Distinction between intestinal metaplasia in the cardia and in Barrett's esophagus: the role of histology and immunohistochemistry.

Abstract:
Intestinal metaplasia in Barrett's esophagus (BIM) is a precancerous condition, whereas the carcinogenic potential of intestinal metaplasia of the cardia (CIM) is uncertain. Although clinically important, histological distinction between both conditions by endoscopic biopsies is considered problematic. In the present study, 4-mm samples of BIM (n=31) and CIM (n=9) were selected from esophagectomy specimens that had been resected for esophageal cancer. Slides were coded and stained with hematoxylin and eosin (H&E), Alcian blue-periodic acid-Schiff (PAS), cytokeratins (CK) 7 and 20, and CD10, which labels the intestinal brush border. The predictive value of these stains for the recognition of BIM and CIM was evaluated independently by two senior pathologists. With the use of H&E-stained; slides exclusively, BIM samples were categorized correctly in 93.5% and 83.9% of cases (pathologists 1 and 2, respectively), and CIM samples, in 100% and 88.9% of cases. Alcian blue-PAS-positive goblet cells were identified by both investigators in all BIM and CIM samples. BIM-typical CK 7 and 20 immunostaining pattern was identified in 90.3%/83.9% of BIM but only in 11.1%/11.1% of CIM. CD10-positive brush border was present in 32.3%/25.8% of BIM and in 88.9%/88.9% of CIM. When HE-stained slides and immunohistologically stained slides were used together for tissue
recognition, BIM were categorized correctly in 90.3%/80.6% of cases, and CIM, in 88.9%/88.9% of cases. In conclusion, BIM and CIM can be usually distinguished on the basis of HE sections. CK 7 and CK 20 expression pattern analysis discriminates correctly between BIM and CIM in the majority of cases. CD10-positive intestinal brush border is present in the majority of CIM but only in a minority of BIM. However, immunohistochemical investigations could not improve the diagnostic accuracy of HE histology alone.

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