ORIGINAL RESEARCH PAPER

General Surgery

# MANAGEMENT OF HYPERTROPIC SCARS AND KELIODS IN RURAL BASED MEDICAL COLLEGE JHALAWAR (RAJASTHAN) INDIA

**KEY WORDS:** Harmful side-effects, environmental protection, hazardous substances, applications, reduce waste.

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**ABSTRACT**

**OBJECTIVE:-** The purpose of this study was to see various modulates of the Management of hypertrophic scars and keloids.
**DATA SOURCES:-** One hundred cases of hypertrophic scars and keloids collected from S.R.G. hospital and Jhalawar Medical College Jhalawar .(Rajasthan)
**STUDY SELECTION:-**All studies concerning the clinical diagnosis and treatment of hypertrophic scars and keloids were collected during year 2015 to 2017.
**DATA EXTRACTION:-** Publications with clinically relevant data were selected for discussion in the article.
**DATA SYNTHESIS:-**Hypertrophic scars and keloids can pose a formidable therapeutic challenge. Numerous treatments are available. These include intralesional corticosteroids injection ,topical applications,surgery,and most recently, laser therapy. Silicone sheeting and cryotherapy are among the useful adjunctive agents for hypertrophic scar and keloid treatment. Surgery provides an invasive but sometimes necessary alternative in the treatment of scars. Radiation therapy may have a role in the treatment of recalcitrant lesions. Most recently, the pulsed-dye laser has been successfully used to treat keloids and hypertrophic scars.
**CONCLUSION:-**Currently , no definitive therapy exists for the treatment of keloids and hypertrophic scars. The advent of laser technology, particularly the pulsed-dye laser, appears to offer the best hope for successful treatment. Combination therapy seems to offer increased efficacy.

## INTRODUCTION

The word "KELOID" has been taken into medical science from Greek language ( Cheloide ) meaning thereby "like crab's claw".(alibert 1806 and modified by himself in 1817.

Several methods of treatment has been described but complete eradication has not achieved so far.

In the present study all the possible methods of treatment have been studied and compared in order to evaluate a definite practicable and economic methods of treatment.

It includes 100 cases of keloids and HYPERTROPIC SCARS collected from shri rajendra general Hospital Jhalawar (Rajasthan) Over the years, treating keloids and hypertrophic scars has proved to be challenging. Numerous advances have been made in discrifing the process of scar formation and wound healing. This increased knowledge has led to the introduction of new treatments as well as to a better understanding of how older treatments work. Despite the various therapeutic alternatives available , most treatments for scars are plagued with the spectre of recurrence. Traditional techniques include.

1. Local intra lesional inject of triamcinoalone acetonide (kenacort).
2. Excision, closure and local intralesional injections of triamcinolone acetonide before operation, during operation in wound and after 3 to 4 weeks of operation in scar margin.
3. Excision, split skin grafting and pressure on dressing.
4. Local kenalog oint only.

## MANAGEMENT OF HYPERTROPHIC SCARS AND KELOIDS

**PREVENTION:-** Prevention is the first rule in keloids therapy. Avoid performing none essential cosmetics surgery in patient to form keloids. However the risk is lower among patients who have only earlobe lesions, Close all surgical wounds with minimal tension, incision should not cross joint spaces, avoid making midchest incision and ensure that incision follow skin creases whenever possible. We also include occlusive dressings compression therapy and intralesional corticosteroid injections.

## METHODS OF TREATMENT

**1. Local injections:** Intralesional injection of triamcinolone acetonide (Kenacort) 10 to 40mg/ml as whole or after diluting in distilled water was given through a 24 gauge needle syringe. The injection was given along the margins of lesion,to start with one end then in-side the lesion which was repeated after an interval of 2 to 3 weeks. We did not use local block anaesthesia.

**2. Surgery :** Under G.A., after cleaning and painting with savlon and sprit, the incision was given along the margins of lesion. The lesion was excised by leaving some part of it at the junction of it with normal skin(intra keloidal). A kenacort injection was given along the cut edges. Under complete haemostasis, subcutaneous sutures were applied with 4 zero chromic catgut and skin sutures with 5 zero monofilament nylon. A pressure bandage was applied after dressing.or aluminium clip pressure leaved on dressing In some cases we used split skin grafting to cover the raw area. The split skin graft was taken from the thigh and a pressure bandage was applied over donor site.pre and post operative period kenacort injection also given in operating scar.

**3. Local Kenalog ointment :** We advise local application of Kenalog ointment, in those cases in which we want only symptomatic relief.

## Observation

The following observations are based on clinical examination,

investigation, treatment and follow up of 100 patients of Keloids and Hypertrophic scars. These cases attended various department of S.R.G. hospital Jhalawar (rajasthan), as indoor and outdoor patients. Out of 100 patients, 74 were of Keloids and 26 of Hypertrophic scars.

**TREATMENT AND RESULTS:**

The Keloids and hypertrophic scars were treated in three different ways as shown in table No.1.

**Treatment chart:**

| Mode of treatment | Keloids | | Hypertrophic scars | | Total | |
|---|---|---|---|---|---|---|
| | No. of lesions | % | No. of lesions | % | No. of lesions | % |
| Surgery | 13 | 13.00 | 5 | 5.0 | 18 | 18 |
| Local injections of corticosteroids | 38 | 38 | 8 | 8 | 46 | 46 |
| Kenalog ointment locally | 23 | 23 | 13 | 13 | 36 | 36 |
| Total | 74 | 74 | 26 | 26 | 100 | 100 |

Most of the lesions (46% or 46 cases) were treated only intralesional injection of triamcinolone acetonide (Kenacort) 10mg or 40mg Per c.c. A combined treatment in the form of surgery and postoperative pressure or pre and post operative local kenacort injections was given. When patient had mild itching or pain at the site of lesion without disfigurement, we advised local application of Kenacort or betnovate ointment. This corticosteroid local application helpful to relieve pain and itching to some extent.

**Treatment chart:**
**Table No.2**

| Mode of surgical treatment | No. of pts. | % | Response to treatment | | | | | | Result | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Subjective | | | Objective | | | Cure | | Recurrence of symptoms | |
| | | | Pain and itching | | | Growth | | | No of pts. | % | No of pts. | % |
| | | | +- | + | ++ | +- | + | ++ | | | | |
| Surgery & pressure | 6 | 6 | 0 | 1 | 5 | 0 | 0 | 6 | 5 | 83.3 | 1 | 16.6 |
| Surgery &Kenacort injection& Pressure | 7 | 7 | 0 | 0 | 7 | 0 | 0 | 7 | 7 | 100.0 | 0 | 0 |
| Total | 13 | 13 | 0 | 1 | 12 | 0 | 0 | 13 | 12 | 92.3 | 1 | 7.6 |

+- = no improvement
+ = to moderate relief & 25 to 50% regression of growth.
++ = complete disappearance of symptoms and more than 50% regression.

Total number of patients = 100
Total number of patients treated by surgery = 13(13%)

Out of 13 patients, excision and repair was done in 6 patients ( 46.1 % ) and excision and split skin grafting was done in 7 patients ( 53.8%).

Postoperative pressure was applied in 6 patients to prevent recurrence and was kept for 3-6 months. In 2 patients, kenacort injections were given preoperatively and during operation, into the wound at the time of primary suturing.

The dose was variable according to the size of lesion (average dose10 to 40/mg/ml as whole or after diluting in distilled water ) and was given intralesionally. The dose was repeated at an interval of 2 to 3 weeks. In one case postoperative injections were given into the scar, started 2 weeks after the operation.

**CORTICOSTEROID INJECTION AND RESULTS:**
**TABLE NO.3**

| Type of injection | No. of pts. | % | Response to treatment | | | | | | Result | | | | Loss of following |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Subjective | | | Objective | | | Cure | | Recurrence of symptoms | | |
| | | | Pain and itching | | | Growth | | | No of pts. | % | No of pts. | % | |
| | | | +- | + | ++ | +- | + | ++ | | | | | |
| Kenacort | 35 | 35 | 0 | 25 | 10 | 1 | 30 | 4 | 32 | 91.4 | 1 | 3 | 2 |
| Wycort | 3 | 3 | 0 | 2 | 1 | 2 | 1 | 0 | 1 | 33.3 | 2 | 66.6 | 0 |
| Total | 38 | 38 | - | - | - | - | - | - | 33 | 91.6 | 3 | 8.3 | 2 |

pts. = patients
+- = no improvement
+ = to moderate relief & 25 to 50% regression of growth.
++ = complete disappearance of symptoms and more than 50% regression.

Total number of patients = 100
Total number of patients treated by corticosteroids = 38

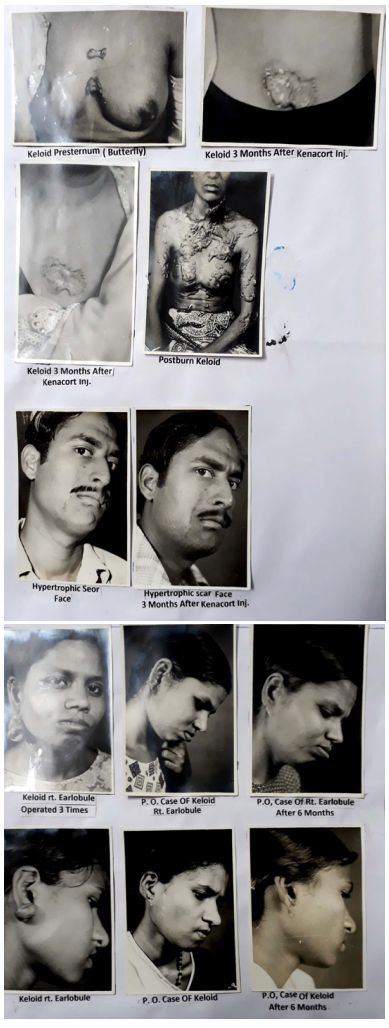
According to table no.3 the kenacort injection was given in 35 lesions and Wycort injection was given in 3 lesions. Out of 35 lesions, 32 were Keloids and 3 were of Hypertrophic scars. The dose of Kenacort was variable according to size of lesion (average dose10 to 40/mg/ml.) And interval between two injections was 2-3 weeks. The dose and number of injections depends on size and duration of lesion. Better results were obtained by Kenacort injections than other preparations of corticosteroid. The above table also shows that some beneficial effect was noted in all cases. 85.4%(30 cases) of lesions which were treated by intralesionalKenacort , flattened out completely Softening was first noted at 2-3 weeks after the first injection and progressed with each subsequent injection.

**NO. OF DOSED GIVEN TO PATIENTS.**
**TABLE NO.4**

| No. of injections | No. of patients | % |
|---|---|---|
| 1 does | 6 | 17.1 |
| 2 doses | 12 | 34.2 |
| 3 doses | 12 | 34.2 |
| 4 doses | 3 | 8.6 |
| More than 4 doses | 2 | 5.7 |

no.of patients 35
Range of doses = According to size of lesion normally 10 to 40 mg/ml. as whole or after dissolving in distilled water
Interval between injections 2 to 3 weeks.

Table no.4 shows that most of the patients ( 68.4%) were given 2 to 3 doses at an interval of 2 to 3 weeks. The amount of triamcinolone acetonide was given in each dose was depend upon size of lesion 10 to 40 mg/ml. 6 patients were given a single dose 2 of them did not came during follow up and another 4 had symptomatic relief and softening of lesion. Two patients had been given more than 4 injections at an interval 2 to 3 weeks till the growth regresses.




## DISCUSSION:

In this study 74 patients (74%) of Keloids and 26 (26%) patients of hypertrophic scars were treated by various methods of treatment and followed up. The keloid was diagnosed when the lesion was firm, raised, shiny. Smooth or corrugated, hairless growth developed on the scar with growth extending under normal skin. The symptoms like itching and pain were present from mild to moderate degree. The hypertrophic scar may have similar symptoms and signs except that it remains within the limit of scar and continuous to grow for several weeks or months, then becomes inactive and tends to regress. In this study incidence of keloid is more than hypertrophic scar because keloids developed symptoms like pain and itching which are persistent, while pain and itching in hypertrophic scars often subside spontaneously in due course of time.

## TREATMENT

The mode of treatment in all the cases were divided into four categories.

(A) surgery (18% of 18 patients) which included

1) Surgery and pressure
2) Surgery and corticosteroid injection locally.

Among the lesion treated by surgery 83.3 % (5) were cured by surgery and postoperative pressure and 16.6%(1) showed recurrence of symptoms. The lesion 7 or 7% treated by surgery and local corticosteroid injections preoperatively during operation and postoperatively the cure rate was 100%. The postoperatively pressure was also applied in both cases.

Overall recurrence rate of surgically treated patients was 7.6 % (1 out of 13 cacs). Better results were obtained when corticosteroid injections were used along with surgery & postoperative pressure was applied over the site of lesion for 3 to 6 months.

Neson , L.H.(1942) treated 51 lesion in 49 patients. The treatment was divided in four groups as follows:- (a) excision and approximation ,(b) excision and radiation, (c) radiation alone and (d) pressure alone. Most satisfactory results were obtained when patients were treated by excision and radiotherapy.

Conway, et, al, (1960) treated cases by intramarginal excision and closure or skin grafting.The methodes used by him were (a) excision alone (b) excision and local injections of cortison derivatives (c) excision and X-ray therapy, (d) excision and injections of cortison derivatives locally and X-ray therapy.Better results were obtained giving cortison derivatives locally and x-ray therapy.

By surgery our cure rate was 100% when treatment was accompanied by intralesional injections of triamcinolone acetonide and post operative pressure, results of other authers is also nearly the same with a variation of 10% or so. Which is insignificant.

## (B) LOCAL INJECTION OF TRIAMCINOLONE ACETONIDE (KENACORT)

In the present series 38%(38) of lesions were treated by local injections of corticosteroids either kenacort (35% or 35 lesions ) or Wycort ( 3% or 3 lesions). Patients receiving kenacort injections showed a cure rate of 91.4% (lesions with recurrence rate of symptomes 3%(1lesion) whereas those receiving Wycort injections had cure rate of 33.3% (1) and recurrence rate of symptoms 66.6% (2)

85.4%(30 cases) of the lesions which were treated by intralesional kenacort, flattened out completely and other 50% became much softer. Softening was first noted at about 2 - 3 weeks after first injection and progressed with each subsequent injection. In 28.5% (10 cases)of cases there was complete relief of symptoms but in another group of 71.4%(25 cases) cases symptoms like pain & itching reduced intensity. The symptoms recurred in one case (3%) and there was no changes in the growth itself. Two patients lost during follow up.

Griffith (1966) treated 37 patients of keloidal lesions by intraleasional injections of triamcinolone acctonide (kenacort) and noted complete dissolution in 51% (19) of lesion, partial dissolution (softening) in 40% (15) of lesion.symptoms eliminated 59%(20), Symptoms reduced41%(14)

Ketchum et.al. (1966) Treated Hypertrophic scars and keloids by triamcinolone acetonide and noted a definite regression in 88% of the cases. Pruritis and paresthesia disappeared within 3 to 5 day following injection.

Griffith et. al. (1970) treated 61patient only by intralesional kenacort injections of which 42 (69%) flattened out completely another 13(21%) become softer. In 5 patient (8%) there was no improment and one patient was lost during follow up.

Intralesional injections of triamcinolone acetonide 3-5 injections at an interval of 2-3 weeks gave the cure rate of 83.3%. All patients

had symptomatic relief. This variation is insignificant in view of the variation in the selection of cases.

Intralesional injections of triamcinolone acetonide gives fairly good result (91.4%), unless because of site and size of the lesions surgery is necessary. For symptomatic cure and regression, this method should be used.

Surgery should be done only as a last resort if the lesions are of big size, multiple and unsightly situations. Surgery should be followed by postoperative local injections of triamcinolone acetonide and maintenance of pressure by dressing or splints.

**(C) TOPICAL APPLICATION OF CORTICOSTEROID OR KENACORT**

may pose less risk but have been found to be ineffective. Jenkins et al concluded from a prospective randomized double-blind study that topical steroids do not reduce scar formation after grafting procedures for post burn contracture.

(D) Topical silicone dressings offer another alternative in the treatment of hypertrophic scars and keloids.In 1982 Perkins et al first described the use of Silicone to speed healing of burn wounds 'In general the improvement noted are scar softening and a decrease in pruritus .It may be used with other treatments as surgical excision ,intralesionalkenacort and laser treatment [katz 1965].Hirshowitz et al [1993]proposed that silicone sheet produce a static electric field that might have an effect on wound healing.

Radiotherapy alone is unreliable for treatment . Recurrence rate of 50%to 100%have been noted [Borok TL Bray M ;Sinclair I;Plafker J1988] Recurrence rate as low as 12% to 28% have been reported by Kovalic and Perez[1985]when it is used during the early post operative period. LASERS – Recently demonstrated successful long term treatment by Apfelberg et al 1989 first reported for scar treatment but this have shown a high recurrence rate between 53% to 100%. The pulsed –dye laser [PDL]first used by Alster et al in 1993 and reported on 14 patients who received PDLtreatments at 585 nm over a 2 months period. Improvement in the erythema of the scar was shown. No recurrences were noted at 6 months post treatment period. The degree of improvement correlated with numbers of treatment recived. This study used fluencesof 6.5 to 6.75 J/cm with a 5-mm sport size at the end of 6 months follow up period, no patient demonstrated increased erythema.

Moreover a study by Goldman Fitzpatrick 1995 suggests that the combination of PDL and intralesional steroids may be useful in the treatment of hypertrophic scars The authors treated 48 hypertrophic and erythematous scars using the PDL alone or the PDL and intralesional corticosteroids .Both groups showed improvement. Combined treatments may provide better resolution at 1 to 2 months.

**SUMMARY AND CONCLUSIONS**

74 patients of keloids and 26 patients of hypertrophic scar were treated by

1) Surgery
2) Local injections of corticosteroids
3) Local application of corticosteroids ointments

Follow up was done from 3 months to 3 years. The results of treatment of these patients with recurrence rate have been analysed. The relevant literatures have been reviewed.

The treatment of hypertrophic scars and keloids remains challenging recurrences are common with most of the treatment alternatives available. Intralesional cortico-steroids are an appropriate first –line therapy that can provide cosmetic improvement, however care must be exercised to avoid the side effects of chronic corticosteroid administration combination therapy with treatments that include cryotherapy and silicone sheeting increases efficacy. Surgical intervention is invasive but in specific situations may provide a necessary alternative. Various topical agents have been touted to be effective, mainly on the basis of anecdotal reports.However, results may be disap- pointing and improvement in the scars subjective at best. The advent of laser technology appears to offer the best hope for definitive treatment of hypertrophic scars and keloids.the PDL provides a high response rate and seems to lead to fewer recurrences. As the field of laser techmology continues to evolve,so will the alternatives for the treatment of scars.

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