

Case Report

Pink Staining of Silicone Hydrogel Contact Lenses: First Experience

Silikon Hidrojel Kontakt Lenslerde Pembe Renk Değişimi: İlk Tecrübe

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ABSTRACT

A twenty-six year-old female patient with the diagnosis of multiple sclerosis (MS) who was on interferon beta-1b therapy applied for pink appearance of her eyes when she wore her contact lenses. She was treated for multiple sclerosis and that she was receiving systemic interferon beta-1b treatment subcutaneously for the last two weeks. On follow-up, although she didn't use additional medication, her newly fitted contact lenses were stained likewise with the pink color under interferone treatment. There was no report in the literature about pink-staining of contact lenses due to systemic medication. As the use of drugs like systemic interferone increases, it's good to inform contact lens users about such a side-effect.

Keywords: silicone hydrogel lenses; systemic medication; staining

ÖZET

Multipl skleroz (MS) tanısı ile takip edilen 26 yaşındaki kadın hasta kliniğimize kontakt lenslerini kullanırken gözlerinde meydana gelen pembe renk değişikliği nedeniyle başvurdu. MS nedeni ile son iki haftadır subkütan enjeksiyon şeklinde sistemik interferon beta-1b tedavisi görmekte idi. Sistemik interferon tedavisi devam ederken, takipte yeni kullanmaya başladığı kontakt lensleri ile de benzer renk değişikliği meydana geldiği görüldü. Literatürde sistemik ilaç kullanımına bağlı kontakt lenslerde pembe renk değişikliği ile ilgili benzer yayın bulunmamaktadır. Sistemik interferon tedavisi altındaki hastaların bu konuda bilgilendirilmesi faydalı olacaktır.

Anahtar Kelimeler: silikon hidrojel kontakt lens; sistemik medikasyon; boyanma

INTRODUCTION

With the introduction of silicone hydrogel lenses over a decade ago, clinicians have seen both improvements and challenges in contact lens wear (1). Regardless of lens design or material; the presence of contact lenses on the ocular surface induces mechanical complications. Although some of these complications have diminished in frequency and severity with newer generations of silicone hydrogel lenses, others persist at previously reported levels (1, 2). There are complications like mucin balls, superior epithelial arcuate lesions, corneal erosions, CL-induced papillary conjunctivitis, conjunctival epithelial flaps, lid wiper epitheliopathy, and meibomian gland dropout. Systemic drug usage can cause side-effects in contact lenses. Inadvertent use of drugs may cause destruction in lens structure. Some of the reported drugs are rifampin, sulphasalazine, and adrenochromes (3-6).

In this case, we report a case where we observed pink staining of silicone hydrogel lenses due to interferon beta-1b use for multiple sclerosis.

CASE

A twenty-six year-old female patient with the diagnosis of multiple sclerosis (MS) who was on interferon beta-1b applied for pink appearance of her eyes when she wore her contact lenses. She was wearing silicone hydrogel contact lenses (Comfilcon A, 48% water content, BC:8.60mm, Dia:14.00mm, Dk: 148) On examination, her contact lenses had a pinkish color (Figure-1). When she took her lenses out her eyes were normal. When we asked about medications to the patient, we learned that she was treated for multiple sclerosis and that she was receiving systemic Betaferon (recombinant interferon beta-1b, Bayer Pharma AG, D-13342 Berlin, Germany; 250 microgram, 800 million IU, 1 ml, daily) treatment subcutaneously for the last two weeks. On follow-up, although she didn't use additional medication, her newly fitted contact lenses were stained likewise with the pink color under interferone treatment.

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Figure 1: Pinkish color-stained silicone-hydrogel contact lenses of patient were shown in this picture.

DISCUSSION

As reported in the literature, rifampicin may cause reddish discoloration of the urine, sputum, and tear (3). It may produce permanent orange discoloration of soft contact lenses. Similar discoloration has been reported with sulphasalazine (4) Presumably other drugs which discolour tears or body fluids may also affect soft contact lenses.

Topical preparations may also stain lenses. Adrenochrome staining of the contact lenses of patients using adrenaline drops for treating glaucoma was reported in 1974 and 1976 (5, 6).

The iatrogenic spoiling of soft contact lenses is much less well known, but of greater importance to the medical profession in general. Clearly a lot of people may be at risk of having their lenses spoiled by inadvertent use of drugs (7).

Conventional hydrogel materials are polymers that are typically composed of several monomers joined together in chains which are linked together at intervals by small amounts of cross-linking agents to form a polymer network. Silicone-containing lens materials usually have low surface energy and as a result, have decreased surface wetting. And this material has more resistance to protein deposits and less drying of the lenses. The most known agent that stains the lenses is the fluorescein. The high molecular weight dimer of fluorescein does not concentrate as rapidly in soft lenses

and may be used for fitting (8). Soft contact lenses are spoiled by natural causes in most cases, such as deposition of calcium on the surface (7). Mucoprotein-lipid deposits, with or without calcium, and calcareous deposits constitute the major forms of lens spoilage (4).

Betaferon contains the active ingredient interferon beta-1b, which is a type of immunomodulator. Recombinant interferon beta-1b reduces the frequency of exacerbations in relapsing-remitting multiple sclerosis when administered subcutaneously on alternate days (9). Interferons belong to the family of cytokines, which are naturally occurring proteins. Three major classes of interferons have been identified: alpha, beta, and gamma. The activities of interferon beta-1b are species-restricted and therefore, the most pertinent pharmacological information on interferon beta-1b is derived from studies of human cells in culture or in human in vivo studies (9, 10). Interferon beta-1b has been shown to possess both antiviral and immunoregulatory activities (10).

Increased interferon gamma has been demonstrated in the tear film of patients with dry eye disease (11). Interferons naturally increase in the tear film during viral ocular infections and their efficacy has been studied for the treatment of acute adenoviral keratoconjunctivitis. Both interferon-beta and interferon-gamma have anti-adenoviral activity in vitro and interferons have the potential to be used for local treatment of adenoviral keratoconjunctivitis (12).

Interferon alfa is used for the treatment of conjunctival intraepithelial neoplasia and common side effects observed with topical interferon treatment are usually limited to irritative reactions manifesting as keratitis, kerneal microcysts and transient follicular conjunctivitis (13).

The most frequently observed adverse reactions observed with systemic administration are flu-like symptoms, which are mainly due to the pharmacological effects of the medicinal product and injection site reactions. Redness, swelling, discoloration, inflammation, pain, hypersensitivity, necrosis and non-specific reactions were significantly associated with interferon beta-1b treatment (10).

A detailed data is not available about how the medication is transferred to the secretions and the tear film in the side effect profile of interferons.

To our knowledge, there is no report in the literature about pink-staining of contact lenses due to a medication. As the use of drugs like systemic interferone increases, it is good to inform contact lens users about such a side-effect.

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