Confluent and Reticulated Papillomatosis vs Acanthosis Nigricans

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Abstract
Confluent and reticulated papillomatosis (CARP) and acanthosis nigricans (AN) are two benign conditions commonly seen in medical dermatology. While they may present differently, clinically they may have similar morphological presentations as well as nearly identical histopathology and in some cases etiology. We present a case of an overweight 20 year old Hispanic male who presented to dermatology with a thick, hyperpigmented, papular and reticulated rash involving the axillae, neck and antecubital fossae. This patient was initially treated for AN by primary care and was directed to dermatology when a significant portion of his rash did not clear with keratolytic agents. A 3 mm punch biopsy was performed in the dermatology clinic and was determined to be papillated epidermal hyperplasia based on histology. The patient was treated for CARP and put on a course of Doxycycline 50 mg twice daily which subsequently cleared his rash. We believe this case highlights the important clinical and histopathological overlap of these entities.

Confluent and Reticulated Papillomatosis
- Can be keratotic
- Red-brown papules
- Starts intermammary and spreads out in a reticulated pattern
- Begins around puberty
- F > M

Acanthosis Nigricans
- Hyperpigmented, velvety plaques
- Localized skin disorder
- Favors flexural and intertriginous areas
- Associated with stimulation of insulin-like growth factors on keratinocytes and fibroblasts
- 25X more common in African Americans

Our Patient – Clinical

Our Patient - Histopathology

Comparative Histopathology

Differential Diagnosis

<table>
<thead>
<tr>
<th>Pityriasis Versicolor</th>
<th>Prurigo Pigmentosa</th>
<th>Sarcoïd</th>
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<tbody>
<tr>
<td>Terra Firma</td>
<td>Granular Parakeratosis</td>
<td>Lichen Planus</td>
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<tr>
<td>Granular Parakeratosis</td>
<td>Darier Disease</td>
<td>Epidermal Nevus</td>
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CARP & AN: Similarities
- Both associated with endocrinopathies
  - Diabetes mellitus
  - Insulin resistance
  - Obesity
  - Polycystic ovary syndrome
- Pathogenic link may be due to insulin resistance and consequent hyperinsulinemia
  - High levels of insulin activate tyrosine kinase receptors > mitogenic and antiapoptotic effects
  - May explain epidermal proliferation and papillomatosis seen in both
- On staining: increased expression of Ki-67
- On staining: increased expression of keratin 16

Source: Park et al.,

CARP & AN: Differences
- Location:
  - CARP seems to favor trunk
  - AN seems to favor flexural areas
- Histopathology
  - AN biopsies seem to have more melanocytes
  - Culture
    - CARP seems to grow more bacteria

Source: Park et al.,

Take Home Points
- CARP and AN may often look similar clinically
- CARP and AN often look similarly on histopathology
- CARP should be in the differential diagnosis of patients evaluated for AN and vice versa
- More studies are needed to understand the pathogenic mechanism of CARP and AN as well as their common association with high levels of insulin

Source: Kang et al.,

Citations