

Anogenital Warts in Geriatrics: Immunosenescence and New Sexual Contacts? A Case Report

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Introduction: Anogenital warts (AGW) are sexually transmitted infections (STIs) caused by the human papillomavirus (HPV), particularly types 6 and 11. The highest incidence of AGW occurs in the age group of 15–24 years. However, as life expectancy increases, there is a significant rise in the geriatric population worldwide. This demographic shift is directly proportional to the increasing number of STIs cases within the geriatric group.

Cases: A case of AGW was reported in a 75-year-old man who had a history of erectile dysfunction medication use and recent sexual contact. During the physical examination, a hyperpigmented plaque with a verrucous surface was observed at the base of the penis. The results of the histopathological examination were consistent with the characteristics of AGW. In addition, HPV genotyping, through polymerase chain reaction (PCR) showed the presence of HPV type 6.

Discussion: The aging process leads to a decline in immune function among geriatric individuals, which causes susceptibility to infections, including STIs. Moreover, the geriatric population has a different level of susceptibility to STIs compared to younger individuals. Factors such as physiological changes, decreased sexual function, low awareness of STIs, and having multiple sexual partners further increase the risk of STIs in this age group.

Conclusion: Sexual intercourse is an important component of the human life. However, the natural decline in sexual function due to the aging process often occurs with advancing age. As a result, many geriatrics seek various solutions in order to maintain sexual function and activity in old age. Since STIs can occur at any age, early detection and education are essential, particularly for the geriatric population.

Keywords: anogenital warts, geriatric, HPV, immunosenescence, sexually transmitted disease

Introduction

Anogenital warts (AGW) are sexually transmitted infections (STIs) caused by the human papillomavirus (HPV), particularly types 6 and 11.¹ HPV is a double-stranded deoxyribonucleic acid (DNA) virus with an icosahedral capsid that is epitheliotropic, meaning it can infect epithelial cells of the skin, oral cavity, and anogenital region.² HPV in the anogenital area is the most common STIs worldwide, with an incidence of 160 to 289 cases per 100,000 individuals per year.¹ AGWs, like other chronic STIs, have a significant impact on the sexual and social lives of those infected, often leading to symptoms of depression and impairments in sexual functioning.³ Risk factors for HPV include a history of promiscuity, pregnancy, hormonal contraceptive use, immunosuppression, smoking, injecting drug and alcohol use, unsafe sexual behavior, and having risky sexual partners.⁴ Moreover, age is an important risk factor for AGW,⁵ with the highest incidence occurring in the 15–24 age group.⁶ As life expectancy continues to increase worldwide, there is also a significant increase in the geriatric population, with 22% of the world's population now aged over 65 years. This proportion is predicted to increase to 12.5% by 2026 and 20% by 2050.⁷ An increased incidence of STIs and HIV cases among geriatrics has also been reported.^{8,9}

Immunosenescence is a process of impaired immunologic function, leading to increased morbidity and mortality in geriatrics. Additionally, there is a decline in the function of other immunological parameters such as interleukin (IL)-6 and IL-10.¹⁰ Several studies showed that many geriatrics can remain sexually active into their 8th decade. This continued sexual activity is also influenced by geriatrics sexual behaviors, which include rarely using condoms, having more than one sexual partner, using erectile dysfunction drugs, immunosenescence, and experiencing physiological changes in sexual function due to aging.¹¹ Therefore, a case of condyloma acuminata-type AGW in a 75 years old man with risk factors including erectile dysfunction treatment and recent sexual contact was reported. This case was one of the three cases of AGW that occurred in the geriatric population at RSHS from 2018 to 2022.

Case

A 75-year-old man of Sundanese ethnicity, Muslim, and married status, presented for treatment with complaints of brown papules with rough surfaces that had been enlarging over time. Two months before seeking treatment, the patient noticed that the brown papules with uneven surfaces at the base of the penis had been increasing in number and size. At that time, the smallest papules were the size of a peanut, while the largest was the size of two adult knuckles. The complaints began approximately one and a half years before treatment, presenting as brown papules the size of a pinhead, with an uneven surface at the base of the penis. However, these were not accompanied by itching or pain, hence the patient was initially not bothered by the skin disorder. The patient admitted that this was the first experience with such complaints. Additionally, there was no discharge from the pubic opening, no lump on the thigh, and no history of painful or painless genital ulcers or blisters. Furthermore, there was no history of a red rash on almost the entire body, including both palms and feet.

The patient reported being married twice, and sexual intercourse was first experienced with the first wife at the age of 28 with divorce at the age 40 and a second marriage occurred at the age of 42. The patient admitted that sexual intercourse had not occurred in the last five years due to various family problems. Additionally, the patient mentioned that one of the problems with the wife was sexual problems, including pain during intercourse and difficulty with erections. For the past two years, the patient has been involved with a new partner who is 30 years younger. A desire to resume sexual activity as in youth was expressed, leading to the use of tadalafil for erectile dysfunction, which was obtained from a friend. Sexual intercourse was engaged six times with the new partner, involving only genito-genital contact without using a condom, with the aid of tadalafil. However, the patient was unaware of the genital disease and sexual history of the new partner. After developing papules on the genitals, the patient stopped having sexual intercourse. The patient denied a history of vaccination for genital warts, sudden weight loss, excessive sweating especially at night, fatigue, chest pain, fatigue, cough, or coughing up blood. Additionally, a prolonged history of medication use, diabetes, and hypertension was denied.

On physical examination, vital signs and general status were within normal limits, the body mass index was normal, and there were no signs of pulmonary tuberculosis infection. The venereologic examination showed no inguinal lymph nodes. Multiple lesions were observed, which were partially confluent, irregularly shaped, and ranged in size from 1×0.5×0.3 cm to 4×2.5×0.3 cm. These lesions were well-defined, raised, dry, hyperpigmented plaques with a verrucous surface (**Figure 1a**). Additionally, there were no skin abnormalities on the pubis skin, glans penis, external urethral meatus, scrotum, testes, perianal area, or anus. Electrocauterization of the genital warts was performed, and all the lesions were excised, leaving erosion (**Figure 1b**). The erosion was clean with no signs of infection. Over time, some areas began to resolve, becoming hypopigmented scars by the 7th day after electrocauterization (**Figure 1c**). By the 28th day post-treatment, all erosions had turned into hypopigmented scars (**Figure 1d**). The patient was advised to avoid risky sexual behavior, and when risky sexual behaviour could not be avoided, condom use was recommended for each sexual encounter, although condoms may not completely prevent the transmission of the virus that causes warts through pubic skin contact not covered by the condom. Histopathologic examination showed partially hyperplastic epidermis, papillomatosis, acanthosis, and partially koilocytosis nuclei. Additionally, subepithelial fibrocollagenous connective tissue showed lymphocyte, polymorphonuclear inflammatory cells, and dilated blood vessels (**Figure 2a–d**). No signs of malignancy were observed, and HPV genotyping polymerase chain reaction (PCR) results were positive for HPV type 6.

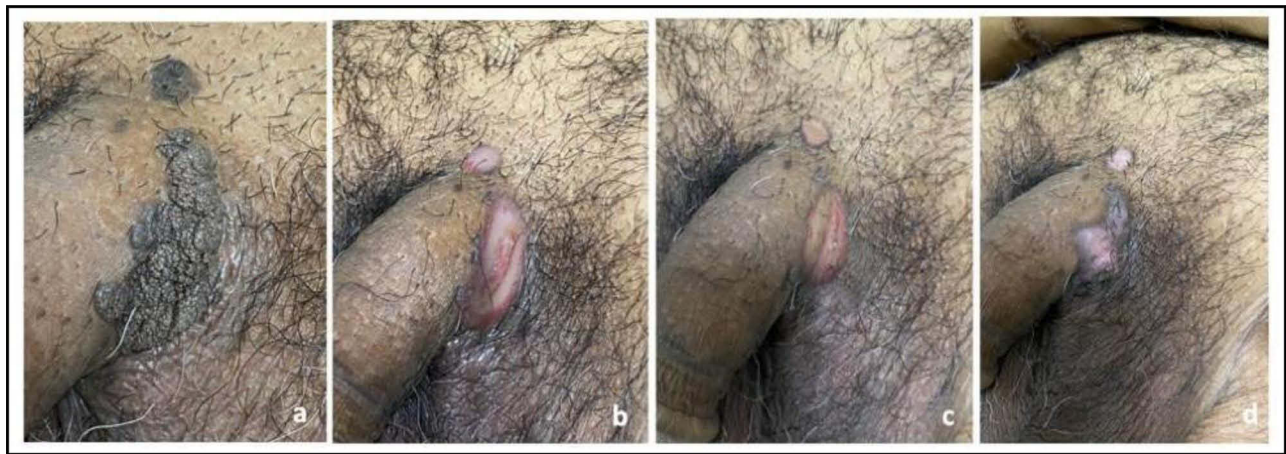


Figure 1 (a) Skin abnormalities before electrocauterization; (b) skin abnormalities right after electrocauterization; (c) skin abnormalities 7 days postelectrocauterization; (d) skin abnormalities 28 days postelectrocauterization.

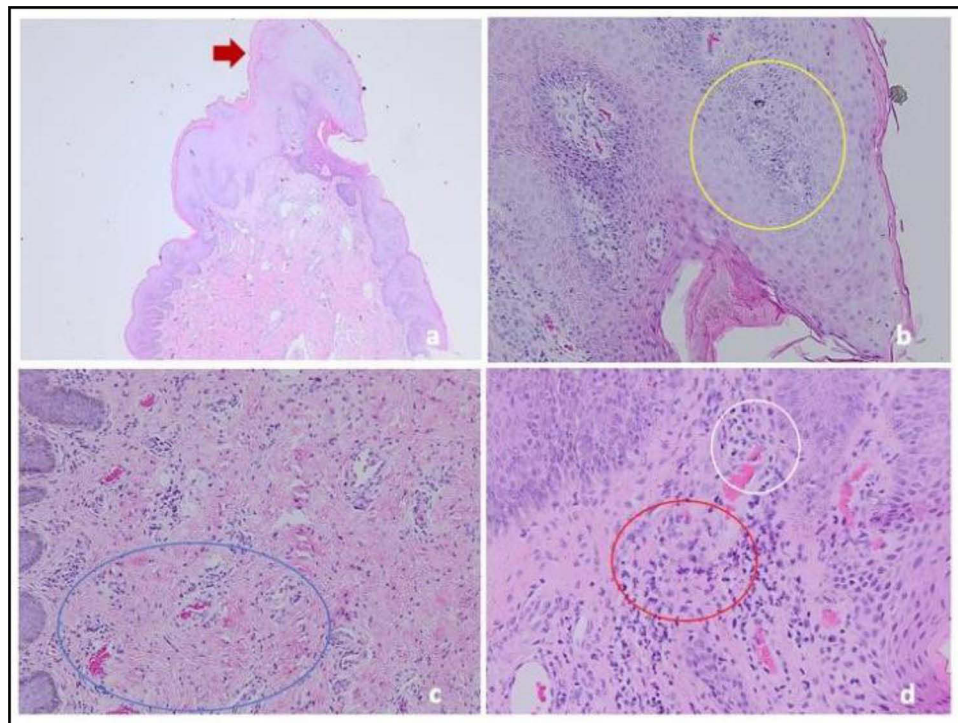


Figure 2 (a) Red arrow indicates hyperplasia of stratified flat epithelial cells; (b) yellow circle indicate koilocytosis; (c) blue circle indicate dilatation of blood vessels; (d) white circles indicate lymphocyte and eosinophil scattering, red circles indicate plasma cells and eosinophilic cytoplasm.

Discussion

HPV infection is one of the most common STIs found worldwide,^{12–15} including in 13 teaching hospitals in Indonesia.¹⁶ Age is one of the risk factors for STIs,⁵ with the highest incidence reported in the 15–24 age group.⁶ According to data from the CDC in 2017, the incidence of STIs in geriatrics has doubled in the United States.¹⁷ Similarly, Relhan et al⁷ in a study conducted in New Delhi, showed a similar increase in the number of STIs cases among the geriatric population, with 62.3% of cases occurring in men and an incidence of AGW of 2.3%. The patient in this case report is a 75-year-old man, which is a rare demographic for AGW.

As the aging process progresses, changes occur in the immune system, also known as immunosenescence.¹⁰ This condition leads to alterations in hematopoiesis, involution of the thymus gland, and changes in the formation,

maturation, migration, and homeostasis of peripheral lymphocytes. Consequently, aging affects acquired immune system function, leading to changes in T cell receptor surfaces, a decrease in the number of naive T lymphocytes, changes in the distribution of naive and memory T lymphocytes, B lymphocyte cell deficiency, and the accumulation of aged T lymphocytes, along with an increase in proinflammatory cytokines. These changes significantly impact geriatric susceptibility to infectious diseases.¹⁸ In this particular case, no other signs that could cause an immunocompromised condition, such as HIV, pulmonary tuberculosis, diabetes, hypertension, or the use of immunosuppressive medication, were found, except for the aging condition itself.

The geriatric population has a different susceptibility to STIs compared to younger populations.¹¹ The aging process causes changes in sexual function among geriatrics.¹⁹ In men, for instance, there is a decrease in testosterone levels, which results in loss of libido, erectile dysfunction, depression, decreased cognitive abilities, lethargy, osteoporosis, and loss of muscle mass and strength.^{20,21} The prevalence of erectile dysfunction increases with age.²² Data from the Massachusetts Male Aging Study documented a threefold increase in the incidence of erectile dysfunction, from 5% at age 40 to 15% at age 70.²² Erectile dysfunction is commonly found in geriatrics because it shares risk factors with vascular diseases such as hypertension, diabetes mellitus, hyperlipidemia, smoking, and obesity, which are common in geriatrics. Erectile dysfunction can be treated with phosphodiesterase-5 inhibitor (PDE5-I) drugs, such as sildenafil, tadalafil, vardenafil, or avanafil, along with treatment of the underlying risk factors.²² However, the increase in the incidence of STIs is associated with the use of PDE5-I drugs in elderly men, as these medications increase the number of elderly men who are sexually active.^{11,19} In this case, the patient had not engaged in sexual intercourse with the wife for the last five years due to erectile difficulties. As a result, tadalafil, a PDE-5-I drug, was taken, which then triggered risky sexual behaviour.

It is important to note that the development time from initial HPV infection to the appearance of HPV lesions is about three months, although it can range from two weeks to 18 months. During this period, there is a latent phase in which the disease shows no cytological or morphological signs and can only be detected through molecular testing.¹⁴ Several other conditions increase the likelihood of risky sexual behavior and the potential for STIs in the geriatric population. These include an increase in the number of new partners due to longevity, high divorce rates, a lack of understanding of STIs and HIV, neglect of health promotion programs focused on sexual health, infrequent condom use, low rates of STIs testing, the use of drugs to improve sexual function, and frequent travel to countries with easy access to the sex industry.^{11,19} In a study in sub-Saharan Africa, men over 50 years of age were more likely to have two or more sexual partners compared to those aged 15–49 years.¹¹ Additionally, a Chinese study showed a high rate of contact with commercial sex workers (46%) in men aged 50 and over, 24% of whom had multiple sexual partners, with less than 4% using condoms.¹¹ Therefore, when a complete STIs screening is performed, several asymptomatic and concurrent STIs may be detected as risk factors.²³ The HPV vaccine has a preventive role, but it can also have a therapeutic role in the treatment of condylomas, in the geriatric population, adherence to the HPV vaccine is very low.²⁴ Although there is no single ideal treatment for AGWs, electrocauterization is currently one of the most effective options available.¹⁴ Only surgical approaches, including electrosurgery, have a clearance rate close to 100%. Other treatments available include self-applied treatments such as podophyllotoxin, imiquimod, and sinecatechin, as well as clinic-based treatments such as cryotherapy and the application of trichloroacetic acid (90% solution).¹ The patient, in this case report had three sexual partners during their lifetime and last engaged in sexual intercourse two years before the lesion occurred, with a new partner, on six occasions. This timeframe matched the incubation period for HPV infection, which can take up to 18 months. The history of similar complaints or STIs in the patient's partner was unknown. A history of HPV vaccination was also denied. The lesion was subsequently treated with electrocauterization with satisfactory results.

Conclusion

In conclusion, the increase in life expectancy is directly proportional to the growth of the geriatric population worldwide. Sexual intercourse is an important component of the human life journey. However, decreased sexual function due to the aging process often occurs with advancing age, causing many geriatrics to seek various solutions in order to maintain sexual function and activity in old age. Additionally, the aging process makes geriatrics more susceptible to infectious diseases, including STIs. Since STIs can occur at any age, early detection and education about these infections are important, particularly for the geriatric population.

Ethics Statement

The publication of images was included in the patient's consent for the publication of the case. Institutional approval was obtained to publish the case details from Dr. Hasan Sadikin Hospital Ethical Committee with ethical approval number DP.04.03/D.XIV.6.5/375/2024.

Consent Statement

The authors certify that they have obtained all appropriate patient consent forms. The patient signed a consent form for the publication of the case details and images.

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Disclosure

The authors report no conflicts of interest in this work.

References

1. Gilson R, Nugent D, Werner RN, Ballesteros J, Ross J. 2019 IUSTI-Europe guideline for the management of anogenital warts. *J Eur Acad Dermatol Venereol*. 2020;34(8):1644–1653. doi:10.1111/jdv.16522
2. Indriatmi W, Zubier F. Kondiloma akuminata. In: Dalli S, Nilasari H, Makes W, Zubier F, Rowawi R, Pudjiati S, editors. *Infeksi Menular Seksual*. Jakarta: Badan Penerbit Fakultas Kedokteran Universitas Indonesia; 2017:176–187.
3. Ciccarese G, Drago F, Copello F, Bodini G, Rebora A, Parodi A. Study on the impact of sexually transmitted infections on Quality of Life, mood and sexual function. *Ital J Dermatol Venerol*. 2021;156(6):686–691. doi:10.23736/S2784-8671.20.06796-6
4. Schneider A. Pathogenesis of Genital HPV Infection. *Genitourin Med*. 1993;69:165–173. doi:10.1136/sti.69.3.165
5. Monk B, Tewari K. The spectrum and clinical sequelae of human papillomavirus infection. *Gynecol Oncol*. 2007;107:S6–13.
6. Forman D, Martel C, Lacey C, et al. Global burden of human papillomavirus and related diseases. *Vaccine*. 2012;30:F12–23. doi:10.1016/j.vaccine.2012.07.055
7. Relhan V, Bansal A, Hegde P, Sahoo B. Sexually transmitted infections in the elderly: a 6-year retrospective study in a tertiary care hospital in New Delhi. *Indian J Sex Transm Dis AIDS*. 2021;42(2):144–149. doi:10.4103/ijstd.IJSTD_60_20
8. Tuddenham S, Page K, Chaulk P, Lobe E, Ghanem K. Patients fifty years and older attending two sexually transmitted disease clinics in Baltimore, Maryland. *Int J STD AIDS*. 2017;28:330–344. doi:10.1177/0956462416646687
9. Bodley-Tickell A, Olowokure B, Bhaduri S, et al. Trends in sexually transmitted infections (other than HIV) in older people: analysis of data from an enhanced surveillance system. *Sex Transm Infect*. 2008;84:312–317. doi:10.1136/sti.2007.027847
10. Caruso C, Accardi G, Virruso C, Candore G. Sex, gender and immunosenescence: a key to understand the different lifespan between men and women? *Immu Aging*. 2013;10:1–3.
11. Poynten I, Grulich A, Templeton D. Sexually transmitted infections in older populations. *Curr Opin Infect Dis*. 2013;26:80–85. doi:10.1097/QCO.0b013e32835c2173
12. Patel H, Wagner M, Singhal P, Kothari S. Systematic review of the incidence and prevalence of genital warts. *BMC Infect Dis*. 2013;13(1):1. doi:10.1186/1471-2334-13-39
13. Barton S, Wakefield V, O'mahony C, Edwards S. Effectiveness of topical and ablative therapies in treatment of anogenital warts: a systematic review and network meta- analysis. *BMJ Open*. 2019;9(10):1–10. doi:10.1136/bmjopen-2018-027765
14. Sarier M, Ceyhan AM, Sepin N, et al. HPV infection in urology practice. *Int Urol Nephrol*. 2019;52:1–8. doi:10.1007/s11255-019-02302-2
15. Sarier M, Kasap E, Emek M, et al. Comparison of nylon-flocked swabs and cotton swabs in the detection of human papillomavirus infection in men. *Int Urol Nephrol*. 2024;56(7):2125–2130. doi:10.1007/s11255-024-03964-3
16. Wilvestra S, Anum Q. Perbedaan tipe human papilloma virus antara human immunodeficiency virus positif dan negatif pada pasien kondiloma akuminata anogenital. *Berkala Ilmu Kesehatan Kulit Dan Kelamin*. 2019;32(2):130–137.
17. Smith ML, Bergeron CD, Goltz HH, Coffey T, Boolani A. Sexually transmitted infection knowledge among older adults: psychometrics and test-retest reliability. *Int J Environ Res Public Health*. 2020;17(2462):1–10. doi:10.3390/ijerph17072462
18. Müller L, Di Benedetto S. how immunosenescence and inflammaging may contribute to hyperinflammatory syndrome in COVID-19. *Int J Mol Sci*. 2021;22(22):12539. doi:10.3390/ijms222212539
19. Miranda AM. Sexually transmitted infections in the 65 and older population: knowledge and perceived risk: UNLV theses, dissertations, professional papers, and capstones. 4012; 2020.
20. Dhingra I, Sousa AD, Sonavane S. Sexuality in Older Adults: clinical and psychosocial dilemmas. *J Geriatr Ment Health*. 2016;3(2):131–139. doi:10.4103/2348-9995.195629
21. Rajfer J. Decreased testosterone in the aging male. *Rev Urol*. 2003;5:51–52.

22. Gareri P, Castagna A, Francomano D, Cerminara G, Fazio PD. Erectile dysfunction in the elderly: an old widespread issue with novel treatment perspectives. *Int J Endocrinol*. 2014;2014:1–15. doi:10.1155/2014/878670
23. Ciccarese G, Di Biagio A, Bruzzone B, et al. Monkeypox outbreak in Genoa, Italy: clinical, laboratory, histopathologic features, management, and outcome of the infected patients. *J Med Virol*. 2023;95(2):e28560. doi:10.1002/jmv.28560
24. Villemure SE, Wilby KJ. A systematic review of the treatment of active anogenital warts with human papillomavirus vaccines. *J Am Assoc*. 2024;46(2024):179–185.

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