



INTRALESIONAL SCLEROSANT INJECTION FOR WRIST GANGLIA- A CASE SERIES

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ABSTRACT

Background: Wrist ganglion cases commonly present to a general surgeon with cosmesis and or with symptoms which can be managed by various modes including to wait & watch, surgical and conservative, of which sclerosant therapy is a popular choice. Potential advances in sclerosing agents specific to the treatment of ganglion cysts may lead to a definitive medical treatment of ganglions, which would avoid surgery.

Methods: This study was carried out in Department of General surgery, Osmania Medical college, Hyderabad, Telangana between June, 2017 to December, 2017. Fifteen patients with clinical diagnosis of wrist ganglion; whose age, sex, site of the cyst, any previous treatment taken were recorded. All patients were explained about the lesion and their treatment plan. Three follow-up visits were performed for upto three months after treatment. Treatment failure being defined as persistence of swelling at final visit and or presence of burning sensation and pain.

Result: 73%(n=11) ganglion cysts disappeared in single session of sclerotherapy and rest of 27%(n=4) underwent additional sclerotherapy session. All ganglion cysts had disappeared by final followup at 3 months. One patients had complications with local pain for 1 month after injection.

Conclusion: Intralesional injection of sclerosant (sodium tetradecyl sulphate), may be considered as a economical, convenient, less invasive and safer alternative to surgical excision of wrist ganglion cysts.

KEYWORDS : wrist, ganglion cyst, sodium tetradecyl sulphate, sclerosant injection

INTRODUCTION:

Ganglions are among the most common tumors of the hand and wrist.^[1] & in general represent 50-70% of all soft-tissue tumors of the hand and wrist.^[2] The prevalence in women is three times that in men (Tallia and Cardone 2003; Thommasen et al 2006) occurring in persons aged 10-40 years. For the most part, they are asymptomatic masses that are primarily cosmetic rather than functional disturbances. In most instances, observation is the only management necessary. However, some can exert a mass effect on nearby structures. The impingement of which can cause pain, triggering of tendons, and vascular compromise. In these instances, the patient often seeks surgical attention.^[2, 3, 4, 5, 6] The etiology of ganglions is unknown. Theories include mucoid degeneration and trauma (<10%). No known occupational risk factors exist.

Ganglion cysts contain a thick, clear, mucous-like fluid similar to the fluid found in joints. The ganglion capsule is formed from compressed stroma, with no cellular lining, and may be linked to the underlying joint capsule by a narrow channel that functions as a one-way valve.⁷ Wrist ganglia commonly develop at the dorsal and palmar-radial aspects of the wrist.⁸ In some cases, ganglia can develop at an intra-osseous location where they adhere to tendons (for example, extensor tendons at the wrist) or can be associated with a carpal bones of the second and third carpometacarpal joints.⁹ Regarding the treatment of ganglion, bursting of the ganglion by manually humping with a heavy book (traditionally "the Bible") being the most ancient one^[17] It was noted that ganglia taking no treatment occasionally give history of spontaneous disappearance^[18]. The methods in use include simply reassurance to the patient, simple aspiration, aspirations and injection of corticosteroid with or without hyaluronidase^[19], injection of sclerosing agent^[20], manual rupture, cyst wall puncture with a needle, trans-fixation with silk suture^[21], radical surgical excision^[22], arthroscopic excision^[23]. Varying rates of success of these methods have been reported which shows considerable variations.

Surgery improves the rate of ganglion resolution and generally provides good to excellent results, but is not a panacea, and thus,

the development and continued use of numerous non-surgical techniques.²⁴ Despite excellent results by a number of authors with low complication and recurrence rates, surgery is not without risk. Complications include infection, neuroma, unsightly scar, and keloid. Additionally, postoperative stiffness, grip weakness, and decreased range of motion may occur. Rizzo reported stiffness in 25% of patients and required up to 8 weeks and occupational therapy to regain maximal function. Wright reported that 14% of patients complained of limitation of activities due to loss of wrist motion. Postoperative pain is not uncommon.^{17,25,26}

As cosmesis is a common concern, surgery may simply be exchanging an unsightly lump with a 50% chance of spontaneous resolution for an unsightly and permanent scar.^{13,14}

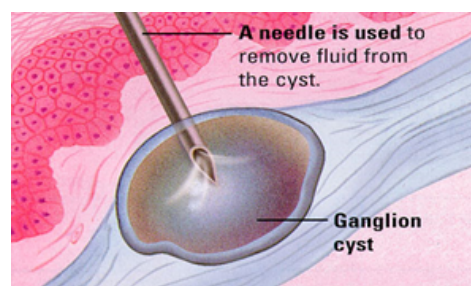


figure I: cyst aspiration



figure II: ganglion arising from tendon

CASE:

There were 15 patients examined (figure A), ten of which presented with symptoms which of aching in the wrist, pain with activity, three with visible mass. On inspection, swelling transilluminates with no associated local warmth or erythema. On palpation, it is firm and well circumscribed, ranged 2-4 cms, cystic, often fixed to deep tissue but not to overlying skin which immobilise along the axis of the tendon

S. no	Gender	Age	Hand Affected	Size (cm)	Position on Wrist
1	Female	32	Right	2.5	Volar
2	Male	21	Right	3	Dorsal
3	Female	18	Left	2	Dorsal
4	Female	20	Right	1.8	Volar
5	Male	42	Right	2.5	Dorsal
6	Female	15	Right	3	Volar
7	Female	25	Right	3.5	Dorsal
8	Female	39	Right	2	Volar
9	Female	40	Left	4	Dorsal
10	Female	24	Right	1.5	Volar
11	Male	36	Right	2.4	Dorsal
12	Male	35	Right	4	Volar
13	Female	31	Right	3.2	Dorsal
14	Female	26	Right	3.6	Dorsal
15	Male	28	Left	3	Dorsal

Figure A: Case details

METHODS:

This prospective study was carried out in Department of General surgery, Osmania Medical college, Hyderabad, Telangana between June, 2017 to December, 2017. Fifteen patients with clinical diagnosis of wrist ganglion whose age, sex, site of the cyst, history of any previous treatment taken and recurrence were recorded. All patients were informed and explained about the lesion and their treatment plan. Follow-up visit was performed upto three months after treatment. Treatment failure was defined as cosmetically unacceptable cyst at final visit or presence of burning sensation and pain.

Inclusion criteria: previously untreated wrist ganglion by any other method.

Exclusion criteria: infected ganglion, ganglion of other sites, previously treated in any form, ganglion associated with arthritic disorder and patients with other comorbidities were excluded from the study.

MATERIAL:

10 cc and 2 cc disposable syringes, 21 G needle, 1-2cc of Inj. Sodium tetradecyl sulfate (Inj. Sterol 3%).

The procedure was done on out-patient daycare basis under all aseptic conditions. The cystic cavity was evacuated by puncturing cyst wall via a 10cc syringe with 21G needle from the lateral aspect (figure 1,2), aspirating gelatinous content with a gentle external pressure (figure 2,3,4).

Meanwhile sclerosant agent was injected by using 2 cc disposable syringes via the same needle with same quantity as that was aspirated (figure 5), ensuring it is in cyst cavity followed by application of compression bandage (figure 6).

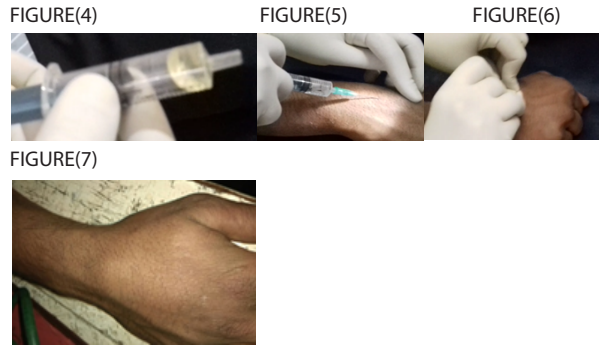
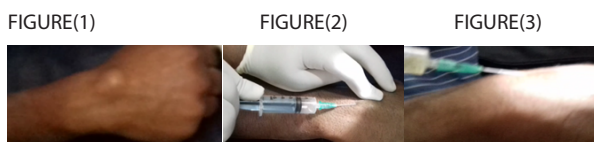


Figure 1: ganglion cyst before injection
 Figure 2: cyst aspiration via gentle pressure on cyst wall
 Figure 3: lateral view depicting decrease in size following aspiration
 Figure 4: 2.5ml of gelatinous aspirate content from cyst
 Figure 5: injecting setrol into cyst cavity
 Figure 6: pressure bandage
 Fig 7: after injecting sclerosant (follow up at 1 week)

RESULTS:

73%(n=11) ganglion cysts disappeared in single session of sclerotherapy and rest of 27%(n=4) underwent additional sclerotherapy session. All ganglion cysts had disappeared by final followup at 3 months. one patients had complications with local pain for 1 month after injection. mean follow up time was around 3 months. 66.7%(n=10) of the cases were female and 33.3% (n=5) were male with ages varying from 15 to 42 years [Figure B&C]. The dominant hand (right hand was dominant hand in all studied cases) was affected in 12(75%) cases while in 3(25%) non-dominant (left) hand was affected.

All cases studied didn't undergo any previous treatment.

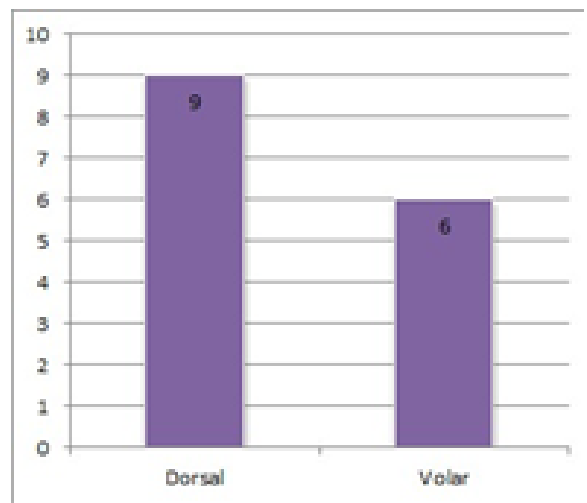


Figure B: Figure showing distribution of location of wrist ganglion cyst

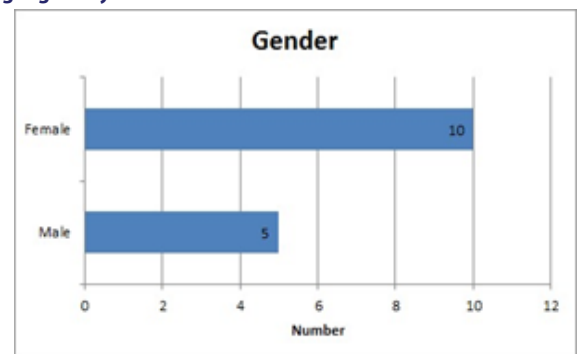


Figure C: Showing Gender distribution

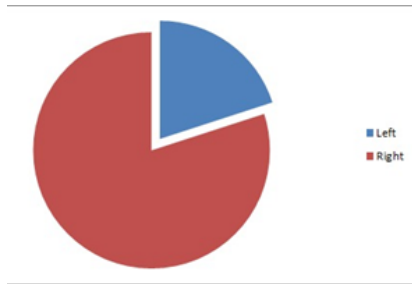


Figure D : Showing Hand affected

TABLE 3 : proportion of cases with ganglion disappearance

VISIT	Rate of disappearance	No. of Males	No. of Females
1 (1 week)	73%	4	7
2 (2 weeks)	100%	5	10
3(3 months)	100%	5	10

DISCUSSION:

Sodium tetradecyl sulfate injection is a sclerosing agent available as 3% ampoules, 60 mg/2 mL (30 mg/mL) for intravenous use only in varicose veins. It also has various off label uses, one of which is for ganglion cyst. Mechanism of action: it causes obliteration of the cyst cavity, preventing further accumulation of fluid inside the cyst^[15] via sclerosis of cyst walls. Side effects : Pain, itching, or lesions at the injection site; sloughing of skin at the injection site, rarely allergic reactions. Mild systemic reactions that have been reported include headache, nausea and vomiting.^[16]

Studies have shown that approximately 33% of dorsal wrist ganglia and 45% of volar wrist ganglia resolve spontaneously within six years. Within 10 years, the rate of spontaneous resolution increases markedly to 51% and 63% for dorsal and volar ganglions, respectively.¹⁰

Recurrence is the most common complication of treatment of ganglions.¹¹ The current treatment of choice is aspiration—the mainstay of non-surgical treatment. Studies have shown remarkably variable rates of success. Zubowicz reported 85% success with up to three aspirations.²⁷ The impressive results of Zubowicz had been elusive in subsequent investigations, and, most studies, even with repeat aspirations, demonstrated a success rate of only 30–50%.¹²

In present study, 73% success was achieved with single sclerosant therapy session with 100% success rate with second session (figure E). in the Chatterjee's study, recurrence rate over 3 years study was 35%(n=21) and wrist stiffness was 71.67%(n=43)¹

CONCLUSION:

In the present study we assessed the effectiveness of aspiration and injection of sodium tetradecyl sulphate into the cyst cavity by using 21G needle which is a minimally invasive treatment of symptomatic ganglion cysts of the wrist. It is simple, noninvasive, less time consuming, safe and cost effective method satisfying both the patient's demand and the surgeon's limited resources as well as defying the higher chances of recurrence and cosmetically unappealing scar post surgery, we recommend this method as a better option before any surgical intervention.

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