Short reports

Macrocryosectioning of the prostate: a simple technique

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Abstract

Whole mount sections of the prostate are widely used in many laboratories. Macro-cryosections of the gland; that is, whole mount frozen sections of the prostate from radical prostatectomies represent a useful new research protocol. The technique is very simple and does not require expensive equipment.

(*J Clin Pathol* 2001;54:236–237)

Keywords: macrocryosection; whole mount; prostate

Each organ has preferential planes for sectioning, depending both on anatomical and pathological peculiarities. Coronal sectioning of the entire organ represents the elective cutting approach to the reduction of the prostate. These macroscopical sections should be executed starting with an en face section of the apex and carrying on through the organ with parallel sections approximately 0.5 cm thick. Thereafter, sections can be cut in the sagittal plane and embedded in two parts or cut again and embedded in quadrants. Alternatively, en face sections can be entirely embedded as single sections.¹ In general, whole mounts are regarded as not being essential for the accurate pathological evaluation of radical prostatectomies.^{2–3} Nevertheless, in our experience, the orientation of the sections is much easier with whole mount sections. In addition, the recognition of the anatomical profile of the organ, which lacks a discrete capsule particularly at the base and at the apex, and at many levels has deceptive confines,⁴ is certainly facilitated by the use of whole mount sections. This anatomical integrity is particularly helpful in identifying acinar adenocarcinoma cells “crossing the borders” (pT3).

The same anatomical integrity of the glands is extremely useful for more investigative reasons, such as speculative studies concerning the distribution of certain antigens in the different regions of the glands, as well as molecular biology studies. Many of these studies need frozen material to ensure correct and reproducible results.

Method

Thirteen prostate glands, four of which harboured foci of acinar adenocarcinoma formerly identified in needle biopsies, were submitted to

Figure 1 Whole mount cryosectioning of a prostate.

Figure 2 Haematoxylin and eosin staining of a 4 µm thick frozen section of prostate, placed above a 7.5 × 5 cm macroslide.

the following procedure: the fresh glands were sectioned in slices 0.5 cm thick according to the coronal planes; one macrosection of each prostate was located and gently pressed, after merging in OCT, either in disposable base moulds or in metal base moulds (mega base moulds, 6.5 × 5.5 cm); the moulds were then plunged into liquid nitrogen gas for an average time of four to five minutes.

The frozen macrosections were then placed over specimen discs of the usual dimensions (4 cm diameter) and installed in a cryostat (1720 Leitz).

To collect 4–5 µm thick sections we used a 5.5 × 10 cm plate of aluminium (fig 1), and hence obtained unfurled sections. We used disposable blades (feather microtome blades), which gave superior results to resharpened full sized blades.

The frozen macrosections were then placed above macroslides (7.5 × 5 cm) and stained with haematoxylin and eosin using the normal staining procedure (fig 2) after treatment of the slides

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Accepted for publication
30 August 2000

with gelatin-chromo alum dip. Macrocryosections were also used for immunocytochemistry.

Microscopical artifacts were not superior to conventional cryosections in terms of the frequency and severity of tears and ridges.

Discussion

This method of macrocryosectioning can be used easily in any surgical pathology department. It requires no special technical equipment but needs only a cryostat, a metal plate, and a skilled technician. The time taken to do the sectioning and the number of sections wasted were not very different to conventional cryosectioning—about 1/10 sections were wasted.

Nevertheless, to the best of our knowledge, there are no published studies using this technical approach.

Many studies can be performed using whole mount cryosections of the prostate—for

example, anatomical studies of new classes of molecules unreactive after formalin fixation and studies concerning the planimetric distribution of many adhesion molecules.⁵ In addition, studies of radiological–pathological correlations using immunocytochemical methods are greatly facilitated by the use of whole mount cryosections.

- 1 True LD. Surgical pathology examination of the prostate gland. Practice survey by American Society of Clinical Pathologists. *Am J Clin Pathol* 1994;102:572–9.
- 2 Murphy WM. *Urological pathology*. Philadelphia: WB Saunders 1997.
- 3 Sakr WA, Wheeler TM, Blute M, *et al*. Workgroup 2. Staging and reporting of prostate cancer—sampling of the radical prostatectomy specimen. *Cancer* 1996;78:366–8.
- 4 Association of Directors of Anatomic and Surgical Pathology. Recommendations for reporting resected prostatic carcinomas. With commentary. *Pathology Case Reviews* September/October 1998;223–32.
- 5 Gazzano G, Patriarca C, Colombo P, *et al*. Basal cell layer disruption in non neoplastic prostate: fact or fancy [abstract]? *Arch Anat Cytol Pathol* 1998;46:422.

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