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EFFICACY AND SAFETY OF LOCAL CORTICOSTEROID INFILTRATION IN DEQUERVAIN'S TENOSYNOVITIS:A PROSPECTIVE STUDY

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ABSTRACT De Quervain's tenosynovitis is defined as stenosing tenosynovitis of the synovial sheath of tendons of abductor polices longus and extensor pollicis brevis in the first compartment of wrist due to repetitive use. To assess efficacy and safety of local corticosteroid infiltration in dequervains tenosynovits in 30 patients with disease were included in this study.Using Visual analogue scale the severity of tenderness on first dorsal compartment and pain felt on Finkelstein test was recorded. A mixture of 0.5 ml (40mg) of methylprednisolone acetate and 1 ml of 2% Xylocaine was injected in first dorsal compartment of involved wrist. Patients were followed for 6 months on monthly basis. Outcome measure was reduction in pain and tenderness on the radial side of wrist and negative Finkelstein test subsequent to injection. 80% patients after 1st injection were symptoms free at one week, 20% patients were given second injection two weeks after the first.Two patients underwent surgical release. The adverse reaction of steroid mainly depigmentation was seen in 30% of patients, which were subsided in 15 weeks. We conclude local steroid injections in the first dorsal compartment lead to significant improvement in patients with de Quervain's tenosynovitis.

KEYWORDS :

INTRODUCTION:

De Quervain's tenosynovitis is caused by stenosis of the extensor pollicis brevis and abductor pollicis longus tendons within the first extensor compartment.[1] Nonoperative treatment options include thumb spica splinting, nonsteroidal anti-inflammatory drugs (NSAIDs), therapy exercises, and corticosteroid injections into the first dorsal compartment.Surgical release is the definitive treatment when nonoperative treatment fails to relieve symptoms. Weiss et a[2] reported that the use of a splint did not provide added benefit in addition to an injection.Due to the invasive nature of surgical treatment, and the associated longer recovery period and potential complications, use of noninvasive treatment such as steroid injection should be better studied to understand maximal benefit. Our hypothesis is that corticosteroid injection may be an effective treatment for de Quervain's tenosynovitis. The purpose of our study was to evaluate the efficacy and safety of 1 or 2 corticosteroid injections.

PATIENTS AND METHODS:

Thirty consecutive patients who were diagnosed as having De Quervain's tenosynovitis between June 2017 and June 2019 were enrolled in this study. The diagnosis of tenosynovitis was based on a history of pain along the radial side of the wrist, aggravated by thumb motion (gripping and grasping, accompanying most commonly lifting). The physical signs consisted of tenderness at the tip of the radial styloid, pain reproduced by resisted thumb extension and abduction, performed isometrically, and pain reproduced by the Finklestein maneuver. The Finklestein maneuver consists of moving the patient's thumb into the palm of the hand, wrapping the fingers around it, and forcing the wrist into ulnar deviation, thus stretching the extensor and abductor tendons. The Xylocaine injection was performed after the area was sterilized with a povidone-iodine scrub and wiped with alcohol[3]. Twenty-five-gauge needles were used. The injection was placed alongside the extensor tendon, atop the periosteum of the radial styloid. To facilitate identification of the anatomical snuff box, the patient held his thumb in active abduction. Subsequently, using a separate syringe and 25-gauge needle, 0.5 cc of methylprednisolone acetate, 40mg/cc, was placed into the tenosynovial sac in the same manner as the Xylocaine. Gentle massage with moderate pressure over the tenosynovial sac was performed for 5 minutes, distributing the medication through the sac and reducing subcutaneous leakage. The patient was strongly encouraged to avoid gripping, grasping, and lifting with the injected wrist and thumb over the next 3 days, and to limit and exercise care in the use of the wrist and thumb over the ensuing month. Splinting was not used, so that the effects of the injection alone could be evaluated. The initial followup examination was performed 3 weeks postinjection. Adverse reactions were recorded, particularly any sign of atrophy. Atrophy was defined as discoloration (lightening) of the skin and/or mild dimpling and/or frank loss of subcutaneous tissue at the injection site. The patient's subjective "estimation" of improvement in pain and function and changes in the objectively measured signs were noted. If the patient's subjective assessment was that the symptoms were not at least 50% improved and/or if at least 2 of the 3 principal physical signs had not resolved, then the site was reinjected. Those patients who reported subjective improvement of 70-90% and who demonstrated resolution of at least 2 of the 3 principal objective signs were followed up and reexamined at 6-week intervals. Any patient whose symptoms recurred in conjunction with at least 2 of the 3 principal objective signs were re-treated. Patients who experienced no beneficial response to 2 consecutive injections or who did not experience persistent relief of symptoms beyond 3 months were referred for tendon release surgery.

RESULTS:

Most of the 30 patients in this series were women .The patients average age was 47 years, with most cases occurring in patients aged 30-60 In 23 patients (78%), this was the first occurrence. Treatment prior to study enrollment varied. 7 patients had been treated with NSAIDs.Despite these measures and restricted use of the affected wrist and thumb, these patients had persistent symptoms, averaging 4.4 months in duration. None of the 30 patients had been given a corticosteroid injection within the previous 6 months, and none had ever had an injection of methylprednisolone acetate. To assess the effectiveness of medical therapy, the results of local corticosteroid injection were prospectively evaluated, first at 3 weeks postinjection and then over an average of 6 weeks of followup. At 3 weeks, short-term responses included complete or nearly complete control of signs and symptoms in 24 of the patients. 4 patients experienced partial response. Only 2 patients failed to show significant changes after the first injection. Typically, relief occurred promptly after injection, averaging 3.2 days and ranging from 0.5 days to 14 days postinjection. No adverse reactions occurred in 21of the 30 patients. Minimal skin color lightening to frank subcutaneous atrophy occurred in 9 patients. No instances of postinjection infection or tendon rupture occurred.

DISCUSSION: Prior to 1950, symptomatic De Quervain's tenosynovitis was treated almost exclusively by surgical release. Medical therapy, consisting of rest, splinting, and physiotherapy, was thought to be ineffective. After Hollander's introduction of the use of hydrocortisone in 1951 , the clinician could offer the patient a choice

between medical treatment and surgery. However, despite several studies showing efficacy of local injection, particularly with hydrocortisone, acceptance of this treatment for De Quervain's tenosynovitis was not forthcoming[4]. In the 1960s, the long-acting corticosteroid derivatives were introduced, notably methylprednisolone, triamcinolone, and betamethasone[5]. These "timereleased" preparations have the advantage of a more sustained clinical effect . As has been demonstrated with flexor tenosynovitis of the hand, the long-acting preparations have greater efficacy than the soluble preparations, such as hydrocortisone . In addition, a recent survey showed that betamethasone, triamcinolone, and methylprednisolone were the corticosteroids most frequently used for injection, and that, among orthopedists, De Quervain's tenosynovitis was the fourth most common extraarticular condition that is treated by injections .The present study was designed to confirm the short -term effectiveness of local corticosteroid injection, without immobilization, in the medical management of De Quervain's tenosynovitis, as well as to demonstrate its safety in terms of serious adverse reactions. Overall, 93% of our study patients were successfully controlled with local injection of the area, without immobilization. The majority had lasting relief of signs and symptoms with a single injection. In only 7% of this group of patients did local injection fail. Serious adverse reactions were not seen after the single injection or after multiple injections. Postinjection infection and tendon rupture did not occur in our series of patients.. Hollander and colleagues [4] performed over 100,000 intraarticular injections between 1951 and 1961, and documented only 14 postinjection articular infectionsIt should be pointed out that surgery for De Quervain's tenosynovitis has a high rate of success and can be performed with the patient under local anesthesia as an outpatient. Success rates range from 81% to 93% with a mean of 88% . Adverse reactions are infrequent. Damage to the radial nerve is the most troublesome complication . Nevertheless, the cost, the inconvenience, and the postoperative period of immobilization of the area and restriction from activities of daily living should also be considered when choosing between medical and surgical intervention.

Summary

we believe that the initial treatment of De Quervain's tenosynovitis should be with a local injection of a long-acting corticosteroid derivative. Splinting or other forms of immobilization appear to be unneccesary. The patient should be advised that long term control of this local inflammatory condition can be achieved in 90% of patients with either a single injection or multiple injections, and that the most common local adverse reactions-pain and "fat atrophy"-are minor and, most often, are self limited.

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