

Collecting Smear for Papanicolaou Test to Detect Early Stage Cervical Cancer with Aid of Electronic Penis

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Abstract— Importance of medical instruments is known the people who work in medical professional. The medical devices help the medical professional to diagnose, monitor and giving appropriate treatment to the patients. We can say medical instruments have save more than millions of humans and animals life in each year. For human beings are use the medical devices both at the hospital or their homes. Now day's around the world peoples are affected by cancer. There are more than one hundred types of cancer are innovated by medical professionals. Cancer is curable and incurable disease, which we diagnostics in earlier stage, it is curable, and otherwise it is not curable in late stage of diagnostic. Cancer can start almost anywhere of the human body. Especially female can affected by two types of cancer, which is breast cancer and cervical cancer. For examining the breast cancer there are some medical devices are available. For example mammogram machine is used to diagnostic the breast cancer. Diagnostic the cervical cancer there is no proper electronics devices. Now days they collect the smear from cervical manually and sending for the lab procedure. To avoid the practical difficulty our proposed device is very much use full to medical professional, especially for oncologist and gynecologist. In this project our device is collecting smear for papanicolaou test with aid of electronic instrument for aid of detect early cervical cancer.

Key words: Electronic Penis, Artificial Penile, Nano Cameras, Suction Instrument, Pap test, Cervical Cancer

I. INTRODUCTION

A. Cancer:

Cancer is an anomalous growth of cells. There are more than 100 types of cancer are diagnostics by medical professional. In that most of the people have skin cancer, bone cancer, blood cancer, breast cancer, cervical cancer, lung cancer, colon cancer, brain cancer and etc. Symptoms of the cancer are varying depending on the types. Cancer treatment includes chemotherapy, radiation and surgery. The earlier cancer is diagnosed and treated, the better the chance of its being cured.

B. Cervical Cancer:

Cervical cancer happens when anomalous cells on the cervix grow with out control. The cervix is the lower part of the uterus that opens and upper side of the vagina. Cervical cancer can be successfully treated when it's found earlier stage. It is generally found at early stage through a pap test. Fig 1 shows the female reproductive system, in that figure the placement of cervical is shown. In the Fig 2 shows the initial stage of cervical cancer.

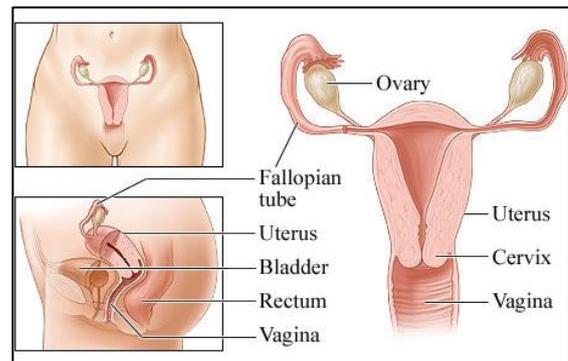


Fig. 1: Female reproductive system

Cervical Cancer

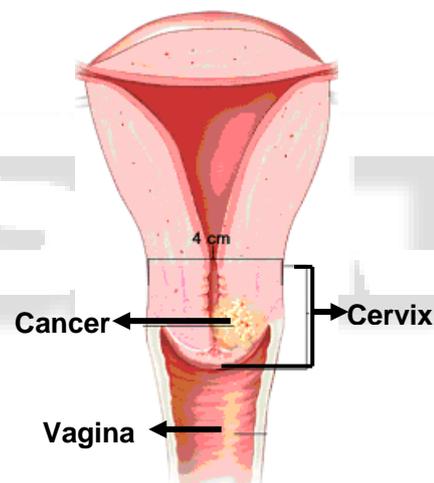


Fig. 2: Cervical cancer

C. Pap test:

(Papanicolaou test or Pap smear) A pap test is a test that anticipate changes in the cells of the cervix. During the test, doctor collects a small sample of the cells from the cervix, the lower part of the uterus. The cells send to a lab and tested to find it they contain particular changes, which could rotate in to cervical cancer. Pap test result is abnormal it means that the test found some cells look abnormal. They may not be cancer, but may go through more testing to find out for reliable.

D. Vaginal speculum:

A speculum, usually with two opposing portions that, after being inserted, can be pushed apart for examining the vagina and cervix. It should be warmed before use. Fig 3 shows the vaginal speculum.

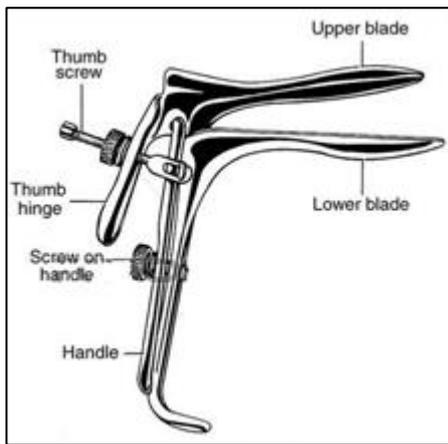


Fig. 3: Vaginal speculum

E. Cervix-Brush:

The Cervix-Brush Combi a new patented, high tech product capable of delivering higher cellular yield of endocervical cells than the traditional Cervix-Brush. Laboratory tests have also indicated presence of oncogenic HPV type cells which will encourage other applications for the Cervix-Brush Combi. The Cervix-Brush Combi was developed for two main reasons. For current users of the Cervix-Brush a perfect smear can be made in the majority of the cases and if the instructions for use are followed properly. In a small percentage of cases (stenotic or narrow entry of the endocervical canal) sometimes a more rigid endocervical sample is needed. Fig 4 shows the cervix-Brush.

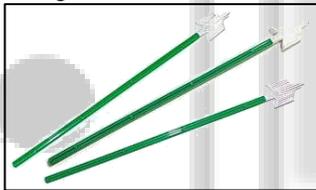


Fig. 4: Cervix-Brush

F. Specifications:

The Cervix-Brush (Cervix-Examination-Brush) is made of polyethylene and has a total length of 20 centimeters. The upper part, which is used to obtain cell samples, is a soft, flexible brush. The brush consists of 57 semi-circular plastic bristles of various lengths. The shape is such that the top edges of the brush follow the contours of the cervix. The middle and longest bristles reach deep into the endocervical canal. The shorter bristles touching both the ectocervical area and transformation zone at the same time.

II. EXISTING TECHNOLOGY

A. Manual Method:

To find cervical cancer in early stage to make the basic test, that is called pop test. In current system using the vaginal speculum open the vagina and insert the brush and collect the smear from the speculum, usually with two opposing portions that, after being inserted, can be pushed apart for examining the vagina and cervix.

B. Performance of pop test:

The Pap test is done during a pelvic exam. A doctor uses a device called a speculum in fig 3 to widen the opening of the vagina so that the cervix and vagina can be examined. A

vaginal spatula and small brush, which is showed in fig 4, are used to collect cells from the cervix. After the cells are taken and placed in to a solution. The solution is sent to a lab for testing. The fig 5 shows the existing technology procedure for pop test.

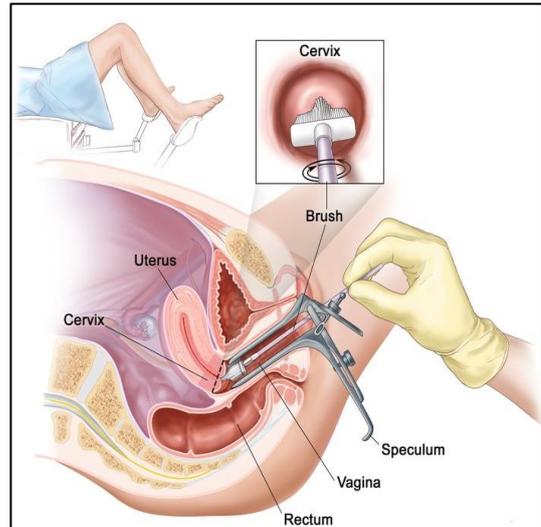


Fig. 5: Procedure for pop test

III. PROPOSED MODEL

A. Electronic Instrument:

To design electronic device using artificial penile, nana camera and suction brush to collect the smear for papanicolaou test which is used to detect the cervical cancer and diagnostic the disease in vagina.

B. Artificial Penis - Electronic Penis:

1) Description of Body Safe Silicone rubber for silicone men penis:

Body Safe Silicone rubber for silicone men penis is also kind of body safe silicone, skin safe silicone. It's generally named two-components silicone rubber which will be cured under room temperature, Part A is a flowable liquid, part B is the curing agent. It features an exceptional fluidity and good operability. The mixing ratio is 1:1, mainly be suitable for making FDA & Medical products.

2) Application of Body Safe Silicone rubber for silicone men penis:

Body Safe Silicone rubber for silicone men penis could be used to make sex toys, sex doll, human penis, simulation mask, female vagina vibrator, reconstructive surgical procedures and so on.

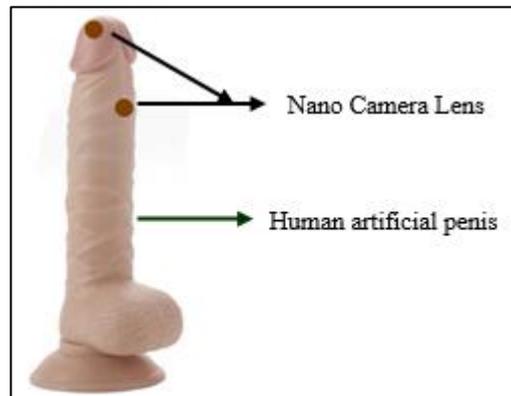


Fig. 6: Artificial penis - Electronic Penis

Characteristics of Body Safe Silicone rubber for silicone men penis

- Body safe, nontoxic, skin safe, medical grade.
- High tensile and tear strength
- Easy for operation
- Suitable hardness
- High simulation
- Fast and non-shrink cure at room temperature which can be accelerated considerably by the application of heat

IV. WORKING PRINCIPLE

In propose system using artificial penis which is inbuilt of two nanocamera lens and mini suction tube. Making massage on female external genitalia and insert the artificial penis (Electronic Penis) in to vagina gently and slowly. Using nanocamera lens wich is connected in to the PC find the place of cervix on monitor. After that move the suction tube on that place and collect the smear using mini suction. After the cells are taken and placed in to a solution. The solution is sent to a lab for testing.

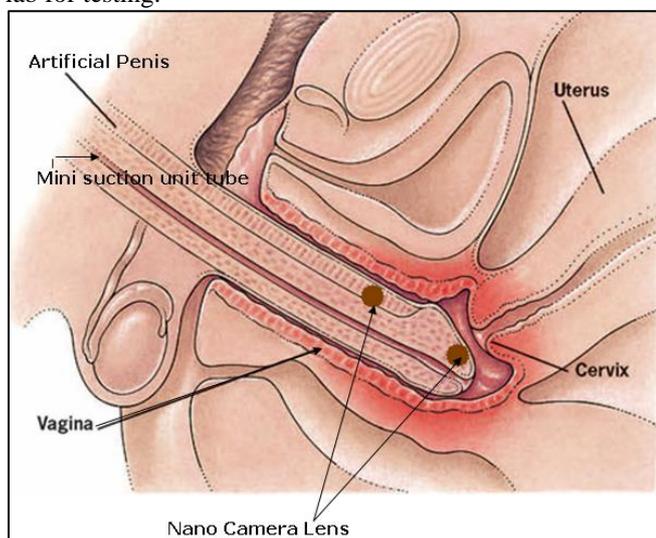


Fig. 7: Artificial penis in vagina

V. PREPARING FOR A PAP AND/OR HPV TEST

There are steps you can take to ensure you get the best possible results from your Pap or HPV test.

- Try to schedule the test on a day when you do not expect to be on your menstrual period. If your period begins unexpectedly and will be continuing on the day of your test, try to reschedule the appointment.
- Avoid sexual intercourse 48 hours before the test.
- Do not douche 48 hours before the test.
- Do not use tampons, or vaginal creams, foams, films, or jellies (such as spermicides or medications inserted into the vagina) for 48 hours before the test

VI. CONCLUSION

There are many different systems that healthcare providers use to classify a Pap test. Within each system, there are different degrees of severity or abnormalities. The various classification systems and degrees of severity include, Descriptive System- Mild dysplasia, Moderate dysplasia, Severe dysplasia. CIN System, CIN stands for cervical intraepithelial neoplasia. Results are classified as CIN 1, CIN

2, CIN 3. Bethesda System: ASC-US (Atypical Squamous Cells of Undetermined Significance): Means the results look borderline between "normal" and "abnormal" – often not HPV-related ASC-H (Atypical Squamous Cells-can not exclude HSIL):Borderline results, but may really include High-Grade lesions. Low-Grade SIL (LSIL) and High-Grade SIL (HSIL): SIL stands for squamous intraepithelial lesion. LSILs are considered mild abnormalities usually caused by an HPV infection. HSILs are considered more severe abnormalities and have a greater chance of progressing to invasive cancer. Women with abnormal Pap test results are usually examined further for cervical problems. This may involve coming back for a colposcopy and biopsy, or coming back in a few months for another Pap test. If the Pap result is "ASC-US," then a HPV-DNA test may be done in the lab to see whether HPV is causing this borderline "normal-abnormal" Pap result.

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