PostScript

CORRESPONDENCE

A little bit more on the slide

In 2001–2, 89% of cancers detected by the UK National Health Service Breast Screening Programme (NHSBSP) were diagnosed preoperatively.¹ In 1996–7, the figure was 63%. Year on year increases in the preoperative diagnosis rate have paralleled the increasing use of needle core biopsy (NCB). There has been a threefold increase (from 17% to 66%) in the proportion of cancers diagnosed by a B5 NCB over this period. The proportion of cases diagnosed by fine needle aspiration cytology (FNAC) alone fell from 19% in 2000–1 to 13% in 2001–2.

Although in appropriate circumstances FNAC may be a sensitive and cost effective technique in the diagnosis of breast cancer,² its use in the NHSBSP is increasingly limited. In the Leeds Breast Screening Assessment Unit in the year 2001–2 we performed 124 FNACs and 487 NCBs. This contrasts with 243 FNACs and 92 NCBs in 1995–6. Our preoperative diagnosis rate has increased from 59% to 92% over the same period.

Better characterisation of malignant lesions and the ability to perform ancillary investigations, such as hormone receptors and biomarker studies (for example, HER-2 analysis), are major advantages of the technique, given the wide range of immediate therapeutic choices now available. The decision to use neoadjuvant chemotherapy or offer immediate reconstruction may be influenced by information only reliably obtained by NCB.

Comparing FNAC sensitivities, specificities, and inadequate rates between different units is now complicated by NCB use. Different units vary in the extent and manner in which FNAC is used. In our unit, FNAC is now almost confined to the investigation of small masses where cystic/solid differentiation with ultrasound is uncertain and lesions that are difficult to biopsy because of their small size and/or location in the breast. A higher proportion of "non-diagnostic" samples (that is, "C1" without epithelium) is to be expected. Despite National Institute for Clinical Excellence recommendations that pathologists should maintain FNAC skills, there will be an inevitable diminishing exposure to the "subtleties" of FNAC diagnosis, which will further reduce its usefulness.

Lets face it. Except for in a limited range of circumstances, FNAC has had its day. Pathologists, radiologists, surgeons, and oncologists all need a little bit more on the slide.

P J Carder

Department of Pathology, St James's University Hospital, Beckett Street, Leeds LS9 7TF, UK; paulinecarder@doctors.org.uk

J C Liston

Leeds-Wakefield Breast Screening Programme, Leeds, UK

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- 1 An audit of screen detected breast cancers for the year of Screening April 2001 to March 2002. NHS Breast Screening

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- 2 Zardawi IM. Pathologists like a bit on the slide. *J Clin Pathol* 2003;4:319.

Concurrent vitreous disease may produce abnormal vitreous humour biochemistry and toxicology

We read with interest the conclusions of Jones and Holmgren¹ that caution is needed when the results of postmortem vitreous humour ethanol concentrations are used to estimate the concentration of femoral venous blood, via the calculation of ethanol distribution ratios (vitreous humour/femoral venous blood).

The most common reason for vitreous removal at necropsy is for biochemical or toxicological analysis to assist in determining the cause and time of death.^{2,3} The possibility that the sampled vitreous humour may have intrinsic abnormalities related to eye disease does not appear to be considered in the extensive literature reporting biochemical and toxicological findings in the vitreous humour. This possibility, however remote, is not discussed by Jones and Holmgren in their paper.

Ophthalmic pathological examination indicates that the vitreous humour is involved in a wide range of eye diseases, and can be greatly abnormal by virtue of microscopic changes in protein and cellular content. In our recent paper on necropsy techniques in ophthalmic pathology,⁴ we recommend that vitreous humour is not sampled for biochemistry from eyes with a history of retinal detachment, surgical manipulation, or posterior chamber disease affecting the vitreous humour. Non-vitreous fluids encountered in some eyes include blood, subretinal proteinaceous fluid, inflammatory exudates, and artificial vitreous (for example silicone oil) used in some vitreoretinal surgery. Some eyes may be so calcified or even ossified that vitreous sampling may be impossible, and vitreous sampling should be aborted in any eye that is small, wrinkled, and hard, or when there is firm (or gritty) resistance to puncture.

We believe that only "normal" vitreous fluid should be sampled for biochemical analysis, because disease affecting the vitreous humour may greatly alter its biochemical and cellular composition and lead to misleading results. An ophthalmic history taken from the family, clinical notes, or information recorded by the family doctor or optician would probably alert the chemical pathologist to the presence of eye disease. Jones and Holmgren quote Sousa and colleagues (Sousa AP, Viera DN, Oliveira MMF, *et al.* Comparison between ethanol levels of vitreous humour on both eyes in the same individual. Proceedings of the XXXV Annual Meeting, The International Association of Forensic Toxicologists, Padova: Centre of Behavioural and Forensic Toxicology, University of Padova, 574–78) as reporting excellent agreement between the concentrations of ethanol in the left and the right eyes, and it seems likely that major discrepancies between the concentrations of chemicals in the different eyes might indicate that one eye is abnormal (or that one sample is contaminated—for example, with blood). Differences in colour or viscosity may indicate contamination, or the presence of silicone oil (which would float on water). Silicone oil may adversely affect the measurement of many analytes, and make the interpretation of those analytes more difficult. If its presence is suspected, careful examination of a drop of vitreous humour with a hand lens will reveal oily droplets of silicone. Centrifugation of the sample, which should be done in any case before biochemical or toxicological analyses, will separate vitreous fluid from an eye into which silicone has been injected in life into aqueous and oil phases. The aqueous phase can then be carefully separated and used for the analyses. However, the results should then be interpreted with even more caution than one normally has to use in the interpretation of such quantitative analyses. Despite this, less than optimal vitreous humour samples may be extremely useful for qualitative toxicological screening.

Although the likelihood of intrinsic ophthalmic disease is small, we believe that this should be considered in the interpretation of biochemical and toxicological findings from the vitreous humour. Awareness of this potential problem, attention to the colour and viscosity of vitreous humour samples, and the assay of samples from each eye will probably ensure that errors do not occur. If only one vitreous humour sample is available, and where the biochemical result is of particular forensic or medical importance, we recommend that an ophthalmic history should be obtained and enquiries made to exclude the presence of ophthalmic conditions that might affect the chemistry of the vitreous humour and the interpretation of the result.

M A Parsons

Ophthalmic Sciences Unit, Royal Hallamshire Hospital (Floor O), Glossop Road, Sheffield S10 2JF, UK; a.parsons@sheffield.ac.uk

R D Start

Department of Pathology, Chesterfield Royal Hospital, Calow, Chesterfield S44 5BL, UK

A R W Forrest

Medico-Legal Centre, University of Sheffield, Watery Street, Sheffield S3 7ES, UK

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