

Diagnosis of these nodules may be particularly difficult if a history of cycling is not detected. The differential diagnosis should be established with common minor disorders (cysts and lipomas), and with other, rarer and more important conditions such as aggressive angiomyxoma. This rare variety of myxoid tumor can infiltrate locally and is associated with a high risk of local recurrence after resection, but it has no metastatic potential. It generally affects young women and arises in the soft tissue of the pelvis and perineum. Rare cases have also been reported in men, where it develops in the scrotum and groin, presenting as masses or nodules in these areas.^{6,7}

Treatment of these perineal indurations in cyclists is generally surgical, although, if this is not possible because the patient is a professional cyclist, conservative treatment with rest and infiltrations of steroids or hyaluronidase may be tried.¹⁻³

These cyclist's nodules are a genuine handicap for professional cyclists and contraindicate cycling for amateur cyclists.¹

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Conflicts of Interest

The authors declare no conflicts of interest.

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Perianal Verrucous Papules in a Patient With Bannayan-Riley-Ruvalcaba Syndrome

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To the Editor:

Bannayan-Riley-Ruvalcaba syndrome (BRRS) is a rare autosomal dominant genetic disorder caused in approximately 60% of cases by mutations on the *PTEN* gene, a tumor suppressor gene on chromosome 10.¹ Typically, patients with this syndrome present a triad of macrocephaly, genital melanotic macules, and hamartomatous polyps in the intestine. Identical mutations of the *PTEN* gene have been reported in 80% of patients with Cowden syndrome, also known as multiple hamartoma syndrome.² Both syndromes have been reported in some families and some members may present phenotypes corresponding to both entities.³ In view of the clinical and genetic overlap of BRRS and Cowden syndrome, they are currently considered as different

phenotypic expressions of the same condition known as *PTEN* syndrome.^{1,3} This spectrum also includes Proteus and Proteus-like syndrome, in which *PTEN* mutations are found in a smaller proportion of cases.¹

There are numerous skin manifestations common to BRRS and Cowden syndromes, including oral, facial, and acral warts or verrucous papules, lipomas, trichilemmomas, and inverted follicular keratosis.¹⁻³ The presence of multiple trichilemmomas in the facial region is diagnostic of Cowden syndrome.⁴

We report the case of a 33-year-old man with no family history of interest who was diagnosed with BRRS on the basis of a range of abnormalities, the most prominent being marked macrocephaly with hypertelorism, slight mental retardation, genital lentiginos, intestinal polyps,

gynecomasty, and pectus excavatum. Clinical suspicion was confirmed by genetic study, in which a deletion was detected on the *PTEN* gene.

In February 2007, he was diagnosed with colon adenocarcinoma, which was resected without any adjuvant therapy. Fecal incontinence occurred as a sequela of the operation. Later, during a follow-up colonoscopy, a large number of perianal skin lesions were detected. Clinically these were suggestive of condylomata acuminata, and so the patient was referred to our clinic. The patient and his family denied that he had had sexual contact.

On physical examination, a verrucous erythematous pinkish plaque was observed on which multiple papillary and lobulated lesions of differing sizes were present. These were mostly sessile with a highly vascular appearance and bled on minimal contact (Figure 1). No other similar lesions were found on the rest of the body surface.

We excised one of the lesions for histopathological study. A polypoid lesion was observed with a connective tissue core, epidermal hyperplasia with hypergranulosis, and dermal papillae with numerous dilated vessels suggestive of a common wart (Figures 2 and 3). Typing was positive for human papilloma virus (HPV) 11, considered a mucosal subtype with low oncogenic risk.

In both BRRS and Cowen syndrome, loss of *PTEN* gene functionality leads to disorganized cell proliferation and failure of apoptosis. The 2 syndromes share a range of pseudoverrucous mucocutaneous manifestations, although these were first described in Cowen syndrome.¹ They might arise from an overgrowth of the epithelium of the follicular infundibulum due to the mutation.⁴ Clinically, all these lesions may resemble one another, and so histological analysis is necessary to correctly characterize them.^{2,5}

Different studies performed exclusively in patients with Cowen syndrome have attempted to clarify the role of HPV in pseudoverrucous lesions, but the results have been contradictory.^{5,6} Initially, in 1991, using immunohistochemical techniques, Hori demonstrated the presence of the HPV common antigen in an inverted follicular keratosis.⁴

In 2002, Schaller et al⁵ undertook typing of HPV in predominantly facial lesions. They managed to isolate DNA from the virus in most cases and concluded, therefore, that HPV could be the causative agent in most verrucous lesions associated with Cowden syndrome. However, in another study, Ruhoy et al⁶ attempted to isolate HPV DNA in inverted follicular keratoses excised from a patient with Cowden syndrome and obtained negative results.

Nevertheless, there are currently several studies that claim that HPV has a reservoir located in hair follicles and that it can remain latent for long periods without causing any clinically detectable skin lesions,⁷⁻⁹ and so an etiologic connection is difficult to confirm.⁵



Figure 1. Perianal verrucous erythematous pinkish plaque, with multiple polypoid lesions with a highly vascular appearance at the surface.

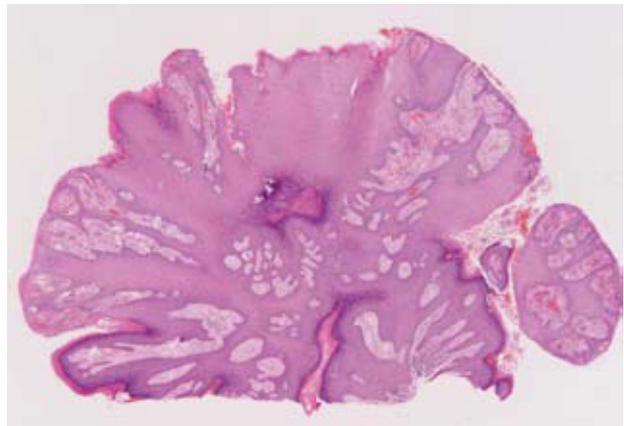


Figure 2. Hematoxylin-eosin, x10.

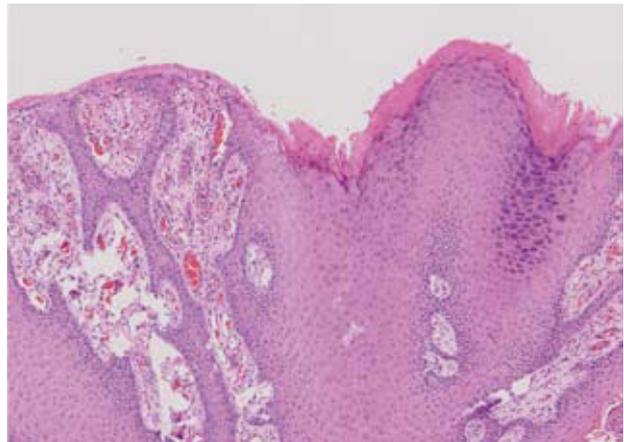


Figure 3. Hematoxylin-eosin, x40.

The patient is now receiving treatment with carbon dioxide laser light with good results. New lesions will continue to appear, however, while the patient remains anally incontinent.

We wish to highlight the importance of the numerous characteristic lesions associated with these PTEN syndromes. The pathogenesis has yet to be clarified, but often these lesions are the first manifestation of a set of genetic diseases in which there is a high risk of developing malignant tumors at different sites.

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Conflicts of Interest

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