Annular Papules: Making the Right Diagnosis

Mohamed Alarakhia, Meds 2008

Annular papules or plaques are frequently encountered by Family Physicians. Tinea corporis is often the first entity that comes to mind because it is common and it classically presents with this morphology. However, there are other important diagnoses that need to be considered. For example, granuloma annulare is characterized by erythematous or flesh-coloured plaques with smooth borders and no scaling or vesicles. The lesions of nummular dermatitis are coin shaped papules with central vesicles that expand and cause a central clearing. Subacute cutaneous lupus erythematosus can present with bright red annular lesions with central regression and little scaling. Fixed drug eruptions appear as well demarcated plaques that can develop central vesicles or bulla. This article will review these conditions.

This article has been reviewed by Dr. Firas Al-Dhaher.

Introduction

Examining the morphology of skin lesions is critical when working towards a diagnosis. However, one must be careful not to link a specific morphology with a single entity. Annular papules or plaques are quite distinct, but they can also be very deceptive. These ringed lesions immediately prompt both patients and physicians to think of “ringworm” or more correctly tinea corporis. The term “ringworm” is a misnomer from a time when such raised ringed lesions were believed to be caused by invasive worms. The association between annular lesions and tinea corporis can lead to a delay in the diagnosis and treatment of many of the other lesions that can present as annular papules or plaques (Tables 1 and 2). This article will review tinea corporis, granuloma annulare, nummular dermatitis, subacute cutaneous lupus erythematosus, and fixed drug eruptions.

Differential Diagnosis of Annular Papules or Plaques

<table>
<thead>
<tr>
<th>Infections: Tinea Corporis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammatory: Granuloma Annulare</td>
</tr>
<tr>
<td>Dermatitis: Nummular</td>
</tr>
<tr>
<td>Drugs: Fixed Drug Eruption</td>
</tr>
<tr>
<td>Autoimmune: Subacute Cutaneous Lupus Erythematosus</td>
</tr>
</tbody>
</table>

Table 1. The Differential Diagnosis of Annual Papules or Plaques.

* note: The differential diagnosis of annular lesions is vast. Only annular papules and plaques were reviewed in this article and even these entities were limited to those deemed suitable for an initial differential diagnosis.

Images

Images for the lesions presented in this article (with the exception of nummular dermatitis) can be viewed at: http://www.atlasdermatologico.com.br/
The picture numbers and names are indicated below:

<table>
<thead>
<tr>
<th>Tinea Corporis</th>
</tr>
</thead>
<tbody>
<tr>
<td>5600. Tinea Corporis2</td>
</tr>
<tr>
<td>5597. Tinea Corporis17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Granuloma Annulare</th>
</tr>
</thead>
<tbody>
<tr>
<td>1771. Granuloma Annulare1</td>
</tr>
</tbody>
</table>
Tinea Corporis

Tinea corporis is the most common cause of annular lesions in adults.\(^1\) It is a dermatophyte infection that is commonly caused by *Trichophyton rubrum* and *Trichophyton tonsurans* in the United States and Canada.\(^2\) An individual can be infected by contact with infected persons, animals, or soil.\(^3\) There are often multiple erythematous scaly papules or plaques that have an active border.\(^4,5\) They may gradually enlarge over time and spread centrifugally from the point of skin invasion.\(^5\) Lesions may be associated with vesicles. There may also be burning and pruritus.\(^4\) The typical distribution includes the trunk and extremities excluding the nails, palms, soles, and groin.\(^4,5\) The diagnosis is clinical and treatment is with topical antifungals such as clotrimazole, miconazole or terbinafine.\(^3,5\) If resistant to topical therapy, systemic antifungals can be used.\(^3\)

Granuloma Annulare

Granuloma Annulare is a common asymptomatic cutaneous condition of unknown etiology. The lesions are erythematous or flesh-colored non-scaly papules.\(^6\) The papules group together forming an annular arrangement.\(^6\) In contrast to tinea corporis, there are no associated vesicles and the annular border is smooth with no scaling.\(^1\) Lesions can be found anywhere on the body, and are most commonly seen on the legs and the dorsum of the hands and feet.\(^7\) Often the palms, soles, and scalp are spared. The diagnosis of granuloma annulare is clinical.\(^6\) A punch biopsy is done if there is any uncertainty about the diagnosis.\(^6\) Because granuloma annulare is self limited and resolves spontaneously in more than 50% of patients in two months to two years, no treatment in required.\(^7\) However, patients often find the lesions distressing; thus, for cosmetic purposes or in cases where the condition is more chronic, topical glucocorticoids are the first line of therapy.\(^7\) Intralesional corticosteroid injections, cryotherapy, and electrodesiccation are other options.\(^6\) Little evidence has been accumulated on the efficacy of treatment options for disseminated granuloma annulare. Dapsone, isoretinoin, hydroxychlorquine, and PUVA (psoralen and ultraviolet A) have been used with some success in small uncontrolled studies and case reports, but consultation with a Dermatologist should be sought at this stage.\(^6\)

Nummular Dermatitis

Nummular dermatitis is a disseminated eczema that is characterized by well demarcated coin-shaped papules and plaques.\(^8\) Central vesicles may form, which then expand and cause a central clearing.\(^1\) The latter phenomenon results in an annular appearance.\(^1\) The lesions can be associated with pruritus, xerosis, and contact sensitization (e.g. nickel, chromate, fragrances, etc.).\(^1,8\) Nummular dermatitis commonly affects the extremities and often follows a very chronic course.\(^1,8\) The diagnosis is clinical and the treatment is with medium to high potency topical corticosteroids.\(^5\)

Fixed Drug Eruptions

Fixed Drug Eruptions (FDE) generally occur 1-2 weeks after the first exposure to a drug.\(^5\) Subsequently, lesions develop over the course of 24 hours.\(^5\) There are case reports that demonstrate FDE with most of the commonly used drugs including sulfonamides, NSAIDs, barbituates, tetracyclines, and carbemazepine.\(^5,9\) One or a few round, sharply demarcated, erythematous or pigmented plaques typically appear. They may became edematous or form vesicles or bulla.\(^10\) The vesicles or bulla are often central giving the appearance of an annular lesion. In addition, an erosion can develop in the middle of the lesion.\(^5\) Lesions can occur anywhere in the body, but often favour the lips, face, hands, feet and genitalia.\(^5,9\) They fade over several days often leaving an area of hyperpigmentation.\(^9\) There is also a variant of FDE that is non-pigmenting.\(^11\) When the causative drug is readministered the lesions reoccur exactly on the same sites, which is a distinguishing feature of FDE.\(^10\) Additional
lesions may also appear on readministration. Diagnosis is based on history and patch or provocation testing. Topical application of increasing concentrations of drug will illicit the reaction in many patients. Controlled oral exposure to the drug is attempted if topical testing is negative and the drug is still strongly suspected. The main treatment is elimination of the offending agent.

**Subacute Cutaneous Lupus Erythematosus**

Subacute cutaneous lupus erythematosus (SCLE) presents as either annular or psoriasiform papulosquamous lesions. The annular lesions are bright red with central regression and little scaling. Photosensitivity is a significant component of SCLE. Thus lesions commonly appear on the extensor surface of the arms, dorsal surface of the hands, upper back, the V-neck area of the upper chest, and the shoulders. Lesions resolve with slight atrophy (no scarring) and hypopigmentation. Diagnosis is based on clinical findings and confirmed by histology and immunopathology. Approximately 50% of patients with SCLE will satisfy four or more of the American Rheumatism Association's criteria for systemic lupus erythematosus. Using immunopathological testing, immunoglobulin and/or complement components can be shown to form a granular band-like array at the dermal-epidermal junction in 60% of SCLE patients. Furthermore, a distinctive “dust-like” pattern of IgG deposition overlying epidermal basal cells and cells just below the dermal–epidermal junction was reported to be an frequent marker for SCLE lesions. In terms of serology, 70% of these patient are ANA positive, while 63% have Ro antibodies. The first step in treatment is avoidance of exposure to sunlight by using sunscreens or physical barriers. Topical or Intrale sional corticosteroids, tacrolimus, or pimecrolimus would be the next step. Most patients will go on to require some form of systemic therapy. Approximately 75% of SCLE patients respond to single agent or combination aminquinoline therapy (hydroxychloroquine, chloroquine, quinicine). For those who fail immunosuppressive therapy other options include dapsone, thalidomide, clofazamine, gold formulations, and methotrexate.

**Conclusion**

Formulating a good differential diagnosis of annular papules and plaques is an important step in reducing the tendency to label all annular lesions as “ringworm”. It will help facilitate the appropriate investigations and management of these varied conditions.

**References**