Correspondence

Macroscopic examination of prostatic specimens

Continuing the debate between Drs Furness, Harnden and Parkinson,^{1,2} the philosophy behind examining all of the resected material from a TURP in a man under 60 years of age and extensively sampling specimens from older patients is twofold:

(1) To detect a carcinoma confined to the prostate in a patient young enough to benefit from a radical prostatectomy or radical radiotherapy.

(2) To detect carcinoma in older patients, who are not candidates for radical therapy, so that we don't look silly when they present symptomatically from their carcinoma shortly after their TURP.

The majority (70%) of prostatic carcinomas arise in the peripheral zone. Prostatic hyperplasia affects the transitional zone and periurethral tissue. TUR specimens consist of tissue from the transitional zone, urethra, periurethral area, bladder neck, and anterior fibromuscular stroma. TUR specimens do not usually contain material from the central or peripheral zones.

If the objective is to detect operable prostate cancer in "young" symptomatic patients, I would suggest that the general practitioner should be instructed to take a blood sample for estimation of the free:bound serum PSA ratio. The urologist in receipt of the result when seeing the patient in clinic can then perform a rectal ultrasound scan and biopsy. If carcinoma is confirmed and computed tomography scanning suggests disease confined to the prostate, the patient can proceed to radical prostatectomy. If the PSA suggests carcinoma, but the biopsy specimens are negative, the pathologist can be alerted on the request form accompanying the TURP specimen and process all the material, as this may be one of the 30% of prostate carcinomas that arise within the transitional zone. If there is no suggestion of carcinoma, the specimen can be processed as for specimens from older patients.

If the objective is not to look silly when missing extensive prostate cancer in TUR specimens, I would suggest examining half of any specimen regardless of its size. It does not make sense to examine larger specimens less thoroughly than small specimens. If a TURP specimen contains three carcinomatous chips, examination of 55% of the specimen gives a 90% probability of detecting one carcinomatous chip.³ Having detected one carcinomatous chip, the rest of the specimen can be processed, if this is going to generate any information that will alter the patient's management.

Before drawing up a sampling protocol it is necessary to know the treatment protocols of your local surgeon and oncologist. If they are seriously looking for T1 and T2 carcinomas in symptomatic patients, it would seem more profitable to "screen" with PSA measurements and biopsy than for pathologists to pore endlessly over trays of slides from TURPs which contain fibromuscular stroma, bladder neck tissue and periurethral tissue.

C E FULLER
Consultant Pathologist,
Salisbury District Hospital,
Salisbury, Wiltshire SP2 8BJ

- 1 Harnden P, Parkinson MC. ACP Broadsheet No. 146. Macroscopic examination of prostatic specimens. *J Clin Pathol* 1995;48:693-700.
- 2 Furness P. Macroscopic examination of prostatic specimens (letter). *J Clin Pathol* 1996;49:187-8.
- 3 Moore GH, Lawse B, Murphy J. Diagnosis of adenocarcinoma in transurethral resectates of the prostate gland. *Am J Pathol* 1986;10:165-9.

Drs Harnden and Parkinson comment:

We thank Dr Fuller for her interest in our article. We were purposefully not didactic in discussing the handling of TURP specimens. An approach was suggested but many justifiable alternatives exist. It is important that sampling policy is defined and agreed between pathologists and urologists, taking into account local practice.

Dr Fuller states that TUR specimens do not usually sample the central or peripheral zone, but in our experience this is not always the case. It is not uncommon to see adipose tissue and seminal vesicles in these specimens, which must imply that the peripheral zone has been sampled. An asymmetrical cavity involving the peripheral zone post-TURP is seen on transrectal ultrasound, in radical specimens and at postmortem examination. Whilst clearly this technique will preferentially sample the periurethral areas, we suspect that the actual areas sampled will depend on the size of the prostate, patient tolerance and the surgical technique adopted. Some surgeons may simply remove enough tissue to relieve obstruction, whereas others may resect as much as possible to prevent "re-growth". In one of our practices (PH), the smaller specimens generally come from smaller prostates and fragments of the peripheral zone are often present, hence the policy of processing all the tissue.

The ratio of alpha-1-antichymotrypsin bound PSA to free PSA does seem to offer promise in the clearer distinction between patients with carcinoma versus hyperplasia,¹ but we await the prospective evaluation of this ratio. It has been suggested that the free:total PSA ratio may be used to detect carcinomas in the PSA range below 4.0 ng/ml but the best threshold remains to be established.² Therefore reliance on this test to dictate complete processing of TUR specimens in men under 60 years of age may not be justified at present.

We note that Dr Fuller agrees with our view that sampling protocols critically depend on local practice and treatment policies. There is a lively debate concerning the most "efficient" or cost effective method of detecting and treating prostatic carcinoma and we await with interest the results of ongoing trials.

- 1 Oesterling JE, Jacobsen SJ, Klee GG, Patterson K, Pironen T, Abrahamson P-A, et al. Free, complexed and total serum prostate specific antigen: the establishment of appropriate reference ranges for their concentrations and ratios. *J Urol* 1995;154:1090-5.
- 2 Bangma CH, Kranse R, Blijenberg BG, Schroder FH. The value of screening tests in the detection of prostate cancer. Part II: Retrospective analysis of free/total prostate-specific analysis ratio, age-specific reference ranges, and PSA density. *Urology* 1995;46:779-84.

Assessment of renal biopsy specimens

We read with interest the article by Furness and Boyd¹ which considered the assessment of renal biopsy specimens by electron microscopy and immunocytochemistry. They at-

tempted to define current practice in reporting renal biopsy specimens for the investigation of renal disease by circulating a questionnaire to 58 participating laboratories in the UK National Renal Pathology External Quality Assessment Scheme.

We were surprised to read that two participating laboratories never requested electron microscopy in the investigation of renal biopsy specimens and would join with the authors in not condoning this practice. We feel it is important to have tissue for electron microscopy in all cases and in our own series² we considered electron microscopy helpful in establishing a diagnosis in 75% of cases assessed. Ultrastructural findings were particularly useful in the investigation of the nephrotic syndrome and in establishing the common diagnosis of minimal change disease. We would, however, support the selective use of electron microscopy in some cases as we found that it made no further contribution to light and immunofluorescence microscopic evaluation in most cases of end stage or tubulointerstitial renal disease.

We would also support the continued use of immunofluorescence in preference to immunoperoxidase in assessing renal biopsy specimens. We find fluorescence more reliable and consistent than peroxidase and having assessed them in parallel for some time we only use immunoperoxidase now in cases where fluorescence is unsuccessful due to lack of glomeruli.

J M PEARSON
L J MCWILLIAM
J D COYNE
A CURRY

Department of Pathological Sciences,
South Manchester University
Hospitals NHS Trust,
Withington Hospital,
Nell Lane,
Manchester M20 8LR

- 1 Furness PN, Boyd S. Electron microscopy and immunocytochemistry in the assessment of renal biopsy specimens: actual and optimal practice. *J Clin Pathol* 1996;49:233-7.
- 2 Pearson JM, McWilliam LJ, Coyne JD, Curry A. Value of electron microscopy in diagnosis of renal disease. *J Clin Pathol* 1994;47:126-8.

Assessment of renal biopsy specimens

We would like to make a few small comments on the paper by Furness and Boyd.¹ We recently presented our experience in Preston with both immunofluorescence and immunoperoxidase techniques on renal biopsy specimens.² Our results supported immunoperoxidase as the routine method for detection of immune complexes, with the caveat that immunofluorescence should also be used for cases of acute renal failure as demonstration of linear IgG by immunoperoxidase in our hands is unreliable. Interestingly, this procedure also fulfills the suggestion made by Furness and Boyd at the end of their paper that both techniques should be used occasionally for quality control purposes.

One useful tip for better immunoperoxidase results is to wash the fresh renal biopsy core immediately in buffered saline for about one hour, followed by fixation in formalin. This greatly reduces the plasma within capillary loops and eradicates the problems illustrated in fig 1 of the paper by Furness and Boyd. Also, during the peroxidase method, two washes at each of the Tris buffer