



STUDY OF EFFICACY OF VARIOUS TREATMENT MODALITIES IN KELOIDS AND HYPERTROPHIC SCARS

Dermatology

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ABSTRACT

Background: Management of keloids is still controversial. Various treatment modalities are used, alone or in combination.

Objectives: To compare the efficacy of different treatment modalities (1) Conservative Topical Treatments (2) Liquid N₂ followed by Intralesional injection Kenacort (40mg/ml) (3) Intralesional injection 5-Fluorouracil (250mg/5ml) (4) CO₂ laser

Methods: Total 80 patients with keloids and hypertrophic scars were randomly divided into four groups. The groups were compared for reduction in the size of keloid, symptoms (pain and itching) and the incidence of adverse effects.

Results: Excellent response was seen in 31(62%) was found to be more in group-2, who were treated with Liquid N₂ followed by I/L inj. Triamcinolone (40mg/ml) as compared to other groups.

Conclusion: Complete disappearance was more in group-2 as compared to Others. Keloids of short duration responded better. In keloids/hypertrophic scars of <1/2 year duration 38.9% showed excellent response. Complications were more observed in group-2 and group-3. Depigmentation in 25(50%) cases and Crusting and Ulceration in 11(22%) cases were observed in group-2. Whereas Ulceration and Crusting was found in 27(84.37%) in group-3. The incidence of recurrence was higher with CO₂ laser.

KEYWORDS

Keloid, Hypertrophic scar, Treatment modalities

INTRODUCTION:

A Keloid is a benign, well demarcated area of fibrous tissue overgrowth that extends beyond the original defect.¹ In 1832, Alibert recorded that a true Keloid could end in ulceration, although this was a rare event.² The epidermis is not altered, but is often a dark red colour. It is raised up by a mass of solid material which may be as long as a nut or apricot, or as long finger-like processes, thick like that Italian dish called macaroni.

Keloids may occur anywhere on the body. But the presternal region of the chest, deltoid region and the upper back are especially susceptible to Keloid formation. They occur more frequently in areas where the skin is thick than in areas where the skin is thin except palms and soles. Keloids are characterized histologically by an abundance of the extra cellular matrix of connective tissue in which epidermis is totally normal or slightly atrophic. Keloids are some times associated with Dupuytren's contracture, Palmo-planter fibroma, Peyronie's disease, Knuckle pad, Rubinstein - Taybi syndrome. Keloids may be needed to differentiated with hypertrophic scar, Lobo's disease and Dermatofibroma.

No treatment for Keloid is considered to be 100% effective. Multiple modalities of treatment are available, used alone or, in combination with uncertainty of each treatment.

Conservative Topical preparations such as Steroids, Retinoic acid, Tacrolimus, Imiquimod and Invasive methods like Intralesional injections of Steroids, 5-Fluorouracil^{3,4}, Bleomycin⁵, Hyaluronidase, Verapamil⁶, Interferons are used in treatment of keloids.

Cryotherapy, Surgery, LASER treatment- Pulsed dye, Nd : YAG, Carbon Dioxide^{7,8}, Radiation therapy, Oral colchicines, low dose Enalapril and Low dose retinoids are other treatment options.

Methods:

In prospective study, Total 98 cases of Keloids and Hypertrophic scars were taken for the study from Patients attending outpatient department of dermatology and venereology at Smt. S.C.L. Hospital, Smt. N.H.L. Municipal medical college, Ahmedabad. Out of 98 patients, 18 patients were defaulted during study period, so were excluded from the study.

Patients of keloids and hypertrophic scars of all ages and sexes were included and Pregnant and lactating women and in patients with bone marrow suppression or severe concurrent infections were excluded from the study.

All details of patient was recorded according to performa. Patients were randomly divided into four groups according to treatment used. For group-1, 2, 3 and 4 of 20 patients each, conservative treatment (contractubex gel & silicone gel-sheeting), Liquid N₂ followed by Intralesional injection Kenacort (40mg/ml), Intralesional injection 5-Fluorouracil (250mg/5ml) and CO₂ laser treatment were used respectively. Follow-up of all the patients were done at 15 days for 4 months and then after each month for three months.

For group-1, patients were asked to apply silicone gel sheet on the lesion for atleast 12 hours per day or asked to massage Contractubex gel frequently (atleast 2 times) on the lesion until it get absorbed.

For group-2 patients, first Liquid N₂ was applied by dipstick method all over lesion for 25 seconds or till lesions become absolutely white. Then patients were asked to wait for 15 minutes. Each and every patients got some sort of discomfort and burning sensation. Thereafter they were given Injection Kenacort (40mg/ml) intradermally with tuberculin syringe with 26 gauge needle.

For group-3, first, complete blood count of all patients were done and then they were given injection 5-fluorouracil intradermally with tuberculin syringe.

For group-4, all routine investigations were done. Injection lignocaine was given perilesionally and intradermally to achieve sufficient anaesthetic effect. Then CO₂ laser treatment was used to debulk the lesion but not beyond the lesion. Sterilized dressing was done and patient was called for follow up after 5-7 days of treatment. The power setting in CO₂ laser was 7 watt, on time 0.1 sec, off time 0.1 sec, with continuous mode.

Pre and post treatment photographs and informed written consent were taken of each patient. On each subsequent visit of the patient, subjective and objective improvement and presence of any complication was recorded in proforma.

Criteria for Subjective improvement:

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|------------------------|------------------|
| 1. No improvement | Sq (status quo) |
| 2. 25 -50% improvement | S (Satisfactory) |
| 3. 50 -75% improvement | G (Good) |
| 4. 75% improvement | E (Excellent) |

Criteria for Objective Improvement:

- | | |
|--------------------------------|------------------|
| 1. No improvement | Sq (status quo) |
| 2. Reduction in size by 30-50% | S (Satisfactory) |
| 3. Reduction in size by 50% | G (Good) |
| 4. Complete disappearance | E (Excellent) |

Results:

Out of 80 patients, 39(48%) patients were male and 41(51%) were females.

Excellent response, in 31(62%) was found to be more in group-2, who were treated with Liquid N₂ followed by I/L inj. Triamcinolone (40mg/ml), Good response in 15(48.4%) in group-3 who were treated with I/L inj. 5- Fluorouracil and in 13(40.63%) in group-4 who were treated with CO₂ laser and satisfactory response was observed in group-4 in 15(48.4%) patients. So, complete disappearance was more in group-2 as compared to Others.

Keloids of short duration responded better. In keloids/hypertrophic scars of <1/2 year duration 38.9% showed excellent response whereas excellent response was noted in 26.7% in >5 years of keloids / hypertrophic scars.

Complications were more observed in group-2 and group-3. Depigmentation in 25(50%) cases and Crusting and Ulceration in 11 (22%) cases were observed in group-2. Whereas Ulceration and Crusting was found in 27(84.37%) in group-3. In group-4, infection was noted in 7(22.58%) patients.

At the end of 4 months of treatment,75(52.82%) lesions remained stationary,62(43.66%) showed improvement, while 5(3.52%) had worsened.

Conclusion:

Many different treatment modalities may be used for keloids and Hypertrophic scars however, no one method has been found completely successful. Therefore, we combined these techniques to improve therapeutic outcomes.

Topical Contractubex gel consists of a mixture of onion extract, heparin and allantoin. It is effective only in Early and small sized keloid and Hypertrophic scars.

Injection 5-Fluorouracil causes 50% improvement in majority of cases, but very few of them showed 100% clearance. Hence, it can be combined with other treatment modalities such as intralesional corticosteroids, cryosurgery, and lasers as has been previously proposed by Fitzpatrick⁹ and Gupta and Kalra¹⁰ to decrease the duration and increase the effectiveness of treatment.

CO₂ Laser is a de-bulking tool thus causes immediate reduction in size of lesion so immediate patient satisfaction is high but chances of recurrence is also high and if not properly done, recurrent lesion may be of more size.

Injection Triamcinolone (40mg/ml) is conventional method of treatment and chances of recurrences are less compared to other three modalities but adverse cutaneous effects like hypo/depigmentation, telangiectasia and atrophy can occur.

Reference:

1. Rooks textbook of dermatology
2. Plastic and reconst. Surgery- surgical treatment of keloids Vol.24(4). 1961, G.F. Grikerair, P.N.356.
3. Uppal R.S., Khan U, Kalkar S, et al. the effects of a single dose of 5-fluorouracil on keloid scars: a clinical trial of timed wound irrigation after extralesional excision. *Plast reconstr Surg* 2001; 108:1218-24.
4. Nanda S, Reddy BS, intralesional 5- fluorouracil as a treatment modality of keloids. *Dermatology* 2002; 204:130-2.
5. Espana A, Solano T, Quintanilla E. Bleomycin in the treatment of keloids and hypertrophic scars by multiple needle punctures. *Dermatol Surg* 2001; 27:23-7.
6. Berman B, Villa A, Ramirez C. Novel opportunities in the treatment and prevention of scarring. *J Cutan Med Surg*. 2005;8(3):32-36.
7. Tanzi EL, Alster TS. Laser treatment of scars. *Skin Therapy Lett* 2004; 9:4-7.
8. Manuskiatti W, Fitzpatrick RE, Goldman MP. Energy density and numbers of treatment

9. after response of keloidal and hypertrophic sternotomy scars to the 585-nm flashlamp-pumped pulsed-dye laser. *J Am Acad Dermatol* 2001; 45:557-65.
 10. Fitzpatrick RE. Treatment of inflamed hypertrophic scars using intralesional 5-FU. *Dermatol Surg* 1999;5:224-32.
- Alster TS, Handrick C. Laser treatment of hypertrophic scars, keloids and striae. *Semin Cutan Med Surg* 2000;19:287-92.