

# Surveillance of duodenal adenomas in familial adenomatous polyposis patients: medical objectives and technical requirements

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Patients with classical familial adenomatous polyposis (FAP) present with hundreds of colorectal adenomas requiring (sub)total colectomy at around age 20 years, and frequently duodenal adenomas. Duodenal polyposis is a progressive disease. The burden of duodenal adenomas evolves more slowly as compared to colorectal adenomas, but increases with age to the highest stage of duodenal polyposis, stage IV according to the Spigelman's classification, with an expected cumulative frequency of 50% at age 70 years [1]. Although the surveillance recommendations are relatively clear and homogeneous in the different countries, with the first duodenal surveillance between 20 and 25 years, the modalities of treatment are much less well defined.

Duodenal adenomas either ampullary or peri-ampullary present usually as flat, whitish, small lesions and slightly elevated as compared to the surrounding mucosa. There is a majority of small (<5 mm) lesions, and some larger lesions depending on the severity of the duodenal polyposis. Endoscopists have to focus on the detection and characterization of larger (>1 cm) lesions as these have been shown to contain foci of high-grade dysplasia in up to 50% of cases and have been associated with a risk of cancer development.[2, 3] The role of the endoscopist during duodenal surveillance is to 1) detect any existing cancer (complete evaluation of the duodenum and firsts jejunal loops); and 2) evaluate the burden of duodenal adenomas in order to estimate the risk of advanced neoplastic evolution and the adapted surveillance interval. The only available criterion nowadays is the Spigelman's classification, which includes the number (<10, 10–20, >20), the size (<5 mm, 5–10 mm, >10 mm) and the histology (low- or high-grade dysplasia) of duodenal adenomas. Optimal endoscopic examination of the duodenum, with lateral viewing and axial viewing at the same time, using a long endoscope to visualize the proximal jejunum and indigo-carmin

to improve visualization of the mucosa, although relatively consensual for expert centers, has not really been validated through prospective studies. At least, indigo-carmin dye has been shown to increase the number of adenomas detected in two series and to increase the Spigelman's score. [4, 5]

The question addressed in the paper by Pittayanon and colleagues [6] is that of the diagnostic value of new imaging methods (narrow band imaging and confocal microscopy) as regards the identification of duodenal adenomas. The main clinical question in this disease should be: What are the limitations of present surveillance modalities, what is the reference method of examination, and do we need new methods to improve surveillance? The main limitation of the usual surveillance of duodenal polyposis would be to overlook major neoplastic area that would evolve into cancer during the recommended surveillance interval (2–3 years). Some old retrospective series suggest such a limitation, but these are mainly based on a largely obsolete methodology (axial viewing, old endoscopes, no sedation) [3]. In contrast, recent prospective series, even in patients with severe duodenal polyposis, do not suggest a high frequency of overlooked precancerous lesions [7]. Finally, the recent progress of usual endoscopes into high-definition endoscopy will probably replace, based on our experience, even indigo-carmin dye, given the excellent visualization of even tiny adenomas. And this evolution is still underway, given the new generation of endoscopes that are under development or research. Thus, there will probably be no clinical need for new technologies to identify more duodenal adenomas in FAP patients.

On the other hand, is it important to differentiate duodenal adenomas from other duodenal polyps, as proposed by Pittayanon and colleagues? There is a real concern regarding the duodenal bulb as some lesions can mimic duodenal adenomas in

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this area, including gastric metaplasia and Brunner glands. There is also a question regarding the identification of adenomatous tissue on the duodenal papilla, especially because biopsies, although with a very low frequency, can induce pancreatitis. In the latter case, however, it would be important to determine whether microscopic (macroscopically invisible) ampullary adenoma represent a danger for patients even on a long-term basis, given the very slow evolution of duodenal adenomas [8]. In our experience, we usually leave in place small, flat, visible ampullary adenomas for years. Regarding the numerous small duodenal adenomas observed throughout the proximal and distal duodenum of patients with FAP, there is no recommendation to biopsy and thus confirm the diagnosis of adenomas, as there is almost no differential diagnosis in this area. Practically, we never take numerous biopsies of these lesions, but simply count the number of adenomas to get a satisfying evaluation of the Spigelman's score. For these reasons, identifying exactly the nature of small whitish lesions in the proximal and distal duodenum is probably of low clinical relevance. Moreover, if this was of any clinical relevance, any new diagnostic method should be compared with simple, white-light imaging, and probably to the reference method, i.e. indigo carmine dye.

Finally, what is important for patients with FAP regarding duodenal examination? Three measures: 1) beginning relatively early surveillance, around age 20 years, as we observe severe polyposis in a low number of young patients; 2) following recommended modalities of examination, including anesthesia, lateral and axial viewing, examination of the proximal jejunum to identify all possible areas of advanced neoplasia; and 3) being very cautious with large (> 1 cm) adenomas, which should be removed because they represent a significant risk of high-grade dysplasia or cancer. We should keep in mind that this evaluation needs to be done at

regular intervals, is time consuming, and should remain relatively simple so that gastroenterologists can keep on doing an excellent and regular evaluation of this significant risk of duodeno-jejunal cancer in patients with FAP.

**Competing interests:** None

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