Guest Editorial

Next Generation Colposcopy- Can it Change the Landscape?

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Cervical cancer is preventable. That is what we know to be true. Cytology, vaccination and HPV DNA testing have enabled us to make remarkable progress in improving the sensitivity of screening programs.

WHO states that 70% of women of the world should have undergone cervical testing by the year 2030[1]. Nearly 90% of women dying from cervical cancer belong to low- or middle-income countries. In Pakistan, less than 1% of women get themselves screened annually.[2] This astonishingly low number leaves much to be desired. Surely, whatever we are doing is not working like it should.

Our screening program can be fruitful if we keep a lower threshold to go to the next diagnostic step. The diagnosis of cervical cancer requires a colposcopy. In the past there were few indications to proceed to colposcopy, but in modern day practice it is justified in numerous situations. Whether a woman is HPV positive or pap negative with consistent vaginal discharge, she needs to be evaluated through the lens of a colposcope.

In countries like Pakistan, there are numerous myths surrounding cervical cancer.[3] Many people believe it has a low incidence since women here are free from the usual risk factors of smoking or multiple sexual partners. That is why they believe it to be an ailment of the West. Moreover, Colposcopes are hardly available at tertiary centres and even if they are, they are kept under lock and key. So there has always been a huge deficiency of experts in this field. That is why we diagnose cervical cancer at an advanced stage- when it is already beyond the scope of surgery.

To meet the needs of our growing population without further burdening the healthcare system in terms of manpower and finance, we should consider next generation AI featured colposcopes. This is a small hand-held tool like a mobile phone. Anyone who can use smart phone, can operate it without any additional training; So the AI featured colposcopes are easy to learn and any clinical professional like underexperienced doctor, nurse or pharmacist can use it.[4] It gives optical magnification of 16 times as compared to what we can see with a naked eye. It can be used to examine vulva, vagina and cervix with an almost similar technique. It can be used anytime without any preprocedural preparation (unless the patient is menstruating, has a thick vaginal discharge or is pregnant.)

AI featured colposcopy technique will also have a positive influence on a woman's mental health.[5] Since it can be done during routine gynecological examination, the woman will be less anxious. Moreover, the picture can be shown to her and she will be able to better understand why you are planning for a biopsy. She will be more engaged in her care and more educated too. Once she is educated, she will be more likely to return for follow up and to spread

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awareness in general.

AI featured colposcopes have multiple algorithms and thousands of images. So it is less likely to have interobserver variations. These next generation advanced colposcopes not only capture the photograph of the cervix but also analyses the image and guides whether a biopsy is required or not. It will also indicate the site of the biopsy – hence a targeted biopsy can be taken without aggressive excisions, avoiding excessive hemorrhage, infection and cervical scarring/stenosis/ incompetence.

AI featured colposcopes are having an LED light and inbuilt camera with fine tuning to take a clearer and superior quality image. The image is initially taken in white light and can later be colour coded to better identify the abnormal area which need to be biopsied. There are also in-built green or blue filters. These filters can be applied during the examination or on a still picture. The use of filter helps to make better tissue differentiation and noting the capillary pattern.

AI featured colposcope stores the biodata of patient along with the picture of cervix taken. This image can later be used for remote expert consultation, patient tracking and research purposes. So by using a portable small colposcope which can go to patients in remote areas, one can lead cervical cancer prevention program on population scale. The pictures can be taken by any health care professional that may be relayed to experts (national or international) and screening program directors in the big cities. So a limited number of professionals can lead the whole cervical cancer prevention program of the region without further burdening the healthcare system.

AI featured colposcope are all set to change the cervical screening paradigm as we know it. With a goal of 70%, we should also proactively look for ways to step up to the challenge. And with this modern day invention, we can make a genuine effort in the right direction.

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