

Colposcopic terminology: the 2011 IFCCPC nomenclature

In any branch of science, progress evolves from a clear understanding of previous research and experience. Clarity of terminology and practice is fundamental to understanding both published research and reports of experience in similar and in different clinical circumstances. Otherwise, it is very difficult to accurately compare existing practice or to evaluate new evidence. The latest IFCCPC nomenclature (Bornstein et al., 2012a) attempts to bring greater clarity to terminology in diagnostic and therapeutic colposcopy practice. Individual terms are listed in Annex 3.

Screening programmes for cervical precancer have reduced the incidence of cervical cancer, especially in those countries with properly organized, quality-assured call-and-recall systems. Of course, it is not

the screening itself that reduces the risk of cervical cancer, but rather the subsequent treatment of screen-positive women who are found to be at significant risk of developing cancer.

Most screen-positive women are at very low risk of progression to cancer. These women may be reassured and followed up appropriately. Colposcopic assessment of the grade of abnormality, and therefore the risk of progression, is crucial to the process of managing screen-positive women. So also is assessment of other TZ characteristics, for example the TZ site and size, and the visibility of the entire TZ. Most importantly, when properly undertaken, colposcopy will reduce the risk of both overtreatment and undertreatment.

For those women who are at a relatively high risk of progression to cancer and who do need to be

treated, precise excision of the TZ is associated with the lowest risk of pregnancy-related morbidity (Khalid et al., 2011; Carcopino et al., 2013) and the highest chance of achieving successful eradication of all precancerous epithelium (Ghaem-Maghani et al., 2007; Manchanda et al., 2008).

7.1 Terms that have been omitted from the 2011 IFCCPC nomenclature

To most colposcopists in the United Kingdom, “cone biopsy” means excision of a significant portion of the endocervical canal, and the term would be reserved for those cervixes where the lesion is thought to be out of colposcopic view in the endocervical canal, either wholly or in part. However, to many colposcopists in the USA and Europe, “cone biopsy”

or “conization” means excision of any type of TZ, no matter how much of the endocervical canal has been excised. Also, dimensional terms like “height” and “depth” are used almost interchangeably in different publications, and this can lead to invalid comparison of treatment methods. For these reasons, the 2011 IFCCP nomenclature omits the terms “cone biopsy” and “conization” (see TZ excision types 1, 2, and 3 in Table 7.1) as well as “depth” and “height”.

7.2 General assessment

A general and initial assessment of the cervix will allow the colposcopist to determine whether examination of the cervical epithelium is adequate or whether it is compromised by inflammation, bleeding, atrophy, scar tissue, or subepithelial fibrotic change.

Making an assessment of whether the TZ is fully visible and where it is situated will allow determination of the TZ type.

7.3 Transformation zone type

After it is established that the examination is adequate, the TZ type and size should be determined (Figs. 7.1–7.3).

A fully visible and ectocervical TZ is a type 1 TZ. A TZ that is partially or completely endocervical but is fully visible is a type 2 TZ. A TZ that is partially or completely endocervical but is not fully visible is a type 3 TZ.

Fig. 7.1. Type 1 transformation zone (TZ). (a) Illustration. (b–d) Examples of type 1 TZs. In each, the entire TZ is visible on the ectocervix.

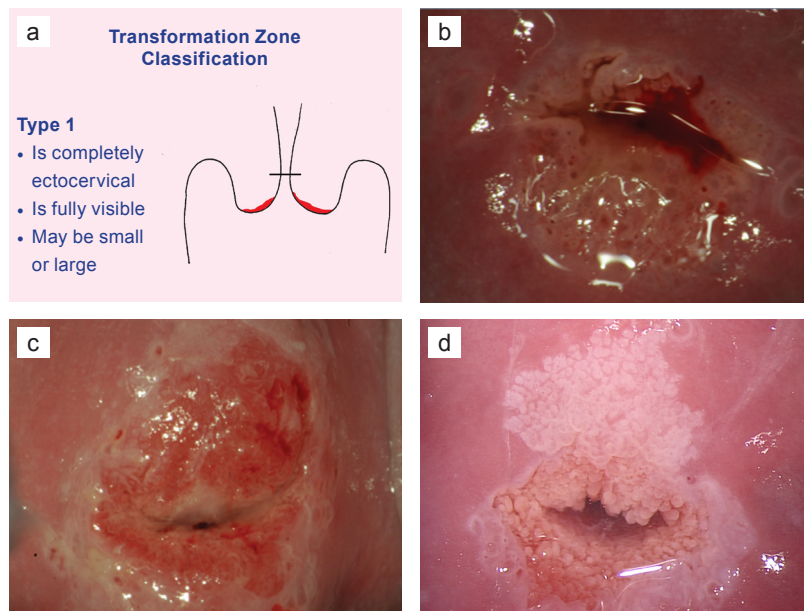


Fig. 7.2. Type 2 transformation zone (TZ). (a) Illustration; the upper limit of the TZ is in the endocervical canal but is visible below the upper limit of visibility, here represented by the horizontal line. (b, c) A large type 2 TZ; two images of the same cervix. The upper limit of the TZ is easily seen on the posterior lip but is visible in the canal only with the aid of a cotton swab. In this young woman, the abundant and clear mucus of an uninfected and well-estrogenized cervix allows easy manipulation and visualization of the lower endocervical canal and the upper limit of the TZ.

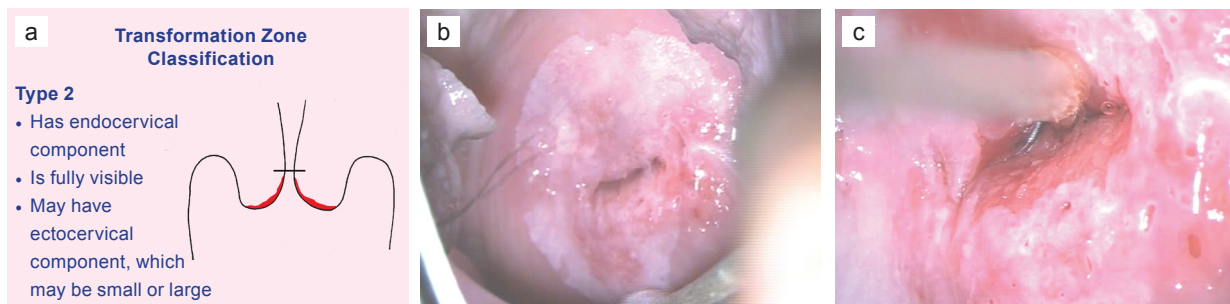


Fig. 7.3. Type 3 transformation zone (TZ). (a) Illustration; the upper limit of the TZ extends beyond the upper limit of visibility, here represented by the horizontal line. (b, c) Examples of type 3 TZs. In each, the upper limit of the TZ cannot be seen, because it extends into the canal above the field of view.



The visibility and precise location of the TZ influence both whether colposcopy is adequate and the method of treatment.

7.4 Excision type

A fully visible ectocervical and small TZ is both easy to assess and simple to treat, either by destruction or by simple excision. In contrast, a large type 3 TZ will not be possible

to assess completely, and treatment will be associated with greater difficulty, a higher risk of morbidity (Khalid et al., 2011), and an increased risk of failure to eradicate the disease (Ghaem-Maghami et al., 2007). The TZ excision types are illustrated in Fig. 7.4. Table 7.1 lists the excisional treatments and when they are indicated.

The first two excision types, types 1 and 2, are illustrated in Figs. 7.5

and 7.6. They relate exactly to the TZ types 1 and 2. A type 3 excision, in contrast, may be used in several circumstances not dictated purely by TZ type. For example, excision of a glandular lesion will usually warrant a type 3 excision. Also, some clinicians may wish to perform a type 3 excision in the presence of microinvasive disease in a woman who has completed her family or in a patient who has previously been treated.

Fig. 7.4. Excision types. (a) Type 1 excision. The dotted green line resects a completely ectocervical or type 1 transformation zone (TZ). In this case, which is the most common in women of reproductive age, the LLETZ/LEEP procedure need not encroach on the endocervical canal and need not be greater than 8 mm thick throughout the resection. (b) Type 2 excision. The dotted green line resects a type 2 TZ, which, although it has an endocervical component, is still completely visible with the colposcope. In this case, the amount of excised endocervical epithelium may be tailored according to how far up the canal the TZ extends. (c) Type 3 excision. The dotted green line resects a longer and larger amount of tissue. In this case, the upper limit of visibility does not reach the upper limit of the TZ, and the excision has to resect a significant proportion of *endocervical* epithelium.

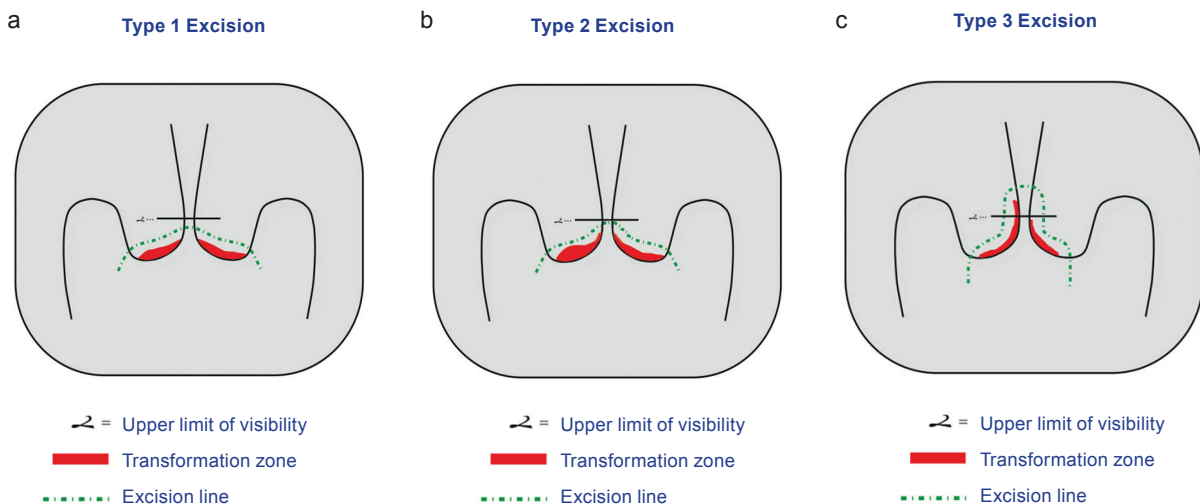


Table 7.1. Classification of excisional treatment

Characteristic	Excision type		
	Type 1 excision	Type 2 excision	Type 3 excision
Transformation zone type	Type 1	Type 2	Type 3
Condition	Any grade of squamous CIN Serious consideration should be given to excising CIN3 disease	Any grade of squamous CIN Glandular disease in women younger than 36 years Suspected microinvasion	Any grade of squamous CIN Glandular disease in women older than 36 years Suspected microinvasion
Other circumstances		Previous treatment	Previous treatment
Techniques included in this category of excision	LLETZ/LEEP Laser excision	LLETZ/LEEP SWETZ Laser excision Cold-knife cone biopsy/cylindrical excision	LLETZ/LEEP SWETZ Cold-knife cone biopsy/cylindrical excision
Alternative treatment choices	Transformation zone ablation or destruction		

CIN, cervical intraepithelial neoplasia; LEEP, loop electro-surgical excision procedure; LLETZ, large loop excision of the transformation zone; SWETZ, straight wire excision of the transformation zone.

Fig. 7.5. Type 1 excision with LLETZ/ LEEP.

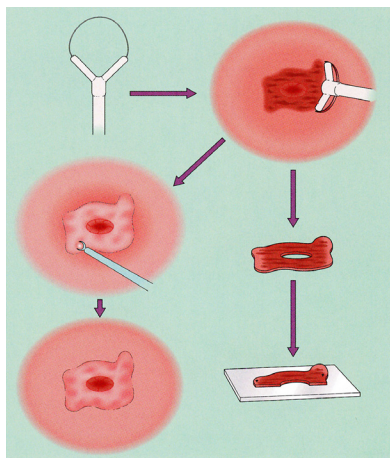


Fig. 7.7. (a, b) Type 3 excision using a large loop (LLETZ/LEEP). (c, d) Type 3 excision using a straight wire (SWETZ).

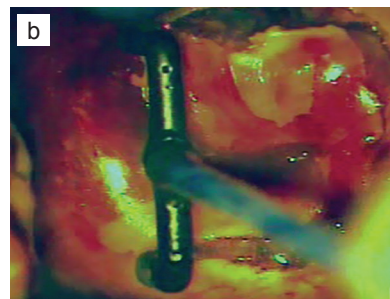
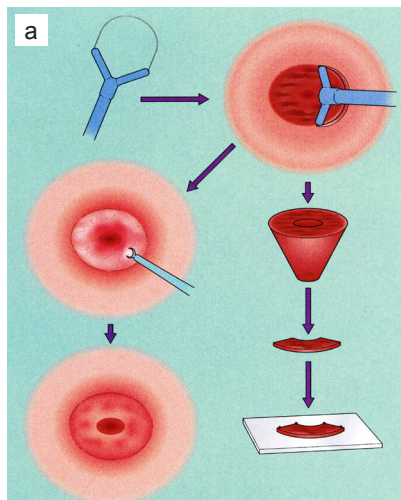


Fig. 7.6. Type 2 excision with LLETZ/ LEEP.

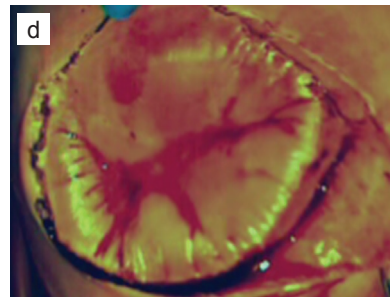
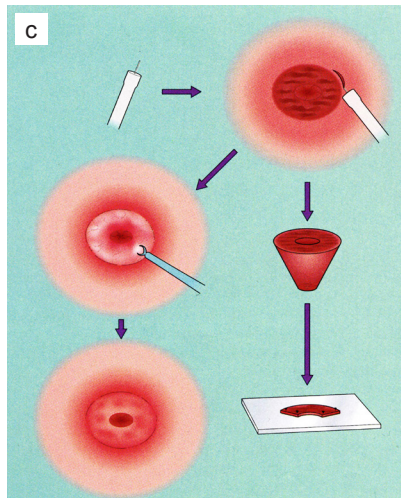
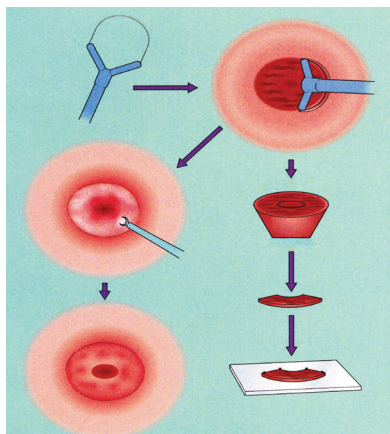


Fig. 7.8. The “top-hat” resection. (a) A first pass of the loop resects the ectocervical TZ and a part of the endocervical TZ. (b) A second pass with a smaller loop resects a further part of the endocervical TZ.

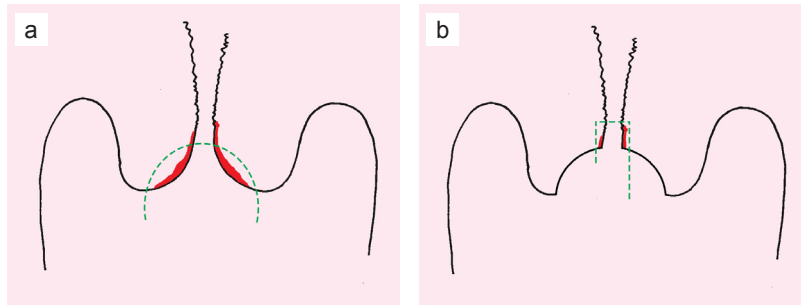


Fig. 7.7 depicts two different ways of performing a type 3 excision: the first with LLETZ/LEEP using a longer loop, and the second using a straight wire excision of the TZ (SWETZ), as described by Camargo et al. (2015). Finally, Fig. 7.8 illustrates the “top-hat” technique for removing a type 2 or type 3 TZ. The top-hat excisional technique has little to recommend it, because it compromises histological interpretation.

7.5 The excised specimen

The size of the excised TZ specimen is proportional to the risk of subsequent pregnancy-related complications, so accurate dimensional terms are important. Some terms have consensus agreement, and others, like “depth”, do not. In the 2011 IFPC nomenclature, the terms “depth” and “height” have been abandoned. “Length” and “thickness” of an opened specimen are universally understood and are included in the 2011 IFPC nomenclature. When multiple excision specimens are obtained, as is the case with the top-hat technique, each specimen should be measured separately. Fig. 7.9 depicts the dimensions of the opened specimen (thickness, length, and circumference) just before pinning onto a cork board and immersion in formalin.

7.6 Colposcopic terminology of cervical epithelium

7.6.1 Normal colposcopic findings

Normal epithelial variations that may be recognized at colposcopic examination of the cervix include original squamous epithelium, nabothian follicles (also known as nabothian cysts), metaplastic squamous epithelium, crypt or gland openings, and decidual changes associated with pregnancy.

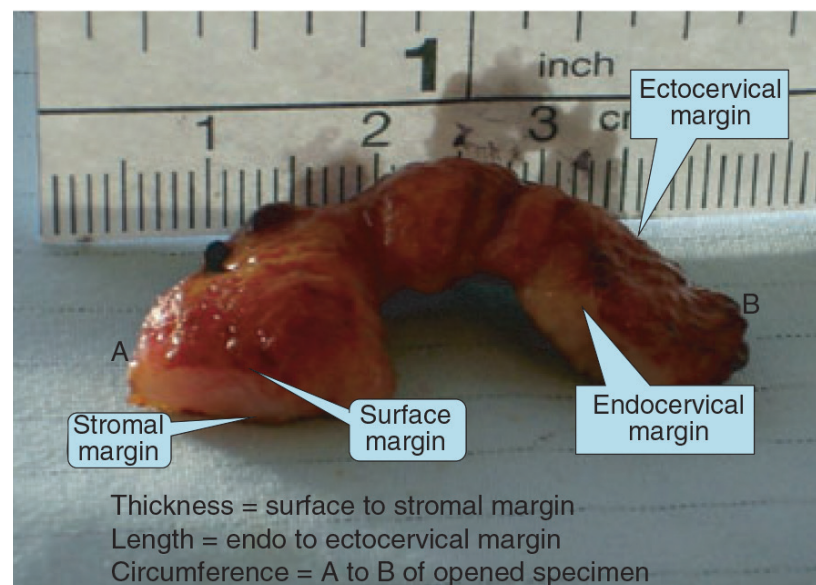
7.6.2 Abnormal colposcopic findings

Where a squamous lesion is present, it will be either proximal or distal to the original SCJ. In other words, it may be inside or outside the TZ. The lesion may be small or large and cover from one to four quadrants of the TZ. The size of the lesion and the proportion of the TZ that it covers appear to be important predictors of lesion grade, and this is included as one of the indices of severity in the Swede score (see Annex 4).

Minor-grade changes include fine vascular patterns (i.e. mosaicism or punctation), faint white epithelial uptake after the application of 3% or 5% acetic acid, irregular or geographical borders, and satellite lesions. Major-grade changes include sharp lesion borders, inner borders (within the TZ), the ridge sign, dense and/or rapid uptake of acetic acid, coarse vascular patterns (mosaic or punctate), and “cuffed” crypt or gland openings.

Non-specific abnormal findings include leukoplakia (keratosis or

Fig. 7.9. An opened LLETZ/LEEP specimen after removal, with the dimensions used to determine thickness, length, and circumference.



hyperkeratosis) and erosion. Features that might raise the suspicion of invasive disease include atypical vessels, fragile vessels, an irregular epithelial surface, exophytic lesions, necrosis, ulceration, tumour formation, or gross neoplasm. Miscellaneous findings included in this classification are the congenital or original TZ, condyloma, polyps, inflammation, stenosis, congenital anomaly, post-treatment epithelial changes, and endometriosis.

Some of these terms are open to subjective interpretation. For example, it is difficult to define in words the difference between irregular or geographical margins and straight ones. However, margin status has been found to be important in predicting high-grade abnormality (Hammes et al., 2007; Reid and Scalzi, 1985).

7.7 Individual terms in the IFCPC nomenclature

Colposcopic examination begins with a general assessment of the cervix, and most colposcopists will aim to determine the level of reliability of the examination at this stage. The popular terms “satisfactory colposcopy” and “unsatisfactory colposcopy” have been discarded, because they have the connotation of an

examination that needs to be repeated. The colposcopic examination is now assessed by three variables: adequacy, visibility of the SCJ, and TZ type (Annex 3).

The first variable is whether the examination is adequate, and if not why not. The reason should be documented; for example, the cervix may be obscured by inflammation, bleeding, or scarring. The second variable is visibility of the SCJ, which can be described as “completely visible”, “partially visible”, or “not visible”. The reason that the visibility and site of the SCJ are so important is that this influences both the ability to perform a complete examination and, when treatment is indicated, the extent and type of excision. The terms “adequacy” and “SCJ visibility” are not mutually exclusive; the SCJ may be partially visible because a portion of its inner margin is located high in the endocervical canal, whereas the examination is still adequate because the cervix is not obscured by blood or inflammation. The third parameter is the TZ type. It overlaps to some degree, but not completely, with the visibility of the SCJ. The TZ and the SCJ are not the same thing; the SCJ is the inner margin of the TZ. Both type 1 and type 2 TZs are completely visible, and the difference between

the two is important, mainly for planning treatment. The TZ type defines both the site and the visibility of the SCJ.

Localization of the lesion inside or outside the TZ is important. This is because a lesion inside the TZ, as opposed to one outside (Fig. 7.10), has been shown to be an independent predictor of a high-grade lesion or carcinoma (Hammes et al., 2007). Lesion size (Figs. 7.11 and 7.12) has also been shown to be an independent predictor of high-grade disease (Kierkegaard et al., 1995; Shaw et al., 2003). The size may be quantified as (i) the number of cervical quadrants the lesion covers or (ii) the size of the lesion as a percentage of the cervix.

Two relatively new colposcopic image terms are included in the grade 2 (major) lesions of the 2011 IFCPC nomenclature: the “inner border sign” and the “ridge sign”. Published work has validated their worth as markers of high-grade CIN (Scheungraber et al., 2009a, 2009b). A sharp border around a lesion has also been reported as being associated with a more severe lesion. The term “leukoplakia” is included in the category of non-specific abnormal findings. This is because it has been reported to have a 25% independent predictive value of

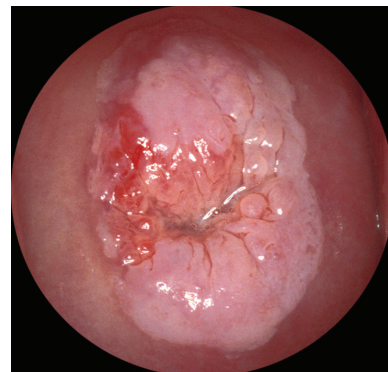
Fig. 7.10. Satellite lesions. In this normal cervix, there are two small satellite lesions outside the transformation zone.



Fig. 7.11. A small lesion occupying only one quadrant of the transformation zone, with several satellite lesions at the 12 o'clock position.



Fig. 7.12. A large lesion occupying more than three quadrants of a large transformation zone.



containing high-grade or invasive neoplasia (Hammes et al., 2007). In truth, leukoplakia may cover innocent or pathological epithelium, and colposcopic examination

cannot reliably determine which. The uptake of Lugol's iodine is part of the non-specific findings because several publications have suggested relatively poor reliability of the test

(Rubio and Thomassen, 1976). Cervical polyps are placed in the category of miscellaneous findings. They may, of course, be ectocervical or endocervical in origin.

Key points

- The 2011 IFCPC nomenclature is the global reference standard for cervical colposcopic examination findings.
- Transformation zone type and size as well as transformation zone excision type have been included in the latest nomenclature.
- Using the IFCPC classification allows valid comparison between researchers publishing research or reports of experience.