Technical method

A technique for the orientation of blocks and sections from unbisected cervical cones

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Histological examination of cervical cones removed after positive or suspicious cytological smears requires some form of serial blocking so that the location and extent of any significant lesions may be precisely determined.

Of the various methods available (figs 1 and 2), radial blocking (fig 1i) is highly unsatisfactory, because it produces wedge-shaped blocks with the thin edge of the wedge along the external os and endocervical canal, so that the epithelium at this important region may suffer serious loss during the trimming of paraffin blocks. Splitting and flattening of the cone before radial slicing may partly solve this problem, but involves excessive manipulation of the endocervix and external os and can cause serious traumatic denudation of the surface epithelium. In the method of Foote and Stewart (1948) the cone is horizontally bisected and the two separate halves are then cut into a series of parallel blocks (fig 1ii). This method permits easy identification of the two lips, but the entire unbisected cone cannot be visualized in the resulting sections, the endocervix

Fig 1 Possible methods of blocking the cervical cone: Fig 1i Radial blocking. Results in unsatisfactory wedge-shaped blocks. Fig 1ii Parallel blocks from anterior and posterior lips of bisected cone. This technique produces an unnecessarily large number of blocks.

Fig 2 Recommended method of parallel blocks from unbisected cone. Before slicing, anterior lip of cervical cone is impaled by stout needle. As the needle is withdrawn, india ink is injected along its track.

Received for publication 16 October 1974.

Fig 3 Serial blocks from unbisected cone: only nine blocks produced. The india ink in the needle track can be seen clearly, identifying the anterior lip.

Fig 4 Histological sections from the blocks shown in figure 3. The anterior lip can be readily identified by the ink-marked track.

is subjected to unnecessary manipulation, and the work load of the technician and the pathologist is significantly increased by the large number of blocks and sections produced.

Parallel slicing of the intact unbisected cone (fig 2) permits satisfactory visualization of the entire cone and considerably reduces the number of blocks (fig 3) and sections (fig 4). Whereas slicing of the two separate halves of the cone illustrated in fig 1 would yield 16 blocks, similar slicing of the unbisected cone (figs 2 and 3) has produced only nine blocks. Nevertheless, when the unbisected cone is sliced the resulting blocks and sections are difficult to orientate unless some technical device is used clearly to identify one of the lips. The technique described below achieves this aim satisfactorily.

A stout needle, such as a marrow puncture needle, is passed through the anterior lip of the cervix (fig 2) with the stylet *in situ* to prevent blockage of the needle's lumen. The stylet is removed and a syringe containing india ink is attached to the nozzle of the needle. The needle is then slowly withdrawn while simultaneously india ink is gently injected, staining the needle track. Any ink leaking from the track can be immediately washed away under a running water tap. The stained track in the anterior lip is clearly identifiable in both the tissue blocks (fig 3) and in the sections cut from them (fig 4).

Reference

Foot, F. W., and Stewart, F. W. (1948). Anatomical distribution of intraepidermal epidermoid carcinomas of cervix. *Cancer (Philad.)*, 1, 431.

Letters to the Editor

Diagnosis of Heterozygous Beta Thalassaemia

From experience in this laboratory, I do not agree with the conclusions of Yawson and his coworkers (*J. clin. Path.*, 1974, 27, 247) on the unreliability of visual assessment for the estimation of the level of haemoglobin A2.

In our experience, multiple microelectrophoresis on cellulose acetate (the 'microzone' technique), followed by visual assessment is accurate enough to distinguish between the 'normal' and the 'high' levels of haemoglobin A2, if the following technical details are carefully adhered to: (1) use only freshly prepared

haemolysates; (2) apply to one strip haemolysates with the same haemoglobin concentration (for instance 100 ± 2 g/l); (3) apply the same volume of the several haemolysates with an efficient single or multiple microapplicator; for each strip, carrying up to eight specimens, apply at least one normal specimen, preferably obtained from a pool derived from three or four normal subjects; (4) stain the strip with ponceau red and assess visually until wet, after exhaustive washing.

We applied this technique to some 100 haemolysates from beta-thalassaemia trait carriers, and to a larger series of 'normals' and obtained results in good agreement with the quantitative technique (CAE

followed by elution and spectrophotometry in the Soret band) with the exception of two or three cases, which were classified as doubtful and subsequently found elevated by the quantitative method. The visual technique failed in classifying as 'low' the level of haemoglobin A2 in a case of heterozygous alpha-thalassaemia: it was, however, useful in clearly detecting the occurrence of S and H haemoglobins, when present. Obviously, preliminary training is needed for correct assessment.

As a result of such experiences, the following procedure is presently adhered to in our laboratory, as well as in others (Barnes *et al*, *J. amer. Med. Ass.*, 1972, 219, 701). Specimens are first assayed by