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RESEARCH ARTICLE

# Evaluation of CD4 and CD8 in Patients Infected with Genital Wart Caused by Human Papilloma Virus in Babylon Province/Iraq

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## Abstract

Genital warts it's a skin projection due to human papilloma virus infection (HPV) .Thirty skin lesion and sera were collected from patient (females) infected with genital warts that visit dermatological department of medical Moran city. Twenty sera was collected from healthy person used as control group. The diagnosis of viral infectionwas achieved by dermatologist (specialist) and by using IgG anti HPV ELISA kit to detect papilloma virus in human serum, and ELISA testwas used to evaluate the level of CD4 and CD8 at patient with genital warts. The result demonstrates that:- 99% of samples dedicate positive for IgG anti HPV. Immunological study revealed that :- decrease the ratio of CD4/CD8 at patient with genital wart( ratioCD4/CD8:-0.1), decrease in CD4 level at patient infected with genital warts compared with control group .CD8 increased at patient with genital warts compared with control group. There is significant differences between patient and control group, p value ≤ 0 .05.

**Keywords**: *HPV, Genital wart, CD4, CD8, Koliocyte.*

## Introduction

Genital warts are caused by human papilloma virus which regard as one of the most sexually transmitted disease occurred worldwide annually. [1]HPV have many type that infected human like type 16, 18 regard as high-risk group, since it initiate uterus and pharyngeal cancer tumor, while HPV types 6&11 recognized as low-risk group, for the reason of that it raryproduce cancer growth, however mostly cause genital warts. [1, 2]Adaptive immunity play a vital role in the recognize and fight strange body which attack human body. However these processes are occasionally useless for resistant human papillomavirus.

There is many strategy performed by HPV in order to pass upimmune system, the infection and multiplication of HPV start in keratinocytes, that are far-away as centers of immune system and contain a biologically petite life period. The petite life series of the keratinocyte are necessary for the virus to produce the cell damage, which induce immune reaction and inflammation. [3]

Genital wart are known as Condylomaacuminatum and it's usually caused by low grade types of HPV family especially type 6 &11 and its extremely sexually transmittable infection. Many research proved that CD4 T- cell and CD8 T-cytotoxic have very important role in the fighting of hpv infection .T-cell work as supporter, effectors and organizing cell which in charge of the progressing of lifelong immunity anti viruses [4].

Histological facts proofed that the diffusion of T-cells into dermal and epithelial lesions throughout natural growth of papillomas likewise discovered the significance of T cells at HPV-recruited mucosal disease [5].

The responses of Cellular immunity at lymphocyte cells forcedthrough foreign body induction leading to different models of cytokine creation. At first, CD4+T-cell copy were separatedhooked ontwo classes [6]. The responses of Cellular immunity at lymphocyte cells forced through foreign body induction leading to different models of cytokine creation. At first, CD4+T-cell copy were separatedhooked on two classes [6]. Th1 cells manufacturesort 1 cytokines (tumour necrosis factor [TNF] ,interleukin -2 [IL-2], interferon [IFN]) while Th2 cells produce sort

2 cytokines (IL-5,IL-4, IL-6, IL-13 andIL-10 ).

Finally Th1 and Th2 class drive The controlling of the immune reaction through increasing of a specific Thsorts and lead for the reverse cell stimulation.CD8+ T cells play as T-cytolytic action, CD8 (Tc cells) are categorized keen on two special activators cellsort, Tc1 and Tc2 cells, The value of type 1 or type 2 cytokine stimuli in Tc cell groups as well as to show the specific importance intended for antigens. [7]The aim of this paper is to compare between CD4 and CD8 level at serum blood of patient with genital wart that infected with HPV in Hilla /Iraq, and to revel histologic features in sequence to establishviable model that be able to help the identification of the wart.

## Material and Methods

Thirty skin lesion and blood samples were collected from patient (females) infected with genital warts that visit dermatological department of medical Moran city/Iraq, and twenty sera collected from healthy persons work as control group. Viral diagnosis achieved by dermatologist (specialist)and by using IgG anti HPV ELISA kit [Creative Diagnostics CD,USA] to detect papilloma virus at human serum and to evaluate CD4 and cd8 (Elab science )at patient with genital warts.

### Sectioning of Skin tissue and slides loading

Every wart lesions were placed in a container including of formalin 10%, then it will set in paraffin. In the next step tissue block will transected via microtome to (4µm) thin sections, then fixed on slides and undergo pigmented by hematoxylin and eosin stained slides method. Slides examination under light microscope help for the diagnosed of HPV in the tissue [8,9].

### Determination of Cd4 and Cd8 at Serum Blood of Patient Infected with Genital Wart (Company Procedure)

The principle of the test: - pre coated of multi well plate that are provided in the kit with antibody particular to CD4 and CD8. The combination between viral antigen and antibody was occur after the addition of samples and standard to the wells in the second step and incubated at 37c for 90 min.

In the third step the biotinylated detection of antibody particular for CD8 plus avid in-Horseradish peroxides(HRP) Conjugate Enzyme was added to every well of micro titer plate after the removal of exceeded liquid and wash for three times then incubated at 37c for 1 hr. Substrate solution was added for every wells then the blue color reveled biotinylated detection antibody and avid in –HRP conjugate .stop solution was added to stop reaction between substrate and conjugate enzyme resulted in turn blue color to yellow. The optical density (OD) was calculated by used spectrophotometer at 450 nm.

### Result

### Histological Examination

Histological observation of genital warts (condylomataaquminat) a -kind of lesions with hyper granular layer, papillomatous and expand vacuolated koiliocytes having perinuclear end Fig: 1

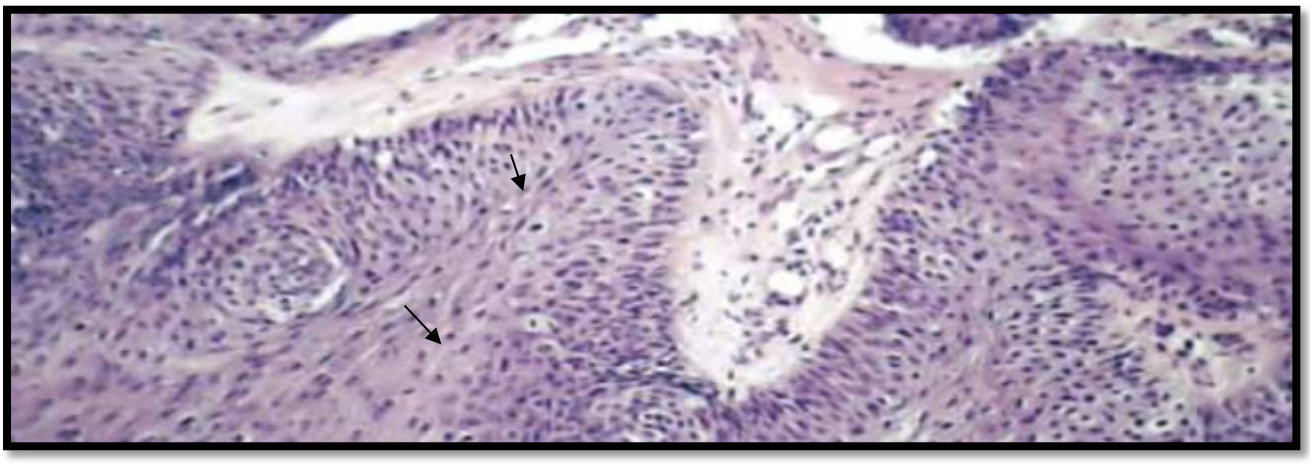

**Fig. 1: section of human skin infected with genital wart show koliocytes have aperinucli (rows) and multi glandular layers with papilomatus( Haematoxylin and eosin 10x)**

From Fig 1:- genital warts show important feature in the tissue infected with HPV most lypara keratotsis, hyperkeratosis at a different level, Acanthosis .As well as the presences of a great papillomatosis, drive in Malpighian plus the granular layer distinct with per nuclear koiliocyte having sickle form nucli, basophilic inclusions, modest granulomatosis, The mitotic action was raised in the basal layers [10,11].

### Immunological Study

The result demonstrates that:- 99% of samples dedicate positive for IgG anti HPV. Immunological study revealed that:- decrease the level of CD4 at patient with genital wart compared with control group while there is an increase of CD8 at patient with genital warts compared with control group. There is significant differences between patient and control group, p value ≤ 0 .05.

| Group / Parameters | Control (Mean ± S.E) | Patients infected with genital wart (Mean ± S.E) | P-Value |
|---|---|---|---|
| **CD4 ng/ml** | 10.98 ± 0.19 | 5.47±0.12 | **0.001*** |
| **CD8 ng/ml** | 16.86±0.23 | 38.56±1.90 | **<0.0001*** |

T-test
*P ≤ 0 .05.
S.E: Standard error.

## Discussion

Histological study for skin lesion obtained from patient infected with genital wart revealed that there is a distinct feature of hpv infected tissue which is the presence of koliocyte (peri nuclei cells) sickle shaped nuclei[12,13].People how infected with genital wart that caused by low risk factor HPV type 6&11 be deficient in the particularCD4+ as well as CD8+ T-cell reaction essential for the removal of Viral infection.

The information supplied by Lee et al.,[14] It was obviously revealed that females infected with HPV- correlated cervical high-risk squamous intraepithelial lesions demonstrated and reduce in Th1 cytokine secretion through triggerCD4+T cells. reduction in Th1 cells level at the blood of patient with genital warts outlay the relation Th2 prevalence and disturb the Th1 / Th2 stability, that can performa vital function concerning the pathology and reappearance of genital warts [15].

Several research have too supplied approaching of the Tc cells role, informative that they have the ability to secrete a multiplicity of cytokines besides having cytotoxic mission.[16]There are several research proved that the change in proportion of Tc1 / Tc2 possibly will be delayed in some infection ,like asthma and respiratory viral diases .[17,18]The disproportion of cd4/cd8 might occur in patient with low –grade HPV lesion like infected with genital warts . Our study illustrated that ratio of CD4/CD8 is 0.1 and the level of cd8 T-cell was more than CD4 at patient with genital warts as it's has been proved in many searches [12].

There are several Research which study that the difference of Th1 / Th2 Possibly was occurred as of the reduce Th1in the Blood, and thought to be the reason of genital warts recurrence. Biologically in the works CD4+CD25+ Treg cells betake on for protection of immunological self-tolerance in addition to organizea variety of immune reaction [19]. The malfunction of immune stimulation at patient with genital warts possibly are resulted from specific group of CD4+CD25+ regulatory T cells [20]. Additional research will be necessary to figure out the organization of antiviral immune reaction provoked through T cells to increase extra diagram of changing the equilibrium of type 1 cytokine in genital wart infection

## Conclusion

The high level of CD8 at patient with genital wart that infected with HPV denoted the infection with low risk group HPV6&11.

 

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