Case report

Clearance of acanthosis nigricans associated with insulinoma following surgical resection

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Summary

Acanthosis nigricans is said to be a marker of insulin resistance. It is known to occur in patients with insulinoma where there is marked hyperinsulinaemia. We report a case wherein the acanthosis disappeared following surgical resection of insulinoma and this strengthens the hypothesis that hyperinsulinaemia is responsible for acanthosis.

A 35-year-old gentleman presented with episodes of blurred vision, confusion, altered consciousness and seizures, which were relieved on eating. He was non-diabetic not on any medication and had no known malignancies. He was obese (BMI = 31kg/m²) with acanthosis nigricans and skin tags (Figure 1).

During a supervised fast he became symptomatic and had a plasma glucose of 36 mg/dl and inappropriately high serum insulin (79 mU/ml) and C-peptide (16 ng/ml) levels. Imaging revealed a mass at the junction of the head and body of the pancreas (1.5 cm x 1.2 cm). There was no evidence of other MEN1 tumours.

He underwent surgical enucleation of the mass, which was then histopathologically confirmed to be an insulinoma.

His plasma glucose normalized and he remained symptom free. At 8 weeks (post-op), we noticed that the acanthosis had disappeared. This had occurred even before his subsequent significant weight loss. Blood tests confirmed that his hyperinsulinaemic state had resolved. [Fasting glucose (85 mgi/dl) and insulin (6 mU/ml)].

Acanthosis nigricans is associated with numerous conditions including obesity, type 2 diabetes, polycystic ovarian syndrome and insulinoma.1

It is hypothesized that high levels of circulating unbound insulin binds to IGF-1 receptors on keratinocytes and fibroblasts and leads to proliferation of epidermis resulting in acanthosis nigricans.2

The resolution of the acanthosis even before significant weight loss further strengthens our belief that the surgical resection (with resolution of hyperinsulinaemia) was responsible for disappearance of the acanthosis.

Figure 1. Acanthosis nigricans.
A similar phenomenon has been described following partial pancreatectomy in a case of HAIR-AN syndrome.\textsuperscript{3}

References


2. Cruz PD, Hud JA. Excess insulin binding to insulin-like growth factor receptors: proposed mechanism for acanthosis nigricans. \textit{J Invest Dermatol} 1992; \textbf{98}(Suppl. 6):82S–5S.