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POST-TREATMENT RECURRENCE OF DORSAL ROOT GANGLION: INJECTION TRIAMCINOLONE VS SURGICAL EXCISION

Plastic Surgery

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ABSTRACT

Introduction: Ganglion is the most common benign soft tissue tumour of hand and represents about 60–70% of all such soft tissue tumours.
Aims: To study the rate of recurrence of dorsal wrist ganglion after installation of injection triamcinolone in ganglion as compare to surgical excision.
Materials and Methods: A prospective study was conducted on 62 patients; we have divided in to two groups. Group I (injection triamcinolone) having 31 patients and group II (surgical excision group) having 31 patients.
Results: Group I having success rate 87.07 % & recurrence rate 12.9 %. Group II having success 70.96 % & recurrence rate 29.03 %.
Conclusion: In our study group I having more success rate then success rate then group II.

KEYWORDS

Triamcinolone, Surgical Excision, Ganglion, recurrence.

Introduction:
Ganglion is the most common benign soft tissue tumour of hand and represents about 60–70% of all such soft tissue tumours [1]. Dorsal wrist ganglion cysts originate from scapho-lunate interval and its etiology is still unclear. Ganglions are tense, smooth fluctuant, cystic transilluminant swellings. They are the commonest variety of soft tissue tumors of hand [1]. They are most commonly found on the dorsum of the wrist overlying the scapholunate articulation (fig 1, fig 5 fig 10), but may also involve the volar aspect of the wrist, tendon sheaths, and even inter phalangeal joints. Histopathologically they are characterized by myxomatous de-generation of the synovial sheath of the concerned joint/ tendon. Presence of numerous "micro-cysts" in the tortuous pedicle lumen creates one- way valve mechanism [2]. The origin of the cystic fluid have been postulated to arise i} from the joint ii} extra-articular degenerative process and iii} mesenchyme cells within the cell wall. These cysts are non -neoplastic, filled with jelly-like material (fig 2 and fig 6) and may present with reduce the production of the gelatinous substance contained within it, rather than excision of the cyst. Various procedures have conventionally been used to treat a ganglion cyst, namely, aspiration of the cyst, injection of intralesional sclerosant into the cyst, threading of the cyst, and finally surgical extirpation of the cyst (fig 11) (including debridement of the joint capsule). Surgery requires meticulous excision of the whole ganglion complex to prevent recurrence, while protecting the adjacent tendon pulleys and neurovascular bundles. Un-fortunately all of these procedures have high recurrence rates due to remnant tissue resulting from inadequate excision [3] ,chronic pain, inflammation, reduced joint mobility, and even paraesthesia. Westbrook et al in 50 patients with ganglion cysts found the following reasons of treatment 36% about appearance 28% about malignancy 26% about pain and 8%for abnormal function.[4] These cysts do not have a epithelial lining and are therefore pseudo cysts. At present aspiration is the mainstay of non-operative management and most studies demonstrate a success rate at 30-50%. To improve the result of treatment some advocated aspiration combined with instillation of injection triamcinolone into the cyst wall (fig 3 and fig 7).

Aims:
To study the rate of recurrence of dorsal wrist ganglion after installation of injection triamcinolone in ganglion as compared to surgical excision.

Materials and Methods:
A prospective study was conducted on 62 patients with simple ganglion cysts on the wrist who presented to the plastic surgery outpatient department at our institute from September 2016 till August 2017 (12months). Patients with (co-morbidities) immune compromised status, diabetes mellitus, local skin lesions (eczema), malignancy, bleeding diathesis, Post treatment recurrence of ganglion and complex palmar ganglion were excluded from the study. We have divided in to two groups. Group I (injection triamcinolone) having 31 patients and group II (surgical excision group) having 31 patients. In group I under standard aseptic precautions, using the single dart (i.e., single puncture) method, the cyst wall was punctured with a sterile wide-bore needle (18-gauge) fitted over 10 ml syringe, cyst content aspirated (fig 2 and fig 6), followed by instillation of 40 mg Injection triamcinolone acetonide loaded in a different syringe (fig 3 and fig 7), after removing the syringe with aspirate content (but keeping the needle in place). This procedure was repeated monthly for 3 months, if needed. In group II surgical excision was done in minor ot day care basis under all aseptic precaution ganglion swelling is excised (fig 11) and finding are documented, result analyzed. Success is determined by palpation and visualization of dorsal wrist in flexed position (fig 4 and fig 8).

Results:

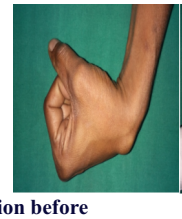

Fig 1 Ganglion before aspiration

Fig 2 Ganglion during aspiration of cyst

Fig 3 Instillation of Injection

Fig 4 showing follow up after 3 month

Fig 5 Ganglion before aspiration

Fig 6 Ganglion during aspiration of cyst

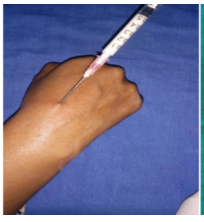

Fig 7 Instillation of Injection

Fig 8 showing follow up after 2 month

Fig 9 showing recurrence

Fig 10 before surgical excision

Fig 11 after surgical excision

At 1 year follow up period the final examination group I having 31 patients and group II having 31 patients. All ganglions located on the dorsum of wrist over the scapholunate joint.

Distribution of patients according to sex and side

Group I (Injection triamcinolone) **Table 1**

Sex	Frequency	%	Side	Frequency	%
Male	19	61.30	Right	18	58.07
Female	12	38.70	Left	13	41.93
Total	**31**	**100.00**	**Total**	**31**	**100.00**

Group II (Surgical Excision) **Table 2**

Sex	Frequency	%	Side	Frequency	%
Male	14	45.17	Right	20	64.51
Female	17	54.83	Left	11	35.49
Total	**31**	**100.00**	**Total**	**31**	**100.00**

Success and Recurrence **Table 3**

Group	Success No (%)	Recurrence No (%)
Group I (Injection Triamcinolone)	27 **(87.09%)**	4 **(12.9%)**
Group II (Surgical Excision)	22 **(70.96%)**	9 **(29.03%)**

The age of study subjected between 15- 60 year of age, total 62 patients included in study 33 (53.23%) male, 29 female (46.77%). Duration before treatment between 1-15 month, the cyst found 61.2% patient's right side, patients having left side 38.7%. Table 1 and 2 Showing the frequency of sex & side of involment in two Groups. Result and success, recurrence show in Table 3. **Group I** (Injection Triamcinolone) having success rate 87.07 % & recurrence rate 12.9 % (fig 9) **Group II** (Surgical Excision) having success 70.96 % & recurrence rate 29.03 %.

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 par aesthesia [5]. Generally these cysts are filled with gelatinous fluid and found adjacent to a tendon sheath or capsule of a 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 [6] .Various procedures have been tried out for permanent cure of a ganglion cyst. Unfortunately, all have presented with considerable recurrence rates. 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. Injection sclerotherapy is a good alternative with compatible recurrence rates but with a few side effects, 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 [7]. Injection of intralesional triamcinolone is a good alternative with compatible recurrence rates and fewer side effects. Triamcinolone when injected in the cyst cavity lies in close contact with mucin secreting mesenchyme cells of the cyst lining, arresting the secretion of gelatinous fluid into the cavity. Recurrence rate after triamcinolone injection is reported to be approximately 8.4 % [9]. In the single dart method used in our study, the needle was not removed from the cyst cavity following aspiration. The injection of the Triamcinolone into the cyst was always performed after ensuring the tip of the needle to be within the cyst cavity. This reduced the rate of complications, such as hypopigmentation (due to subcutaneous extravasation of the sclecrosant). Recurrence is the most common complication of treatment of ganglions. Humail SM et al[8] reported that the recurrence rate was 43% in aspiration with steroid injection and 24% in surgical excision for treatment of dorsal wrist ganglions. Colberg et al in their study reported 14% recurrence with injection of triamcinolone acetinide in pediatric population. Paramhans et al[9] compared two methods of aspiration followed by triamcinolone injection and surgical excision for treatment of wrist ganglions. They found a recurrence rate of 8.4% and 21.5% respectively and concluded that intracystic steroid injection into the cyst was a safe mode of treatment. Human et al reported that the recurrence rate was 43% in aspiration and steroid injection and 24% in surgical excision for treatment of dorsal wrist ganglions. In our study **Group I** (injection triamcinolone) having success rate 87.07 % & recurrence rate 12.9 %. **Group II** (surgical excision) having success 70.96 % & 29.03 % recurrence rate.

Conclusion

In our study, we found that rate of recurrence following surgical excision of dorsal wrist ganglion is more as compared to intralesional injection of triamcinolone. So, we suggest that intralesional injection of triamcinolone should be the preferred modality of treatment.

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