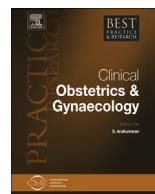




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### Genital warts



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Anogenital warts (AGWs) are a very common disease. They are caused mostly by low-risk human papillomaviruses (HPV) 6 and 11, particularly the former. Clinical presentation is mostly of growths in the areas of friction of the anogenital region. The treatment is classified as patient/home applied or administered by a professional. In cases with atypical presentations or resistance to recommended therapies, great care should be taken to establish a differential diagnosis taking into account normal anatomical variations, infectious etiologies, precancers and cancers, as well as benign dermatological growths. The prevention of AGWs can be achieved by the use of the quadrivalent prophylactic HPV vaccine administered prior to sexual debut, as well as the meticulous use

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of condoms. Where coverage of the quadrivalent vaccine has been high, marked reductions in AGWs are being seen in young women of vaccine-eligible age, as well as in young males (as herd immunity effect).

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## Introduction

Anogenital warts (AGWs) are caused by human papillomavirus (HPV), particularly genotypes 6 and 11. *Condylomata acuminata* and condyloma are synonymous terms. They are clinically evident skin or mucosal growths in the anogenital area. They are an important reason for consultation in primary care, dermatology, gynecology, and urology care settings and an important burden on the health-care system because patients often need to visit health-care providers repeatedly for management, as well as major sources of negative psychosexual reactions. The advent of the quadrivalent vaccine, effective against HPV-6/11/16/18, has the potential to drastically change the epidemiology of this condition.

## Epidemiology

Many reports, prior to the introduction of the quadrivalent vaccine as a public health program against HPV infection and disease, showed that AGWs were a common worldwide public health problem affecting young men and young women, although more commonly noted in males. The incidence of AGWs in an HPV vaccine trial's placebo group, which included women from 16 countries, was 0.87 cases per 100 person-years-at-risk (PY) [1]. In a further study of physician and hospital billing as well as the sexually transmitted infection (STI) databases of British Columbia, Canada, the incidence ranged from 131 to 154 per 100,000 population in males, and from 120 to 121 per 100,000 population in Canadian females [2]. American data derived from the Medstat Marketscan database for 2000 as well as data from the Integrated Health Care Information Services (IHCIS) National Benchmark Database of U.S. health claims for 1998–2001 reported higher incidence rates from 170 to 205 per 100,000 PY [3,4]. In a study performed in sexual health clinics in Australia, prior to the introduction of the school-based government-funded HPV vaccine in young women and girls, the incidence of AGWs was estimated at an annual incidence of 2.19 cases of genital warts per 1000 Australians (95% confidence interval (CI): 1.88–2.49), with peak incidence in women aged 20–24 years at 8.61 cases per 1000 and in men aged 25–29 years at 7.40 cases per 1000 [5]. It is noteworthy that 5.6% of sexually active American adults aged 18–59 reported having ever been diagnosed with AGWs [6]. For Nordic women aged 18–45, the proportion was 10.6% [7].

In the study of the placebo arm of the quadrivalent HPV vaccine, the risk factors for HPV-6 and HPV-11 related to AGWs included infection at baseline, acquisition of new sex partners, a higher number of sex partners, and DNA positivity at baseline for a high-risk HPV type [1]. A United Kingdom (UK) study of risk factors for AGWs revealed that many were common to both males and females. Univariate analysis noted younger age, more lifetime sexual partners, failure to use condoms, and greater cigarette smoking and alcohol consumption to be associated with AGWs, while there was a negative association for previous infection with *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, hepatitis B, and genital herpes [8].

It is to be realized that a proportion of low-grade cervical abnormalities, as well as low-grade and occasional high-grade disease of the vulva and vagina are associated with HPV-6 and HPV-11 infections [9].

## Etiology

AGWs are mostly caused by HPV. HPVs constitute a large family of >200 genotypes, of which >100 have been sequenced to date. It cannot be cultivated in the traditional way, so diagnosis has relied on

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