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Case Report

Appendiceal hyperplastic polyp: Case report

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ABSTRACT

Serrated lesions morphologically analogous to those seen in the colorectum are found in the appendix. Appendiceal hyperplastic polyps are very rare, and their true incidence is unknown. A 52-year-old male previously healthy patient with no particular past medical history, presented with a 24-h history of abdominal pain localized to the right lower quadrant. On physical examination, he was tender to palpation in the lower right quadrant. As acute appendicitis was highly suspected, laparoscopic appendectomy was performed. Histological examination of the surgical specimen showed acute inflammation of the appendiceal wall. The crypts were focally elongated but relatively straight with serrations that were visible mainly near the luminal end of the crypts. Columnar cells with or without apical mucous vacuoles alternated with large goblet cells. The crypt bases were not serrated and were lined by regular cells with small nuclei. The muscularis mucosa was intact. The postoperative course was uneventful, and the patient was discharged on postoperative day 1. The final pathological diagnosis was acute appendicitis associated with hyperplastic polyp. Hyperplastic lesions of the appendix are often incidental findings although they can be associated with acute appendicitis. They are significantly associated with adenocarcinoma elsewhere in the large intestine and the finding of mucosal hyperplasia in an appendectomy is an indication for further investigations to exclude colorectal neoplasia.

KEY WORDS: Appendix, appendicitis, hyperplastic polyp, histopathology

INTRODUCTION

Appendiceal serrated polyps often morphologically resemble their colorectal counterparts, and most pathologists employ colorectal diagnostic terminology when evaluating appendiceal serrated lesions. Appendiceal hyperplastic polyps are very rare, and their true incidence is unknown [1-3]. In this paper, the authors report a new case of appendiceal hyperplastic polyp that was incidentally discovered. Their aim was to recall the clinicopathological features of this rare lesion.

CASE REPROT

A 52-year-old male previously healthy patient with no particular medical history, presented with sudden onset of severe abdominal pain of 24 h' duration, beginning centrally then moving to the right iliac fossa and associated with several episodes of vomiting. He was tachycardic, apyrexial and abdominal examination revealed tenderness in the right iliac fossa. A diagnosis of acute appendicitis was made, and the patient underwent open appendectomy. On physical examination, he was noted to have a mildly distended abdomen with normal to slightly hypoactive bowel sounds. No scars were noted, and he was tender to palpation in the lower right quadrant. As acute appendicitis was highly suspected, laparoscopic appendectomy was performed. Histological examination of the surgical specimen showed acute inflammation of the appendiceal wall [Figures 1-3]. The crypts were focally elongated but relatively straight with serrations that were visible mainly near the luminal end of the crypts. Columnar cells with or without apical mucous vacuoles alternated with large goblet cells. The crypt bases were not serrated and were lined by regular cells with small nuclei [Figures 2 and 3]. The muscularis mucosa was intact. The postoperative course was uneventful, and the patient was discharged on postoperative day 1. The final pathological diagnosis was acute appendicitis associated with hyperplastic polyp.

DISCUSSION

A number of serrated polyps are now recognized, including hyperplastic polyp (with micro-vesicular and goblet cell variants), sessile serrated adenoma (SSA) (also known as sessile serrated polyp and serrated polyp with abnormal proliferation), and traditional serrated adenoma (TSA) [1,2]. Much less is known about morphologically similar serrated lesions of the appendix, described under various overlapping terms, including mucosal metaplasia, mucosal hyperplasia (focal or diffuse), hyperplastic (metaplastic) polyp, mixed adenomatous/hyperplastic lesion, and, more recently, serrated adenoma and SSA [1,2]. Hyperplastic polyps rarely occur in the appendix and are similar to hyperplastic polyps elsewhere in the colon [3]. They are small, localized areas in which the glands are elongated and composed of mucinous epithelium that contains a mixture of goblet cells interspersed among mucinous cells with smaller mucin vacuoles [3]. The gland lumens appear serrated, predominantly toward the surface of the lesion. In most cases, the surface of

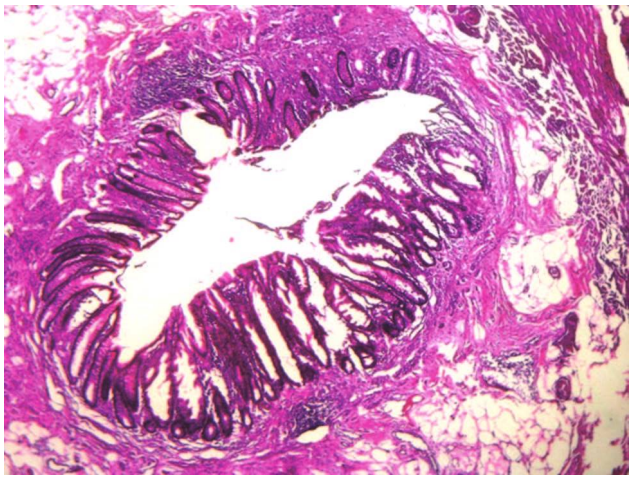

Figure 1: Histological section of the appendix revealing focal serrated glands involving approximately 50% of the circumference (H and E, ×40)

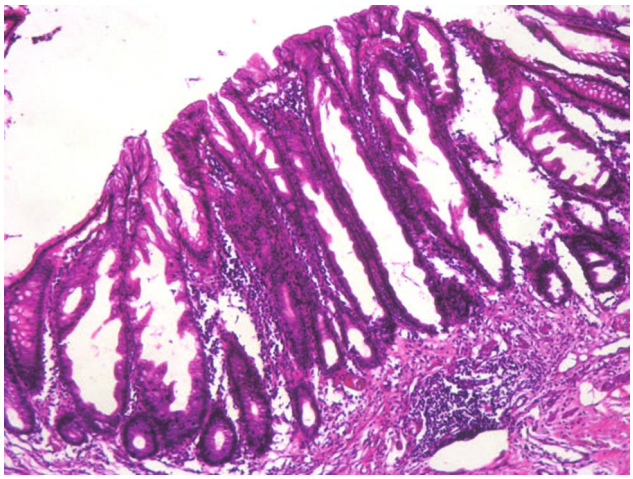

Figure 2: The glands of the appendiceal mucosa were elongated and were lined by a mucinous epithelium devoid of dysplasia. The gland lumens appeared serrated (H and E, ×200)

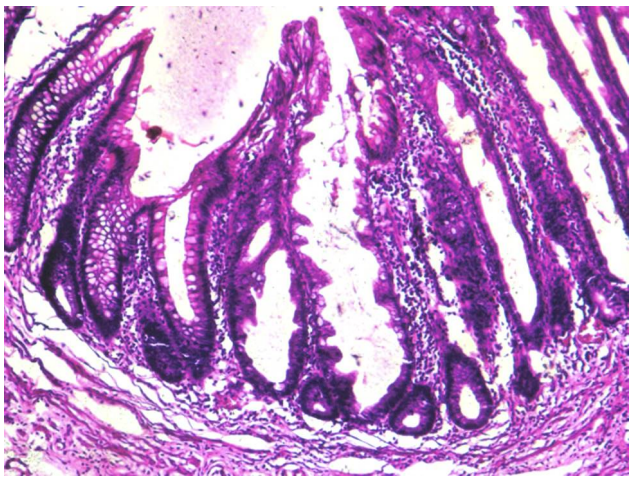

Figure 3: The glands of the appendiceal mucosa showed sawtooth luminal unfolding with no dysplasia (H and E, ×400)

the epithelial proliferation is essentially flat, with at most small projections rather than true villi [3,4]. Hyperplastic polyps of the appendix are frequently incidental findings but may occur in patients with symptoms of appendicitis as it was the case in our patient. Diffuse mucosal hyperplasia uncommonly affects the appendix and is usually an incidental finding [3,4]. The histology is similar to hyperplastic polyp, but a large segment of the appendix or even the entire circumference is involved [5]. The principal differential diagnostic consideration is a low-grade appendiceal mucinous neoplasm, particularly since some villous mucinous neoplasms show minimal cytologic atypia and lesions composed of a mixture of hyperplastic and adenomatous areas are relatively common in the appendix [3-5]. Some authors view most cases of diffuse mucosal hyperplasia with skepticism, and recommend that the lesion be considered neoplastic or at least a mixed hyperplastic/adenomatous lesion if there is any villous architecture or cytologic atypia [5,6]. Recently, the recognition that large right-sided colonic lesions diagnosed as hyperplastic polyps may be associated with malignant transformation via the DNA mismatch repair pathway of colorectal carcinogenesis has led to increased scrutiny of hyperplastic polyps of the colon. Torlakovic *et al*. classified hyperplastic polyps into several morphologic categories and found that one type, designated by them 'serrated polyp with abnormal proliferation,' is associated with loss of expression of the DNA mismatch repair proteins hMLH1 and hMSH2 [7]. This form of serrated polyp is distinguished from typical hyperplastic polyp by its larger size, greater architectural distortion, prominent serration of the crypts, dilatation of crypts (particularly at the base), fewer neuroendocrine cells, more numerous dystrophic goblet cells, more mitotic figures and nuclear atypia, and more abundant luminal mucin [7]. Diffuse mucosal hyperplasia often has areas with these features and some cases may, in fact, represent the appendiceal counterpart of serrated polyps with abnormal proliferation; however, molecular evidence to support this hypothesis lacks [8]. In one study, the authors analyzed 132 appendiceal lesions for mutations in the RAS/RAF/mitogen-activated protein kinase pathway in an attempt to determine the frequency of these mutations in appendiceal serrated lesions and correlate the histopathologic features with molecular alterations [8]. The study group of appendiceal serrated lesions (n = 46) was divided into a non-dysplastic group (28/46, subclassified as 7 hyperplastic polyps and 21 SSA/polyps (SSA/P) using colorectal diagnostic terminology) and dysplastic group (18/46, subclassified as 9 SSA/Ps with cytological dysplasia, 7 TSA, and 2 adenomas with prominent serrations). Appendiceal non-serrated dysplastic lesions (n =86) comprised the control group. Of the 123 lesions analyzed, KRAS mutations were identified in 64 (52%) appendiceal lesions [8]. No significant difference in the presence of KRAS mutations were identified between serrated non-dysplastic lesions (13/25, 52%), serrated dysplastic lesions (7/14, 50%) and the control group of non-serrated dysplastic lesions (44/84, 52%). Importantly, KRAS mutations were identified in lesions that were histologically identical to colorectal hyperplastic polyps (2/6, 33%), SSA/Ps (11/19, 58%), and SSA/Ps with cytological dysplasia (4/7, 57%). Of the 126 lesions tested, BRAF V600E mutations were

identified in only 5 (4%) appendiceal lesions. Their results indicate that serrated lesions of the appendix often harbor KRAS mutations rather than BRAF mutations and suggest that the serrated pathway in the appendix is likely different than in the colon and rectum [8].

In summary, hyperplastic polyps of the appendix are often incidental findings, although they can be associated with acute appendicitis. They are significantly associated with adenocarcinoma elsewhere in the large intestine and the finding of mucosal hyperplasia in an appendectomy is an indication for further investigations to exclude colorectal neoplasia. The authors emphasize and strongly recommend that all appendectomy specimens must be examined histopathologically, so as to detect unexpected findings that deserve further postoperative treatment or closed follow-up.

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