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Dr. Mohammed Jalal Mohiuddin
Assistant Professor, Department
of Orthopedics, Deccan College of
Medical Sciences, Hyderabad,
Telangana, India

Dr. Ramesh Benguluri
Assistant Professor, Department
of Orthopedics, Deccan College of
Medical Sciences, Hyderabad,
Telangana, India

Dr. Mirza Inzamam Ali baig
Intern, Deccan College of
Medical Sciences, Hyderabad,
Telangana, India

Dr. Syed Abdul Tahreem
Intern, Deccan College of
Medical Sciences, Hyderabad,
Telangana, India

Dr. C Sham Sunder
Professor and Head, Department
of Orthopedics, Deccan College of
Medical Sciences, Hyderabad,
Telangana, India

Correspondence

Dr. Mohammed Jalal Mohiuddin
Assistant Professor, Department
of Orthopedics, Deccan College of
Medical Sciences, Hyderabad,
Telangana, India

Steroid-induced perilymphatic hypo pigmentation in orthopaedics practice

Dr. Mohammed Jalal Mohiuddin, Dr. Ramesh Benguluri, Dr. Mirza Inzamam Ali baig, Dr. Syed Abdul Tahreem and Dr. C Sham Sunder

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Abstract

Local steroid administration in form of injection or topical preparation is commonly used in various dermatological, orthopaedics and ophthalmological ailments. Intra-leisional route of administration provides advantage of achieving high concentration locally without systemic adverse effects. Various indication in orthopaedics practice which need intralesional steroids are ganglion, Dequervian's tenosynovitis, tennis and golfer's elbow, Carpal Tunnel syndrome, Trigger finger Etc.

Local adverse effects noted following this route of administration include dermal atrophy, ulceration, localized calcification, Hypo pigmentation etc. It seems to be dependent on certain factors such as concentration and potency of the drug being injected. The lesion is self-regressing and repigment by itself over the time. Topical application of various preparation helps in fastening the re-pigmentation process. Discussed are the 10 cases such lesion recovered completely.

Keywords: Hypo pigmentation, topical, steroid, re pigmentation

Introduction Background

Local steroid administration in form of injection or topical preparation is commonly used in various dermatological, surgical, orthopaedics and ophthalmological ailments [1, 2]. Intra-leisional route of administration provides advantage of achieving high concentration locally without systemic adverse effects. Various indication in orthopaedics practice which need intralesional steroids are ganglion, Dequervian's tenosynovitis, tennis and golfer's elbow, Carpal Tunnel syndrome, Trigger finger Etc.

Local adverse effects noted following this route of administration include dermal atrophy, ulceration, localized calcification, etc. Occurrence of linear streaky hypo pigmentation with atrophy due to uptake of the steroid crystals in the lymphatic has been reported previously. This condition is non-progressive and tends to repigment on its own [3, 4]. Hypo pigmentation following the steroid injection seems to be dependent on certain factors such as concentration and potency of the drug being injected. This phenomenon has been more commonly reported with triamcinolone compared to other steroids due to the intrinsic properties of the molecule such as higher tendency to aggregate, higher potency, larger size, and density. Injecting certain steroids in higher concentration causes more amounts to be present in unbound state. Availability of more free steroids mediates the adverse effects. Repeated injections are also a risk factor [5, 6].

The exact pathogenesis of corticosteroid-induced hypo pigmentation is unknown. The hypothesized etiology relates to corticosteroids-induced inhibition of prostaglandin or cytokine production in various epidermal cells, thereby altering the melanocyte function by suppressing the secretory metabolic products from melanocyte without causing their destruction. Its being demonstrated in past that reduced melanin pigment and activity of melanocyte in the presence of normal melanocyte number, by histopathology added with histochemical staining [7].

In addition to local irregular de pigmentation there is linear hypo pigmentation noticed in literature. The exact pathogenesis of linear hypo pigmentation or atrophy is also unknown. The most widely accepted mechanism is the lymphatic spread of the corticosteroid suspension along the lymphatic.

Lymphatic vessels run in a unidirectional manner and are responsible for removal of macromolecules and proteins. It's being proved, the relationship between these linear lesions with the lymphatic vessels after injecting Evans Blue Dye or Alphazurine 2 G (Patent Blue) into atrophic lesions^[8].

Topical application of Tacrolimus is found to be the effective method of fastening the regimentation. Tacrolimus is an immunomodulatory agent used extensively for regimentation in vitiligo. It has been shown to promote migration of melanocyte and tyrosinase activation in the cells, thereby promoting regimentation^[9].

Aims and objectives

To find out the progression of Hypo pigmentation, following the local steroid administration.

Methodology

- It was a retrospective follow up study done at our institution after IRB clearance.
- Patient administered Injection triamcinolone 40 mg along with 2% lignocaine in 1:1 ratio (total preparation of 2 ml).
- Usual protocol at hospital is to follow after 1 week to 10 days for the pain relief as regular basis and any local effect after injection.

Results

10 patients reported with hypo pigmentation after one week to ten days duration and surprisingly all patients has complete pain relief after injection of steroids.

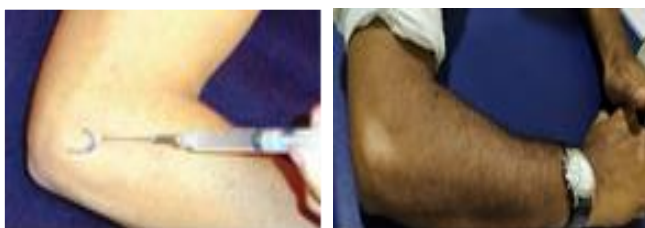
Among the patients who developed lesion one patient had golfer's elbow, three tennis elbow and 6 were the dequervian's tenosynovitis. Three were male and seven were female. The lesion was discussed with dermatologist and started on topical Tacrolimus preparation.

The regression of lesion followed every three weekly and recorded. It started decreasing in size and intensity after one month and disappeared completely after 4 months to 6 months period. There were no residual marks over the site and no recurrence of the primary disease.

Discussion

Steroid induced hypo pigmentation is the condition need to be kept in mind for local administration of steroids as in orthopedics the sites where it is administered is exposed most of the time. As Hypo pigmentation is the condition which have social phobia so this makes patients and family curios about its cure and possible spread by direct contact.

Proper information regarding the benign nature of the lesion and the self-regression over the time without and residual skin changes can avoid undue patient stress and concerns. Though its self-limiting the topical skin applications of Tacrolimus etc can help if fastening the recovery.



Injection for tennis elbow



Injection for De-Quervain's disease



After 10 days of injection

After 6 weeks of therapy



After 3 months of therapy

After 4 months of therapy

Conclusion

Perilymphatic hypo pigmentation following steroid is the expected complication with no residual skin changes. If patient is not ready for the steroid administration other modalities like PRP (platelet rich plasma) autologous blood or Botox can be used (though costly) when indicated.

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