Combination Treatment for Adhesive Capsulitis of Shoulder

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One hundred and forty (140) patients (150 shoulders) with adhesive capsulitis (frozen shoulder) were treated by a combination of intra-articular local anaesthetic, steroid and hydraulic distention of involved shoulder. The mean duration of the syndrome at the time of treatment was 10 months and all the patients suffered from disabling pain and stiffness. Rapid improvement was seen after this treatment and at two weeks, 87 % (131/150) of the shoulders had no or slight pain and 90 % (135/150) of the shoulders had normal or almost normal range of motion. The treatment was well tolerated and no complication was recorded. The combination treatment for adhesive capsulitis of shoulders is safe, yields immediate results and is very cost effective.

Key words: Adhesive capsulitis, frozen shoulder, hydraulic distention

Frozen shoulder syndrome (FSS)/adhesive capsulitis is defined as an idiopathic condition of the shoulder characterized by spontaneous onset of shoulder pain accompanied by increasingly severe limitation of shoulder movement in all directions including at least 50 % reduction in external rotation[1,2]. Although Codman[3] (1934) coined the term frozen shoulder for the condition of spontaneous pain and stiffness of the shoulder, it was Duplay[4] (1896) who first described and annotated the disorder under the title peri-arthrite Scapulo-humerale.

In the description of classic adhesive capsulitis, there are three clinical phases: a painful phase, a phase of progressive stiffness, and a phase of gradual return of motion. The symptoms may last for several years. Adhesive capsulitis usually occurs during the fourth to sixth decade, affecting women more often than men. The condition remains an enigma to orthopedic surgeons and the current treatment ranges from expectant observation, to manipulation, or even surgical release. Even though this condition is known to be self-limiting, few patients accept waiting for the condition to spontaneously resolve.

The present study shows our experience of treating adhesive capsulitis of the shoulder with its hydraulic distention and intra-articular deposition of local anaesthetic and steroid in 140 patients (150 shoulders).

Materials and methods

140 patients (150 shoulders) were treated in this manner at Mayo Hospital and Jinnah Hospital, Lahore from July 1997 to June 2000 by authors. In 10 patients both shoulders were involved at the same time or one after the other. The patients with primary condition where no cause was identifiable and in whom there was no positive radiological findings were included. The cases where there was history of trauma or any disease of the shoulder and with positive X-ray finding were excluded. Only those cases which have completed six months follow up were included in the study. Almost 50 % of the cases were diabetics especially in younger age group. The mean duration of the syndrome before presentation was ten months (02 months to 04 years) and no lasting improvement had been observed by other methods of treatment i.e. use of analgesics, non steroidal anti-inflammatory drugs and physiotherapy. In some cases, intra-articular steroid injections had also been given without much relief. The mean age was 45.1 years (31 to 63 years). There were 78 males and 62 females (table 1). All patients were followed up at 2 days, 2 weeks, 6 weeks, 3 months and 6 months after treatment.

Table 1 Age and sexes of patients

Age	n=	Male	Female
31-40	42(30.0%)	19(13.6%)	23(16.4%)
41–50	46(32.8%)	24(17.1%)	22(15.7%)
51–60	46(32.8%)	30(21.4%)	16(11.4%)
>60	06(04.4%)	05(03.6%)	01(00.8%)
Total	140(100%)	78(55.7%)	62(44.3%)

Technique

The treatment was performed in the following manner on an out-patient basis. The patient is placed in sitting or supine position with the arm at the side and, as far as possible, the palm up to hold an external rotation of the shoulder, which facilitates needle placement into the anterior aspect of the gleno-humeral joint about 1cm below and lateral to the coracoid process directing the needle posterolaterally. The skin is prepared with pyodine solution. About five ml out of a mixture of 30 to 40 ml normal saline and 6 to 8 ml bupicaine in 50 ml syringe is injected into the shoulder joint. After this long acting steroid (injection kenacort-A) is injected with a separate syringe but through the same needle kept in place and then the remaining fluid in 50 ml syringe is injected slowly. Joint distention, the "brisement procedure"[5] requires slow, graduate, intermittent injection of larger and larger volume of sterile saline solution. Actually, the aim of the procedure is to distend the joint with the largest volume of fluid without causing fluid extra vasation. In some cases, however, the capsule did rupture. Distention is immediately followed by active assisted range of motion exercises. In the following days, the patient continues with regular home physical therapy exercises.

Results

The results of treatment were analyzed for pain which was subjectively graded according to a four graded scale (i.e., no, slight, moderate or severe pain) and shoulder range of motion in internal and external rotation, anterior and posterior elevation and abduction first prior to treatment and then 2 days, 2 weeks, 6 weeks, 3 months and 6 months after treatment. Prior to the combination treatment, 62 shoulders had moderate pain and 88 shoulders had severe pain. Soon after the treatment 82 shoulders had no pain, 40 shoulders had mild and 28 shoulders had moderate pain while after 2 weeks 87%(131) shoulders had no or slight pain. In the remaining 19 cases a repeat injection kenacort-A only was given 2 weeks after the combination treatment and this resulted in no or slight pain in all the shoulders at 6 weeks post treatment (Table-2).

Before treatment all patients had severely limited abduction, flexion and rotation while after initial treatment, 90 % (135) of shoulders showed marked improvement – normal or almost normal range of motion. After repeat injection at 2 weeks resulted in almost normal range of motion and at 6 weeks no patient complained of any significant limitation of range of motion.

Table 2 Subjective grading of pain pre & post treatment in 150 shoulders with adhesive capsulitis.

Degree of pain	None	Slight	Moderate	Severe
Pre-treatment	0	0	62	88
At 2 days post treatment	82	40	28	0
At 2 weeks post treatment	104	27	19	0
At 6 weeks post treatment	126	24	0	0
At 6 months post treatment	139	11	0	0

Discussion

A number of different treatments such as rest and analgesics[1,6,7], NSAIDs, local or oral corticosteroids[8], physiotherapy[7], manipulation[9], distention of joint capsule[10,11,12] or a combination of these have been advocated. No standard treatment regime is universally accepted. Though disorder is self limiting but the severity of pain and stiffness warrant more active treatment. By performing distention procedure using 30 to 40 ml of saline, local anaesthetic and long acting steroid, a more rapid relief of pain and restoration of full range of motion is seen. The therapeutic value of distention has been studied by many authors since Andren and Lunberg[5] first reported in 1965 that joint distention occurring during distention arthrography could be effective for shoulder restriction. Good results were obtained in 68-96% or cases in various series[9,12,13,14] Parlier–Cuau et al[12], (1998) reported 90% very good or good results both in pain relief and restoration of function. None of their patients considered that they had no benefit at all at 45 days follow up. This is comparable to our study. In our study about 1/3 of the patients were younger then 40 years which is contrary to standard teaching. However, most of these were diabetics. So there is some expected role of diabetes in early onset of adhesive capsulitis but there is no controlled study recorded in this regard. Again, in our study, male patients were more than female patients which is contrary to the most of the studies. The explanation is difficult. Additional controlled studies are necessary to determine the respective roles of intra-articular injection of steroid and of hydraulic distention in the improvement obtained by this technique.

Conclusion

It should be noted that the term adhesive capslitis has been used in stead of frozen shoulder because this helps better in the understanding of this condition. The combination treatment by hydraulic distention and intraarticular steroid injection provides good and excellent results in almost all cases with rapid improvement in pain and joint stiffness and it is, at the same time, very cost effective. It recommended for all moderate to severe cases of adhesive capsulitis of shoulder joint.

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