

## Impact of Human Papillomavirus Vaccine on the Development of Cervical Lesions

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### ABSTRACT

**Background:** This study aims to examine shifts in lesion types among HPV-infected patients following the introduction of the HPV vaccine in three distinct periods: 2002-2006 (pre-vaccine era in Spain), 2009-2011 (early vaccination phase), and 2020-2021 (established vaccination period) at a single hospital.

**Methods:** This retrospective, observational study involved reviewing biopsy results from patients with HPV-related lesions at Hospital Clínico San Carlos. Data were collected across three timeframes: 2002-2006, 2009-2011, and 2020-2021, shedding light on potential changes in lesion patterns post-vaccine introduction.

**Results:** The study encompassed data from 946 women. Over the three periods, a declining trend in squamous cell carcinoma rates was observed, while adenocarcinoma rates remained stable. Notably, the incidence of cervical intraepithelial neoplasia grades 2-3 (CIN 2-3) lesions exhibited an upward trajectory. Furthermore, patient ages at diagnosis for HPV-related lesions increased in all three categories post-vaccination. The study also highlighted a progressive rise in the identification of other high-risk HPV serotypes beyond 16 and 18, as well as serotypes with indeterminate risk, with percentages increasing from 24.24% and 14.11%, respectively, in 2002-2006 to 40.42% and 28.34% in 2020-2021.

**Conclusion:** This study underscores the efficacy of existing HPV vaccines against the targeted serotypes, as evidenced by reduced incidence of squamous cell carcinoma in the uterine cervix within our population. Simultaneously, it confirms an increase in the mean age at diagnosis for both squamous cell carcinoma and its CIN 2-3 precursor lesions, alongside a shift in the infective trends of HPV serotypes not covered by current vaccines.

**Keywords:** HPV-infected patients, Human Papillomavirus Vaccine, Squamous cell carcinoma

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