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Benign dermatoses of the male genital areas: A review of the literature

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Abstract

The male genitalia are a common site of dermatoses. Patients with penile diseases often delay or avoid medical care due to anxiety and embarrassment. In this narrative review, we describe some of the main benign dermatoses localized to male genital, focusing on their epidemiology, clinical and dermoscopic features, as well as available therapies.

KEYWORDS

dermatoses, dermoscopy, genital

1 | INTRODUCTION

Male genital area may be affected by several benign dermatological conditions, specific and nonspecific to this region.[1] Many patients with penile dermatoses have also extragenital cutaneous manifestations, so a complete examination is highly recommended.[2] The goal of this narrative review is to provide an overview and update on the literature concerning epidemiology, clinical and dermoscopic manifestations, and available therapies of the most diffuse benign dermatoses of the male genital area (Table 1).

1.1 | Risk and protective factors

Male genital infections can be preceded by mycotic infections of other body sites ([3]). Other predisposing factors are local humidity, skin maceration,[4] long-term use of tight-fitting garments, diabetes, atopic dermatitis, human papilloma virus (HPV) infection, immunosuppression, and unprotected sex.[3,5,6] It has been shown that circumcision protects against common infections of the penis.[7] The use of condom reduces the risk of sexually transmitted diseases.[8]

2 | INFECTIOUS DISEASES (VIRAL, FUNGAL, BACTERIAL, OTHERS)

2.1 | Herpes genitalis

Herpes genitalis is caused by herpes simplex virus (HSV), existing in two types: HSV-1 and HSV-2. The latter is most commonly associated with herpes genitalis and it is usually sexually transmitted. However, an increasing proportion is attributable to HSV-1 due to oral sex. The incubation period ranges from 4 to 7 days, and its most common sites of infection are skin and mucous membranes of mouth, eyes, and genitals.[9]

Claudio Conforti and Roberta Giuffrida contributed equally to the study as first authors.

TABLE 1 Main features of benign male genital dermatoses

Disease	Pathogenesis	Common sites	Clinical appearance	Dermoscopic features	Treatment options
Condyloma acuminatum	Infective (HPV)	Balano-preputial sulcus, frenulum, glans mucosa	Solitary/multiple verrucous/sessile pink to reddish-brown papules/nodule or cauliflower-like masses. Usually asymptomatic	Possible patterns: unspecific, fingerlike, mosaic, knoblike	CO_2 or erbium lasers, surgical excision, curettage, electrosurgery, cryotherapy, bi-trichloracetic acid, PDT, infrared coagulation, podophyllotoxin, imiquimod, extract from green tea leaves
Herpes genitalis	Infective (HSV)	Shaft of the penis	3–5 vesicles progressing to pustules or ulcers. Typical symptoms: pain, burning and dysuria; lymphadenopathy, fever and proctitis most common in MSM. Frequent recurrences	Vescicles/erosions on erythematous background	Aciclovir, valaciclovir and famciclovir per os, or intravenous injection (immunodeficient patients)
Molluscum contagiosum	Infective (MCV)	Inner thighs, genital (shaft of the penis) and pubic areas	Small, firm, smooth-surfaced, dome-shaped papules with a central umbilication. Usually asymptomatic, occasionally itching	Central umbilication with polylobular white to yellow amorphous structure surrounded by linear telangiectasias, branched (red corona) or dotted vessels	Surgery, cryotherapy, electrosurgery, CO_2 laser, topical salicylic acid/hydrogen peroxide/potassium hydroxide/silver nitrate/imiquimod/ cantharidin, topical or intravenous cidofovir
Candidiasis	Infective (*Candida* spp.)	Glans penis	Mild glazed erythema, satellite eroded pustules, moist curd-like accumulations. Symptoms: mild burning and pruritus	Cottage cheese-like structures	Topical treatments: clotrimazole, miconazole or nystatin; imidazole + hydrocortisone, if marked inflammation is present. Systemic therapy (severe e/o recalcitrant disease): fluconazole, itraconazole, voriconazole or posaconazole
Scabies	Infective (*Sarcoptes scabiei* var. *hominis*)	Shaft of the penis and scrotum	Intensely itchy skin eruption consisting of papules, nodules and vescicles. Pathognomonic sign: the burrow (short, wavy, scaly, gray line on the skin surface). Symptoms: severe, persistent pruritus, most intense at night	Small dark-brown triangular structures at the end of curved/wavy whitish structureless (appearance reminiscent of "delta-wing jet with contrail")	Topical permethrin; oral ivermectin
Pediculosis pubis	Infective (*Phtirius pubis*)	Inner thighs, genital (scrotum), pubic and perianal areas	Blue macules (maculae ceruleae) at feeding sites. Nits and/or live lice attached to hairs shaft. Symptoms: pruritus	Nits and/or live lice attached to hairs shaft. Ovoid brown structures for nits containing vital nymphs; empty nits are translucent with a plane and fissured free ending	Permethrin cream and pyrethrins with piperonyl butoxide shampoo

TABLE 1 (Continued)

Disease	Pathogenesis	Common sites	Clinical appearance	Dermoscopic features	Treatment options
Trichomoniasis	Infective (*Trichomonas vaginalis*)	Commonly urethra; rarely the head of penis	Frequently asymptomatic	-	Metronidazole per os; tinidazole per os for resistant disease
Syphilis	Infective (*Treponema pallidum*)	Balanopreputial area; perianal area (MSM)	Chancre (primary syphilis): solitary, firm and painless ulcer at the inoculation site	-	Intramuscular benzathine penicillin G. Second choice: oral doxycycline, azithromycin and ceftriaxone
Seborrheic dermatitis	Infective (*Malassezia* yeasts)/ inflammatory	Glans penis	Well-defined erythematous plaques with greasy-looking, yellowish scales or oily/ dry red scaly patches or pigmented papules. Pruritus can be present	Dotted vessels and yellowish scales. Sometimes white scales, follicular plugs, orange-yellowish areas, whitish structureless areas and linear branching vessels	Antifungal agents (sertaconazole, ketaconazole, ciclopiroxolamine), immunomodulators (tacrolimus, pimecrolimus), corticosteroides and vitamin derivatives (nicotinamide)
Lichen ruber planus	Inflammatory-immune	Glans penis, coronal sulcus	Pink, shiny, flat-topped papules. Sometimes erythema and erosive lesions. Symptoms: pruritus or hyperalgesia	White crossing streaks (Wickham striae). Dotted and/or linear vessels, usually distributed at the periphery of the lesion	Powerful topical corticosteroids (clobetasol) and/or decreased potency corticosteroid. Calcineurin inhibitors potentially effective
Lichen sclerosus	Inflammatory	Gland and/or distal portion of the prepuce	White crinkled or thickened patches of skin frequently leading to scar. Uncommonly telangiectasia, purpura, bullae, erosions and/or ulcerations. Symptoms: itching, erective dysfunction (phimosis), urinary retention, dysuria.	White-yellowish structureless areas and dotted or linear vessels	First-line therapy topical corticosteroids Calcineurin inhibitors potentially effective calcineurin inhibitors are also useful. Circumcision should be considered in case of phimosis. Biopsy if suspected a skin carcinoma
Psoriasis	Inflammatory-immune	Inner thighs, genital (penis and/or scrotum), perianal areas	Red scaly patches on the glans and corona of circumcised patients; well-defined non-scaling plaques under the prepuce and on the proximal glans of uncircumcised patients. Signs of inverse/classic psoriasis. Sometimes rhagades or fissures. Symptoms: itching, discomfort, burning, pain	Red dots or globules arranged in a homogeneous, regular, or ring-like fashion	Low-potency corticosteroid creams. As second choice, topical calcipotriene or tacalcitol or tar-based treatment as monotherapy or combined with topical steroids
Zoon balanitis	Inflammatory	Glans penis, corona sulcus, mucosal surface of the prepuce	Asymptomatic solitary, shiny, well-defined erythematous plaque with "cayenne pepper spot" (multiple pinpoint, brighter red spots)	Focal/diffuse orange-yellowish structureless areas and/or fairly focused curved vessels; less commonly linear irregular vessels and dotted vessels	First-line therapy: circumcision. Other options: topical steroids, calcineurin inhibitors, mupirocin, photodynamic and laser therapy

(Continues)

TABLE 1 (Continued)

Disease	Pathogenesis	Common sites	Clinical appearance	Dermoscopic features	Treatment options
Nevi	Melanocitic proliferation	Glans penis	Asymmetrical pigmented macules or papules, uniform or variegated in color, usually with a diameter of less than 1 cm	Regular pigment network. Sometimes, atypical brown to black network, irregular streaks or blotches at the periphery	Usually benign course. Normal follow-up
Melanosis	Unknown	Glans penis, meatus, shaft of the penis	Multifocal and irregular dark hyperpigmented melanocytic macules, irregularly bordered, unequally colored	Parallel and ring-like pattern Less frequently globular, mixed and reticular patterns	Usually benign course. Normal follow-up

Abbreviations: HPV, human papilloma virus; HSV, herpes simplex virus; MSM, men who have sex with men; MCV, molluscum contagiosum virus; PDT, photodynamic therapy.

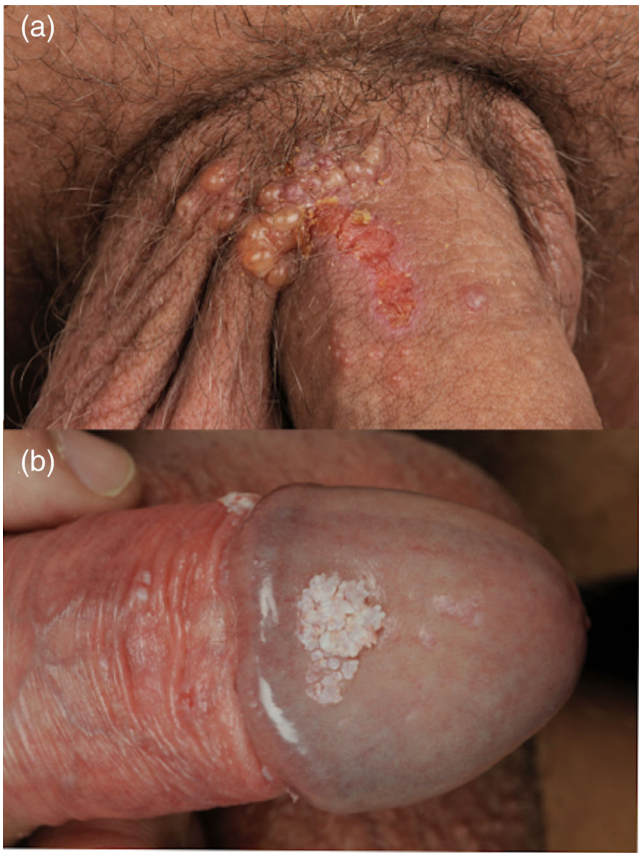

FIGURE 1 A, Clinical appearance of genital herpes simplex infection. B, Clinical picture of a small cauliflower-like mass on the glans penis (condyloma acuminatum)

In men, genital herpes appears as three to five vesicles on the shaft of the penis that can progress to pustules or ulcers and last for up to 3 weeks (Figure 1A). Typical symptoms include pain, burning and dysuria; lymphadenopathy, fever, and proctitis are most common in men who have sex with men (MSM). HSV infections have a high tendency to become chronic and recurrences are frequent. They may be associated with neuralgias, paresthesias, and dysaesthesias before skin and mucosal lesion eruptions appear.[10] Diagnosis can be confirmed by virus isolation in cell culture or detection of HSV DNA with polymerase chain reaction (PCR).[9] Dermoscopy shows ill-defined skin colored, translucent, and opaque clods corresponding to vesicles with surrounding erythema.[11]

Antiviral drugs for treatment of herpes genitalis are aciclovir, valaciclovir, and famciclovir. Severe HSV infections, particularly in immunodeficient patients, should be treated with intravenous therapy.[8]

2.2 | Condyloma acuminatum

Condyloma acuminatum (CA), or genital wart, is caused by HPV infection.[12] The virus is transmitted by direct/sexual contact although indirect contact (contaminated towels, clothes, or sex toys) has been discussed.[13,14] The incubation period ranges from 3 weeks to 8 months. More than 150 types of HPVs have been identified. HPV associated with genital lesions can induce malignant (high-risk HPV-16, -18, and -31) or benign diseases (low-risk HPV-6 and -11).[8,13]

The most common sites are balanopreputial sulcus, frenulum and glans mucosa, areas of highest friction during sexual activity. Urethral location is relatively uncommon.

CA can be solitary or multiple; they appear as small verrucous or sessile smooth-topped papules or nodules, or even as large exophytic, cauliflower-like masses (Figure 1B). Color changes from flesh-colored to pink to reddish brown. The lesions have a moist and fleshy surface, are often multifocal, and are generally no more than a few centimeters in diameter but they may coalesce.[5,15] Usually asymptomatic, they can sometimes cause itching and mild burning.[16]

Dermoscopy identifies four different patterns that may coexist in a single wart: unspecific, fingerlike, mosaic, and knoblike patterns. Early and clinically flat lesions seem to show a mosaic pattern, whereas more advanced and raised or papillomatous warts frequently had a fingerlike or knoblike pattern. Glomerular and hairpin vessels have also been detected[17] (Figure 2A,B).

Diagnosis is confirmed by culture, DNA detection with PCR, or biopsy.

FIGURE 2 Clinical, A, and dermoscopic, B, features of genital warts; clinical, C, and dermoscopic, D, features of molluscum contagiosum on the balanopreputial area; clinical, E, and dermoscopic, F, features of penile (glans penis) candidiasis

There are several treatments, including carbon dioxide or erbium lasers, surgical excision, curettage, electrosurgery, cryotherapy, bitrichloroacetic acid, photodynamic therapy, infrared coagulation, podophyllotoxin, imiquimod, extract from green tea leaves (sinecatechins).[14,p.13]

Three vaccines, Cervarix, Gardasil (quadrivalent), and Gardasil-9 (nonavalent), have been approved by the Food and Drug Administration.[18]

2.3 | Molluscum contagiosum

Molluscum contagiosum (MC) is a cutaneous infection caused by MC virus (MCV).[19] There are two types of MCV (MCV1 and MCV2) with an incubation period of 2 to 7 weeks. Most lesions regress spontaneously within 9 to 12 months in immunocompetent patients.[20]

Lesions commonly occur on face, neck, and abdomen[21] but in sexually active people they can be found on inner thighs, genital, and pubic areas.[20] Autoinoculation can occur. MC presents as small, firm, smooth-surfaced, dome-shaped papules with a central umbilication (Figure 2C). The patients typically have 1 to 20 lesions that are generally 2 to 5 mm in size and their color can vary from pearly white or skin colored. Lesions are usually asymptomatic, occasionally itching; discomfort or secondary bacterial infection can be present.[19-21] Dermoscopy reveals a central umbilication in conjunction with polylobular white to yellow amorphous structure surrounded by linear telangiectasias, branched (red corona), or dotted vessels[17,22] (Figure 2D). Treatments include physical ablation (cold steel surgery,

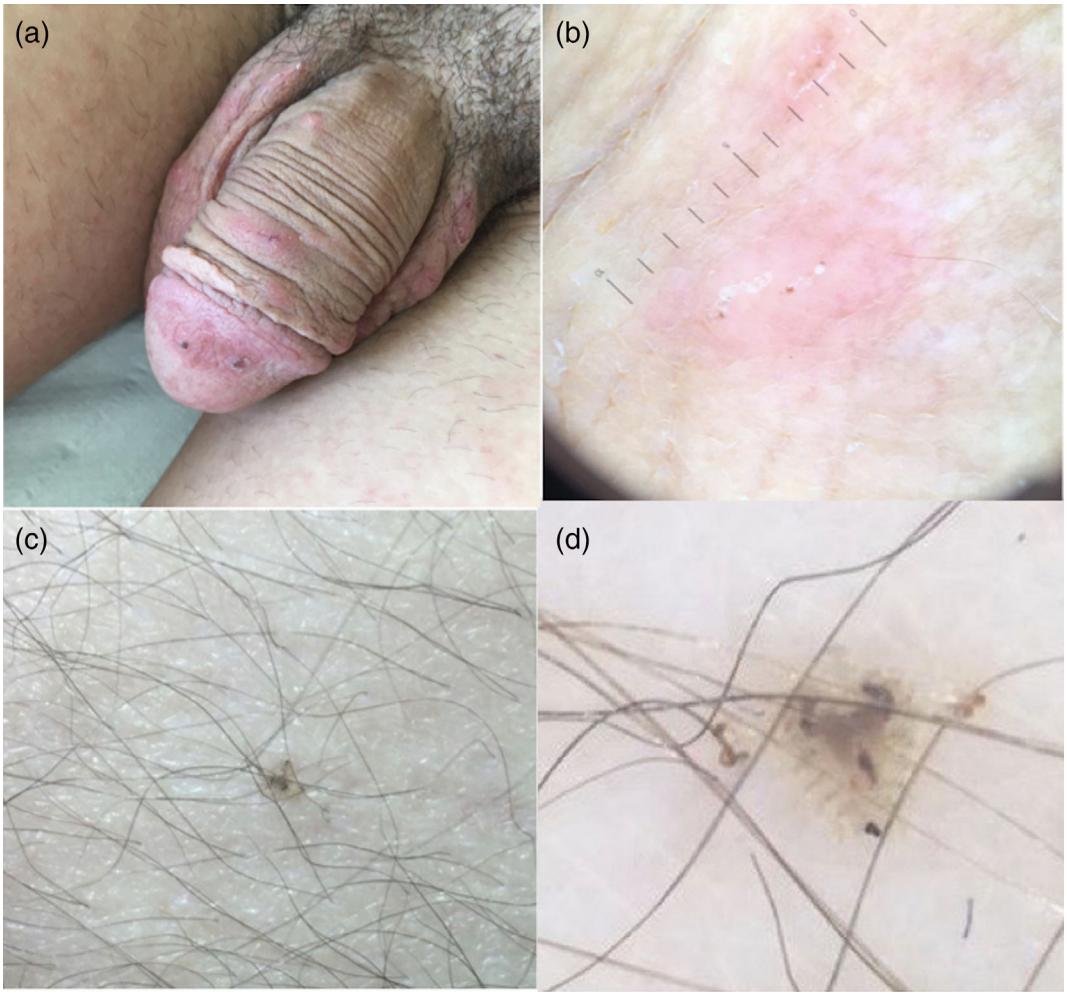

FIGURE 3 Clinical, A, and dermoscopic, B, features of scabies on the penis and the scrotum. Clinical, C, and dermoscopic, D, appearance of a lice attached to pubic hair

cryotherapy, electrosurgery, CO_2 laser), chemical methods (salicylic acid, hydrogen peroxide, potassium hydroxide, silver nitrate, imiquimod, cantharidin) and antiviral drugs (topical or intravenous cidofovir).[19,23]

2.4 | Candidiasis

Candidiasis is a superficial mycotic infection caused by *Candida* spp., particularly *Candida albicans*, which is the most common cause of balanitis. *C. albicans* asymptomatically colonizes gastrointestinal tract, oral cavity, and reproductive tract of healthy individuals,[24] and it is found normally in the preputial space. Microenvironment alterations can lead mycotic growth and gene expression modification, causing balanitis, posthitis, or balanoposthitis. Clinical features are a mild-glazed erythema, satellite-eroded pustules, moist curd-like accumulations, dysuria, bleeding, and sometimes ulceration of the glans penis (Figure 2E).[25] Dermoscopy shows cottage cheese-like structures that correspond to *Candida* yeast colonies (Figure 2F).[26] Symptoms usually include mild burning and pruritus; bacterial superinfection with streptococci or staphylococci is associated with increased pain.[25]

Several possible treatments are available. Topical treatments include clotrimazole, miconazole and nystatin, and imidazole with hydrocortisone, if marked inflammation is present.[25,27]

Systemic therapy is recommended when symptoms are more severe. Fluconazole in a single dose is sufficient in 90% of cases; itraconazole, voriconazole, and posaconazole should be considered when symptoms are more severe, in recalcitrant case or in case of concomitant diabetes. Other options are echinocandins (such a caspofungin, micafungin, and anidulafungin), polyenes—amphotericin B, allylamines (terbinafine, amorolfine, naftifine), thiocarbamates (tolnaftate, tolciclate), and antibiotic—griseofulvin.[27,28] Female partners should be screened because they are likely to have a high rate of infection.[26]

2.5 | Scabies

Scabies is a skin infestation with the mite *Sarcoptes scabie*i var. *hominis*. The incubation period is 3 to 6 weeks in cases of primary

infestation but only 1 to 2 days in cases of reinfestation. Infestation with the scabies mite results in an intensely itchy skin eruption consisting of papules, nodules, and vescicles located in areas between fingers, wrists, axillae, groins, buttocks, genitals, and breasts in women. In infants and young children palms, soles and head can be involved.

With chronic infestation, severe eczematous skin changes occur and the so-called "scabies nodules" may be observed particularly on the male genitalia.[29] The leading clinical symptom is severe, persistent pruritus, most intense at night. Dermoscopy shows small dark-brown triangular structures located at the end of whitish structureless, typically curved, or wavy lines, giving an appearance reminiscent of a "delta-wing jet with contrail," where the triangle corresponds to the anterior part of the mite, while the burrow of the mite correlates to the contrail[22] (Figure 3A,B). A range of effective treatments are available: two of the most commonly used treatments are topical permethrin and oral ivermectin.[29]

2.6 | Pediculosis pubis

Pediculosis pubis is caused by the infestation with the parasite *Phthirus pubis*. It is transmitted by sexual contact, close body contact, or, less commonly, by contact with objects. *P. pubis* infests the terminal hairs of the pubic and perianal areas but also eyebrows and eyelashes, rarely in adults but typical in children. The most common symptom is pruritus with blue macules (maculae ceruleae) at feeding sites.[30] Physical findings include nits and/or live lice attached to hairs shaft visible with the naked eye or using a dermoscope (Figure 3C,D). Dermoscopy is particularly useful for treatment monitoring, because nits containing vital nymphs show ovoid brown structures, whereas the empty nits are translucent with a plane and fissured free ending.[17] The most commonly used treatments are permethrin cream and pyrethrins with piperonyl butoxide shampoo.[30]

2.7 | Trichomoniasis

Trichomoniasis is caused by the flagellated protozoan *Trichomonas vaginalis* (Tv). Trophozoites of *T. vaginalis* are transmitted from person to person through sexual intercourse, with an incubation period of 4 to 28 days.[31,32]

T. vaginalis infection can be asymptomatic and it serves as a vector for the transmission of other infections, increasing the risk of HIV infection. Moreover, *T. vaginalis* antibody seropositivity in men may be associated with infertility and prostate cancer.

Male genital fluid is made to inhibit pathogenic factors of this protozoan and zinc in prostatic fluid can act as a cytotoxic factor which could contribute to high rates of asymptomatic infection in men (about 70% male infection are asymptomatic).[31]

Men with symptomatic infections present symptoms of inflammation, irritation, and reduced sperm function. Other clinical manifestations are urethritis, balanoposthitis, epididymitis, prostatitis, and cystitis.[31,32]

Treatment consists of oral metronidazole but approximately 5% of *T. vaginalis* strains are resistant to it and an alternative therapy is tinidazole.[33]

2.8 | Syphilis

Syphilis is a systemic disease caused by bacterium spirochaete *Treponema pallidum*. The disease can be transmitted via vertical transmission during pregnancy (rarely), via blood transfusion or through sexual contact.

Syphilis has been divided into stages based on clinical findings. Primary syphilis occurs 10 to 90 days after infection and the characteristic lesion (*chancre*), usually solitary, presents as a nonpainful ulcer at the inoculation site, usually perigenital and perianal areas. Typically, male localization is balanopreputial.[34]

Syphilis diagnosis is based on serologic tests: treponemal tests that measure antibodies to infection (*T. pallidum* hemagglutination assay, *T. pallidum* particle agglutination assay, fluorescent treponemal antibody absorbed) and nontreponemal tests that are indirect markers measuring host immune response to infections (rapid plasma reagin, Venereal Diseases Research Laboratory, toluidine red unheated serum test).[34,35]

In early syphilis, intramuscular benzathine penicillin G in a single dose is the preferred drug for treatment. If penicillin-based treatment cannot be used, oral doxycycline, azithromycin, and ceftriaxone can be administered.[11]

3 | INFLAMMATORY DISEASES

3.1 | Lichen ruber planus

Lichen planus (LP) is a chronic autoimmune disease that affects skin, oral mucosa, and genital mucosa.[36] LP most commonly affects middle-aged people, although childhood onset has also been described.[37] Genital involvement is seen in approximately 25% of men with skin involvement. The most affected area are the glans penis and the coronal sulcus, with the presence of pink, shiny, flat-topped papules (Figure 4A). Pruritus or hyperalgesia are the most common associated symptoms. Although traditionally considered as a clinical sign, present particularly in mucosal lesions, white crossing streaks (Wickham striae) are considered the dermoscopic hallmark of LP. Other dermoscopic findings of LP are dotted and/or linear vessels, usually distributed at the periphery of the lesion[17] (Figure 4B).

Histopathology reveals an inflammatory infiltrate in the papillary corium, which takes on a characteristic band-like distribution, hyperkeratosis with orthokeratosis and/or parakeratosis, vacuolating degeneration of the basal layer of the epithelium.[36]

First-line therapy is with powerful topical corticosteroids, such as clobetasol and/or decreased potency corticosteroid. Calcineurin inhibitors also appear to be of benefit.[37]

3.2 | Lichen sclerosus et atrophicus

Lichen sclerosus et atrophicus (LSA) is an acquired, chronic, inflammatory, and fibrosing cutaneous disease that can affect the whole

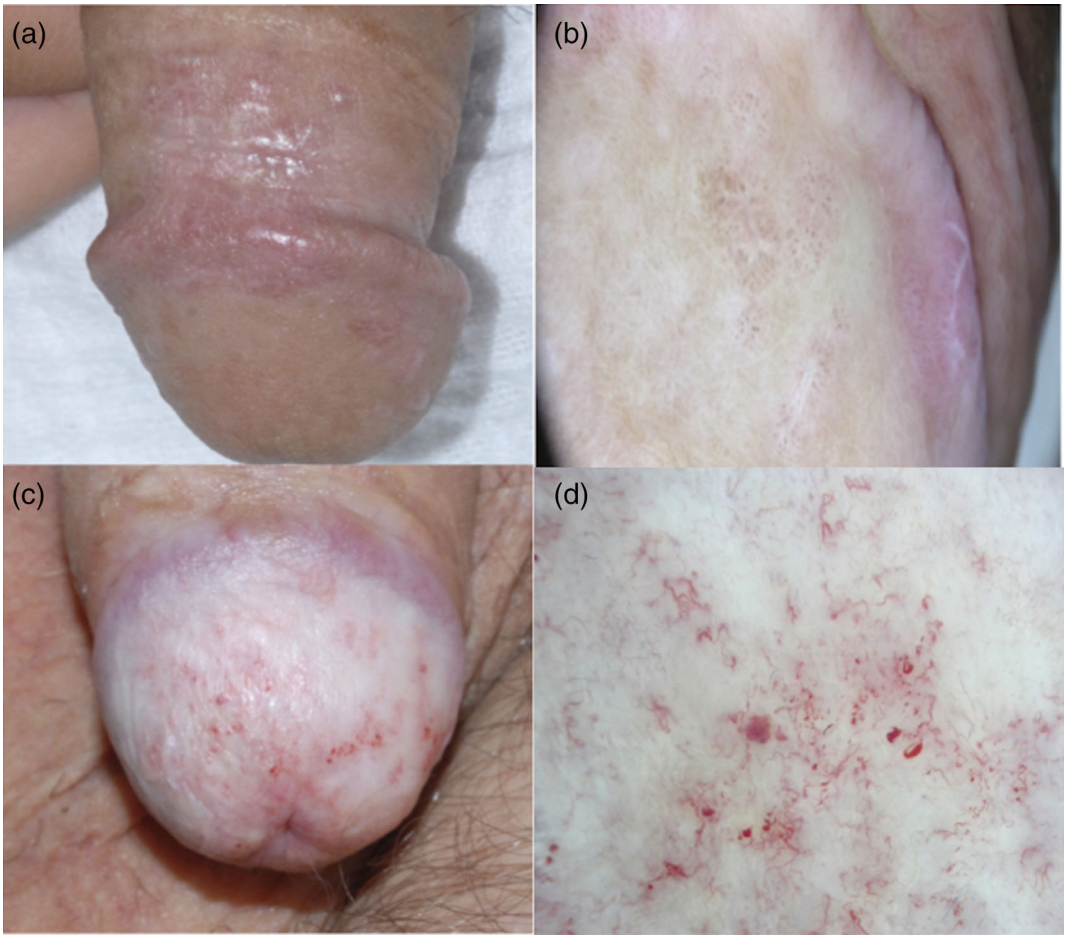

FIGURE 4 Clinical, A, and dermoscopic, B, features of penile lichen ruber planus. Clinical, C, and dermoscopic, D, features of penile lischen sclerosus et atrophicus

anogenital region. It occurs most frequently in uncircumcised or late circumcised middle-aged men.[4]

The initial presentation consists of a whitish ring corresponding to a white and sclerotic area of the gland and/or the distal portion of the prepuce, causing progressive phimosis (Figure 4C,D). Phimosis can cause serious difficulties for erection and sexual activity with a high risk of paraphimosis. Sometimes telangiectasia can be associated. Subsequently, the skin becomes thinner, sclerotic plaques develop, and the prepuce becomes nonretractile. Itching could accompany this dermatosis. When urethra is involved, stenosis may occur, leading to urinary retention. Rarely clinical examination could also put in evidence the onset of purpura, bullae, erosions, and ulcerations. The patients may complain dysuria, low urinary flow, urinary retention, erectile dysfunction, and painful erection. About 30% of patients with male genital LSA are asymptomatic.[38]

Dermoscopy evaluation can reveal white-yellowish structureless areas and dotted or more often linear vessels[17] (Figure 4E,F). Skin biopsy may be considered to exclude similar clinical dermatosis and/or subclinical in situ or invasive squamous cell carcinoma.[38]

Topical corticosteroids represent the first-line therapy; calcineurin inhibitors are also useful. Circumcision should be considered in case of phimosis. When carcinoma in situ is suspected, skin biopsy and/or circumcision should be performed.[38]

3.3 | Seborrheic dermatitis

Seborrheic dermatitis (SD) is a chronic inflammatory skin condition that affects between 1% and 3% of the immunocompetent adult population.[39] It is more common in patients with Parkinson's disease, mood disorders, and immunocompromised individuals.[39]

Etiology is associated to *Malassezia* yeasts, which are found mainly on seborrheic regions of the body (face, retroauricular area, and chest). However, they can be also present in male genitalia.[39] The trigger factors that aggravate SD are seasonal factors, stress, fatigue, and depression.[39] Moreover, the glans penis is exposed to external factors such as urine, sexual secretions, condoms, and microorganisms that can alter the clinical presentation of these dermatoses.[40]

SD causes well-defined erythematous plaques with greasy-looking, yellowish scales and may present as oily or dry, red scaly patches, or pigmented papules (Figure 5A). Pruritus can be present.[39]

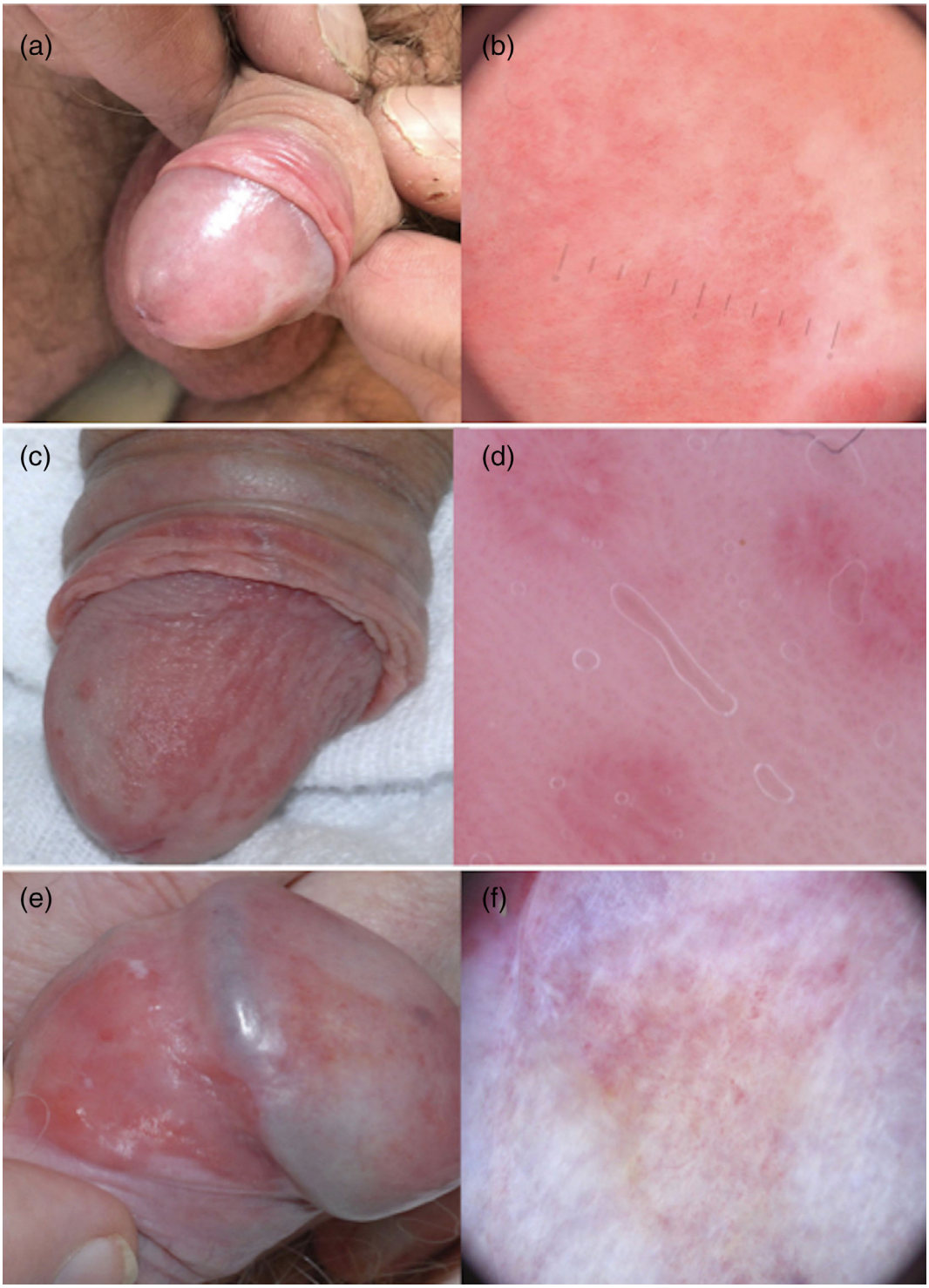

FIGURE 5 Clinical, A, and dermoscopic, B, features of penile seborrheic dermatitis. Clinical, C, and dermoscopic, D, features of psoriasis on the glans penis. Clinical, E, and dermoscopic, F, features of penile Zoon's balanitis

The most typical dermoscopic features of SD include dotted vessels and yellowish scales. White scales, follicular plugs, orange-yellowish areas, whitish structureless areas, and linear branching vessels can be also seen[26] (Figure 5B). Various treatments are available, including antifungal agents (sertaconazole, ketaconazole, ciclopiroxolamine), immunomodulators (tacrolimus, pimecrolimus), corticosteroides, and vitamin derivatives (nicotinamide) that reduce or treat the inflammatory process and decrease sebum production.[41]

3.4 | Psoriasis

Psoriasis is an immune-mediated chronic inflammatory condition of the skin. The involvement of male genitals in the psoriatic patients is most often part of a wider skin disorder.[42,43]

Well-demarcated and symmetrical bright erythematous plaques with no scale develop in the inguinal folds and intergluteal cleft are the clinical pattern known as inverse psoriasis. The presence of the typical dry scaling can sometimes be present in more keratinized regions of the male genitals. Sometimes the penis and the whole scrotum are involved. Exceptionally, the only penis can be affected. Genital lesions may be accompanied by painful rhagades or fissures.[43]

There is a difference between circumcised and noncircumcised patients. Red scaly patches develop usually on the glans and corona of circumcised patients, while uncircumcised patients present well-defined nonscaling plaques under the prepuce and on the proximal glans[15,43] (Figure 5C). Symptoms include itching, discomfort, burning, and pain.[43]

Dermoscopy shows red dots or globules arranged in a homogeneous, regular, or ring-like fashion[17] (Figure 5D). Biopsy is rarely requested to confirm the diagnosis.

First-line treatment involves low-potency corticosteroid creams. As second choice, topical calcipotriene or tacalcitol, or tar-based treatment can be useful as monotherapy or combined with topical steroids.[15,43]

3.5 | Zoon balanitis

Zoon balanitis is an idiopathic, chronic, inflammatory mucositis of the male genitalia, which usually affects uncircumcised, middle-to-old-aged men.[44,45]

It is usually asymptomatic and clinically presents as a solitary, shiny, well-defined erythematous plaque usually on the glans penis.[44,45]

Multiple pinpoint, brighter red spots may be seen on the background of this orange-red plaque, called as “cayenne pepper spots” due to microhemorrhage and hemosiderin deposition (Figure 5E). Dermoscopy typically reveals the presence of focal/diffuse orange-yellowish structureless areas and/or fairly focused curved vessels; other possible dermoscopic findings are linear irregular vessels and dotted vessels[26] (Figure 5F).

Biopsy is required to confirm the diagnosis and/or to rule out other conditions such as erythroplasia of Queyrat, fixed drug eruption, or psoriasis: the histopathology shows epidermal atrophy, lozenge keratinocytes with watery spongiosis and a dense lichenoid subepidermal infiltrate composed largely of plasma cells.[45]

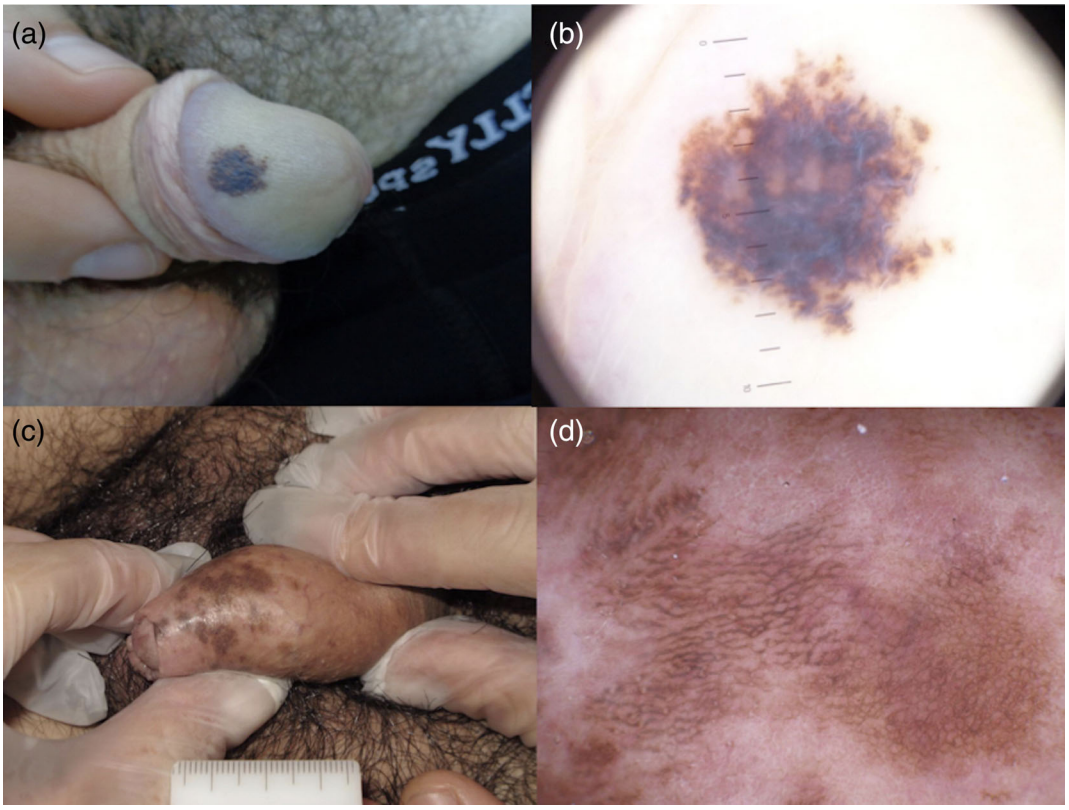

FIGURE 6 Clinical, A, and dermoscopic, B, features of a melanocyric nevus on the glans penis. Clinical, C, and dermoscopic, D, features of melanosis on the shaft of the penis

First-line therapy is circumcision, which is the only therapy that provides long-term, full remission. Other options include topical steroids, calcineurin inhibitors, mupirocin, photodynamic, and laser therapy, but the disease tends to relapse with these treatments.[44,45]

4 | PIGMENTARY DISORDERS

4.1 | Nevi

Genital melanocytic nevi are more likely noted in younger patients. The main location in men is the glans penis. They present as asymmetrical pigmented macules or papules, uniform or variegated in color, usually with a diameter of less than 1 cm. Dermoscopy frequently reveal a regular pigment network. Sometimes, however, an atypical brown to black network and some irregular streaks or blotches at the periphery are observed (Figure 6A,B). Histopathology shows the features of a benign acquired or congenital melanocytic compound nevus, with nests of melanocytes along the dermoepidermal junction. There may be a predominance of solitary melanocytes that present large nuclei with abundant pale cytoplasm and show focal upward pagetoid spread. Genital melanocytic nevi arising in association with LSA may be a diagnostic challenge because these nevi can demonstrate features that mimic melanoma. Recognition of this group of melanocytic lesions is very important to avoid over diagnosis with subsequent wide excision and possible sentinel lymph node biopsy.[46]

4.2 | Melanosis

Genital melanosis is a benign entity that can clinically mimic melanoma but the typical age of onset is younger than for genital melanoma. The disease is a relatively infrequent condition with an estimated incidence of 0.01% of dermatologic patients.[47] The pathogenesis of melanosis is largely unknown. Some authors have highlighted a possible relationship between melanosis and hormonal factors, LSA and HPV infection.[48] However, little is known about the potential risk for genital and nongenital melanoma in these patients.[49]

Peutz-Jeghers syndrome is ruled out, as there is no evidence to suggest genetic transmission and no polyposis of the gastrointestinal tract.[50]

The most frequent location for melanosis in men is the glans penis, followed by the meatus and the shaft of the penis.[48] The disease is characterized by large multifocal and irregular dark hyperpigmented melanocytic macules, irregularly bordered, unequally colored[49] (Figure 6C).

Dermoscopy shows parallel and ring-like pattern as the most frequent patterns, while globular, mixed, and reticular patterns are less frequent[50] (Figure 6D). Histopathology presents increased number of melanocytes in the basal layer with irregular distribution, without melanocytic nests, and melanophages in the superficial dermis. No cytologic atypia of melanocytes is detectable.[47]

Melanosis typically follows a benign clinical course. Follow-up studies demonstrated minimal clinical change and no malignant transformation. However sometimes clinical-dermoscopic examination alone cannot differentiate melanosis from melanoma, so a biopsy is required.[49]

5 | CONCLUSIONS

Male genital dermatoses have a high impact on the quality of life, especially when it involves the sexual life; for this reason, an early diagnosis and a prompt treatment are required. The clinical examination is sufficient in the most common cases but in case of doubt, dermoscopy can change the diagnosis and lead to the correct treatment.

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