

Comparison of Surgical Excision with Aspiration followed by Intralesional Steroid Injection in Managing the Dorsal Wrist Ganglion

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ABSTRACT

Objective: To evaluate the outcomes of surgical excision vs aspiration combined with intralesional triamcinolone acetonide injection in the treatment of dorsal wrist ganglion (DWG).

Methods: A total of 60 patients with diagnosis of DWG from January-2020 to December-2020 from Islam Teaching Hospital Sialkot were recruited for this comparative study. Two groups of patients were formed based on the kind of therapy they received. Aspiration and Triamcinolone acetate (triamcinolone acetate) injections were used in Group A. Treatment in Group B was comprised of aspiration followed by surgical excision. Follow-up was done at one, three, six, and twelve months after therapy ended. The absence of the cyst on the patient's last visit was considered proof of a successful therapy. Treatment was deemed ineffective if recurrence occurred.

Results: Among 60 patients, 37 (61.7%) were female and 23 (38.3%) were males. The most common presenting symptom was swelling found in 60 (100%) patients, followed by pain/discomfort in 48 (80%) patients. Recurrence occurred in 5 (16.7%) patients in group B and in 4 (13.3%) patients in group A. The 1-year success rate was 86.7% in group A and 83.3% in group B (p-value 0.71).

Conclusion: Aspiration followed by triamcinolone acetone injection is a good alternative to surgical excision in DWG patients.

Keywords: Aspiration, Surgical excision, Dorsal wrist ganglion.

INTRODUCTION

Hand benign tumors, known as ganglia, are the most frequent kind of benign tumor. Ganglia are extra-articular accumulations of thick gelatinous and synovial-like fluid that are enclosed by a pseudo-capsule of compressed collagen but do not have a genuine epithelium or synovial lining. The bulk of ganglia (61%) are found on the dorsal wrist and are thought to emerge from the scapholunate joint in most cases.¹ Ganglia are often formed spontaneously, however roughly 10% of individuals may have a history of trauma prior to their presentation.²

In the clinical setting, ganglions are most often manifested as a hard, painless lump. Some people, however, may endure excruciating pain as a result of a ganglion. This might be owing to proximity to the posterior interosseous nerve or it could be related to a pressure phenomenon occurring in the area. Patients tend to seek treatment from their primary care physician owing to symptoms associated with the mass, such as discomfort or complaints about its look, or because of concern that the mass may be a malignant lesion.^{3,4}

A variety of therapeutic options have been introduced and used.⁵ However, the effectiveness and recurrence rates of many of these techniques are inconsistent. Aspiration is commonly used treatment modality, in addition to aspiration alone, aspiration combined with corticosteroids, ethanol or hyaluronidase injection or repeated punctures and electrocautery are also nonoperative therapies that may be used.⁶⁻⁸ In operative techniques, open as well as minimally invasive surgery has been advocated. It has been established that 1 year

recurrence rates of both open and arthroscopic surgical treatments are equal.⁹

Nonoperative therapy may be chosen by patients because of its less invasive nature and quicker return to work after the procedure, despite the fact that surgical management had lower recurrence rates than aspiration alone.⁴ Aspiration followed by intralesional triamcinolone acetonide injection, may be an alternate option for the patient if the result of surgical excision is equivalent. Reference??

The purpose of the current research is to evaluate the outcomes of surgical excision vs aspiration combined with intralesional triamcinolone acetonide injection in the treatment of dorsal wrist ganglion (DWG).

PATIENTS AND METHODS

A total of 60 patients with diagnosis of DWG were included from January-2020 to December-2020 from Islam Teaching Hospital Sialkot were recruited for this comparative study. Patients with DWG size >1 cm, aged >15 years, with or without history of trauma as well as a willingness to be followed up on, were all required for participation in the study. The history and physical examination were used to make diagnosis of ganglion. In some cases, radiological tests including X-rays and ultrasounds were used to rule out other possible causes. The lesion and treatment strategy were discussed with each patient in details.

Two groups of patients were formed based on the kind of therapy they received. Aspiration followed by intralesional steroid (triamcinolone acetate) injections was

used in Group A. Aspiration and surgical excision was done in the Group B patients.

In group A, following aseptic procedures, an 18 G needle was used to aspirate the ganglion and inject 40 mg of triamcinolone acetate into the ganglion using the same needle port and pre-filled syringe with diluted triamcinolone. For two days, the wrist was immobilized with a crepe bandage.

In group B, excision was carried out using the aseptic precautions and after a local infiltration of 2 percent xylocaine, procedure was performed. The complete cyst complex, which included the cyst, the pedicle, and a cuff of the surrounding joint capsule, was removed during the surgical surgery.

Follow-up was done at one, three, six, and twelve months after therapy ended. Participants were re-examined and absence of the cyst on the patient's last visit was considered proof of a successful therapy. Treatment was deemed ineffective if recurrence occurred.

RESULTS

Among 60 patients, 37 (61.7%) were female and 23 (38.3%) were males. The most common presenting symptom was swelling found in 60 (100%) patients, followed by pain/discomfort in 48 (80%) patients. 39 (65%) patients presented because of cosmetic concerns and 27 (45%) because of suspicion of tumors (Table 1).

The most common complication of ganglion management is recurrence, recurrence occurred 5 (16.7%) patients in group B and in 4 (13.3%) patients in group A. The 1-year success rate was 86.7% in group A and 83.3% in group B (p-value 0.71) [Table 2].

Table 1. Baseline Study Characteristics.

Age	26.9±8.67
Female / Male Gender	37 (61.7%)/23 (38.3%)
Presenting Symptoms	
Swelling	60 (100%)
Pain/Discomfort	48 (80%)
Cosmetic	39 (65%)
Suspicion of Tumor	27 (45%)

Table 2. Comparison of Study Outcomes.

	Group A	Group B	P-value
Success Rate	26 (86.7%)	25 (83.3%)	0.71
Recurrence	4 (13.3%)	5 (16.7%)	

DISCUSSION

The most frequent benign soft tissue tumor in the hand and wrist is the carpal ganglion cyst, which accounts for 50-70 percent of all cases.¹⁰ Many therapeutic options are available for ganglion, however none of them have been considered the standard or optimal treatment for this condition. Observation and aspiration are among the most common methods of treatment.

Among our patients, the average age was 24.7 years. The findings of Singhal et al. and ours are similar. No reference?? Two separate studies found a mean age of 40.25 years for 9 of the participants.^{10,11}

60 individuals were included in the trial, with a male-to-female ratio of 1/1.6. Almost identical findings were found in western areas with a ratio of 1/3.1¹² in favor of female. Studies in British and African populations reported

ratios of 1/1.4 and 1.5 respectively, as well as other investigations found similar results.^{13,14}

Paramhans et al. compared two techniques for the treatment of wrist ganglions, aspiration followed by triamcinolone injection and surgical excision.¹⁵ The researchers found that intralesional steroid injection was a safe therapeutic choice since there were 8.4 percent and 21.5 percent recurrence in steroid injection and surgical excision groups respectively.¹⁵

In another study, it was shown that 43 percent of dorsal wrist ganglions reappeared after aspiration and steroid injection, whereas 24 percent reappeared after surgical removal.¹⁶ In a study of 38 wrist ganglions by Gerhard et al., aspiration was shown to be a superior treatment option to hyaluronidase injection or surgery.¹⁷ In our research, we discovered a 13.23% recurrence rate after aspiration and steroid injection, and 16.7% recurrence rate after surgical excision. We followed our patients for 12 months. Janson reported that most of the ganglia had recurred in the first six months.¹⁸

However, despite the decreased recurrence rate of surgical removal of ganglia compared to aspiration techniques⁴, surgical operations have a higher risk of complications. Surgical treatment for ganglion may cause discomfort and stiffness in the wrists. Scapholunate instability, hypertrophic scarring (keloid), and discomfort and stiffness in the wrist are all symptoms of injury to the dorsal branches of the radial sensory nerve.¹⁹

Aspiration followed by steroid injection is good alternate treatment option for persons with dorsal wrist ganglion since we can improve their quality of life without exposing them to the risks of surgery.

REFERENCES

1. Kuliński S, Gutkowska O, Mizia S, Martynkiewicz J, Gosk J. Dorsal and volar wrist ganglions: The results of surgical treatment. *Adv Clin Exp Med*. 2019 Jan;28(1):95-102.
2. Afridi S, Rahman H, Baig N. Use of seton in ganglions of the wrist. *J Surg Pak* 2006;11:121-2
3. Hatchell A, Meathrel K, Farrokhhyar F, Hynes N. A Prospective Randomized Controlled Trial of Aspiration and Fibrin Sealant Use Versus Aspiration Alone in the Treatment of Dorsal Wrist Ganglia. *Plast Surg (Oakv)*. 2019 Feb;27(1):22-28.
4. Ahsan ZS, Yao J. Arthroscopic dorsal wrist ganglion excision with color-aided visualization of the stalk: minimum 1-year follow-up. *Hand (N Y)*. 2014 Jun;9(2):205-8.
5. Chatterjee S, Basu A, Gupta S, Biswas S. Comparative study of recurrence and complications using various sclerosants by single dart technique in treatment of ganglion cysts. *Indian J Surg*. 2014; 76(5):350-353.
6. Hussain S, Akhtar S, Aslam V, Khan SM. Efficacy of aspiration and steroid injection in treatment of ganglion cyst. *Pak J Med Health Sci*. 2015;9(4):1403-1405.
7. Ashindoitiang JA. Preliminary report of the effectiveness of tetracycline sclerotherapy in treatment of ganglion. *Plast Surg Int*. 2012;2012:624209.
8. Gu'mu's, N. A new sclerotherapy technique for the wrist ganglion: transcutaneous electrocauterization. *Ann Plast Surg*. 2009;63(1):42-44.
9. Chaudhary S, Mandal S, Kumar V. Results of modified thread technique for the treatment of wrist ganglion. *J Clin Orthop Trauma*. 2020;13(1):57-62.

10. Gude W, Morelli V. Ganglion cysts of the wrist: pathophysiology, clinical picture, and management. *Curr Rev Musculoskelet Med* 2008;1:205-11.
11. Paul AS, Sochart DH. Improving the results of ganglion aspiration by the use of hyaluronidase. *J Hand Surg Br* 1997;22:219- 21.
12. Stephen A, Lyons A, Davis T. A prospective study of two conservative treatments for ganglia of the wrist. *J Hand Surg Am* 1999;24:104-5.
13. Nield DV, Evans DM. Aspiration of ganglia. *J Hand Surg Br* 1986;11:264.
14. Gang RK, Makhlof S. Treatment of ganglia by a thread technique. *J Hand Surg Br* 1988;13:184-6.
15. Paramhans D, Nayak D, Mathur RK, Kushwah K. Double dart technique of instillation of triamcinolone in ganglion over the wrist. *J Cutan Aesthet Surg* 2010;3(1):29-31.
16. Humail S, Abidi A, Naeem Ul Haq S, Ghulam Mustafa K. Comparative study of two methods for treatment of dorsal wrist ganglion. *J Pak Orthop Assoc.* 2010;22(1):53-7.
17. Hajer GF, Scheltinga MR, Bakker XR, Wijburg ER. Hyaluronidase aspiration vs surgical excision of ganglion cysts: a randomized controlled trial. *Eur J Plast Surg* 2005;28:337- 9
18. Janson L, Niechajev I. Wrist ganglion. *Scand J Plast Reconstr Surg.* 1981;15:53-6.
19. Rocchi L, Canal A, Pelaez J, Fanfani F, Catalano F. Results and complications in dorsal and volar wrist ganglia arthroscopic resection. *Hand Surg.* 2006;11(1-2):21-26.