ARC Journal of Urology
Volume 9, Issue 1, 2025, PP 7-9
ISSN No. (Online) 2456-060X
DOI: https://doi.org/10.20431/2456-060X.090102
www.arcjournals.org

Diagnostic Approaches and Challenges in Genital Dermatology

Alejandra Sataray-Rodriguez, B.S[1], Damilola Oladinni, Med[2], Lilly Jimoh, MS, MPH[3], Sarah Kazemeini, B.S[4], Ceilia Severini, MS[2]

[1]*University of Nevada-Reno School of Medicine, Reno, NV 89503*

[2]*A.T. Still University School of Osteopathic Medicine Arizona, Mesa, AZ 85206*

[3]*Charles R. Drew University of Medicine and Science, Los Angeles, CA 90059*

[4]*Kirk Kerkorian School of Medicine at UNLV, Las Vegas, NV 89106*

Received: 27 June 2025 Accepted: 17 July 2025 Published: 28 July 2025

Corresponding Author:** ***Alejandra Sataray-Rodriguez*, University of Nevada-Reno School of Medicine, Reno, NV 89503*

Abstract: *Genital dermatology encompasses a broad spectrum of conditions affecting the skin and mucosal membranes of the genital region. Diagnosing these conditions presents unique challenges due to the complex interplay of dermatologic, infectious, autoimmune, and systemic etiologies, combined with the sensitive nature of the anatomical area. This review critically examines diagnostic methodologies employed in genital dermatology, emphasizing detailed physical examinations, laboratory investigations, and advanced imaging technologies. Common diagnostic pitfalls, including misdiagnosis, delayed diagnosis, and associated psychological distress, are highlighted. The review underscores the critical role of a multidisciplinary approach involving dermatologists, gynecologists, urologists, and infectious disease specialists to enhance diagnostic accuracy and patient care. Recommendations are provided to advance diagnostic precision, optimize patient outcomes, and improve management of genital skin disorders.*

Keywords: *genital dermatology, diagnostic challenges, physical examination, multidisciplinary approach, advanced imaging techniques*

1. Introduction

Genital dermatology addresses disorders of the external genitalia's skin and mucosal surfaces across all genders. Conditions range from inflammatory dermatoses (e.g., lichen sclerosus, lichen planus, inverse psoriasis) and infections to autoimmune disorders (pemphigus vulgaris), pigmentary/vascular anomalies, and malignant or premalignant lesions (e.g., vulvar high-grade squamous intraepithelial lesions, invasive squamous cell carcinoma).[1] The genital area's unique microenvironment—characterized by moisture, occlusion, and friction—can obscure typical morphologic features, complicating recognition and classification.[2]

2. Key Diagnostic Approaches

2.1. Physical Examination

Routine genital examinations are foundational, enhancing diagnostic proficiency and detecting unnoticed anomalies or trauma.[3] Systematic approaches involving inspection, palpation, proper lighting, patient positioning, and universal precautions are critical.[3] Identifying systemic disease stigmata (eczema, psoriasis, dermatophytosis, lichen planus) is integral during full mucocutaneous examinations.[5] ISSVD terminology aids clinicians in describing lesions systematically, guiding accurate differential diagnoses.[6–7]

2.2. Laboratory and Histopathologic Investigations

When clinical findings are ambiguous, laboratory tests are essential. Vaginal swabs for Chlamydia trachomatis and Neisseria gonorrhoeae NAATs, although urine remains commonly used, offer optimal sensitivity.[9] HSV PCR and type-specific serology are standard for male herpes diagnosis.[10] Biopsies differentiate inflammatory, infectious, and neoplastic lesions, crucial in ambiguous presentations or malignancy suspicion.[11–12]

2.3. Dermoscopy

Dermoscopy significantly enhances diagnostic specificity by distinguishing conditions such as genital warts (mosaic reticular patterns with

central dotted vessels), molluscum contagiosum (polylobular amorphous structures), lichen sclerosus (white patches with pinkish hues), and lichen planus (linear pearly structures).[14–18] Regular use of dermoscopy can uncover malignancies otherwise undetected clinically.

2.4. Challenges in Diagnosis

Misdiagnoses (e.g., lichen sclerosus vs. tinea cruris, herpes vs. contact dermatitis) are common and delay treatment. Contributing factors include inadequate exposure to rare or gender-specific conditions, cultural and language barriers, discomfort with genital examinations, atypical presentations (particularly in skin of color), and limited access to advanced diagnostics or dermatopathology services.

3. Future Directions and Recommendations

Advancements include incorporating AI-driven image analysis for lesion detection and genomic profiling for risk stratification in autoimmune/ neoplastic conditions.[19–20] Educational reforms integrating genital dermatology into medical curricula and continuous medical education (CME) are vital to reducing diagnostic errors.[21–22] A multidisciplinary approach involving dermatologists, gynecologists, urologists, and infectious disease specialists is essential to enhance diagnostic accuracy and comprehensive patient care.[22–23]

4. Conclusion

A structured diagnostic approach combining thorough physical examinations, targeted laboratory investigations, histopathology, and dermoscopy is crucial in genital dermatology. Ongoing integration of AI, genomic technologies, focused educational efforts, and multidisciplinary collaboration promises further improvement in diagnostic precision and patient outcomes.

References

[1] Wallett A, Marlow C. A prospective, 12-month observational study of attendance to a multidisciplinary tertiary vulvar clinic in South Australia. Australas J Dermatol. 2023; 64(3):e269-e271. doi:10.1111/ajd.14095

[2] Singh L, Kumari K, Sharma S. Vulvar dermatoses—Can a pattern-based approach improve diagnostic yield? J Cutan Pathol. 2023; 50(4):364-370. doi:10.1111/cup.14364

[3] Hornor G. Genitourinary assessment: an integral part of a complete physical examination. J Pediatr Health Care. 2007; 21(3):162-170. doi:10.1016/j.pedhc.2006.05.012

[4] Christensen A, Haugsdal M, Bowdler NC. Importance of the physical exam and in-office tests in the evaluation of vulvovaginal irritation. Proc Obstet Gynecol. 2014; 4(2):1-8. doi:10.17077/2154-4751.1246

[5] Stewart KMA. Vulvar dermatoses: A practical approach to evaluation and management. J Clin Outcomes Manag. 2012; 19:205-220.

[6] Preti M, Lewis F, Carcopino X, et al. Vulvar inspection at the time of cervical cancer screening: ESGO, ISSVD, ECSVD, and EFC consensus statements. Int J Gynecol Cancer. 2025; 35(1):100007. doi:10.1016/j.ijgc.2024. 10 0007

[7] Lynch PJ, Moyal-Barracco M, Scurry J, Stockdale C. 2011 ISSVD terminology and classification of vulvar dermatological disorders. J Low Genit Tract Dis. 2012; 16(4):339-344. doi:10.1097/LGT.0b013e 3182494e8c

[8] Conforti C, Giuffrida R, Di Meo N, et al. Benign dermatoses of the male genital areas: A review of the literature. Dermatol Ther. 2020; 33(3): e13355. doi:10.1111/dth.13355

[9] Aaron KJ, Griner S, Footman A, Boutwell A, Van Der Pol B. Vaginal swab vs urine for detection of Chlamydia trachomatis, Neisseria gonorrhoeae, and Trichomonas vaginalis: A meta-analysis. Ann Fam Med. 2023; 21(2):172-179. doi:10.1370/afm.2942

[10] Roett MA. Genital ulcers: Differential diagnosis and management. Am Fam Physician. 2020; 101(6):355-361.

[11] Ashby J, Ahmed A, Walker M, Wilkinson D. Utility of a diagnostic skin biopsy clinic within genitourinary medicine. Int J STD AIDS. 2011; 22(7):417-418. doi:10.1258/ijsa.2011.010493

[12] Kimberlin DW, Rouse DJ. Clinical practice. Genital herpes. N Engl J Med. 2004; 350(19):1970-1977. doi:10.1056/NEJMcp0 23065

[13] Feltner C, Grodensky C, Ebel C, et al. Serologic screening for genital herpes: updated evidence report and systematic review for the US Preventive Services Task Force. JAMA. 2016; 316(23):2531-2543. doi:10.1001/jama.2016.17138

[14] Zalaudek I, Argenziano G, Di Stefani A, et al. Dermoscopy in general dermatology. Dermatology. 2006; 212(1):7-18. doi:10.1159/ 000089015

[15] Dong H, Shu D, Campbell TM, Frühauf J, Soyer HP, Hofmann-Wellenhof R. Dermatoscopy of genital warts. J Am Acad Dermatol. 2011; 64(5):859-864. doi:10.1016/j.jaad.2010.03.028

[16] Lacarrubba F, Verzì AE, Ardigò M, Micali G. Handheld reflectance confocal microscopy for molluscum contagiosum: Histopathology and dermoscopy correlation. Australas J Dermatol. 2017; 58(3):e123-e125. doi:10.1111/ajd.12511

[17] Borghi A, Corazza M, Minghetti S, Virgili A. Dermoscopic features of vulvar lichen planus. J Eur Acad Dermatol Venereol. 2016; 30(6):1063-1065. doi:10.1111/jdv.13112

[18] Fahy CMR, Torgerson RR, Davis MDP. Lichen planus affecting female genitalia: A retrospective Mayo Clinic review. J Am Acad Dermatol. 2017; 77(6):1053-1059. doi:10.1016/j.jaad.2017.07.030

[19] Bi WL, Hosny A, Schabath MB, et al. Artificial intelligence in cancer imaging: Clinical challenges and applications. CA Cancer J Clin. 2019; 69(2):127-157. doi:10.3322/caac.21552

[20] Nooij LS, Ter Haar NT, Ruano D, et al. Genomic characterization of vulvar (pre)cancers identifies distinct molecular subtypes with prognostic significance. Clin Cancer Res. 2017; 23(22): 6781-6789. doi: 10.1158/1078-0432. CCR- 17-1302

[21] Shobajo M, Abdulkadir S, Kraus CN, Shiu J. Anogenital skin of color images underrepresented in dermatology, gynecology, and urology textbooks. Int J Womens Dermatol. 2023; 9(3):e090. doi:10.1097/JW9.0000000000000090

[22] Sally R, Shaw KS, Pomeranz MK. Benign "lumps and bumps" of the vulva: A review. Int J Womens Dermatol. 2021; 7(4):383-390. doi:10.1016/j.ijwd.2021.04.007

[23] Braam A, Buljac-Samardzic M, Hilders CGJM, van Wijngaarden JDH. Collaboration between physicians from different medical specialties: A systematic review. J Multidiscip Healthc. 2022; 15:2277-2300. doi:10.2147/JMDH.S376927

Citation: *Alejandra Sataray-Rodriguez et al. Diagnostic Approaches and Challenges in Genital Dermatology. ARC Journal of Urology. 2025; 9(1):7-9. DOI: https://doi.org/10.20431/2456-060X.090102.*