Lymphovascular invasion (Core)

Lymphovascular invasion (LVI) does not affect FIGO or TNM staging (for example if there is LVI in tissues outside the cervix but the tumour itself is confined to the cervix, this is still FIGO stage I) but should be clearly documented in the pathology report. The significance of LVI in cervical carcinoma has been debated for predicting overall survival (OS), disease free interval (DFI), recurrence free survival (RFS) and regional lymph node metastasis for decades. Although studies conflict, there is general agreement that LVI is an independent predictor of adverse outcome.[1-11] Early studies indicated that LVI was an independent predictor of DFI with one study reporting a 1.7 times higher rate of recurrence in patients with LVI compared to those without LVI in low-stage cervical carcinoma.[3] This has been confirmed in later studies, particularly in low-stage (FIGO stage IB) cervical carcinoma.[5] The significance of LVI in superficially invasive squamous cell carcinoma (SISCCA) is unclear, likely due to the rarity of adverse outcomes including lymph node metastasis in SISCCA. Studies have shown that LVI does not predict lymph node metastasis in cases of SISCCA with a depth of invasion of $\leq$3 mm.[12-15]

Lack of standardised criteria and marked variability in recognition of LVI have undoubtedly lead to conflicting outcomes in previous studies. Fixation retraction around tumour cell groups is a well-recognized artifact which mimics LVI. Features that may help in the recognition of LVI include a tumour nest within a space associated with other vascular structures, the presence of an endothelial lining, adherence of the tumour cell group to the side of the space, the contour of the intravascular component matching the contour of the vessel and the presence of adherent fibrin. Immunohistochemical demonstration of an endothelial cell lining may assist but is not performed routinely. D2-40 (recognizing lymphatic endothelium) and CD31 and CD34 (recognizing both lymphatic and blood vascular endothelium) may be useful in confirming the presence of LVI.[16-19]

In rare situations when specimens are severely traumatised or diathermied, LVI may be suspected but it may not be possible to reliably determine whether or not LVI is present. In these circumstances 'indeterminate' should be recorded in the reporting guide, although it is expected this will be a rare response.

Most studies which have examined the significance of LVI in cervical carcinoma have not distinguished between lymphatic and blood vessel invasion and there is little evidence to support separating out the type of invasion, especially since this is not reliable in haematoxylin and eosin stained sections. Occasional studies have found blood vessel invasion to have a worse prognosis than lymphatic invasion and to be a predictor of ovarian involvement.[20] However, there is insufficient evidence to warrant inclusion of blood vessel and lymphatic invasion as separate data items.

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