Cold snaring biopsies to increase screening efficacy during endoscopic surveillance of patients at high risk of diffuse gastric cancer

Diffuse gastric cancer (DGC) is a poorly differentiated adenocarcinoma of the stomach characterized by independent “signet-ring” cells that invade the gastric wall with mainly submucosal infiltration resulting in delayed diagnosis [1]. Mutations in the CDH1 gene, encoding E-cadherin, have been identified in families with multiple cases of gastric cancer, with a 50%–80% increased risk of DGC in carriers [2]. In cases with a proven constitutional CDH1 mutation, guidelines recommend prophylactic total gastrectomy between the ages of 20 and 30 years, or endoscopic surveillance if surgery is refused or postponed [3].

Given the multiple possible localizations and frequency of small carcinomatous foci, a minimum of 30 biopsies divided into six zones using standard forceps is recommended [3,4]. However, multiple sampling of the gastric mucosa using conventional biopsy forceps still represents a limited surface area that can be analyzed. Increasing the size of the biopsy sample using cold snaring may increase diagnostic sensitivity.

We report here the case of a 33-year-old patient with regular endoscopic surveillance due to familial predisposition for CDH1 mutation-related gastric adenocarcinoma. To increase the size of the tissue sampled for histological analysis after identification of a CDH1 mutation in a familial context, gastroscopy and endoscopic ultrasound were performed, with no findings of macroscopic abnormalities, parietal thickening, or suspicious adenopathy (Video 1). To increase the size of the tissue sampled for histological analysis, 24 cold snaring biopsies (6 upper fundus, 6 body, 6 lower body, and 6 antrum) were performed. Pathological analysis revealed a single focal area of independent cell adenocarcinoma in the chorion (pTis) seen only in one sample. A gastrectomy was then performed, with a millimetric focal adenocarcinoma with signet-ring cells on the surgical specimens.

Histopathological analysis was improved, with the average size of biopsy fragments being significantly larger with cold snaring than with standard forceps, and with a reduction in crush artifacts (Fig. 1).

In conclusion, this case suggests that large samples obtained with cold snaring could potentially decrease the focal adenocarcinoma miss rate in CDH1 mutation carriers.

Video 1 Gastric sampling using random cold snaring of the whole stomach with visualization of the corresponding resected area.

Fig. 1 Histopathological characterization (hematoxylin and eosin) of specimens from patients followed endoscopically due to familial predisposition for CDH1 mutation-related gastric adenocarcinoma. a Cold snaring biopsy. b Standard forceps biopsy. c The mean size of biopsy fragment was significantly increased with cold snaring (patient A) compared with standard forceps (patients B and C), based on the examination of three patients with 18, 30, and 28 fragments biopsied, respectively (one-way analysis of variance with Dunnett’s multiple comparisons, ****P < 0.0001; GraphPad Prism v10.0.0). d Cold snaring sample: the crushing artifacts often observed with standard forceps were not seen in the cold snaring biopsies (×20 magnification; e ×40 magnification).
Conflict of Interest

The authors declare that they have no conflict of interest.

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References


Bibliography

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