

Granulomatous Rosacea and Tinea Overlap: A Rare Combination

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Abstract: *Rosacea is a chronic skin condition involving inflammation of the cheeks, nose, chin, forehead, or eyelids. It causes redness and pimples, mainly across the face. Granulomatous rosacea is a rare type of rosacea primarily occurring in middle-aged women. The cause is unknown, but both genetic and non-genetic factors contribute to this condition. As it has many differentials, it is very difficult to diagnose a lesion without a biopsy. Treatment is based on controlling the symptoms using medications, antibiotics, light therapy and other treatments. The long-term prognosis for these people depends on the severity of symptoms and the response to treatment. We present the case of a 34-year old woman who came with the diagnosis of Tinea faciei for a persistent annular lesion on the left side of her face, which on biopsy proved to be granulomatous rosacea.*

Keywords: rosacea, granulomatous, annular lesion, tinea

1. Introduction

Rosacea is a chronic skin condition characterized by symptoms of facial flushing and a spectrum of clinical signs, including erythema, telangiectasia, coarseness of skin and an inflammatory papulopustular eruption resembling acne. The skin lesions are notable for the absence of comedones, which distinguishes this disorder from acne vulgaris. It can be divided into four subtypes: erythematotelangiectatic, papulopustular, phymatous, and ocular. Granulomatous rosacea (GR) is considered to be a part of the spectrum of rosacea, and is referred to as a variant of rosacea that occurs mainly around the cheeks, eyes, and mouth. The symptoms include yellowish-brown or pink papules on the skin, thickening of the skin, and patchy redness. The cause is unknown, but both genetic and non-genetic factors contribute to this condition. These factors may include systemic steroids, topical steroids, UV radiation, heat, spicy food, alcohol, infectious organisms (mites, gut bacteria), and immune suppression. It can look like other skin conditions and so is difficult to diagnose without a skin biopsy. It usually occurs in adults, primarily in middle-aged women. Treatment is based on controlling the symptoms using medications, antibiotics, light therapy and other treatments. The long-term outlook depends on the severity of symptoms and the response to treatment [1], [2], [3]. In our case, GR was superimposed with Tinea faciei, the reasons for which are discussed below. This is the first report of concomitant Tinea faciei and GR involving facial skin.

2. Case Report

A 34-year old female presented with a 4x3 cm² annular lesion and scaling on the left side of her face (fig 1, fig 2) She was being treated for the past 6 months with a combination of

antifungal, antibacterial, antihistamine and corticosteroid topical preparation thinking it to be a Tinea lesion of the face with only mild symptomatic relief of itching and erythema, but the lesion was persistent despite treatment and would rebound whenever treatment was stopped completely. In previous tests, KOH scraping of the lesion was positive and scaling used to subside with the above treatment but despite that, the lesion was not improving. So, biopsy of the lesion was advised to make a definitive diagnosis and rule out other differentials (granulomatous rosacea, acne agminata, perioral dermatitis, and micropapular sarcoidosis) to which the patient refused due to cosmetic reasons. Some basic tests, like CBC, CMP, chest radiograph and ESR, to rule out differential diagnoses, were done. CBC showed increased leucocyte count with lymphocytic predominance which was consistent with having a fungal infection. All other tests were normal. Other than that, patient had been taking levothyroxine for hypothyroidism for the past several years.

With this information at hand, topical steroids were totally withheld till scaling and itching rebound. Then she was prescribed Sertaconazole for its antifungal and anti-itch properties. There was improvement in erythema and scaling within two weeks. Skin scraping for tinea came out to be negative. A biopsy was once again advised, for the lesion which still persisted, to which she agreed. It showed perifollicular infiltrates of lymphocytes, epithelioid cells and histocytes in the dermis along with non-caseating granulomas and hence the diagnosis of Granulomatous rosacea was made.

A combination of oral Minocycline 100mg OD, oral Loratadine 10mg BD and Metronidazole topical cream was given for 10 days which showed mild improvement in the form of decreased erythema and pustules, but itching was still persistent for which a short course of oral Prednisolone 20mg

OD was given for 5 days only and the rest of the treatment continued for another 20 days. After completing this course, her lesion had improved drastically as in fig 3. She was advised to continue the oral drugs for another 2 weeks and topical Metronidazole for another 4 weeks, after the end of which the lesion was almost completely resolved (fig 4). Throughout this process, the patient was advised to avoid the triggering factors, including hot drinks, spicy food, extreme temperatures, sunlight and alcohol. Patient was also counseled to apply sunscreen half an hour before going out in the sun and then re-apply it every 2 hours till she reached back home. After the final meeting with the patient (when fig 4 was clicked which showed more than 90% clearance), she was happy with the results and then she was lost to follow-up.



Figure 1: Annular lesion and scaling on the left side of the face. Multiple papules present over the left eyelid



Figure 2: Similar picture showing the extent of scaling in the lesion.



Figure 3: Papules over the eyelid have subsided. Scaling and erythema is also reduced. This is the result of 30 days of adequate treatment.



Figure 4: More than 90% resolution of the lesion after 60 days of treatment

3. Discussion

Granulomatous rosacea (GR) is a rare chronic inflammatory skin disease reported primarily in middle-aged women. It is thought to be a particular form of rosacea on the basis of unique clinical and histological findings of granulomas; it is characterized by erythematous papules most commonly affecting the face [4].

Clinically, GR appears to be a distinctive papular form of rosacea that is found primarily on the butterfly and perioral areas. These discrete papules may appear as yellowish-brown hard nodules on diascopy, and may be accompanied by marked erythema. The size of the lesions may vary, and may be present at other areas of the body besides the above mentioned. Cases of GR limited to the periorcular skin have also been reported [2].

Etiology and pathogenesis is unknown. It has been suggested that demodex mites may trigger an antigenic response leading to granuloma formation. Ultraviolet radiation while inducing sun damage has been thought to lead to increased matrix metalloproteinase (MMP)-2 and MMP-9 which recruits inflammatory cells during the remodeling process and may lead to granuloma formation [5].

Demodex mites (*Demodex folliculorum*) is a group of obligate parasites that live on the skin of mammals. These mites have been associated with various dermatological disorders, clinically termed as demodicosis, including but not limited to GR. Insects have been described as potential vectors that can carry various microorganisms and especially spores of fungi. Hence, infestation by such insects may aggravate the already present skin condition, leading to secondary infections [6] which we assume is the cause for tinea faciei co-infection within the lesion in this present case.

Differential diagnoses of the lesion in this case included GR, acne agminata, perioral dermatitis and micropapular sarcoidosis. Patients present with firm, yellow, red, brown, or flesh-coloured papules or nodules localised around the eyes, nose, and mouth on relatively normal-appearing skin. The pathognomonic feature of GR on histology is the formation of non-caseating granulomas in the superficial and mid dermis, which can manifest as a large, central empty space or may be small palisaded, elastolytic or diffuse [7]. Dermatopathology also demonstrates mixed lymphohistiocytic infiltrates, with negative stains for mycobacteria and fungi. It is important to exclude infectious etiologies for any lesion with significant granulomatous dermatitis on histopathology. Baseline evaluation should include a CBC and CMP. Serum testing, chest radiograph, and pulmonary function tests should be considered for patients with suspected sarcoidosis. Diagnostic studies, including mycobacterial culture, purified derived test, and chest radiograph can evaluate for cutaneous tuberculosis in the appropriate clinical setting [8].

Treatment includes the use of oral antibiotics, such as tetracycline (acts more as an anti-inflammatory than an antibiotic by reducing leucocyte migration and phagocytosis), clarithromycin, and topical medications, such as metronidazole (exact mechanism of action in this disease is unknown), retinoic acid and azelaic acid, besides orientations for use of a noncomedogenic high-factor sunscreen when exposed to sunlight, and exclusion of likely provoking factors, such as spicy food, hot drinks, alcohol, and extremes of temperature [2]. Even though some individuals may need prolonged systemic antibiotic therapy to treat relapses, others evolve satisfactorily by avoiding triggering factors and using topical medications, such as metronidazole gel [9].

Dahl et al. showed in a randomized double-blind study that in most studied individuals (77%), continuous treatment only with metronidazole gel maintained remission of moderate to severe rosacea, which had initially been treated with oral tetracycline and topical metronidazole gel. A combination of oral antibiotic, lymecycline, and topical metronidazole, until a satisfactory result, and then isolated use of metronidazole gel leads to a complete resolution of the lesion according to this study [9], which was essentially the same combination of medicines used in our patient with almost complete resolution of her symptoms and visible lesion.

Take home message

- No skin lesion should be taken lightly and treated irrationally
- Biopsy is mandatory for any skin lesion in case of doubt
- Counseling is a big part in treatment as it helps the patient understand the diagnosis, its prevention and treatment
- Not every annular lesion should be assumed to be Tinea
- Demodex mite can aggravate the present skin condition making it more susceptible to secondary infections

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Author Profile



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Karandeep Singh Bhatti is an MBBS graduate from Government Medical College Amritsar (2018), with a passion for patient care, keeping up with the advances of medical field and carrying out the research in the pathogenesis and treatment of diseases. His other interests include playing badminton, taking long walks and chatting with his dog. Currently, he is working as a medical officer at Mrs. Khushbir Kalra Memorial hospital, Amritsar.



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Riya Kaur Kalra graduated from Government Medical College, Amritsar and received her MBBS degree in 2018. She is the co-author of 13 papers, including research work and case reports, published in various national and international journals. Recently, she became one of the editors of MSI-41 online magazine, which is published under the International Federation of Medical Students' Association (IFMSA). Currently, she is working as a medical officer at Mrs. Khushbir Kalra Memorial hospital, Amritsar.