WHERE WE HAVE TRAVELLED IN CERVICAL CANCER PROTECTION

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Abstract

Cervical cancer was described in the time of Hippocrates, and it was commented that it had a grim prognosis. Over the centuries, various theories regarding aetiology and also treatments were proposed – in vain in the majority of cases. More and more aggressive treatments were advocated to treat those unfortunate women who were diagnosed with cervical cancer. It is only now, in the 21st century that a pre-malignant phase has been identified and means for investigation have been perfected.

In 1925, Hinselman developed the colposcope, a binocular magnifying instrument, and described vascular patterns associated with malignancy and pre-malignant conditions of the cervix.[1] Papanicolaou and Traut described the cytology changes which have led to the Pap test as we now know it.[2]

These two pioneered the work that has taken us to the point where we can now prevent cervical cancer by detecting and treating precancerous changes. By the 1960s screening by the use of exfoliative cytology and then investigation by colposcopy to identify the lesion was well recognised and accepted. Colposcopy units were established in most public hospitals in Australia. The main problem was that screening was opportunistic only and those women at most risk of developing the disease missed out.

Cytological classifications

Papanicolaou devised a class system, which was meant to express the degree of suspicion of the presence of cancer. Over time, laboratories used descriptive terms, borrowed from histological classifications of pre-invasive squamous lesions. This led to changes in the classifications over the decades, to better reflect the expected or known natural history of the abnormal smear.

1. Pap Class I-V[3]

This initial classification had no bearing on either the ultimate histology or the natural history of the disease process.

2. Dysplasia/carcinoma-in-situ[4]

This incorporated the concept of dysplasia (abnormal development or growth). It also led to an international agreement on histological terminology.[5] It also presented anomalies. The treatment algorithm for "severe dysplasia" was cone biopsy. However, if the pathology report was "carcinoma-in-situ" then hysterectomy was called for.

3. Cervical Intraepithelial Neoplasia (CIN)[6]

In the 1960s Ralph Richart challenged the duality of Carcinoma – in-situ and dysplasia. He intimated there was an inexorable and orderly progression from CIN I through CIN II to CIN III, implying that there had been a failure of the screening process if CIN III was detected.

4. Australian modification of Bethesda system[7]

Kurman et al proposed the Bethesda System in the mid-1990s, which was not widely accepted in Australian laboratories.

This final stage which has come about as we appreciate the role of human papillomavirus (HPV) in the genesis of cervical abnormalities. Low grade epithelial abnormalities are the product of an active and productive HPV infection; the majority will resolve without the need for any intervention. It is only the long-term persistence of HPV which is potentially serious. High grade epithelial abnormalities do have a true malignant potential, although not all will progress to malignancy if not treated.[8]

Organised screening

In the late 1970s to early 80s the world began to appreciate the value of organised screening.

Finland was out early, screening woman every five years, and reported massive decreases in the incidence of invasive cervical cancer.[9] In Australia, pilot demonstration programs were set up under the auspices of the Federal Government, in the mid 1980s, after it was appreciated that only 30% of women were regularly screened.[10]

After an initial meeting convened by Cancer Council Australia, then the Australian Cancer Society, a national policy was developed in 1991 and consensus guidelines were established, Screening for the Prevention and Management of Cervical Cancer.[11] The policy stated: "Routine screening with Pap smears should be carried out every two years for women who have no symptoms or history suggestive of cervical pathology. All women who have ever been sexually active should commence having Pap smears between the ages of 18 to 20 years, or one to two years after first sexual intercourse, whichever is the later. In some cases, it may be

appropriate to start screening before 18 years of age. Pap smears may cease at the age of 70 years for women who have had two normal smears within the last five years. Women over the age of 70 years who have never had a Pap smear, or request a Pap smear, should be screened."

Governance of the screening process

Over the next decade, several important committees were established to oversee the screening process. These were under the auspices of the Commonwealth Department of Human Services and Health and various publications resulted.

Cervical cancer screening in Australia: options for change 1990[12]

The main recommendations from this group, chaired by Heather Mitchell, were that there should be a nationally organised screening program at two yearly intervals along with a backup register.

Robert Rome chaired the committee which produced *Making the Pap smear better*[13] in 1993. This addressed issues of quality assurance in:

- smear taking
- cytology reporting
- laboratory QA
- notification of results and follow-up
- recommendations for cytology registries, including medico-legal aspects.

Edith Wiseman's committee produced *Guidelines for the management of screen-detected abnormalities,*[14] which was endorsed in 1994. Again, these guidelines were a consensus, not evidence-based.

There were several groups looking at quality assurance aspects.

- 1993 – National Pathology Accreditation Advisory Council (NPAAC) established guidelines for reporting cytology.
- 1994 – Royal Australian College of Obstetricians and Gynaecologists established a colposcopy project.
- In 1997 NPAAC revised its guidelines.

Indigenous people were not forgotten in this flurry of activity. *Early detection and management of breast and cervical cancer in Aboriginal and Torres Strait Islander Women: supporting the role of the General Practitioner*[15] was published in October 2002, commissioned by the Royal Australian College of General Practice (RACGP) and carried out through James Cook University. The *Aboriginal and Torres Strait Islander Women's Project*[16] evaluation report was published in January 2003, again under the auspices of the RACGP.

How is success measured?

The aim of the program was to decrease the incidence of invasive cervical cancer by detecting and treating precancerous lesions of the cervix. The state run Cervical Cytology Registers offered the best means of assessment of the success of the program.

Prior to the organised program, participation rates for screening were below 50%.[17]

The first report of the Australian Institute of Health and Welfare on *Breast and Cervical Cancer Screening in Australia 1996-97*[18] (1998) reported a national participation rate of 62.4%, whilst the next publication, 1997-98, reported an increase to 63.9%. This was an increase of over 12% on the pre-screening rates. Mortality rates in the target group fell from 4.9/100,000 women in 1985 to 2.8/100,000 in 1997. Much of this improvement has been ascribed since 1989 to the screening program. Most of the women who now die from cervical cancer, have not had a Pap smear in the recommended screening interval.

Quo Vadis?

The original *Guidelines for the Management of Screen Detected Abnormalities*[19] had recommended a review after five years. In 2000, they were rescinded and a new committee established. This was chaired by Ian Hammond, and the remit was to establish evidence-based guidelines. The new guidelines – *Screening to prevent cervical cancer: guidelines for the management of asymptomatic women with screen-detected abnormalities* – were accepted in 2005.[8] The main features have now been adopted by the medical profession and are being put into practice. They are:

- Changes in terminology, to reflect current knowledge of the natural history of cervical lesions. This has led to the acceptance of the Australian Modified Bethesda System 2004, as the gold standard for reporting.
- Acknowledgement of the pivotal role HPV infection plays in the genesis of cervical abnormalities and the interpretation of the significance of low grade epithelial abnormalities as a mark of HPV infection, not a precancerous lesion per se.

These guidelines, in time, will also be subject to evaluation.

We have come a long way, but we should not forget that there are still women who die from cervical cancer – usually because they have not been screened. The future lies in reaching them, and the challenge is how.

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