IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 15, Issue 3 Ver. X (Mar. 2016), PP 25-27
www.iosrjournals.org

Comparative Study Of Recurrence And Complications Using Injection Sclerosant Triamcinolone Versus Hyaluronidase By Single Dart Technique In Treatment Of Wrist Ganglion Cysts –A Study Of 240 Patients

Mishra R.P [1] ,Arun Chandra[2] ,Singh H.P [3] ,Srivastava S.K [4],Gupta Sanjay [5]
[1]*JR-3,DNB,General surgery*
[2]*MBBS,MS Sr.consultant*
[3]*MBBS,MS Sr.consultant*
[4]*MBBS,MS Sr.consultant*
[5]*MBBS,MS consultant*
Department of General Surgery, Dr.RML Combined hospital Gomti nagar,LUCKNOW-226010

Abstract: *Ganglion Cysts are tense smooth fluctuant cystic and transilluminant swellings commonly found on dorsum of wrist at scapholunate articulation and may involve volar aspect of wrist, tendon sheaths and interphalangeal joints . Our study aims to compare efficacy and recurrence rates with triamcinolone and hyaluronidase using the single puncture technique . This prospective observational study was conducted to the cases who presented to our general surgery out patient department with ganglion cyst between april 2014 to august 2015. A total of 240 patients were included in this study .The difference in the recurrence rates after sclerotherapy for ganglion cysts is statistically significant between triamcinolone and hyaluronidase p <0.001 Using a single dart technique,Intralesional Triamcinolone for wrist ganglion cyst management is an excellent sclerotherapeutic agent . It has a very minimal side effects profile with low recurrence rates(25%),no complications like hypersentivity reactions and ulceration,as the risk of sclerosant injection outside cyst cavity is being tide-over. Hence, from the above study Intralesional injection of triamcinolone by the single-dart technique, is definately a simple, safe, cost-effective, convenient, less-invasive alternative to other contemporary sclerosants and surgical excision of wrist ganglion cysts.*

I. Introduction

Ganglion are smooth tense fluctuant cystic transilluminant swellings. They are commonest variety of soft tissue tumors of hand[1] .They are most commmonly found on the dorsum of wrist overlying the scapholunate articulation but may also involve the volar aspect of the wrist ,tendon sheaths and interphalangeal joints.Histopathologically they are characterised by myxomatous degeneration of synovial sheath of the concerned joint /tendon.Theses cysts are non neoplastic,filled with jelly-like material and may present with swellling along with chronic pain , inflammation,reduced joint mobility,and even paresthesia [2] .

These cysts do not have a true epithelial lining and are therefore pseudo cysts. The main aim of treatment is to reduce production of gelatinous substance contained within it, rather than excision of it the cyst. Various procedures have conventionlly used to treat a ganglion cyst , namely aspiration of the cyst , injection of sclerosant into the cyst, threading of the cyst and finally surgical extirpation of the cyst (including debridement of the joint capsule). Surgery require meticulous excision of the whole ganglion complex to prevent recurrence, while protecting the adjacent tendon pulleys and neurovascular bundles. Unfortunately all of these procedures have high recurrence rates due to remnant tissue resulting from inadequate excision [3].

This study aims to compare the efficacy recurrence rates , and complications with triamcinolone and hyaluronidase the sclerosants used most commonly in the treatments of ganglion cysts using the single puncture technique.

II. Material and Methods

This prospective observational study was conducted on patients who presented to the general surgery OPD at DR.RML Combined Hospital, Lucknow, with simple ganglion cysts of the wrist between april 2014 to august 2015 (18 months). A total of 240 patients were included in this study .

Inclusion criteria - All patients with simple wrist ganglion.

Exclusion criteria -

1 Complex palmar ganglion
2 Local skin lesions (tinea, eczema etc.)

3 Patients with immuno compromised status (Diabetes Mellitus, HIV, Malignancy or on Immunosupressive therapy etc.)

There were 120 patients in each group ganglion cyst were diagnosed on the basis of clinical examination. Sclerotherapy was performed using the single puncture method . The cyst wall was punctured with a sterile wide bore (16 gauze) needle under standard aseptic precautions. The gelatinous content of the cyst was aspirated with gentle compression of the cyst. After the cyst was emptied the syringe was detached keeping the needle in situ. Another syringe filled with sclerosant solution was attached to needle and the cyst was refilled with 2 ml of sclerosant to achieve a size more or less equal to the pre procedure size . Proper care was taken not to over stretch the cyst . Needle was removed and puncture site was covered with a sterile swab.

This procedure was repeated every month for 3 month consecutively . This single puncture technique used here in modification of double puncture (dart) technique. The patient were advised to use pressure bandage at the wrist for 15 days after each injection for splintage. All the patient were followed up for at least 6 months after the last injection. Maximum follow up period being 18 months.

III. Results

Out of the 240 patients 162(67.5%) were females and 78(32. 5%)were males showing female predominance . The age of patients ranged from 18 to 50 years (The highest incidence was between 20 to 32 years ,132/240.(55%) . Wrist Ganglion over the dorsum were more common than volar (178/240,(74.1%) Most of the patients had post procedure wrist pain which was resolved with analgesics .
The results are shown in the table given below:

Table 1: Comparison of injection sclerosants triamcinolone and hyaluronidase in treatment of wrist ganglion cyst

	Sclerosant	Recurrence	Hypersesitivity reactions	Ulceration	Hypopigmentation	Cost INR	Wrist Stiffness
1	Inj.Triamcinolone	30/120(25%)	Nil	Nil	12	60	30
2	Inj.Hyaluronidase	80/120(75%)	04	01	Nil	90	36

The difference in the recurrence rate after sclerotherapy for ganglion cysts is statistically significant between intralesional injection of triamcinolone and hyaluronidase

IV. Discussion

Ganglion cysts are most common benign soft tissue swellings around the wrist. They are commoner in the dorsal aspect of the wrist than the volar aspect and may present as a painful or painless swelling, sometimes leading to restriction of joint movement as well as hand paresthesia .[4]Generally these cysts are filled with gelatinous fluid and found adjacent to a tendon sheath or capsule of synovial joint. That is why they are believed to arise from chronic irritation of the adjacent tendons, ligaments or joints. Commonly these cysts communicate with the neighboring tendon sheath or synovial joint via pedicles [5] .

Various procedures have been tried out for permanent cure of a ganglion cyst. Unfortunately, all have presented with considerable recurrence rates. In the past, topical plaster, local application of heat, and even physically smashing the cyst with heavy books (“Bible therapy”, probably giving the name “Bible cyst” to a ganglion) were tried, but none of them is practiced now. Surgical removal of the cyst is advised if the cyst is painful, getting infected frequently, very large in size, interfering with function or joint mobility or causing sensory neurodeficit. However, surgery is associated with a recurrence rate of 20 %. In comparison, simple aspiration of the cyst immediately relieves the pain but causes recurrence within 3 months in 65 % of patients . [6]

Surgical treatment is often associated with grave consequences such as wrist stiffness, pain, and swelling of the hand. There is also evidence of damage to the superficial branch of the radial nerve and palmar cutaneous branch of the median nerve while performing excision of a simple ganglion cyst [7] . Injection sclerotherapy is a good alterna-tive with compatible recurrence rates but with a few side effects, the recurrence rate varying between 10 and 35 %. Hyaluronidase probably acts by improving liquefaction of the gelatinous content of the cyst [8] . Recurrence rate after hyaluronidase sclerotherapy is reported to be approxi-mately 25 % [9]. Triamcinolone, when injected in the cyst cavity, lies in close contact with mucin-secreting mesenchy-mal cells of the cyst lining, arresting the secretion of gelat-inous fluid into the cavity.[10]Recurrence rate after triamcinolone sclerotherapy is reported to be approximately 8.4 % [3] . Sodium tetradecyl sulfate, on the other hand, causes obliteration of the cyst cavity, preventing further accumulation of fluid inside the cyst [11] . It is reported to have a recurrence rate of 35 % .[12]Sclerotherapy in treatment of ganglion has commonly been done before using the double-dart technique [3] . In the single-dart method used in our study, the needle was not removed from the cyst cavity following aspira-tion. The injection of the sclerosant was therefore al-ways ensured to be within the cyst cavity. This reduced the rate of complications, such as hypopigmentation, which were due to subcutaneous extravasation of the sclerosant

V. Conclusion

Using a single dart technique,Intralesional Triamcinolone for wrist ganglion cyst management is an excellent sclerotherapeutic agent . It has a very minimal side effects profile with low recurrence rates(25%),no complications like hypersentivity reactions and ulceration,as the risk of sclerosant injection outside cyst cavity is being tide-over. Hence, from the above study Intralesional injection of triamcinolone by the single-dart technique, is definately a simple, safe, cost-effective, convenient, less-invasive alternative to other contemporary sclerosants and surgical excision of wrist ganglion cysts.

References

[1]. Nelson CL, Saw Miller S, Phalen GS (1972) Ganglion of the wrist and hand. J Bone Joint Surg [Am] 54:1459
[2]. Thornburg LE (1999) Ganglions of the hand and wrist. J Am Acad Orthop Surg 7:231–238
[3]. Dharamdas P, Nayak D, Mathur RK, Kushwah K (2010) Double dart technique of installation of triamcinolone in ganglion over the wrist. J Cutan Aesthet Surg 3(1):29–31
[4]. Plate AM, Lee SJ, Steiner G, Posner MA (2003) Tumour like lesions and benign tumours of the hand and wrist. J Am Acad Orthop Surg 11:129–141
[5]. Nishikawa S, Toh S, Miura K et al (2001) Arthroscopic diagnosis and treatment of dorsal wrist ganglion. J Hand Surg 26:547–549
[6]. Tanaka Y, Takakura Y, Kumai T, Sugimoto K, Taniguchi A, Hattori K (2009) Sclerotherapy for intractable ganglion cyst of the hallux. Foot Ankle Int 30(2):128–132
[7]. Edwards SG, Joansen JA (2009) Prospective outcomes and asso-ciations of wrist ganglion cysts resected arthroscopically. J Hand Surg Am 34:395–400
[8]. Jagers M, Akkerhuis P, Van Der Heijden M, Brink PRG (2002) Hyaluronidase versus surgical excision of ganglia: a prospective randomized clinical trial. J Hand Surg 27:256–258
[9]. Westbrook AP, Stephen AB, Oni J, Davis TR (2000) Ganglia: the patient's perception. J Hand Surg (Br) 25(6):566–567
[10]. Colberg RE, Sɑnchez CF, Lugo-Vicente H (2008) Aspiration and triamcinolone acetonide injection of wrist synovial cysts in children. J Pediatr Surg 43:2087–2090
[11]. Neidoff M, Davis TRC, Clay NR (1997) Conservative manage-ment of wrist ganglia: aspiration versus steroid infiltration. J Hand Surg 22:636–637
[12]. Ashindoitiang JA (2012) Preliminary report of the effectiveness of tetracycline sclerotherapy in treatment of ganglion. Plast Surg Int 2012, Article ID 624209, doi:10.1155/2012/624209