Mitotic count and histological tumour grade (Core)

It is recommended that reporting pathologists know their field diameter when calculating mitotic count. The literature commonly refers to mitotic count per 50 high power fields (HPFs) without always defining the diameter of the HPFs. The estimate of 50 HPFs equating to 10 mm^2 is commonly used as this reflects many microscopes in widespread use.

Architectural grading of adrenal cortical carcinoma is not feasible. Rather, tumour grade has been based on tumour cell proliferation, initially based on mitotic count. Mitotic count is essential for the diagnostic and prognostic evaluation of adrenal cortical tumours and should be performed and reported whenever possible. Mitotic count is also a component of all multifactorial scoring grading systems (see **MULTIFACTORIAL SCORING SYSTEMS**). One of the initial and most established mitotic grading schemes consists of two classes; low grade and high grade, where low grade carcinomas contain ≤20 mitoses/50 HPF and high grade carcinomas contain >20 mitoses/50 HPF.[1]

Assessment of mitotic count is prone to reproducibility issues,[2] largely due to variation in interpretation amongst pathologists of what constitutes a mitotic figure and variation between microscopes. To reduce this variation, only unequivocal mitotic figures should be counted. Pyknotic nuclei from apoptotic bodies should not be counted. In addition, the area of HPFs varies amongst different microscope brands. To reduce this variation, pathologists should determine the number of HPFs that represents 10 mm^2 and adjust the number of fields counted accordingly.

References

1 Weiss LM, Medeiros LJ and Vickery AL, Jr. (1989). Pathologic features of prognostic significance in adrenocortical carcinoma. *Am J Surg Pathol* 13(3):202-206.

2 Yigit N, Gunal A, Kucukodaci Z, Karslioglu Y, Onguru O and Ozcan A (2013). Are we counting mitoses correctly? *Ann Diagn Pathol* 17(6):536-539.