissue in relation to the joints or tendons containing synovial fluid. Commonest site is dorsal ganglion; however occasional volar ganglions are also reported.

Recurrence rate after puncture or aspiration alone is greater than 50% [8] while aspiration followed by corticosteroid injection of ganglion also has a higher rate of recurrence [9] but in our series no recurrence was reported within one year follow up. Seton insertion alone for ganglion has a recurrence rate of 13.8% [10]. Open surgical resection for the dorsal ganglion has a recurrence rate of 5.10% [11].

Ganglion surgery is more than a minor procedure and requires a formal operative environment and careful technique in order to minimize injury to adjacent structures and complications like residual pain due to injury to dorsal branch of interosseus nerve and scapholunate instability. Besides the patients also complain of a scar on the wrist.

The latest technique of arthroscopic aspiration also has a reported recurrence rate of 5%, though Tienshih *et al.* [7] claimed no recurrence after arthroscopic resection in their series.

Our study conducted on 25 patients by aspiration with wide bore needle 16 gauge followed by methyl prednisolone injection is very simple and can be done in 5-7 minutes as an out-patient procedure. This technique is cost effective with virtually no complication or residual scar. No post procedure limitation of hand movements required and no recurrence reported yet. Therefore it is an alternative to open or arthroscopic resection.

## CONCLUSION

Aspiration of ganglion with wide bore 16 gauge needle followed by methyl prednisolone injection into the ganglion is simple, economical and an effective alternative to arthroscopic or surgical resection.

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