Estimating the risk of bowel cancer

August 19 2013

Polyps in the mucosa of the colon are a common finding during screening colonoscopies. Some sub-groups of polyps are classed as precursors of bowel cancer. Until now, it has not been possible to precisely estimate the risk of these polyps developing into bowel cancer. Thanks to a cooperation project with the University of Heidelberg, the working group led by Peter Birner from the Clinical Institute of Pathology at the MedUni Vienna has now demonstrated that the risk can be assessed very accurately with the help of a new antibody.

Adenomas / polyps with a serrated appearance have hitherto been regarded as precursors of bowel cancer, whereas hyperplastic – at first

glance benign – polyps were considered harmless incidental findings. Serrated adenomas, like the colon carcinomas that develop from them, are characterised by mutations in the BRAF gene. Says Birner: "We now know, however, that there are actually some hyperplastic polyps that have these mutations too, and this therefore makes them potential precursors of cancer."

Using standard microscopy techniques, it is usually very difficult to distinguish between serrated adenomas and hyperplastic polyps, with the range of diagnostic criteria being very broad.

Using the new antibodies developed in Heidelberg, which react specifically to BRAF gene mutations, the working group led by Peter Birner has now demonstrated a "straightforward and precise classification system for risk assessment" of both types of colonic polyp in routine histological investigations. The results of the study have now been published in the highly respected journal *Modern Pathology*.

Lead author Ildiko Mesteri explains: "For the first time, we are no longer dependent on uncertain histological criteria for these colonic polyps, and instead we are able to look directly at the section of tissue and see whether a hyperplastic polyp is harmless or whether it has the potential to develop into a malignant tissue change."

It is also predicted, says study leader Birner, "that the new method we have described will also lead to a corresponding adaptation of the classification of serrated lesions in the colon." The classification system used to date is based solely on light microscopy or morphological criteria, however the BRAF gene mutation status should now also be factored in.

More information: Mesteri, I. et al. Improved molecular classification of serrated lesions of the colon by immunohistochemical detection of

BRAF V600E, *Modern Pathology*, 26 July 2013. DOI: 10.1038/modpathol.2013.126