

Recommended Metabolic and Endocrine Parameters for Evaluation in Patients with Confluent and Reticulated Papillomatosis

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Introduction

Confluent and reticulated papillomatosis (CARP) is a rare epidermal disorder characterized by hyperpigmented, scaly papule that merge into a reticulated pattern, most commonly affecting adolescents and young adults. Although traditionally considered a primary dermatologic condition, emerging evidence suggest that CARP may be associated with metabolic and endocrine abnormalities, including obesity, insulin resistance, dyslipidemia, hypertension, and polycystic ovarian syndrome.

Carp often clinically overlaps with acanthosis nigricans but is differentiated by its unique responsiveness to tetracycline-class antibiotics. The underlying pathogenesis is understood poorly, but is hypothesized to involve hyperinsulinemia-mediated keratinocyte proliferation.

Specific Aim:

To synthesize multi-institutional data to contribute to proposing evidence-based metabolic screening recommendations for patients diagnosed with CARP.

Methods

- Study design: Narrative Literature review with database-supported analysis
- 25 peer-reviewed articles (2015-2025)
- Search items: CARP, insulin resistance, obesity, Type 2 DM, hyperlipidemia, hypertension, polycystic ovarian cancer, acanthosis nigricans
- Databases searched: PubMed, Google Scholar

Results

Pediatric Cohort (n = 111)¹

- 18% overweight
- 70.3% obese
- 21.6% hyperlipidemia
- 10% hypertension
- 46.8% family history T2DM

Case-Control Study (n = 68 CARP vs 399 acne controls)²

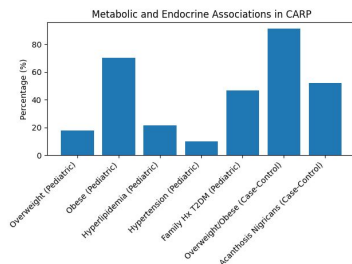
- 91% overweight or obese
- 52% concurrent acanthosis nigricans
- Higher prevalence of PCOS and T2DM compared to controls

Key Findings:

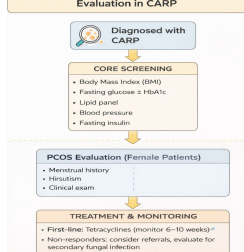
CARP consistently exhibits strong association with:

- Obesity
- Insulin resistance
- Dyslipidemia
- Endocrine abnormalities

These data suggests high correlation of CARP frequently representing as a cutaneous manifestation of systemic metabolic dysregulation rather than an isolated dermatologic condition.



Recommended Metabolic and Endocrine Evaluation in CARP



Discussion

Pathogenesis

- Hyperinsulinemia → IGF-1-mediated keratinocyte proliferation³
- Histology: papillomatosis, hyperkeratosis, ↑ Ki-67³
- Direct insulin-lesion correlation remains limited⁴

Therapeutic Response

- Tetracyclines effective in majority (51–73 days)⁵
- Likely anti-inflammatory/anti-proliferative mechanism⁶
- Dietzia papillomatosis isolated in some cases⁷
- Microbial role remains uncertain

Epidemiology

- Pediatric cohort: 60% female, 85% Black patients²
- Other reports: slight female predominance; Caucasian/Hispanic prevalence¹
- Likely influenced by referral bias and regional demographics

Limitations

- Retrospective, single-center data
- Small samples
- Inconsistent metabolic testing (insulin)
- Selection bias possible

Clinical Recommendations

- Screen all CARP patients:
 - BMI
 - Fasting glucose ± HbA1c
 - Lipid panel
 - Fasting insulin
- Evaluate females for PCOS
- First-line: tetracyclines (6–10 weeks)³
- Consider multidisciplinary management
- Reassess non-responders for alternative/secondary etiologies⁸

Citations

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