



Research Article

RESULTS OF SURGICAL EXCISION OF WRIST GANGLION USING CATCH-THE-STALK TECHNICAL APPROACH

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ABSTRACT

Background: Ganglions are mucin filled cysts which may be uni- or multi-lobulated. They are the most common soft tissue tumour of the hand. Dorsal wrist ganglia represent 70% of all ganglia. The aim of this study to evaluate the results of surgical excision of the ganglions.

Patients and methods: The study duration was from October 2018 to March 2020. This study was conducted on thirty-seven patients with wrist ganglion on dorsal aspect presenting to the orthopaedic out-patient department of our hospital. In surgical technique special consideration was given in identifying the stalk and excising the ganglion from the base of the stalk.

Results: Thirty seven patients were included in our study, of which 26 (70.3%) were females. The average age of our patients was 30.5 years (Range: 15-58 years). Eighteen (48.6%) of our patients has presenting complaint of a painless swelling giving a cosmetic trouble. The overall recurrence rate for our series was 18.9% (7 patients). There was no difference in gender predominance for recurrence: 2 recurrences in 11 males (18.1%) and 5 recurrences in 26 females (19.2%). 15 (40.5%) of our patients had some tenderness over the scar, of which 11(29.7%) had mild tenderness. Three out of our 37 patients (8%) complained of unsightly scars. 24(64.8%) of our patients were satisfied with the overall results of the surgery.

Conclusion: Ganglions should not be considered non-significant lesions. Whenever a surgical intervention is contemplated a proper approach is necessary. Otherwise, the demands its surgical treatment can place on healthcare resources becomes a challenge.

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INTRODUCTION

A ganglion is a benign tumour-like cystic lesion, most commonly seen around hand and wrist. They are the most common soft tissue tumour of the hand, representing up to 70% of all such tumours. Dorsal wrist ganglia represent 70% of all ganglia and volar wrist ganglia up to 20% [1]. They are commonly seen during the third to fifth decade of life and are more common in females[2]. The exact cause of ganglion is still unclear and multiple theories have been proposed to explain its causation[3,4].

The treatments range from simple observation [5] to aspiration with[5-9] or without injection of various agents[10-12] to arthroscopic resection[13-16] and open excision [15,17-20]. Recurrence rates have been documented widely, varying from 1% reported by Angelides and Wallace in 1976[17] to 42% [21] for open excision. Arthroscopic resection of dorsal and more recently volar ganglia show a recurrence rate up to 7% [22]. Surgical excision is the gold standard treatment for ganglion in terms of recurrence rates [4,17]. However surgical excision has its own share of complications like wound healing

problems such as infection, neuroma or keloid formation and the presence of a scar. Other reported complications include scapho-lunate dissociation, joint stiffness, damage to the terminal branches of the posterior interosseous nerve and decreased grip strength along with the risks associated with the use of general anaesthesia and upper limb tourniquet.[4,23]

MATERIALS AND METHODS

A prospective study was conducted on thirty-seven patients with wrist ganglion on dorsal aspect presenting to the orthopaedic out-patient department of our hospital. Compound palmar ganglion, volarly placed ganglions, ganglion less than 5 mm in size, infected ganglion and patients who had recurrence from previous surgery were excluded from the study. Patients were explained about the technique and informed consent was taken. The study duration was from October 2018 to March 2020.

The study group consisted of 26 females and eleven males. The youngest patient was fifteen years old and oldest was

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fifty-eight years old with an average age at presentation of thirty one years.

Operative technique

The patients were operated in the outpatient department as a day care procedure. After cleaning the wrist with povidine iodine and isopropyl alcohol, the wrist was flexed to make the ganglion prominent. Using local anaesthesia, either transverse or longitudinal incision is given over the ganglion with underlying anatomy kept under consideration. Blunt dissection is carried out and the cyst is visualized. The tendons are retracted radially and ulnarly and further dissection is done to identify the stalk of the cyst. The stalk is traced downwards meticulously upto the dorsal aspect of the scapholunateinterosseous membrane. After proper identification of surrounding structures, the stalk is caught hold of either with vicryl 2-0 or artery forceps and is excised from its base. [Figure 1] We did not attempt to excise any part of the underlying capsule. Wound was irrigated copiously, hemostasis achieved and incision closed. Only bulky hand dressing was applied since no part of the capsule was excised so splintage was not required.

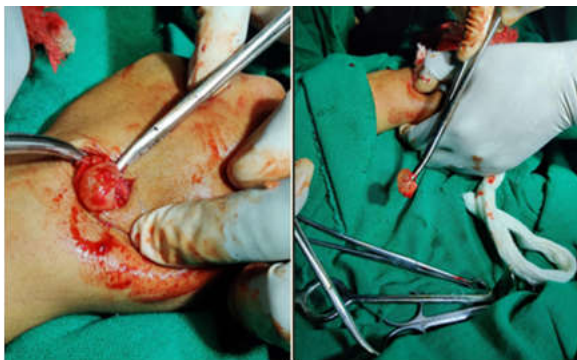


Figure 1: Ganglion cyst hold at its stalk and excised

In postoperative phase, the patient is initiated a range-of-motion program 2 to 3 days after surgery. The sutures are removed at 2 weeks and a more aggressive therapy program is encouraged. Patients were then followed at monthly intervals for first three months and for final follow-up at six months. At the end of final follow-up, we determined: 1) recurrence of the ganglia after excision, 2) scar tenderness, 3) dissatisfaction of scar cosmesis, 4) overall satisfaction.

RESULTS

Thirty seven patients were included in our study, of which 26 (70.3%) were females. The average age of our patients was 30.5 years (Range : 15-58 years).Table 1 shows the presenting complaints of our patients. Eighteen (48.6%) of our patients has presenting complaint of a painless swelling giving a cosmetic trouble. Other complaints were pain on activity in thirteen (35%) patients, dull aching pain in five(13.5%) patients and radiating pain up to forearm in one (2.7%) patients. None of the patients complained of weakness of grip or pressure symptoms over surrounding nerves.

Table 1 Presenting complaints of the patients

Presenting symptoms	n (%)
1. Painless swelling	18(48.6)
2. Pain on activity	13(35%)
3. Dull aching pain	5(13.5%)
4. Radiating pain upto forearm	1(2.7%)
5. Weakness/pressure symptoms of the surrounding nerves	-

The overall recurrence rate for our series was 18.9% (7 patients). There was no difference in gender predominance for recurrence: 2 recurrences in 11 males (18.1%) and 5 recurrences in 26 females (19.2%).

Scar tenderness was graded subjectively by the patients as *nil, mild, moderate or severe*. 15 (40.5%)of our patients had some tenderness over the scar, of which 11(29.7%) had mild tenderness. 3 (8.1%) patients described moderate tenderness and one patient had a scar severe to touch at the end of follow up although it was managed later on.

Patient’s opinion on their scar cosmesis was graded subjectively as unsightly, indifferent or happy. Three out of our 37 patients (8%) complained of unsightly scars. Most of our patients were not much concerned about the scar and many were happy with the cosmesis. Overall satisfaction of our patients was based on direct questioning of the patients regarding re-surgery if any such need arises. 24(64.8%) of our patients were satisfied with the overall results of the surgery and were ready for the surgery if given the choice again in case of recurrence or another-site ganglion.

DISCUSSION

The ganglions are the most common cystic tumors around the wrist and hand with dorsal aspect being the commonest site (60-70%). Thirteen to twenty percent are seen on the volar aspect and flexor tendon sheath in the hand accounts for approximately 10% of ganglion cysts. Occurrence in other joints as well as intraosseus and intratendinous ganglia are much less common. As ganglions lack a cellular epithelial lining, seen in synovial tissue or adventitial bursa, they are not considered true cysts. Ganglion cysts contain a clear viscous jelly-like mucinous material made up of glucosamine, albumen, globulin & high concentration of hyaluronic acid. [4] The wrist ganglions are well tethered in place by their attachment to the underlying joint capsule or tendon sheath although the exact cause of origin is still not clear. One theory suggests that chronic joint stress leads to capsular rent leading to leakage of synovial fluid into peri-articular tissue. As per another theory, joint stress leads to mucoid degeneration of extra-articular connective tissue. Yet another theory suggests that joint stress may stimulate mucin secretion by mesenchymal cells in the surrounding tissue. Ultimately, there is coalescence of small pools of mucin to form the ganglion cyst.[4]

Most of the wrist ganglions are asymptomatic and patients consult their treating doctors mostly for cosmetic reasons, some fear that the swelling may be a malignant growth. Less than thirty percent patients may experience symptoms like aching in the wrist, pain with activity or palpation of the mass, decreased range of motion and decrease grip strength [24]. Volar ganglion may also cause paresthesias from compression of the ulnar or median nerves or their branches.

The treatment of ganglion varies from reassurance to complete excision, the most ancient being bursting the ganglion with a heavy book (traditionally “the Bible”). The literature is clouded by widespread variability in the results reported. The treatments range from simple observation [5] to aspiration with [5-9]or without injection of various agents[10-12] to arthroscopic resection[13-16] and open excision [15,17-20].If left untreated, spontaneous resolution has been reported in up

to fifty eight percent of patients. Therefore reassurance can be the option if the patient does not want any intervention.[23]

Surgical excision has been a gold standard for the treatment of ganglion cysts. The recurrence rate after simple surgical excision of ganglion cyst is quite high and many authors have reported recurrence rates up to thirty to forty percent[5,25]. The results of surgical excision were greatly improved after Angelides and Wallace introduced the concept of radical excision in which the ganglion was excised along with its stalk and a portion of the underlying joint capsule. They reported a success rate of ninety nine percent with this technique[17]. Clay and Clement also reported a success rate of ninety seven percent with radical excision [18]. The extremely low recurrence rate achieved by these two group of authors can also be attributed to the fact that the patients were operated by highly trained hand surgeons and subsequent studies by other authors haven't been able to match the excellent results achieved by these two authors [19,20]. But the main concept of stalk-identification along with its base over the underlying capsule remains the main stay of approach in any surgical treatment methods of the ganglion cysts, whether open or arthroscopic. The main aim of this study was to focus on this basic concept of surgical excision of ganglions to minimise the recurrence.

Although we achieved a success rate of eighty one percent, our study has a few limitations. Our sample size is small, there is no comparative group, only dorsal ganglions were included. The follow up period was 6 months only and a longer follow up might give better idea as to late recurrences if any. But the basic idea of catch-the -stalk will remain as the core of the approach.

CONCLUSION

Ganglion surgery is challenging and one has to question the surgical risks that are undertaken and also the demands that surgical treatment places on healthcare resources. We feel that ganglion should not be considered non-significant lesions. Whenever a surgical intervention is contemplated a proper approach is necessary.

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