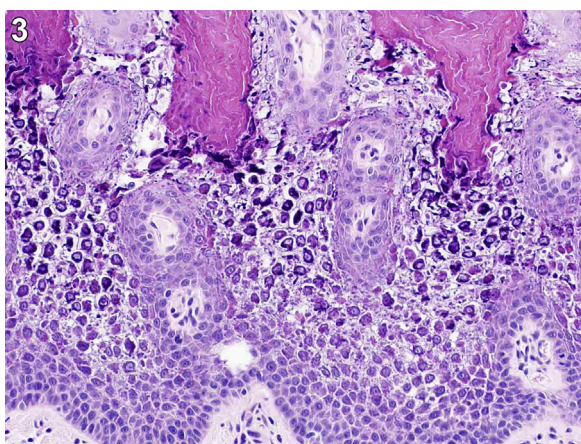
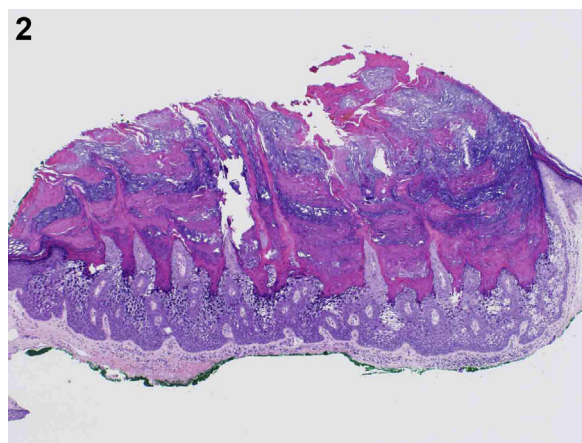


Verrucous papules on the scrotum



Michael Chung, BA,^a Colton Nielson, MD,^b Eric Rudnick, MD,^b and Kiran Motaparthy, MD^b
Loma Linda, California and Gainesville, Florida

Key words: condyloma acuminata; condyloma lata; epidermolytic acanthoma; epidermolytic hyperkeratosis; molluscum contagiosum.



From the Loma Linda University School of Medicine^a; and Department of Dermatology, University of Florida College of Medicine, Gainesville.^b

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Correspondence to: Kiran Motaparthy, MD, Department of Dermatology, University of Florida College of Medicine, 4037 NW, 86th Terrace, 4th floor, Room 4123 Springhill, Gainesville, FL 32606. E-mail: kmotaparthy@dermatology.med.ufl.edu.

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CASE PRESENTATION

A 42-year-old Asian man with a past medical history of psoriasis presented with multiple papules on the scrotum after several sexual encounters. Due to his recent encounters, he was concerned about a sexually transmitted disease. To his knowledge, the lesions had been present for years and were asymptomatic and unchanging without previous treatment. He denied any family history of similar cutaneous findings. Physical examination showed multiple 2- to 5-mm skin-colored papules, some with central umbilication and keratin plugs, limited to the scrotum and sparing the penis (Fig 1). Shave biopsy was performed (Fig 2 and 3).

Question 1: Based on the clinical presentation and histology, what is the most likely diagnosis?

- A. Condyloma lata
- B. Condyloma acuminata
- C. Molluscum contagiosum
- D. Epidermolytic acanthomas
- E. Papular acantholytic dyskeratosis of the genitocrural folds

Answers:

A. Condyloma lata — Incorrect. The clinical morphology is typified by skin-colored to hypopigmented plaques or papules in the genital and anal regions. Additionally, condyloma lata are typically macerated, smooth, flat, and moist. Marked verrucous epidermal hyperplasia, lichenoid tissue reaction, and plasmacellular infiltrates are characteristic, and *Treponema pallidum* immunostain highlights abundant spirochetes in the epidermis.¹

B. Condyloma acuminata — Incorrect. Condyloma acuminata present as grouped, dark brown papules of variable size. Typical locations include the glans penis, penile shaft, penile root, pubic area, groin, and perianal area, in contrast to the scrotal localization found in this patient.² Verrucae vulgaris may also be considered in this context.

C. Molluscum contagiosum — Incorrect. Molluscum contagiosum presents as grouped or individual papules with classic central umbilication arising in scrotal, vulvar, or perigenital skin. Histopathologic analysis shows large intracytoplasmic inclusion bodies.³

D. Epidermolytic acanthomas — Correct. Skin-colored, 2- to 6-mm papules with central keratin plug, umbilication, and limited distribution on the scrotum or labia majora reflect the morphology of epidermolytic acanthomas (EA). EA is an important differential to include when considering condyloma acuminata and molluscum contagiosum, diagnoses that carry greater potential social impact. EA is a rare benign tumor that presents on the scrotum in men

and labia majora in women. Histopathologic analysis shows a verrucous silhouette, hyperkeratosis, perinuclear vacuolization, and reticular degeneration in the granular and spinous layers.²

E. Papular acantholytic dyskeratosis of the genitocrural folds — Incorrect. Papular acantholytic dyskeratosis of the genitocrural folds (PADGCF) presents as skin-colored keratotic papules on the labia majora, scrotum, penis, perianal area, and upper medial thighs. Histopathologic analysis shows features analogous to those observed in warty dyskeratoma and Darier disease: verrucous epidermal hyperplasia, parakeratosis, and acantholytic dyskeratosis with corps ronds and grain formation.⁴

Question 2: After the correct diagnosis is made, what is the next best step in management?

- A. Liquid nitrogen
- B. Observation
- C. Imiquimod
- D. Curettage
- E. Topical keratolytics

Answers:

A. Liquid nitrogen — Incorrect. Treatment is not necessary because these lesions are benign and noncommunicable.

B. Observation — Correct. Treatment is not necessary because these lesions are benign and non-transmissible. However, if distressing to the patient, topical keratolytics and imiquimod can be used, with variable response rates. If resistant, procedural treatments described for EA include cryotherapy, curettage, and CO₂ laser.^{2,3}

C. Imiquimod — Incorrect. Treatment is not necessary.

D. Curettage — Incorrect. Treatment is not necessary because these lesions are benign and noncontagious.

E. Topical keratolytics — Incorrect. Treatment is not necessary.

Question 3: Which genetic mutation has been implicated in the pathogenesis of this disease?

- A. *KRT1/KRT10*
- B. *KRT5/KRT14*
- C. *EVER1/EVER2*
- D. Postzygotic somatic mutation
- E. None

Answers:

- A. *KRT1/KRT10* — Incorrect. These genes represent keratins located within the spinous layer of the epidermis. Mutations are associated with epidermolytic ichthyosis and postzygotic somatic mutations in epidermal nevi.^{2,4}
- B. *KRT5/KRT14* — Incorrect. These genes represent keratins located within the basal layer of the epidermis. Mutations within these genes are associated with epidermolysis bullosa simplex.⁴
- C. *EVER1/EVER2* — Incorrect. These gene mutations correlate with epidermodysplasia verruciformis.⁵
- D. Postzygotic somatic mutation — Incorrect. Epidermal nevi with acantholytic dyskeratosis and segmental acantholytic dermatoses such as Darier disease and Hailey-Hailey disease can be caused by spontaneous postzygotic somatic mutations in

SERCA2 and *ATP2C1*, respectively.⁴ PADGCF is also associated with vertically transmissible mutations in *ATP2C1*.

E. None — Correct. The pathogenesis of EA remains unclear. No studies targeting genes, viral genomes, and other potential contributing factors such as trauma, ultraviolet light, radiation, and immunosuppression have been conclusive to date.^{2,3}

Abbreviations used:

EA: epidermolytic acanthoma

PADGCF: papular acantholytic dyskeratosis of the genitocrural folds

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