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Research Article

Use of Stitch in the Treatment of the Simple Ganglion

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Abstract

Ganglion is a benign soft tissue tumor may happen at any joint. Represents 50-70% of all hand soft tissue tumors and most commonly occurring in the hand. In spite of the high incidence of occurrence, ganglion cyst etiology remains unknown. Spontaneous improvement occurs in more than half of ganglion cysts and almost the same rate of recurrence may occur after treatment. A high 95% cure rate using minimal invasive 2/0 silk suture was first described by Gang and Makhlouf in 1988. We present 70 ganglion cyst cases managed by a novel suture technique. By this simple rapid technique, patients were treated at Al-Thawra Teaching Hospital. We attained a 100% success rate over a period of 4 years of time. Our successful results could help in adding a little knowledge to the current literature on performing suture technique for ganglion treatment. It is a safe, simple, and easy to learn technique. We might suggest to use this suture technique as an initial management for ganglion with symptoms.

Introduction

Ganglion is a benign soft tissue tumor that may happen at any joint [1]. It represents around 70 percent of hand soft tissue tumors [2]. Furthermore, it is the commonest among all hand masses [3-5]. The incidence of ganglion cysts is 60 percent occur on the dorsum of the hand and the rest 40% are volar [6]. The ganglion

occurrence in females is more [7], at age from 20-50 years old. Etiology of ganglion is still unknown [1]. It consists of collagen sheets with a loose orientation at the top, mesenchymal cells and fibroblasts [1]. The fluid inside the ganglion is different from synovial fluid, it consists of albumin, globulins, hyaluronic acid, and glucosamine [1]. It is believed that the ganglion is made from a pseudocyst which is consisting of many small mucin droplets [8,9]. Treatment currently ranges from conservative manner, aspiration with or without corticosteroid and /or hyaluronidase [10,11], percutaneous tenotomy [12], sclerosing material injection [13], puncturing with needle [10,11], suture technique [14-17], surgical excision [8,10], and excision using an arthroscope [18]. Surgical excision is the most accepted treatment, however, it has many disadvantages including: infection, scaring, neuroma, and complications of anaesthesia [17]. In addition to other problems such as postoperative discomfort in 21% of cases [19]. Recurrence rate after treatment is high [20], it may spontaneously resolve in 53% of patients with ganglion. The recurrence rate with arthroscopic excision is 6%, compared to aspiration 60% [16].

Materials and Methods

Had treated 75 ganglion cases by using the suture technique over 6 years period from 2011 to 2017 in the orthopedics department at Al-bayda Medical Center. 30 patients were males and 45 females. In 20 patients, ganglion located on the back of the hand. 30 cases on the dorsum of the wrist and 15 on the dorsal foot.

Materials

1. Absorbent drape/pad
2. Sterile and nonsterile gloves
3. In a 25 gauge Needle, 1 percent ephedrine with lidocaine only 5 CC
4. Alcohol wipes
5. Betadine topical solution
6. Suture tray
7. 2/0 proline suture
8. Consent for the procedure, gauze and surgical band

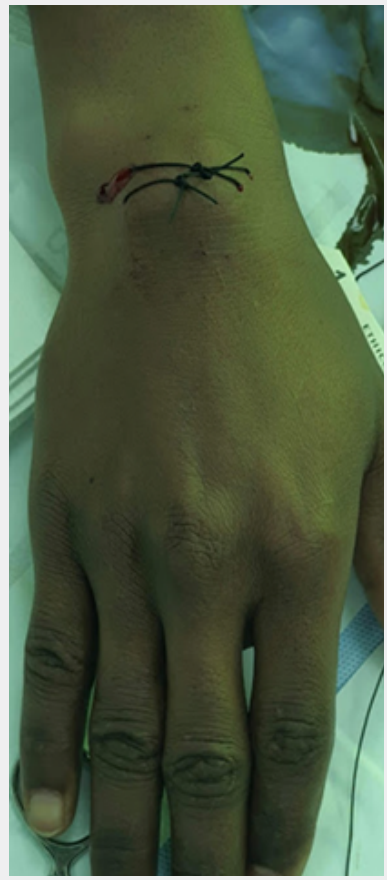

Figure 1: *Sutures through the cyst*

Procedure

Consent

1. Written consent was obtained. The steps of the procedure and the complications are:

a. Risks and complications- the common ones include infection, damage to other tissues, and bleeding (all minimal). The possibility of a burning sensation from the silk sutures and the chance for recurrence (total or partial) are also mentioned.

b. Benefits - It is explained that this is a simple procedure that can be performed first and with a high degree of success with other treatment modalities available if needed.

Anesthesia

1. Have the patient lie comfortably on the examining table with the affected extremity exposed and lying on an absorbent pad.

2. Cleanse the skin overlying the cyst with an alcohol pad.

3. Inject lidocaine in the 12, 3, 6, and 9-o'clock positions.

The Suture Technique

1. Pass a 2/0 proline suture on a curved needle through the cyst and out the opposite side and then ligation of the stitch is done. Then, we pass the other stitch in the same way and we ligate it. This doubles the exposure to the suture (Figure 1). Sometimes one suture only used. Leakage of a clear thick fluid confirms that the swelling is indeed a ganglion cyst and the suture was placed correctly. This is evident from the rapid collapse of the swelling.

2. Remove the cyst's mucin material and to aid in the inflammatory reaction within the cyst itself.

3. Apply firm pressure and massage the cyst to expel the contents.

4. Place a sterile gauze dressing over the skin.

5. Total time for the procedure is estimated at 5 -10 minutes.

Postoperative Care

1. The site is to be kept clean and dressed.

2. The follow up includes three visits at the second, third and the fourth weeks.

3. The sutures were removed in 3-4 weeks.

4. In nine cases the stitches were removed by the patient accidently within the first week, the procedure was repeated in (7) cases among the nine cases.

Results

We achieved a 100% success rate over an average follow-up of 4 years. None of the patients had evidence of infection. None of the successfully treated patients reported having the formation of a scar, residual swelling, or any cosmetic changes to the area. Results of follow-up had shown no recurrence over the mentioned period.

Discussion

We report 75 cases of ganglion cyst treatment using a nearly pain-free and minimally invasive procedure known as the Ganglion Suture Technique. The suture eventually causes a low-grade inflammatory reaction in the cyst evident from the local erythema during the first week.

Though, this benign tumor has a little discomfort, patients prefer treatment, even invasive treatments. ganglion cysts can be treated by many ways, each with its own success rate and complications. Arthroscopic excision, with reproducible recurrence rates as low as 5% [18]. However, this technique requires a high level of training to perform the procedure, expensive, and is not a practical choice in the primary care office.

The recurrence rate after aspiration with a large bore needle may be as high as 80% and recurrence after surgical excision may be as high as 20% in the wrist area and as high as 40% in the foot and ankle.

Ganglion Suture Technique offers a minimally invasive procedure, no residual swelling nor scar, simple, and no need for general or regional anesthesia. This method is good as a first-line treatment. This method is optimum when the cyst is present in vicinity of a nerve or blood vessel and for treatment of recurrence after excision or needle aspiration procedures [21-23].

Conclusion

We achieved a 100% total success rate over an average follow-up of 4 years. The successful outcome achieved adds to the present body of knowledge using the suture technique and contains dorsal foot ganglion cyst. Treatment of the simple ganglion by the stitches is a very simple, rapid, acceptable procedure, carries no complications, and without cases of recurrences, by this method the patient gets red of the scar on the surgical site after excision.

Formation of the ganglion on the dorsum of the wrist joint and the dorsum of the foot, probably results from the stress of the hand fist and the stress of the body weight on the foot, this may explain why the maintained low pressure inside the cyst by the stitch over a period of 3-4 weeks leads to healing without recurrence. Coincidence of other abnormalities such as ligament laxity, slight variation in metacarpal size may facilitate the development of the cyst.

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