Extraprostatic extension

Reason/Evidentiary Support:

Extraprostatic extension (EPE), defined as the extension of tumour beyond the confines of the gland into the periprostatic soft tissue, is a required (core) element of the ICCR dataset as it is a significant predictor of recurrence in node negative patients.\textsuperscript{1-2} EPE replaced earlier, less clearly defined terms, such capsular penetration, perforation or invasion, following a 1996 Consensus Conference.\textsuperscript{3} The assessment of EPE can be difficult, as the prostate is not surrounded by a discrete, well defined fibrous capsule,\textsuperscript{4} but rather of a band of concentrically placed fibromuscular tissue that is an inseparable component of the prostatic stroma.\textsuperscript{5} EPE can be recognised in several different settings: (1) the presence of neoplastic glands abutting on or within periprostatic fat or beyond the adjacent fat plane in situations where no fat is present in the immediate area of interest (most useful at the lateral, posterolateral and posterior aspects of the prostate) (See Fig. 2A below); (2) neoplastic glands surrounding nerves in the neurovascular bundle (posterolaterally); (3) the presence of a nodular extension of tumour bulging beyond the periphery of the prostate or beyond the compressed fibromuscular prostatic stroma at the outer edge of the gland—as there is often a desmoplastic reaction in the vicinity of EPE and the neoplastic extraprostatic glands may then be seen in fibrous tissue, rather than in fat.\textsuperscript{5-6} Extraprostatic tumour in fibrous tissue is best identified initially at low power magnification, but should be then confirmed by high power magnification examination verifying that the neoplastic glands are in stroma that is fibrous and beyond the condensed smooth muscle of the prostate (See Fig. 2B below).\textsuperscript{2,6} The presence of cancer within fibrous stroma that is in the same tissue plane as adipose tissue on either side is a helpful indicator of EPE.

The boundary of the prostate gland cannot be readily identified anteriorly and at the base or apex of the prostate. Moreover, at the apex benign glands are frequently admixed with skeletal muscle and the presence of neoplastic glands within skeletal muscle does not necessarily constitute EPE. Hence, in this region it is more important to accurately assess the completeness of surgical resection. Similarly, the assessment of EPE at the anterior aspect of the prostate may be difficult as the prostatic stroma blends in with extraprostatic fibromuscular tissue, but in this location EPE can be diagnosed (in the manner described in the previous paragraph) when the carcinoma appears to bulge beyond the boundary of the normal prostatic glandular tissue.\textsuperscript{6-7}

Figure 2A&B. Extraprostatic extension (EPE). A. Carcinoma infiltrating extraprostatic adipose and fibrous tissue. B. A nodular extension of tumour bulging beyond the normal contour of the prostate gland.

Location of EPE

Since it was considered a generic element forming part of a comprehensive pathology report, the location of any extraprostatic extension present has been included in the recommended (non-core) dataset, despite the lack of published evidence for its influence on staging, prognosis or treatment.\textsuperscript{6} It provides potentially useful information to the urologist, enabling correlation with clinical findings and any pre-operative imaging studies performed.
References:


