
4.4. Properties of the neosquamous epithelium after radiofrequency ablation of Barrett's esophagus containing neoplasia

RE Pouw, JJ Gondrie, AM Rygiel, CM.Sondermeijer, FJ ten Kate, RO Odze, M Vieth, KK Krishnadath, JJ Bergman

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Objectives: Endoscopic radiofrequency ablation (RFA) eradicates intestinal metaplasia and intraepithelial neoplasia associated with Barrett's esophagus (BE), restoring an endoscopically normal neosquamous epithelium (NSE). We evaluated the post-RFA NSE for genetic abnormalities and buried glandular mucosa.

Methods: Eligible patients underwent RFA for BE containing early cancer and/or high-grade intraepithelial neoplasia with subsequent complete histological reversion to normal NSE. At baseline, the BE was sampled by brush cytology and biopsies. At least 2 months after RFA, the NSE was sampled by brush cytology, keyhole biopsies, and endoscopic resection. The untreated squamous epithelium was biopsied as a control. The baseline BE and post-RFA NSE were evaluated for immunohistochemical expression of Ki-67 and p53, and genetic abnormalities (DNA-fluorescent *in situ* hybridization: chromosome 1 and 9, p16 and p53). In addition, biopsy depth was compared for biopsies from the NSE and untreated squamous epithelium. The presence of buried glandular mucosa in NSE was assessed with primary and keyhole biopsy, and endoscopic resection.

Results: All pretreatment specimens from all 22 patients showed abnormalities on immunohistochemical staining and fluorescent *in situ* hybridization, whereas all post-RFA NSE specimens were normal. All the post-RFA biopsies from the NSE contained full epithelia, whereas 37% contained lamina propria, a finding no different from biopsies from untreated squamous epithelium (36% lamina propria). Deeper keyhole biopsies contained lamina propria in 51%. All endoscopic resection specimens contained submucosa, whereas no biopsy or endoscopic resection specimen contained buried glandular mucosa.

Conclusions: Rigorous evaluation of the post-RFA NSE in patients who, at baseline, had BE containing early cancer high-grade intraepithelial neoplasia, showed neither persistent genetic abnormalities nor buried glandular mucosa.