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Colposcopy

Pre-invasive lesions of the cervix were first recognised more than 150 years ago, but it was not until 1928 that Papanicolaou introduced diagnostic cytology of the female genital tract. It is widely accepted that the cervical smear is one of the most effective health-screening tools and it is continually being improved.

The policy on the NHS Cervical Screening Programme is set out in health service guidelines (HSG(93)41), in conjunction with The Health of the Nation targets. In The Health of the Nation, a national target was set to reduce the mortality of cervical cancer by at least 20 per cent by the year 2000 (DoH 1992). The reduction was achieved in 1996 through the regular screening of women aged 20-64, enabling prompt treatment of conditions that would otherwise have a significant risk of developing into cervical cancer.

Screening in most health authorities is performed on a three-yearly basis. Routine screening also provides the opportunity to detect and diagnose other abnormalities of the genital tract, including warts and other infections. Therefore, it is essential that nurses are aware of the potential for coexisting conditions, have the ability to recognise these and know where to refer the patient. It is also essential that all abnormal smears are followed up. Guidelines on failsafe mechanisms for the follow-up of cervical smears are published by the NHS Cervical Screening Programme (NHSCSP) National Co-ordinating Network (DoH 1996). A summary of their objectives is set out in Box 1.
Box 1. Objectives of the NNSCP

- To identify and invite eligible women for a cervical smear test
- To ensure that the identified population is effectively tested
- To give women information about the benefits and limitations of the cervical smear test
- To identify cervical intraepithelial neoplasia
- To follow up all women who need further investigation or treatment
- To provide acceptable and effective investigations and treatment
- To minimise the adverse effects of screening, namely, anxiety and unnecessary investigations
- To help those working in the programme to improve their competence and find fulfilment in their work
- To evaluate the programme and seek continuous improvements in quality

TIME OUT 1

What are the cervical screening policies in your area? Look at the training programmes for smear takers in your area. Are you considering expanding your role in this way?

Before expanding their scope of professional practice, nurses should be aware of the implications of delivering safe, effective and appropriate patient care. In The Scope of Professional Practice (UKCC 1992), the UKCC states that you must:

- Act always in such a manner as to promote and safeguard the interests and wellbeing of patients and clients.
- Ensure that no action or omission on your part or within your sphere of responsibility is detrimental to the interests, condition or safety of patients or clients.
- Maintain and improve your professional knowledge and competence.
- Acknowledge any limitations in your knowledge and competence, and decline any duties or responsibilities unless you are able to perform them in a safe and skilled manner.

Reflux of abnormal smears

Cervical intraepithelial neoplasia (CIN) is a spectrum of disease with no clearly defined boundaries. CIN is classified in stages and cervical smear reports reflect this, depending on the severity of the lesions sampled - they range from borderline nuclear abnormalities to severe dyskaryosis. Borderline nuclear abnormalities refer to minor changes in the cervical cells that do not necessarily amount to a pre-cancerous change. These cells can often be attributed to inflammatory conditions or HPV infection. The term dyskaryosis refers to an abnormality within the nucleus of the cell and implies that the cell could have pre-cancerous changes. Levels of severity are graded as mild, moderate and severe, and are commonly used in conjunction with the terms CIN 1, 2 and 3. However, CIN is a histological diagnosis and a cytological opinion cannot accurately predict CIN.

Current recommendations for referral suggest that women with high-grade disease (CIN 2-3) should be referred immediately for colposcopic assessment. Women with low-grade changes on their smear tests should have a repeat smear test after six months and be referred for colposcopy only if the abnormality persists (Duncan 1992). Other reasons for referral could include a persistent unsatisfactory smear, post-coital or intermenstrual bleeding, or a clinically suspicious cervix. Box 2 indicates smear results that would require further action.

Colposcopy equipment

Various styles of colposcope are available, but the most popular are on a moveable stand. Others can be fixed to a table or wall. Attachments to the colposcope could include a green filter, a teaching arm or video camera. A colposcopy couch is needed where the patient to be raised to the most appropriate position. Women with low-grade changes on smear should be referred immediately for colposcopic assessment. Women with high-grade disease (CIN 2-3) should be referred immediately for colposcopic assessment. Women with low-grade changes on their smear tests should have a repeat smear test after six months and be referred for colposcopy only if the abnormality persists (Duncan 1992). Other reasons for referral could include a persistent unsatisfactory smear, post-coital or intermenstrual bleeding, or a clinically suspicious cervix. Box 2 indicates smear results that would require further action.

TIME OUT 2

Revise the anatomy and physiology of the cervix. It is also useful to review the cytology and histology of the cervix.

Appearance of the cervix

The cervix has two types of epithelium, columnar and squamous, which meet at the squamo-columnar junction. In colposcopy, squamous epithelium appears smooth and pink with very little vascular pattern. Columnar epithelium is easy to recognise because of its villus, or grape-like, appearance. Each villus has a central blood vessel that passes through a single layer of cells, giving the cervix a characteristic red appearance and often causing contact bleeding during smear taking.

A third type of epithelium is often seen on the cervix. This is squamous metaplasia and is squamous epithelium that was once columnar epithelium. The area on the cervix where this change has occurred is known as the transformation zone and it is here that abnormalities are likely to be found (Fig. 1).

Abnormal or atypical findings during the colposcopy are likely to define the boundaries of CIN. Following the application of acetic acid, abnormal tissue will turn white and from characteristics within the aceto-whitening, the colposcopist will be able to distinguish the severity of a lesion. Generally, the more severe the degree of whitening, the more severe the lesion is likely to be. The colposcopist will also need to consider the edges of the lesion. If the edge of the white area is clearly defined then the lesion is likely to be associated with significant disease. If the edges are fuzzy, the lesion is likely to be associated with a viral change.

Permission should always be sought from the patient for visitors to be present in the clinic. Keep the number of students and other observers to a minimum and do not exceed one per clinic room.

Once the patient is comfortable, the cervix can be exposed using a warm bivalve speculum. The cervix and upper vagina should then be examined under low magnification. A cervical smear can be taken at this stage, although care should be taken to avoid making the cervix bleed while doing this, as the subsequent examination might be difficult.

Some colposcopists will apply saline to the cervix. This test in conjunction with the use of a green filter on the colposcope can be useful in detecting abnormalities of the blood vessels in the cervix.

Acetic acid is then applied to the cervix, either with a cotton wool ball, a large swab or with a spray. The acetic acid will make it easier to remove any remaining mucus and will highlight any abnormal epithelium. It will also cause the columnar epithelium to appear white - this is known as aceto-whitening.

A small amount of Lugol's iodine can then be applied to the cervix to distinguish any abnormal epithelium. Abnormal epithelium does not contain glycogen and therefore will not stain. This contrasts with normal epithelium, which does contain glycogen and will stain dark brown. However, as columnar epithelium contains very little glycogen, it also fails to take the iodine stain and this can be misleading. Experienced colposcopists often reserve the use of iodine for demarcating the abnormal area prior to treatment.

There is no space in this article to describe the anatomy and physiology of the cervix fully, although it is important that you have a thorough knowledge and understanding of the underlying structures and physiological processes to achieve the learning outcomes.

Fig. 1. Anatomy of the transformation zone

A biopsy forceps

- Three small galeys holding normal saline, acetic acid and Lugol's iodine

- A variety of diathermy loops and balls or equipment for other treatment of choice
The vessel pattern within the aceto-white area is extremely important to the colposcopist in diagnosing an abnormality. The first of these patterns is atypical. The capillaries appear parallel to the surface giving a crazy paving effect. The wider the calibre of the vessels and the greater the surface area involved, the more likely a greater degree of abnormality (Rollason TP 1996). In the second vessel pattern, punctation, the stromal capillaries produce a stippled or punctate appearance. In general, the more severe the change, the greater the abnormality. Atypical vessels, which appear in a very haphazard arrangement, are an indication of early stromal invasion.

One of the components of the cervical screening programme is the treatment of abnormalities on the cervix that could have the potential to worsen into cancer. With CIN, this treatment takes place following cytological and colposcopic recognition of an abnormal area. Of course, not all CIN or areas of abnormality will progress into cancer. Therefore, there is a need to decide which cases will require treatment based on the likely risk of the lesion developing further. When the decision to treat has been made, the most appropriate form of treatment can be selected.

It is considered that not all women with abnormal cytology will require treatment, and that some women can safely be observed as many abnormal smears will resolve spontaneously over time. Therefore, conservative management is recommended if the smear abnormality is low-grade and the colposcopic appearance is normal or very low grade. If this management option is chosen, cytological and colposcopic surveillance should continue at six-monthly intervals until two consecutive smear results are normal. If the lesion worsens during the surveillance period, treatment should be commenced. Treatment is also recommended if the low-grade abnormality persists for longer than two years.

That any type of treatment is available and they fall into one of two categories. The excisional method of treatment removes the whole transformation zone and this is then sent for histological assessment. Ablative, or destructive, methods destroy the abnormal tissue and therefore a histological diagnosis must be made prior to treatment with directed biopsies taken prior to the destruction.

The treatment of choice in this country seems to be loop excision and cryocautery. Cryocautery is an ablative procedure that destroys tissue by freezing and is applied using probes of various shapes and sizes. This technique is decreasing in popularity, however, largely as a result of high failure rates. This is probably due to the cautery of the destruction, which causes scarring and therefore decreased excision. The depth of destruction caused by this method might become inaccessible.

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Complications of treatment

Immediate complications of excisional treatment include postoperative infection and haemorrhage. Fortunately, pain seems to affect very few women as most are treated under local anaesthesia. Significant bleeding after the procedure can be controlled with diathermy - something that is very rarely needed. Secondary haemorrhage can occur any time up to 14 days after the treatment. It is usually the result of a minor infection in the crater and the bleeding will often settle with rest and antibiotics.

Cervical stenosis affects between 1 and 2 per cent of women and is more likely to occur in postmenopausal women. Stenosis, causing anatomical distortion of the cervix, can make follow-up cervical cytology either difficult or inaccurate, as the new transformation zone might become inaccessible.

Follow up after treatment

Follow up after treatment is essential. The reasons for this include the need to ensure there is no residual CIN or cancer, to ensure that any recurrence of CIN is detected and that there are no clinical problems after treatment. It is widely accepted that treatment of CIN should have a success rate of approximately 95% per cent. If the lesion is high-grade, the transformation zone is uncertain and the lesion is multifocal or peripherally located, then the lesion is at high risk of progression. In these circumstances, treatment should be repeated at three months. If it is a low-grade lesion, it is reasonable to follow up at six months.

TIME OUT 4

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Box 5. Qualifications for entry into training

**Essential qualifications**
- RGN – first level registration
- At least 18 months nursing experience in women’s health
- Ability to demonstrate an in-depth knowledge of the colposcopy service and to identify the needs of the woman
- Have evidence of good organisational, communication and leadership skills
- Demonstrate a supportive, sensitive and approachable manner
- Have current membership of a professional organisation for indemnity (RCN Colposcopy Nurses Forum 1997)

**Desirable qualifications**
- Basic counselling skills
- Basic knowledge of genitourinary medicine and sexually transmitted diseases

The role of the nurse colposcopist

Colposcopy is dependent on trained manpower. It is a technique that can be performed adequately after an appropriate interval of training and education. Nurses can achieve the same levels of skill and competence as medical personnel and the addition of nurse colposcopy to the team greatly enhances the efficiency and quality of the service. There are, of course, other areas of healthcare provision where it has been shown that appropriately trained nursing personnel can enhance the quality and efficiency of care.

The changes in postgraduate medical and nursing education have suggested a greater clinical involvement of nurses. The provision of colposcopy services is one area where the combined medical and nursing team provides advantages for all – most importantly for patients.

The perceived advantages of training nurse colposcopists and forming colposcopy teams based around medical and nurse colposcopists are:
- Additional skills
- Greater continuity of care.
- Improved patient contact.
- Greater choice for patients.
- Improved flexibility of clinic times.
- Greater involvement and job satisfaction for nurses.
- A nurse colposcopist is a clinical nurse specialist who is trained, competent and certificated in accordance with the training standards laid down by the British Society of Colposcopy and Cervical Pathology (BSCCP).

The aim of the training programme is to develop a competent colposcopy practitioner. This practitioner will be able to assess, diagnose, treat and review patients referred to a recognised colposcopy clinic in accordance with medical and nursing protocols. Box 5 lists qualifications required for entry into training.

The training programme is split into two parts: the first is made up of formal courses and study days, and the second is comprised of clinical elements.

**Formal courses**
- Basic theoretical colposcopy
- Basic counselling
- Advanced colposcopy
- Basic family planning
- Additional experience
- Attendance at the FHSA to understand how the call and recall system functions

**Commitment and continuing audit**
- Attendance at a BSCCP recognised national colposcopy meeting at least once every three years.
- Maintenance of a regular caseload (at least 50 patients per year).
- Participation in local, regional and national audit.

On completion of all phases of training, the trainee should assess competence of the trainee. If competence has been achieved, the trainee should apply for certification to the BSCCR.

**REFERENCES**
- Department of Health (1991) Improving the quality of the written information sent to women about cervical screening. NHS Central Screening Programme publication number S/3. London, HMSO.
- Department of Health (1996) NHS Cervical Screening Programme publication number 1. London, HMSO.

**FURTHER READING**

Since the introduction of the BSCCP training and certification programme, it has become necessary for anyone practising colposcopy to be trained to the appropriate standard. A formalised training programme has been developed for professionals wishing to develop their scope of professional practice by undertaking colposcopic investigation and treatment, and nurses are assessing, diagnosing and treating patients in colposcopy clinics all over the UK. Before making the decision to expand their practice in this way, nurses need to ensure that they have the full support of their employer and colleagues, and accountability must be considered in accordance with local policy. In addition, nurses wishing to expand their scope of professional practice must also acknowledge any limitations in their knowledge and competence. Having achieved these criteria, nurses will be in a position to undertake colposcopic investigation and treatment to a high standard and with sensitivity, and are ideally placed within colposcopy units.

**TIME OUT 5**
Reflect on the role of the nurse colposcopist. How do you think this role could be applied in your local area? What are the implications for practice?

**Conclusion**

Now that you have completed the article, you might like to think about writing a practice profile. Guidelines to help you write and submit a profile are outlined on page 55.