



## Comparison Between Aspiration With Methylprednisolone and Aspiration With Loop Suture Technique in Dorsal Ganglion of Wrist

### KEYWORDS

Dorsal wrist ganglion; aspiration; loop suture; methylprednisolone; recurrence.

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**ABSTRACT** *Background: Ganglion is one of the most common cause of swelling in the hand. Although diagnosis is based on clinical finding, treatment part is controversial. Many options are described with varying recurrence rate.*

*Materials and Methods: This is a prospective hospital based study involving 109 patients who presented with ganglion in dorsal aspect of wrist, they were alternately placed into methylprednisolone (55) and loop suture (54) group. Comparison was made based on recurrence rate and complications.*

*Results: Of the 109 patients 82 were females (75.23%) and 27 males (24.77%). Mean age of presentation was 33.92 years. Recurrence was noted in 14 cases from methylpredsolone group and 4 cases from loop suture group. Hypopigmentation was noted in 4 cases from methylprednisolone group. Superficial skin infection was noted in 2 cases in loop suture group.*

*Conclusion: Aspiration with loop suture technique is a superior method as compared to aspiration with injection of methyl prednisolone in dorsal ganglion of wrist with low recurrence and complication rate.*

### Introduction

Although ganglion is one of the commonest but troublesome lesions met in minor surgical practice, there is little agreement regarding their etiology and treatment. These are the benign soft tissue tumors occurring around the wrist, consisting of mucin-filled cyst connected to a tendon, tendon sheath, or joint capsule.<sup>1</sup> Most ganglions are seen in females in their second to fourth decades of life.<sup>2</sup> The capsule of the ganglion consists of compressed stroma without a cellular lining. This may be linked to the joint by a narrow channel which can act as a one way valve.<sup>3</sup>

Clinical presentation is usually with a lump and often pain. The 'lump' raises cosmetic and cancer concerns.<sup>4</sup> They are smooth tense fluctuant cystic transilluminant swellings.<sup>5</sup> The diagnosis can be made clearly by history and physical examination but to treat there are many options and each treatment option yields different success results.<sup>6</sup>

The various treatment options include simple assurance, aspiration with injection of hyaluronidase or methylprednisolone, transfixation with a suture and surgical excision either open or endoscopic. Recurrence is the main problem with all these modalities.

The best results in terms of recurrence have been reported with surgical excision. However, the treatment can only be offered successfully in a specialist hand department and is associated with complications including wound healing problems such as infections, neuroma, keloid and the scar formation. Other common complications include scapholunate dissociation, joint stiffness and sometimes damage to the posterior interosseous nerve's terminal branch resulting in decreased grip strength along with risks of general anesthesia and upper limb tourniquet application.<sup>7</sup>

In this study we compare the recurrence rate and complications of aspiration with injection of methylprednisolone and aspiration with loop suture using single silk suture.

### Materials and Methods

This is a prospective hospital based study conducted from December 2013 to December 2015 involving 109 patients (82 females, 27 males) who presented with ganglion in dorsal aspect of wrist, they were alternately placed into methylprednisolone (55) and loop suture (54) group.

**Aspiration with methylprednisolone group:** With patient in supine position, forearm is fully pronated. Under all aseptic precautions a 18 gauge needle was introduced into the cyst cavity, contents were aspirated and 40mg methylprednisolone acetate was injected into the cavity. Sterile dressing was applied for 24 hours.

**Aspiration with loop suture:** With patient in supine position, forearm is fully pronated. Under all aseptic precautions a single 2-0 silk suture is passed through the cyst [Figure 1]. A 18 gauge needle is used to aspirate the contents and a sterile dressing is applied for 2 weeks. Suture was removed at 2 weeks.

Patients were followed up at 2 weeks, 4 weeks, 12 weeks and 6 months. At each visit patients were clinically examined for recurrence. Statistical analysis was made using Fischer exact test.

### Results

Of the 109 patients 82 were females (75.23%) and 27 males (24.77%). Mean age of presentation was 33.92 years.

Recurrence was noted in 14 cases (25.45%) from methylpredsolone group and 4 cases (7.41%) from loop suture group with a p value of 0.0185.

Hypopigmentation was noted in 4 cases (7.27%) from methylprednisolone group. Superficial skin infection was noted in 2 cases (3.7%) in loop suture group [Table 1].

### Discussion

Although ganglion is one of the commonest but troublesome lesions met in minor surgical practice, there is little

agreement regarding their etiology and treatment. These are the benign soft tissue tumors occurring around the wrist, consisting of mucin-filled cyst connected to a tendon, tendon sheath, or joint capsule. The capsule of the ganglion consists of compressed stroma without a cellular lining. This may be linked to the joint by a narrow channel which can act as a one way valve.<sup>3</sup>

Clinical presentation is usually with a lump and often pain. The 'lump' raises cosmetic and cancer concerns.<sup>4</sup> They are smooth tense fluctuant cystic transilluminant swellings.<sup>5</sup> The diagnosis can be made clearly by history and physical examination but to treat there are many options and each treatment option yields different success results<sup>6</sup>

The various treatment options include simple assurance, aspiration with injection of hyaluronidase or methylprednisolone, transfixation with a suture and surgical excision either open or endoscopic. Recurrence is the main problem with all these modalities.

The best results in terms of recurrence have been reported with surgical excision. However, the treatment can only be offered successfully in a specialist hand department and is associated with complications including wound healing problems such as infections, neuroma, keloid and the scar formation. Other common complications include scapholunate dissociation, joint stiffness and sometimes damage to the posterior interosseous nerve's terminal branch resulting in decreased grip strength along with risks of general anesthesia and upper limb tourniquet application.<sup>7</sup>

In this study we compare the recurrence rate and complications of aspiration with injection of methylprednisolone and aspiration with loop suture using single silk suture.

Females were more commonly involved (75.23%) in our study which was similar to observations made by Bhavinder Arora<sup>8</sup> who found 85.71% females in their study.

Mean age of presentation was 33.92 years which was similar to the observation made by Deepak Chaudhary et al<sup>9</sup> who found mean age as 29.4±8.4 years.

Recurrence with methylprednisolone group was 25.45% as compared to 7.41% in loop suture group with a p value of 0.0185 which is statistically significant. Bhavinder Arora<sup>8</sup> found recurrence rate after loop suture technique to be 6.43% which was similar to observations made in our study. Shabab Hussain<sup>10</sup> found recurrence rate to be as high as 43.3% following steroid injection.

Hypopigmentation was noted in 4 cases (7.27%) from methylprednisolone group. Superficial skin infection was noted in 2 cases (3.7%) in loop suture group. Mishra R P et al<sup>11</sup> found hypopigmentation in 5% cases in their study of injecting sclerosing agents. Bhavinder Arora<sup>8</sup> noted infection in 3.57% of patients treated by loop suture technique which is similar to our observations.

### Conclusion

Aspiration with loop suture technique is a superior method as compared to aspiration with injection of methyl prednisolone in dorsal ganglion of wrist with low recurrence and complication rate.

### Consent:

Written informed consent was obtained from the patients for publication of this case series and accompanying im-

ages.

### Competing interests:

The authors declare that they have no competing interests..

**Table 1: Results.**

	Methylprednisolone	Loop suture
Recurrence	14(25.45%)	4(7.41%)
Hypopigmentation	4(7.27%)	0
Superficial skin infection	0	2(3.7%)

**Figure 1: Clinical picture of loop suture applied to dorsal wrist ganglion.**



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